The Effect of Parental Internal Migration on Children's Education: Evidence from Indonesia

(Kesan Migrasi Dalaman Ibu Bapa terhadap Pendidikan Anak: Bukti dari Indonesia)

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ABSTRACT

This study endeavors to investigate the effect of parental internal migration on children's education. We focus on the children migrant parents, whether one or both parents who have migrated, and whether the children are co-migrants themselves or were left behind. Using cross section data of 372 individuals from Indonesian Family Live Survey (2014), the study employs the Two-Stage Least Squares method. The findings show that when the parent(s) migrate, the children's school attendance is adversely affected. Further, migration causes poor school attendance in older children aged 13-14 years as compared to younger ones in the 6-12 years age category. In addition, children with migrant mothers tend to attend school more frequently than those with migrant fathers. Children left behind and cared for by grandparents were more frequently absent from school compared to children cared by their own fathers. Finally, mothers' level of education positively improves children's school attendance.

Keywords: Migration; internal migration; migrant children; education; schooling; school attendance
JEL: J11, J61, R23, I21, I28, A20

ABSTRAK

Kajian ini berusaha untuk menyiasat kesan migrasi dalaman ibu bapa terhadap pendidikan anak-anak. Kami memfokuskan kepada kanak-kanak yang mempunyai ibu bapa yang berhijrah, sama ada salah seorang atau kedua-dua ibu bapa yang telah berhijrah, dan sama ada anak-anak itu sendiri ikut berhijrah atau ditinggalkan. Menggunakan data keratan rentas 372 individu daripada Tinjauan Langsung Keluarga Indonesia (2014), kajian ini menggunakan kaedah Kuasa Dua Terkecil Pangkat Kedua. Dapatan menunjukkan bahawa apabila ibu bapa berhijrah, kehadiran sekolah anak-anak akan terjejas. Selanjutnya, penghijrahan menyebabkan kehadiran sekolah yang lemah dalam kalangan kanak-kanak yang lebih tua berumur 13-14 tahun berbanding dengan yang lebih muda dalam kategori umur 6-12 tahun. Di samping itu, kanak-kanak yang mempunyai ibu yang berhijrah cenderung untuk bersekolah lebih kerap berbanding mereka yang mempunyai bapa yang berhijrah. Anak-anak yang ditinggalkan dan dijaga oleh datuk dan nenek lebih kerap tidak hadir ke sekolah berbanding anak-anak yang dipelihara oleh bapa mereka sendiri. Akhir sekali, tahap pendidikan ibu secara positif meningkatkan kehadiran anak-anak ke sekolah.

Kata kunci: Migrasi; migrasi dalaman; kanak-kanak migran; pendidikan; persekolahan; kehadiran sekolah

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INTRODUCTION

From an economic perspective, migration positively affects household level and child welfare (Sukamdi & Mujahid 2015; Deb & Seck 2009; Giannelli & Mangiavacchi 2010). Parental migration not only alters children's daily lives but also their relationship with their substitute parents at home (Zhu 2015). In Indonesia, it is estimated that 2-3 percent of children are left behind by parents who migrated overseas (Bryant 2005).

Few studies have dealt with migrant children issues; whether their rights are being protected, they have access to education, they get the love and care they deserve, they get education and career, they are trapped as child labor and whether they are of good health. According to Antman (2012), the impact of parental

migration imposed on children depends on the balance between positive and negative effects of the improved parental income and their absence. Although parents aim to increase their income and household resources to invest for their children, their absence may still expose them to undesirable influences. This will largely depend on the role of the substitute parents. In a household in which both parents migrate, some issues like lack of role and care given by unmotivated carers or guardian relatives sometimes occur, such as those minders who are too old or too old-fashioned in their ways. This can impose undesirable impacts on children' welfare (Antman 2012).

In Mexico, female children from less educated families often acquire longer education if one of their family members migrates to the U.S. (Hanson & Woodruff 2003), or if their parents migrate when they are still very young (Antma 2011). An empirical investigation by Hu (2013) in China also mentioned that migration and remittance by parents would enhance children's material situation which can be evident from their health and education such as improving school attendance and healthier nutrition (Bryant 2005). However, family member's migration may also conversely exert negative impact on children's education in their home regions (McKenzie & Rapoport 2011). Antman (2011) affirmed that migrant parents may cause greater negative impacts compared to positive ones. (Hu 2013) similarly pointed out that parents' absence due to migration negatively affects their children's education. The main factor is the absence of parental supervision, which is usually assumed by guardian family members or child minders (Bryant 2005; Hugo 2002). Not only does parental migration adversely influence education but also worsens quality of health and often forces children to work underage due to the family's poor economic condition. If this situation persists at scale, the long-term undesired impact of parental migration will permeate into the quality of future labor supply which may ultimately widen the skill and income gap (Meng & Yamauch 2015). However, if such undesired impact is speedily handled, and remittances well managed by guardian relatives or carers and the children are protected from underage labour the allowances sent by migrant parents can potentially support a decent education for them (Kou & van de Glind 2013).

Not all children of migrating parents are abandoned by them since some are brought along. Klein's research (2011) conducted in Bohemia found that families who bring their children to host countries will try to get the best education for them. In these cases there is a positive relationship between family migration and their children's education. In other words, parental migration has a positive effect on the education of their children who migrated together.

Indonesia as a country with a large population also has a high rate of internal migration. There are various contributing factors for this but the main one is economic. Most internal migration is economy-driven, with the major aim of improving the family income through seeking higher wages compared to earnings in their native areas. Most view migration as a good means to better family welfare and as a way to avoid local unemployment and ultimately to enhance their living standard (Sukamdi & Mujahid 2015).

Based on the national data from SUPAS 2015 (the Inter-Census Population Survey), internal migrants are dominated by married population which accounted for around 59.85 percent while the remaining 35.60 percent and 4.55 percent respectively comprise of singles and divorced parents. About 73 percent of migrants belong to the highly productive age range of 15-40 years while 21 percent fall in the 20-24 years age category (Statistics Indonesia 2016).

The internal migrant data from the 2010 population census showed that around 11.7 percent of total migrants, or about27.8 million, settled permanently in their chosen host areas. The provinces with the largest proportion of internal migrants are Kepulauan Riau, DKI Jakarta and East Kalimantan, in descending order. Almost half the population in Kepulauan Riau, or about 47.7 percent, migrated from different regions in the country. About 42.5 percent settled in Jakarta, the second largest host province, while 36.8 percent domiciled in East Kalimantan. East Java province, with 2.5 percent, hosted the lowest number of permanent migrants (Statistics Indonesia 2013). The provinces which become the main targets for permanent or lifetime migration are West Java, DKI Jakarta, Banten, Riau, and Lampung which together hosted 55.0 percent. Data from SUPAS 2015 also revealed that most migrants settled in DKI Jakarta and West Java. Data on permanent migration flow in 15 Indonesian provinces, from the 2000 to 2015 census, are shown in Figure 1.

The largest recent internal migration recorded was in Kepulauan Riau with 14 percent of the total population, while DKI Jakarta recorded 7.3 percent and DI Yogyakarta 7 percent. From the size and flow of recent trends the Java Island is the main target or internal migrants. In order of preference by province, West Java showed 19.7 percent, DKI Jakarta 12.1 percent, Banten 8.8 percent, Riau 5.6 percent, Central Java 5.4 percent, DI Yogyakarta 4.2 percent and East Java 4.1 percent (Statistics Indonesia 2012). Recent data by SUPAS 2015 revealed that the migration flow is still dominated by West Java, Banten, Riau and Kepulauan Riau (Statistics Indonesia 2016).

The 2010 population census in Figure 2 disclosed that internal migration trends in Indonesia fluctuate continuously for both permanent and recent migration. The flux dynamics indicate that mass population movement is getting much easier thus leading to increasing volume in internal migration.
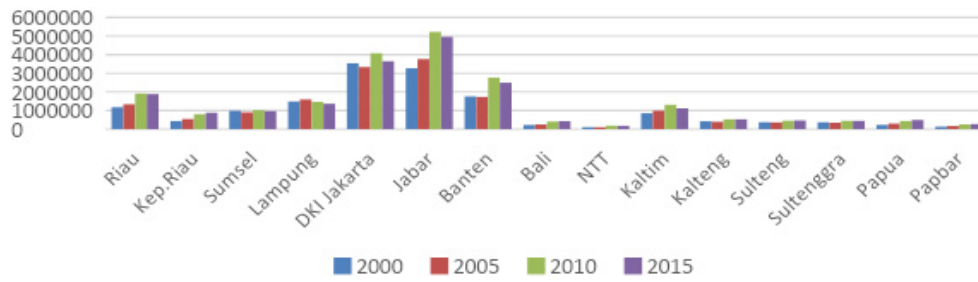
FIGURE 1. Grouping of 15 provinces based on migration flow highest lifetime entry in Indonesia
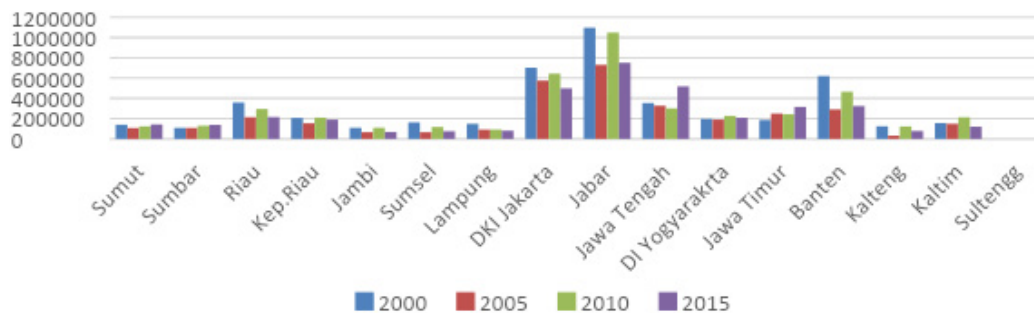*Source:* Statistics Indonesia 2016

FIGURE 2. Grouping of 16 provinces based on the highest risen inflow migration in Indonesia
Source: Statistics Indonesia 2016

FIGURE 3. Migration destination province
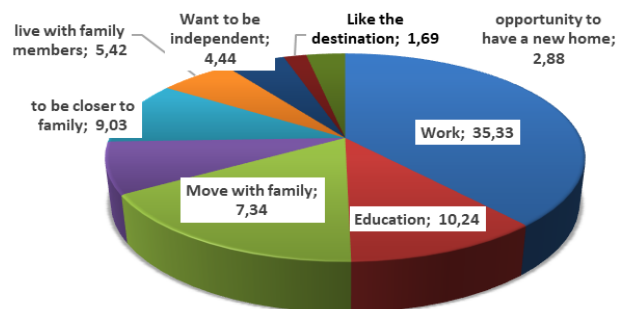*Source:* IFLS5. Processed data. 2014

FIGURE 4. Main reasons to migrate
Source: IFLS5. Processed data. 2014

Figure 3 illustrates that the most preferred target provinces for internal migration in Indonesia are West Java, East Java, Central Java, and DKI Jakarta. In Sumatra Island, North Sumatra province has become the main target destination.

The high internal migration flow in Indonesia is influenced by various contributing factors the main one being the economy. Most migrants are principally driven to increase their income and improve family welfare. Migration enables people to improve their family prosperity through remittance, mitigating domestic unemployment, and improving local living standards (Sukamdi & Mujahid 2015).

In general, the primary reason for people to migrate is the economic factor (Harris & Todaro 2012; Kong & Meng 2010; Lee 1966b; Lee 2011; Sukamdi & Mujahid 2015). A similar study listed the order of influencing factors that motivate internal migration: Getting a job accounted for 35.3 percent, marriage 15.4 percent, education 10.2 percent, close proximity to family 9.0 percent, family movement 7.3 percent,living together with family 5.42 percent, desire to live independently 4.4 percent, opportunity to own a new house 2.9 percent and preference for the workplace plus other reasons 1.7 percent (IFLS 2014). Spare (1975) in Waridin (2007) earlier affirmed that the decision to migrate is not only motivated by economic improvement but also due to other influencing factors such as age, gender, marriage status, education, social status, transportation cost, physical hindrance, and official regulation (Figure 4).

Internal migration is proven to be able to upgrade the family socio-economic status through increasing income and consumption (Deb & Seck 2009). However, given the fact that most migrants are married will need further investigation into its influences on the household, especially on children. For example, how much impact the absence of migrating parents will have on children's education since it may adversely influence family life. In households where both parents migrate, issues often emerge regarding lack of role and care given by extended family members, more often the guardians, due to infirmity of old age or backward mentality. It can also cause undesired effects on children's health. Although there is a possibility that migration can improve school achievement, the lack of long-term parental care may cause relational and psychological issues which may adversely condition children's welfare that tends to decrease the quality of human resources crucial in overall economic growth. Moreover, internal migration in Indonesia, particularly in rural-urban migration, mostly occur among the less educated but productive citizens, thus draining these industrious human resources from their native provinces. This outcome agrees with Adams (2003) who studied international migration in 24 labor-exporting countries. He noted that migration tends to be an option chosen by many high

quality human resources thus effecting a "brain drain" which may greatly disadvantage their native countries.

Discussion on the impact of parental migration on children's education in Indonesia is still very limited despite the fact that 60 percent of Indonesian migrants are married (Statistics Indonesia 2016). From the literature on migrant condition in Indonesia, Antman (2012), Hanson and Woodruff (2003), Hu (2013), Bryant (2005) with McKenzie and Rapoport (2011), Antman (2011), Meng and Yamauchi (2015), Kou and van de Glind (2013), Klein (2011) reviewed that 60 percent of migrant workers have established families with children. Given the markedly insufficient studies conducted on the impact of migration on the education of both migrant and non-migrant children, this study is conducted to address the knowledge gap. The study will examine the effects of other variables besides economy, such as migrant age group and status of migrating parents, whether the mother, father or both.

LITERATURE REVIEW

Migration can be defined as a form of population movement from a geographical unit crossing political and administrative borders with the intention of staying for unlimited time or temporarily in places other than their origins (Statistic Indonesia 2017). Migration was defined in general terms by Lee (1966) as a permanent change of place of living without any boundaries on the distance, whether the transfer is voluntarily or by force, and whether it happens within a country or overseas. Empirical Studies on migration progressed very rapidly particularly in developing countries. A migration model called human capital approach model was suggested by Sjaastad in 1962 and later developed by Harris and Todaro in 2012 who proposed a hypothesis that individual decision to migrate is based on a gap of expected income between urban and modern sectors which thus creates the opportunity for workforce mobility from rural to urban areas (Harris & Todaro 2012).

Broadly speaking, migration is one of the strategies undertaken by poor families to escape poverty by becoming migrant workers (Meng & Yamauchi 2015). Worker migration is effected to pursue a better life since local labor oversupply frequently does not match the available job opportunities in their native region. Greater job opportunities in target areas become significant magnets that provide hope for poor families to improve their living standard through increasing their income. Nevertheless, migration undertaken by parents often times affects their children's education. Despite the economic improvement, the absence of care from migrant parents may induce relational and psychological issues which influence children's welfare in the long-term (Giannelli & Mangiavacchi 2010).

Education is one of the considerations motivating parents to migrate given that it is an important investment. The higher the education, the better the capability, skill, and knowledge that are afforded and which may lead to improved productivity and consequently bigger income. Good education and skill are representations of human resource improvement which encourage individuals to pursue higher income (Soinbala et al. 2022). If the demand to upgrade life quality is not fulfilled by the infrastructure provided in their native origins, people are motivated to move to other areas which allow them to achieve this. Démurger and Xu (2015) stated that parents are willing to endure longer migration periods in order to seek greater income to pay for their children's education fees that may allow them better education and a future life of improved social mobility.

Conceptually speaking, rural to urban migration positively affects human resources in the form of better education access in urban areas, more supporting environment to enhance human resources, or higher workforce return to human resources in urban areas. Asia and some countries in Africa show that remittance sent to families back home is proven beneficial for disbursing costs of schooling, education facility fee, health, and consumption. Remittance as a product of migration assists families in escaping poverty (Hugo 2002). Thus, migration is one of the preferred strategies adopted by poor families to better their lives (Meng & Yamauchi 2015). Workforce migration greatly assists in achieving a better life quality since large oversupply of labor sometimes cannot match local job opportunities which are opportunity available through migration. Migration thus provides hope for poor families bent in increasing their income and upgrade their lives.

Some earlier studies conducted on developing countries disclosed that remittance from overseas workers enables families to improve their education access and nutrition adequacy, and to afford better health service (Antman 2011); Frank 2005); (McKenzie & Rapoport 2011). Domestic internal migration is also proven to upgrade socio-economic status of families through increasing income and consumption (Deb & Seck 2009). Opportunities to increase income has become a common attraction among poor families. However, some empirical investigations have revealed contrary findings. A study by McKenzie and Rapoport (2011) on migration in Mexico established that family members who migrated to the U.S. effected negative impact on their children's education back home.

With reference to theories on correlation between migration and education, Becker and Tomes (1976) stated that children's education is shaped by generic ability and household resources. Children's generic ability is exogenous in nature, and household resources sometimes posed constraints to the family in educating their children. One important constraint is the education cost that the household has to provide. Children's education is crucial in lieu of its long-term favourable impact on career opportunity and future income. Increased household income from remittance sent by migrant parents can increase school attendance and decrease the need for informal child labour (Yang 2008). Nevertheless, older children in the household might have a reduced opportunity to attend school if they themselves are the care givers and guardians of their younger siblings. They may also be induced to work to earn additional income to support their siblings if the remittance sent proves insufficient (Antman 2011). Parent's absence additionally causes limited or zero supervision and discipline on their children. This may affect their school attendance and often time result in academic failure. Long and frequent school absence will impact on school period/education among high school children (McKenzie & Rapoport 2011). Migration among male parents in Mexico was shown to reduce school attendance at home which consequently reduced study hours and school participation, especially for younger children (Antman 2011). Murakami (2021) also stated that children with absentee migrant parents experienced more negative impact on their education compared to children who co-migrated with the family.

In cognizance to findings from the above review, this study aims to examine the impact of parental migration on children's education in Indonesia in lieu of the high parental internal migration rate in the country. Past studies have focused their investigations on the impact of migration on children through adopting the variables comprising length of schooling period, school registration, and students' test scores. There was however no investigation made on the impact of parental migration on children's education using the variable of school attendance hours, nor comparison made between children based on age group or parents' migration status. The average hours of school attendance can affect the success of school completion. School absence will negatively impact on overall length of study or education received by the children (McKenzie & Rapoport 2011). In Mexico, absentee migrant fathers negatively affect school attendance and decrease children's study hours and school participation especially among young students (Antman 2011). This may not be the case if the children were under adequate parental supervision. Based on this proposition, the average hours of school attendance as an independent variable will be adopted in this study.

This study potentially contributes to the existing literature on impact of internal migration on children's schooling and education in Indonesia. Data sourced from the Indonesian Family Live Survey (IFLS5) were analysed using econometric estimation to determine the correlation between the factor of parental migration and children's education as reflected in average school attendance.

DATA

This study employed cross section data sourced from the Indonesian Family Live Survey (IFLS) 2014, in batch 5 of the "Rand Corporation" (Rand 2015). The database is longitudinal (2007-2014) in nature and includes 24 out of 33 provinces in Indonesia namely North Sumatera, West Sumatera, Riau, Jambi, Kepulauan Riau, Bangka Belitung, South Sumatera, Lampung, all provinces in Java, Bali, West Nusa Tenggara, all provinces in Kalimantan, South Sulawesi and West Sulawesi. IFLS is the only social survey in Indonesia that collated data on various aspects of the family, from the same individual respondent and at numerous time batches. The database can be analyzed for individual behavior dynamics of the respondents.

The "migrant children" in the study refers to children under 15 years old whose parents have migrated elsewhere and left their native areas. This study comprises two aspects namely, status of migration, whether one or both parents who migrated, and whether the children are co-migrants with their parents or otherwise. The migrant children were classified based on age group. They are also grouped according to the migrant status of their parents, namely whether only one parent migrated, or both; and on whether the children are co-migrants with their parents or were left behind. The total number of migrant children according to IFLS5 data was 1,619. The study sample of 372 individuals comprised migrant children under 15 years old whose data were available in IFLS5. Data on the average daily school attendance in the last one year, was obtained from book 5 no dla76g.

In this study, migrant children were divided into two categories: (1) Based on two age groups; namely, 6-12 years old and 13-14 years old. (2) Based on their parents' migration status; whether only one parent who migrated or both. The number of migrant children as categorized above is included in the regression model shown in Table 1.

"Parental migration" in this context refers to those parents who moved their domicile areas since 2007, across provincial borders and lived for at least six months in the host region with the intention of a permanent stay in 2014. One interesting finding was that the number of migrating male and female parents was not far different although fathers slightly dominated at 52.27 percent. Most male parents worked as permanent employees at 46.60 percent while 2.44 percent were jobless. Meanwhile, 33.14 percent of female parents were entrepreneurs, with 41.46 percent as housekeepers or commercially unemployed.

Table 2 shows that the average age of migrant children was 9.61 years with boys outnumbering the girls. Most migrant children (56 percent) lived in cities. The large majority (87.00 percent) of the children were taken care of by their mothers, with only 0.02 percent

and 0.01 percent respectively cared by their fathers and grandparents

Parents' profile data showed that migrant parents were dominated by fathers with the averagely age of 40 years while mothers were about 35 years old. Both parents have similar length of education at almost 10 years.

METHODOLOGY

To determine the causal relationship between parental migration and children's education, the researchers employed the following OLS regression.

The equation is as follows:

$$E_i = \alpha + \delta . M_i + \beta X_i + \in_i \qquad (1)$$

E_i is the resultant variable for school attendance, and i represents the variable of children aged at the maximum 15 years old. M_i informs the status of the migrating parents who lived in different places in 2007 and 2014 (IFLS 5) and had children under the age of 15. X_i represents control variables including; (1) characteristics of children such as gender, age, length of school, nutrition, course, lesson book ownership, location of home, distance to school, and their careers whether it is parents, grandparents, or other relatives; (2) characteristics of parents such as age, length of school, job status, and BMI; and (3) characteristics of the household such as total family members, income, and poverty level.

In investigating the effect of parental migration on children's education, there sometimes exist unobserved parents' characteristics which can alter their migration status and total resources allocated for their children. For example, the parents' preferences. If parents care more about their children's education, they might not choose to migrate and decide to take care of their children themselves. They might also allocate more household resources for their children's education. This actually reflects the fact that migrating parents care less about their children's education despite the negative impact of their absence. On the other hand, some parents choose to migrate due to their desire to give better opportunities for their children. This is evident for example from the unobserved negative impact of income. A father who loses his job is motivated to migrate to urban areas to look for a new job, and the children left behind usually spent less time to study and more time to work thus resulting in shorter schooling time (Hanson & Woodruff 2003). The variable of migration is thus endogenous in nature. To decrease endogeneity in migration decision, the Instrumental Variable (IV) approach was adopted.

To correct for bias caused by the unobserved variables instrument variable was employed and

TABLE 1. Number of migrant children based on age group and parental migration status

Characteristic of Migrant children	Number of Migrant Children	Number of Migrant Children in Regression Model*
Age Group of 6-14 Years Old	496	313
Age Group of 13-14 Years Old	85	59
Migrating Father (Children Age Group of 6-14 Years Old)	291	219
Migrating Mother (Children Age Group of 6-14 Years Old)	190	70
Both Parents Migrating (Children Age Group of 6-14 Years Old)	100	83

*Based on descriptive statistical data, there were 581 migrant children under the age of 15 who attended school who were identified based under age group and parental migration status. After adding the main variables and control variables into the equation, the number of Migrant Children in the Regression Model was reduced to 372 with the assumption that there were respondents who failed to return their IFLS5 questionnaires.
Source: IFLS5. Processed data. 2014

TABLE 2. Statistical description of migrant children in Indonesia

Average Hours of School Attendance (hours)	Average	Std. Dev.	Min	Max
	4.85	1.24	2.0	8
Child's Age (Years)	9.61	2.37	6.0	14
Gender (male=1) %	0.51	0.50	0.0	1
Child's Education Period (Years)	3.53	2.38	0.0	10
Nutrition (good=1) %	0.61	0.49	0.0	1
Course Registration (registered =1) %	0.19	0.40	0.0	1
Own school textbooks (own textbook=1) %	0.65	0.48	0.0	1
Children Living in the City (city=1) %	0.56	0.50	0.0	1
Walking distance to school (hours)	0.23	0.56	.02	10
Child Cared for by Father (%)	0.02	0.13	0.0	1
Child Cared for by Mother (%)	0.87	0.33	0.0	1
Children Cared for by Grandparents (%)	0.01	0.05	0.0	1
Children Cared for by Other Family Members (%)	0.11	0.31	0.00	1.0
Father's Age (Years)	40.07	6.92	25.0	72.0
Mother's Age (Years)	35.61	5.68	20.0	50.0
Father's Length of Education (Years)	9.58	4.13	0.0	16.0
Mother's Length of Education (Years)	9.43	3.96	0.0	16.0
Father's Employment Status (%)				
0. Unemployed	0.02	0.15	0.0	1.0
1. Self employed	0.40	0.49	0.0	1.0
2. Government/private employees	0.41	0.50	0.0	1.0
3. Freelancer	0.15	0.35	0.0	1.0
Mother's Employment Status (%)				
0. Unemployed	0.29	0.46	0.0	1.0
1. Self employed	0.43	0.50	0.0	1.0
2. Government/private employees	0.23	0.42	0.0	1.0
3. Freelancer	0.05	0.23	0.0	1.0
Father's BMI (Normal=1) %	0.60	0.49	0.0	1.0
Mother's BMI (Normal=1) %	0.54	0.50	0.0	1.0
Number of Household Members (Persons)	5.20	2.01	3.0	16.0
Average Household Income (Rp)	16.89	1.26	12.21	20.72
Household earning level (Poor=1)	0.07	0.25	0.0	1.0

followed with the 2-Stage Least Squares (2SLS). This approach is an extension of the OLS method commonly used in regression analysis. The 2SLS equation is used under the condition where there is correlation between the error resulting in the model and the independent variable. In the first step, the OLS method is used followed with regressing the explanatory endogenous variable including instrumental variable and other exogenous variables. Unbiased exogenous variables are produced with this approach.

Logit regression equation was used to determine the factors causing parental migration and to create a prediction model like the OLS regression. The difference is that in logistic regression, the dependent variable uses a dichotomy scale which refers to nominal data with two categories; for example, yes and no, good and bad or high and low. Logit regression equation is applied in equation stage 1 since the dependent variable of parental migration is dummy in nature in which the variable depicts the parent's choice such as to migrate or otherwise. The logistic regression in this equation applies a regression coefficient value with the effect observed from its marginal value some of the assumptions related to logistic regression include; (1) the regression does not require linear correlation between independent and dependent variables, (2) the independent variable does not require multivariate normality assumption, (3) homoscedasticity assumption is not necessary, (4) independent variables must be dichotomous (5) independent variable does not necessarily have similar diversity among variable groups, (6) categories in independent variables have to be distinct between one another or are exclusive, (7) the sample should be relatively large, with minimum 50 data samples for each predictor (independent) variable, and (8) selection of correlation is necessary since a non-linear approach of transformation log is applied to predict odds ratio. Odd in logistic regression is often called probability.

By applying 2-SLS, logit regression is used in the first stage:

$$M_{i} = \alpha + \gamma . Z_i + \lambda . X_i + \varepsilon_i \qquad (2)$$

M_i is the dependent variable of parental migration status. If M_i equals one means that the individual will migrate and exits his/ her native place. If M_i equals zero, the individual does not migrate and does not leave the native place. Z_i is the instrument variable of factors instigating the migration. The criteria of instrument variable in this study have to be able to predict parental migration status which is not related to their decision on investment for children's education. Thus, interaction between migration rate in 2007 and parents' characteristics as instruments is employed. Migration rate belongs to "network effect" which is proven to be a vital determinant of migration decision (Zhao 2003). McKenzie and Sasin (2007) used the distance from the New Zealand

consulate in Tonga as the migration instrument to observe its impact on migrants in New Zealand. The distance from the U.S. border can be used in a study on Mexico migration, to gauge its consequence in the U.S. Zhao (2003) revealed that individual characteristics such as age and education achievement are important reasons for migration decision. For example, individuals who decide to migrate are commonly not too young nor too old, and individuals with higher education tend to choose migration as the return from investment in education is greater in urban areas.

This study uses instrument variables from McKenzie and Sasin (2007) and Zhao (2003) for distance and individual characteristics. In IFLS4 data, the variable for distance represents the region's characteristic and it is interpreted as the space from the native village to the provincial capital. Conversely, individual characteristics (X_i) includes parents' age and education level.

The second stage is regressing the endogenous variable towards unbiased explanatory endogenous (endogenous relationship) together with other variables.

$$E_i = \alpha + \delta . \widehat{M}_i + \beta . X_i + \gamma . P_i + \lambda . H_i + \epsilon_i \quad (3)$$

E_i is the education of children with maximum age of 15 years in the form of their average school attendance. represents the value of M_{ihat} (parental migration) after bias factors are diminished in equation 2. Xi is the control variable including children's individual characteristics such as age (year), gender (dummy), length of school (dummy), nutrition (dummy), course (dummy), book ownership (dummy), school dropout (dummy), location of home (dummy), distance from home to school (dummy), and carers whether they are parents, grandparents, or other relatives. Pi refers to the characteristics of parents such as age (year), length of education (year), job status, and normal BMI. H_i represents the household characteristics such as income (rupiah), total number of members in family (person), poor family, and ϵ= Error.

The impact of parental migration on children's education was compared with the impact on co-migrant children based on age groups and status of migrating parents. The OLS equation was adopted without instrument variable (IV) since the endogeneity test resulted in perfect collinearity. The equation to elucidate the effect of parental migration on migrant children is given below;

$$Emgh_i = \alpha1 + \delta1 . (Migration\_13 - 14) \\ + \beta1 . X_i + \gamma1 . P_i + \lambda1 . H_i + \epsilon_i$$

$$Emsh_i = \alpha2 + \delta2 (Migration\_status_i) \\ + \beta2 . X_i + \gamma . 2 . P_i + \lambda2 . \bar{H}_i + \epsilon_i$$

$Emgh_i$ is the dependent variable; the average school attendance of children aged under 15 years was compared with migrant children within age groups of 13-14 years and 6-12 years. Migration_13-14 years old = 1 if migrant parents have children within that age

TABLE 3. The effect of parental migration on average attendance hours for children at school by age group and parental migrant status

	Hours of Attendance at School	
	Age Group	Parent's Migrant Status
Migrant Children Age 13-14 years (=1)	-0.638***	-
	(0.200)	
Mother Migration (=2)	-	0.247*
		(0.146)
Father & Mother Migration (=3)	-	0.003
		(0.139)
Child Characteristics		
Child Age	0.0432	-0.031
	(0.087)	(0.081)
Child's Gender (Boy=1)	-0.219**	-0.184*
	(0.110)	(0.110)
Child's Education Length	0.337***	0.337***
	(0.082)	(0.080)
Nutritious of Food (=1)	-0.068	-0.077
	(0.108)	(0.112)
Take Courses (=1)	-0.104	-0.056
	(0.143)	(0.145)
Have school textbooks	-0.026	4.18e-05
	(0.113)	(0.115)
Children Living in the City (=1)	-0.072	-0.050
	(0.118)	(0.120)
Distance from where the child lives to the school	0.027	0.014
	(0.047)	(0.041)
Child Cared for by Mother	-0.070	-0.056
	(0.331)	(0.326)
Children Cared for by Grandparents	-1.459***	-1.675***
	(0.414)	(0.415)
Children Cared for by Other Family Members	-0.113	-0.153
	(0.379)	(0.374)
Parental Characteristics		
Father's Age	-0.007	-0.007
	(0.011)	(0.011)
Mother's Age	0.010	0.013
	(0.015)	(0.015)
Father's Education Length	-0.002	-0.009
	(0.019)	(0.019)
Mother's Education Length	0.075***	0.076***
	(0.020)	(0.021)
Father's Job Status		
1. Self employed	0.321	0.358
	(0.421)	(0.360)
2. Government Employees/Private Employees	0.286	0.294
	(0.425)	(0.363)
3. Freelancer	0.559	0.554
	(0.430)	(0.375)
Mother's Employment Status (=1)		
1. Self employed	-0.011	-0.017
	(0.122)	(0.124)

	Hours of Attendance at School	
	Age Group	Parent's Migrant Status
2. Government Employees/Private Employees	-0.056	-0.047
	(0.153)	(0.153)
3. Freelancer	-0.702***	-0.698**
	(0.259)	(0.279)
Father's BMI Normal (=1)	-0.103	-0.119
	(0.112)	(0.114)
Mother's BMI Normal (=1)	0.132	0.114
	(0.109)	(0.112)
Household Characteristics		
Number of Household Members	0.001	-0.007
	(0.034)	(0.035)
Household Income	-0.038	-0.037
	(0.049)	(0.051)
Poor Households (Poor=1)	-0.241	-0.191
	(0.184)	(0.194)
Constant	3.243***	3.724***
	(1.094)	(1.064)
Observations	372	372
R-squared	0.430	0.418

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

range, and = 0 if parents have migrant children within age range of 6-12 years old. Represents the dependent variable; the average school attendance of children aged below 15 years according to status of migrant parents (father, mother, or both). As comparison, the study uses migrating fathers (=0). Migration status = 1 if it is the mother who migrates, the other=0 (migrating father). The migration status = 2, if both parents migrate, the other =0 (migrating father). X_i, P_i and H_i are control variables.

EMPIRICAL RESULTS

After endogeneity tests on result variables were conducted through STATA, endogeneity was proven to be absent in the parental migration equation. As such the results used were from the Ordinary Least Square (OLS) method. Table 3 shows the impact of parental migration on children's education through children's average school attendance, by comparing its impact based on variables of diverse age groups of 6-12 years and 13-14 years in accordance with parent's migrant status.

Table 3 refers to the age groups of migrant children. It is clear that parental migration produced an undesired effect on school attendance of children aged 13-14 years (students of grade 7-8 of junior high school) compared to those aged 6-12 years (primary school students). The finding is similar to Hanson and Woodruff (2003) who established that parental migration positively affects younger students. A later study by McKenzie

and Rapoport (2011) reported the adverse impact of migration on older students where male students tend to reduce school attendance and increase working hours at the age of 13-14 years children generally experience character transition and attempt to seek their own identity. This age group is most vulnerable to the harmful impact of parental migration often resulting in sharp decline in school attendance

One of the contributing factors to the changing family pattern is long-term migration undertaken by parents who leave behind their children poorly or unsupervised and in the care of others (Blood 1972). Table 3 illustrates the positive and significant impact of migrating mothers on children's school attendance compared to that of migrating fathers. The traditional view of paternal upbringing of children is that of tight discipline and monitoring more so than with their mothers Barbeta-Viñas and Cano (2017) acknowledged that the high involvement of paternal parenting allows for children development in various dimensions. Allen and Daly (2007) earlier, who surveyed results of several studies, summarized that the participation of fathers in raising children has a positive effect on their lives as a whole. Father's parenting also positively influences children's emotional health such as lower levels of depression, emotional suppression, reduced negative expressions such as fear and guilt, adequate problem solving skills, more cheerful disposition and appropriate emotion management.

Conversely however, children with migrant fathers do have low school attendance since they are

encouraged to work certain hours to add on to the family income. This finding agrees with the study by Antman (2011) who investigated the impact of a migrating father on his son. When the father migrated, the boy of 12-15 years would increase his working hours and expanded his external activities. His increased working time to improve the family economy was at the expense of his schooling hours (McKenzie & Rapoport 2011). However, this study did not examine the diversion of activities from reducing children's attendance at school. The condition is worsened if his minders are his own grandparents who naturally are prone to be soft on him compared to his normally disciplinarian father. The lax grandparent care, with the traditional indulgence over the grandchildren, invariably leads to reduced school attendance over time.

In contrast, mothers' generally higher education will ensure a constructive impact on children's school attendance resulting in their success in education.

CONCLUSION

This study provides an overview of the impact of parental migration on children's education in Indonesia from the perspective of children's school attendance based on the age groups of 6-12 years and 13-14 years, and the status of migrating parents. The IFLS5 data were employed in the investigation.

In general, the main reason for migration is the economic factor (Harris & Todaro 2012; Kong & Meng 2010; Lee 1966b; Lee 2011; Sukamdi & Mujahid 2015). Other contributing factors include; job seeking, marriage, education, close proximity with family, moving in with family, living together with family independent life, owning a new home and preference for the target place (IFLS 2014). The average age of migrant fathers and mothers respectively are 35 years and 31 years with the average length of education of almost 10 years which is grade 10 of senior high school. They are thus basically junior high school graduates since they don't complete senior high school.

Based on work status, most migrant fathers are employees in public and private sectors and migrant mothers mostly work as entrepreneurs. A total 1,619 children are categorized as migrant children, whether one of or both parents migrated (IFLS 2014). More children are left behind by their migrant parents than those who migrated together. More fathers migrated than mothers. Data from SUPAS (2015) revealed that migration is dominated by the population with established families. Internal domestic migration has been proven to improve the socio-economic status of the family through increasing income and consumption (Deb & Seck 2009). The fact that most migrants are married deserves further investigation into how the basic household is affected, especially the fate of children. To what extent the absentee parents affect their children's welfare since some degree of disturbance in family life is expected. Where both parents migrate, issues such as lack of proper parenting role and care often emerge. The minders are mostly family members especially grandparents who are ageing and with backward outlook. These factors may pose a negative impact on the children's welfare. Other impacts on the children's education as related to the migration phenomenon should also be further examined.

Based on the results of estimation, hypothesis, and statistics analysis, and referring to the impact of parental migration on children's education in Indonesia using IFLS5 data, some significant ideas can be suggested on how parental migration alters children's education.

In general, parental migration poses an undesired effect on children's average school attendance depending on age group. School attendance is lower for older children aged 13-14 years as compared to those aged 6-12 years. The younger children (primary school stage) appear more diligent in attending school compared to their older siblings. Further, migrant mothers exert positive and significant impact on school attendance as compared to counterpart fathers. This suggests that children of migrant mothers, left in the care of their fathers, attend school more frequently. Conversely though, children of migrant fathers, cared by their mothers, fared worse. This indicates that migrating fathers pose a negative and adverse effect on average school attendance. This is consistent to the traditional idea that fathers are more effective disciplinarians than mothers. As such, it is logical to expect that children of migrant fathers are left with ineffective monitoring and discipline. This view concurs with Barbeta-Viñas and Cano (2017) who maintained that parenting from fathers allows children to develop in various dimensions. Allen and Daly (2007) earlier agreed that the participation of fathers in raising children produce positive effect on their lives as a whole. Father's participation also affects the development of their children's emotions such as lower levels of depression, emotional suppression, reduced negative expressions such as fear and guilt, decent problem solving skills, being more cheerful, and proper emotion management.

The low school attendance among children left behind by migrant parents may be expected since they are induced to work to better the family's economic condition. If this arrangement persists without proper and effective supervision from substitute parents, the children will increasingly become more reluctant to attend school, thus leading to decreasing school hours and culminating in dropout from schooling entirely.

Parental migration influences average school attendance of migrant children based on parents' migration status. Migrant mothers positively and significantly affect school attendance compared to migrant fathers. Children's characteristics such as length

of schooling, gender, and carers affect average school attendance. Similarly, mothers' length of education and career also exert important positive impact on average school attendance. Conversely, migrant fathers will have negative and adverse influence. The lower attendance due to migrating fathers is attributed to children being forced to work to support the family. If the poor attendance is allowed to persist without proper monitoring from substitute parents, it is feared that students may get lazier and eventually become school dropouts.

Based on the results of this study, it is necessary to have a policy in the form of a migrant household empowerment program which particularly aims at improving supervision of migrant children left behind. The program should encourage them to diligently attend school and also ensure an effective and responsible role for substitute parents, who are their designated minders, to pay more attention to the children's school attendance. This paper also has limitations. Future studies should for example include remittance as another variable. The results will be expected to show a clearer impact of parental migration on children's welfare.

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