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Does Parental Absence Harm Children's Education? Evidence from Vietnam

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Abstract

This study uses a large-scale dataset from Vietnam to analyze the impacts of parental absence due to migration, death, or divorce on children's school enrollment, for children aged from 7 to 22. We find children from two-parent families have a better chance of enrolling at all levels of education than those from single-parent families. Within single-family types, the negative effect on children of parental divorce is higher than that of parental death, while the effect of parental migration is the lowest. Comparing the effect of single-father and single-mother households, we find that children living with a single mother tend to have higher school enrollment than those living with a single father, indicating the critical role of mothers in children's education.

JEL classification: I1, I2, O1.

Keywords: Children, Young, Education, Vietnam.

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1. Introduction

With rapid urbanization, there is an increasing labor force migrating from rural to urban areas in Vietnam. Data from the 2015 National Internal Migration Survey indicated that 13.6% of the Vietnamese population are internal migrants. From 2010-2015, 36.2% of migration was rural-to-urban, 31.6% urban-to-urban, 19.6% rural-to-rural, and 12.6% urban-to-rural (General Statistics Office 2016). By 2014, the net number of people who had moved to urban areas in the preceding five years was 2.7 million (World Bank 2020). Due to the rural-to-urban labor migration, many children in rural Vietnam live in the absence of parental care.

In addition to the left-behind children caused by internal migration, there has been a rapid increase in the number of children living with one or no parents due to parental divorce, separation, or a parent's death. The divorce rate increased from 1% in 2009 to 1.8% in 2019 (General Statistics Office 2020, 2010), while the number of divorce cases increased from 51,361 cases in 2000 to 145,791 cases in 2013 (Le, 2014).

Parenting has been demonstrated to impact children's educational attainment in several ways. Prior research indicates a positive association between parental involvement in education and children's educational achievement (Lara & Saracostti 2019, Tárraga et al., 2017, Sebastian et al., 2017). A number of meta-analyses across different countries and educational levels (Castro et al., 2015; Jeynes, 2016; Ma et al., 2016, Wilder 2014) have demonstrated the positive impact of parental presence and involvement on child academic achievement. In contrast, parental absence accompanies worse academic achievement in most studies (Fu et al., 2014, Mao et al., 2020, Mc Kenzie & Rapoport 2011, Zhang et al., 2014).

Previous studies on the impacts of parental absence on children's education outcomes fall into two types: (i) the impact of parental migration and (ii) the impact of parental divorce or separation.

There is a growing literature on the impacts of parental migration on the outcomes of children left behind, mainly focusing on the children's educational attainment. The absence of parents due to migration also has an impact on children. Theoretically, parental absence due to migration can positively or negatively affect children's school attendance. On one hand, parental migration contributes to household income via remittances, thus alleviating household financial constraints and enhancing children's educational opportunities. On the other hand, it can harm children's academic outcomes because children receive less parental care and parental involvement in their schooling (Antman, 2012 and 2013). Left-behind children are also more likely to spend more time working and less on schooling (Pörtner 2016). Empirically, most studies find negative impacts of parental migration on children's education outcomes; yet some find a positive effect. In Mexico, where parents often leave children behind to emigrate to work in the USA, Antman (2012) finds that left-behind children study fewer hours and work for more hours. McKenzie and Rapport (2011) indicate a negative effect of parental migration on children's education in migrant households. However, Antman (2013) finds a positive impact of migration on schooling attainment for girls, but not for boys. In the context of rural China, where one in three children under the age of 17 is living without one or both parents due to rural-to-urban migration (Zhang et al. 2014), the findings mainly indicate that parental migration reduces the educational attainment of left-behind children. Fu et al. (2017) find that left-behind children are more likely to get low scores in academic examinations. Mao et al. (2020) find that left-behind children have lower cognitive test scores and academic scores and are less likely to attend college. Zhang et al. (2014)

indicate significant adverse impacts of being left behind by both parents on children's cognitive achievements, but the effects are insignificant for children left behind by one parent.

Similarly, Zhou et al. (2014) find negative impacts of parental migration on children's test scores only when both parents have migrated, while the migration of one parent has little effect. In contrast, Morooka and Liang (2009) find a positive impact of parental migration on left-behind children in school enrollment in Fujian, China. Also, in China, Yang and Fan (2012) state that children aged 17-18 living with only the mother due to the father migrating are more likely to enroll in high school than their peers living with both parents.

The other strand of research on the impact of parental absence focuses on the effect of parental divorce on children's educational attainment. Most researchers agree that living with none or just one parent, whether due to divorce, death or widowhood, adversely impacts children's wellbeing (e.g., Amato and Keith, 1991; Haveman and Wolfe, 1995; Gruber, 2004; Kim, 2011). Most research on the causal effects of parental divorce has been done in developed countries. McLanahan et al. (2013) review 33 studies on the impacts of parental absence due to death or divorce on education; only two were from developing countries (South Africa and Indonesia). They found consistent evidence of a causal effect of parental absence on educational attainment. Data limitations were the main reason that prevented the analysis of the impact of divorce in developing countries. The few studies in developing countries on the effects of parental death include those by Case and Ardington (2006) in South Africa, Gertler et al. (2004) in Indonesia, and Beegle et al. (2006) Tanzania. Studies on the impacts of parental divorce include those by Chae (2016) in Malawi, Pholphirul and Teimtad (2018) in Thailand, Brand et al., (2019) and Zhang (2020) in China. These studies find negative impacts resulting from parental

absence, whether due to divorce or death, on children's education outcomes. However, an analysis using comparative reading scores from the Program for International Student Assessment for 15-year-old students in five Asian countries reports ambiguous results (Park 2007). Compared to two-parent children, single-parent children in Hong Kong and Korea had negligible disadvantages; while those in Indonesia and Thailand outperformed the children from two-parent families; only in Japan did the negative effect of single parenthood remain significant.

There have been many studies on education in Vietnam (e.g., Anh et al., 1998; Glewwe, 2004; Dang, 2007; Mont and Nguyen, 2013; Nguyen, 2016). In most studies, education and school enrollment are strongly correlated with parental education, income levels, household composition, geography, and ethnicity. However, there are few studies on how parental absence affects a child's educational outcomes. An exception is Nguyen and Vu (2016), who examine the effects of parental migration for work on the time allocation of children aged 5–8 years old in Vietnam, using panel data from the Young Lives surveys in 2007 and 2009. The authors find that children with parental absence tend to spend less time on home study and more on leisure and playing. Another noted study is that of de Loenzien (2016), who investigates the effect of lone motherhood on children's school enrollment and attainment. Using logistic regression models, the author shows that school enrollment and attainment levels are lower for children of lone mothers than for children living with both parents.

Our study contributes to the literature in several aspects. Firstly, while most of the previous studies are concerned with either parental migration or parental divorce, our study examines the effects of parental absence due to different reasons, including migration, divorce, and death. Different types of parental absence can have different effects on children's education. As a result, the government should have different policies

to support children's education under different types of parental absence. Secondly, we used a large dataset from the 2014 Intercensal Population and Housing Survey (2014 IPS), conducted by the Vietnam General Statistics Office (GSO) in 2014. The 2014 IPS was a sample survey with a sample size of 5% of the total households in Vietnam. The large amount of data allowed us to make more accurate estimates of the impacts on different population segments by living arrangement, education level, or household wealth. Finally, we examine heterogeneous effects of parental absence across parents with different educational levels and wealth levels.

The remaining paper is structured as follows. The second section describes the education outcomes and parental absence in Vietnam using data from the 2014 IPS. The third and fourth sections present the regression method and empirical results of parental absence on children's education. Finally, the fifth section presents our conclusions.

2. Parental absence and education outcomes

The 2014 Intercensal Population and Housing Survey (2014 IPS) was a large-scale sample survey covering 5% of all Vietnamese households, selected from 20% of the enumeration areas throughout the whole country. The survey included two types of questionnaires: about 3.4% of all households in Vietnam (equivalent to 760,200 households) were interviewed using the short questionnaire to collect information on age, sex, location of residence, and births and deaths in families; and about 1.6% of all households (equivalent to 361,650 households) were interviewed using the long questionnaire that included all the questions from the short questionnaire as well as questions on migration, education level, and births and deaths within households over the five years since the 2009 census. In this study, we used the sample with the long questionnaire. Because of the questionnaire design, it was impossible to include in the

analysis children who did not live with at least one parent. Our sample for analysis consisted of all children whose one biological parent was the household head. Households in which grandparents were household heads were excluded because it was impossible to identify the precise relationship between parents and children in these families[1]. Step-families with a stepparent and a biological parent were considered two-parent households. We limited the age of children from 7 to 22. The final sample included 274,299 individuals.

Our data analysis in Table 1 indicates that 90.1% of children lived with both parents; about 8.3% with single mothers, and only 1.6% with single fathers. Compared to other developing countries, the percentage of children living with both parents in Vietnam is relatively high. For example, Pholphirul and Teimtad (2018) report that only 68% of the children in a sample of 11,000 Thai students lived with both parents. Using data from Census 2000 in China, Yang and Fan (2012) estimate that 81.8% of children aged 17-18 lived with both parents in 2000.

Father's death was the most common reason for children to live with only their mother (4.6%), followed by parental divorce (1.8%) and father's migration (1.6%). For children living with single fathers, maternal death was the most important reason (0.7%), followed by parental divorce (0.5%) and mother's migration (0.4%). The notable difference in the role of parental death between living with a single father and a single mother is due to the social stigma in Confucian-influenced countries that discourages widows from remarrying[2].

[1] The questionnaire asks for information about the household head and all the other members through their relationship with the household head. Therefore, it is not possible to determine the parent-child relationship for the children in families where grandparents are household heads.

[2] In traditional Confucian society, chastity was an ideal that honored widowed women and discouraged their remarriage. In contrast, widowers were encouraged to remarry to fulfil their filial obligations.

Table 1 indicates that children's family situation varied according to their age group and wealth quintile. Overall, children in the poorest 40 percent of the population were more likely to live with single parents. In terms of age group, younger children were more likely to live with both parents than older children.

Table 1. Frequency of family types by age and wealth quintile

	Living with both parents	Living with a single father			Living with a single mother				Total
		Mother migrating	Mother died	Parent divorced	Father migrating	Father died	Parent divorced	Unmarried mother	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Age groups									
Aged 7-15	92.2	0.3	0.5	0.6	1.6	2.9	1.6	0.4	100
Aged 16-18	88.7	0.4	0.8	0.5	1.5	5.6	2.1	0.4	100
Aged 19-22	86.2	0.4	1.1	0.4	1.6	7.8	2.0	0.4	100
Wealth index quintile									
Poorest quintile	87.8	0.4	1.2	0.8	1.0	6.3	1.8	0.7	100
Near poorest quintile	88.4	0.3	0.8	0.6	1.2	6.3	1.8	0.6	100
Middle quintile	90.2	0.3	0.6	0.5	1.4	4.8	1.8	0.3	100
Near richest quintile	91.7	0.4	0.4	0.4	1.8	3.5	1.8	0.2	100
Richest quintile	92.0	0.4	0.4	0.4	2.4	2.4	1.9	0.1	100
Total	90.1	0.4	0.7	0.5	1.6	4.6	1.8	0.4	100

Table 2 presents the school enrollment rate of children classified by their family types. Children from single-parent families generally had a lower enrollment rate at all levels than their peers in two-parent families. However, we see different results between parental migration and parental divorce or death. Children in single-parent families due to migration have similar enrollment rates to children in two-parent families and even higher enrollment rates at college degrees. In contrast, parental divorce or death are associated with much lower enrollment at all education levels, especially at the high school and the college level. Thus, it is likely that the positive income effect due to remittances in parental migration compensates for the negative impact of less parental care. Children living in a family with parental death or never-married mother showed the lowest enrollment at college level, implying they are more likely to enter the labor market to help their families.

Comparing the single-mother and single-father families, children in the former showed higher enrollment rates than the latter at the pre-college level, indicating the relatively more important role of mothers than fathers when children are young. This impact dissipates at the college level as children from both groups showed similar enrollment rates.

Table 2. Family types and school enrollment (in percent)

	Primary and secondary enrollment rate (age 7-15)	High school enrollment rate (age 16-18)	College enrollment rate (age 19-22)
	(1)	(2)	(3)
Living with both parents	93.8	60.7	23.1
Single-father families			
Mother migrating	90.3	57.7	24.6
Parent divorced	87.1	48.7	19.8
Mother died	80.8	40.1	15.1
Single-mother families			
Father migrating	93.6	60.9	25.1
Parent divorced	89.7	54.6	19.4
Father died	86.5	47.4	14.7
Never-married mother	89.6	50.8	12.0
Total	93.4	59.6	22.3

3. Regression methods

To understand the association between parental absence and children's education, we used regression analysis. Regression analysis provides an understanding of the effect of one explanatory variable on a dependent variable after controlling for other explanatory variables. The regression model is as follows:

$$y_{i,j} = \beta_0 + Children_{i,j}\beta_1 + Parent_j\beta_2 + Household_j\beta_3 + u_{i,j}, \qquad (1)$$

where $y_{i,j}$ is a dummy variable; for example, school enrollment of individual i in household j. $Children_{i,j}$ is the vector of children's characteristics, including age and gender, while $Parent_j$ represents dummy variables for parental status. $Household_j$ represents variables of households such as ethnicity of household head, household size and proportion of children and elderly in households, and wealth index. $u_{,i,j}$ represents unobserved variables. Our main interest was the estimates of dummy variables of parental

status (i.e., $Parent_j$). The summary statistics for the variables used in our models are presented in Table A.1 in the Appendix.

We estimated the model (1) using OLS regression. The sampling weights were used in regression, and the standard errors were clustered at the enumeration areas. We used specifications that differed in the selection of control variables to examine the effect of parental status on children's education to different sets of control variables. In most models, we also controlled for commune fixed-effects, which are a proxy for local culture and economic levels, and ethnicity-fixed effect to account for differences in terms of ethnic culture and economic factors.

It should be noted that although the dependent variable in equation (1) is binary, we estimated equation (1) by OLS for the linear probability model. This is because our model includes commune fixed-effects, and it is a computation burden to use logit or probit to estimate a model with commune fixed-effects. OLS estimators are consistent and can be applied to a binary model (e.g., Angrist et al. 2010). For robustness analysis, we estimated equation (1) using logit without the commune fixed-effects. The results are reported in Table A.2 in the Appendix.

An important variable that affects the demand for children's education is income. However, there were no data on income in the 2014 IPS. We constructed a welfare index to address this problem: an aggregate index derived from assets and housing variables. We used all variables available in the 2014 IPS, including living areas, housing conditions, water, sanitation, and durables. We followed the principal components approach of Filmer and Pritchett (2001) to compute a wealth index. According to this approach, a wealth index for a household *j* (denoted by A_j) was constructed as the first

principal component of a vector of assets of households, including durables goods, housing characteristics, and access to utilities as follows:

$$A_j = \sum_p a_p \left(\frac{x_{pj} - \bar{x}_p}{s_p} \right), \qquad (2)$$

where x_p denotes the asset *p*, and $\bar{x}$ denotes a mean of households in the sample. *s* is a standard deviation of asset x_p, and the *p*-dimensional vector of weight *a* is chosen to maximize the sample variance of *A*, subject to $\sum_p a_p^2 = 1$. The weight *a* is also called the vector of scores of asset variables, which can be estimated using principal component analysis. The wealth index is standardized to have a zero mean and a standard deviation of one. A higher value of the wealth index means a higher level of assets.

A critical assumption of the regression model is that the explanatory variables are not correlated with unobserved variables. Measuring the causal impact of an explanatory variable such as parental characteristics on children's school attendance is a significant challenge. Parents' ability or health can influence their children's education and may affect their children through channels other than parental absence. Thus, the explanation of the regression used here is careful when talking about causal effects. The regression coefficient of an explanatory variable can be interpreted as a correlation between the explanatory variable and the outcome variable after controlling for other explanatory variables in the model.

4. Empirical results

4.1. The effect of parental absence on children's education

Table 3 provides regressions of children's education on parental absences and control variables. To examine whether the effect of parental absences is sensitive to the control variables, we estimated two model specifications: one without controlling for parental

and household variables (columns 1 to 3 of Table 3), and another that included controlling for parental and household variables (columns 4 to 6 of Table 3). In the large model specifications, we also controlled commune fixed-effects, which address the differences in local effects between communes. Table 3 shows that the estimates of the coefficients of parental absences are quite similar in the two model specifications. We used the result from the large model specification for interpretation.

Table 3 indicates that children in single-parent families have lower enrollment rates than their peers in two-parent families. The effect is higher at the high-school level (children aged 15-18) than primary and lower secondary school levels (aged 7-14) and college level (age 19-22). For example, living with a single mother due to divorce lowers the probability of enrollment by 9.5% in high schools, 4.8% in primary or lower secondary schools, and 6.1% in colleges in the model with control variables.

Among the specific causes for parental absence, parental divorce is the most harmful to a child's education, followed by never-married mothers and parental death. Parental migration lowers school enrollment at the pre-college level, yet the effect is not significant at the college level.

Among single-parent households, living with a single mother seems better for a child's education outcome than living with a single father. The negative coefficients of living with a single mother are consistently lower than those of living with a single father, regardless of the specific cause and at most levels of education. The only exception is the effect of parental death on enrollment in higher education, in which children living with a single father are more advantaged than those living with a single mother, probably because at this level of education, the role of mothers in a child's education diminishes compared to the effect in earlier years.

Parental absence can negatively affect children's education by reducing the time spent caring for children. An indirect effect of parental absence is through changing income, one of the main determinants of children's education. If income is the primary channel through which parental absence affects children's education, controlling for income will reduce the estimated effect of parental absence. Table 3 shows that the effects in models with and without controlling for wealth index are similar. This finding suggests that income is not the main channel through which parental absence affects children's education.

The results of the regression analysis also show several interesting findings. Boys tend to have lower enrollment rates than girls at all levels of education. Parental characteristics are strongly related to a child's education. The age of a parent affects a child's school attendance. Age and age-squared variables are statistically significant in models of children's schooling, and the results suggest an inverted U-shaped relationship between parental age and children's education. The probability of children attending school increases with parents' age, but this peaks at a certain parental age (45 years in the regression of school attendance of children aged 7- 15), after which the probability of attending school decreases with parental age.[3] The reason for this is that the age of parents reflects income and the parents' experience. Higher age generally correlates with higher income and more experience, which positively impact children's school attendance, up to a certain age limit. Age and income have an inverted U-shaped relationship, i.e., income increases with age, but only to a certain age, and then falls due to decreasing health and labor productivity in adults at older ages (Deaton, 1986; 2005).

[3] This is the age at which the marginal impact of age on the probability of attending school is equal to 0. This is calculated by the coefficient of age divided by 2 times the absolute value of the variable age-squared coefficient. Specifically, 47=0,01923/(2*0.00021) and 45=0,0018 / (2*0.00002).

Children of parents with higher education levels tend to have a higher rate of school enrollment. The impact of parental education on school enrollment is highest for youth aged 16-22. The school enrollment rate for youth in Vietnam is notably lower than that for young children. In this context, parental education is vital for the education of youth. For example, children aged 7-15 whose parents attended college or university have about a six percentage point higher enrollment rate at primary and lower secondary schools than children whose parents have less than primary education. For youth aged 16-22, the effect of having parents with college or university education is even greater, resulting in a difference of up to 28-29 percentage points in enrollment at high school and college level compared to peers with parents who have less than primary education.

There is often-cited wisdom that children in large families receive less investment from parents than those in small families (Becker and Lewis 1973; Becker and Tomes 1976). Our analysis shows that children in large families have a lower enrollment rate than children in smaller-sized families. An additional household member reduces the enrollment rate at the primary and lower secondary levels by 1.5 percentage points, at the high school level by 3.1 percentage points, and at the college level by 1.3 percentage points. We also find that children living in migrant households are less likely to enroll in schools. Furthermore, as expected, children from wealthier quintiles have higher enrollment rates than those in the poorer quintiles. The education gap between the rich and the poor is narrow at the primary and lower secondary level but is remarkable at high school and college levels. In particular, the gap between the richest and the poorest quintile is seven percentage points at the primary and lower secondary level but reaches 29.2 percentage points at the high school level and 20.6 percentage points at the college level.

Table 3. OLS regression of school enrollment

Explanatory variables	Dependent variables					
	Enrolled in primary or secondary (yes=1, no=0)	Enrolled in high schools (yes=1, no=0)	Enrolled in college or university (yes=1, no=0)	Enrolled in primary or secondary (yes=1, no=0)	Enrolled in high schools (yes=1, no=0)	Enrolled in college or university (yes=1, no=0)
	(1)	(2)	(3)	(4)	(5)	(6)
Gender of children (male=1, female=0)	-0.0117***	-0.0912***	-0.0820***	-0.0136***	-0.0913***	-0.0659***
	(0.0013)	(0.0043)	(0.0041)	(0.0013)	(0.0044)	(0.0042)
Age of children	0.1069***	2.9385***	0.2873***	0.1091***	2.7299***	0.3203***
	(0.0027)	(0.1472)	(0.0766)	(0.0027)	(0.1456)	(0.0752)
Age of children squared	-0.0058***	-0.0907***	-0.0085***	-0.0059***	-0.0844***	-0.0094***
	(0.0001)	(0.0043)	(0.0019)	(0.0001)	(0.0043)	(0.0018)
Living with both parents	Reference			Reference		
Living with father, mother migrating	-0.0330**	-0.0419	-0.0067	-0.0565***	-0.1022***	-0.0357
	(0.0162)	(0.0352)	(0.0334)	(0.0150)	(0.0328)	(0.0342)
Living with mother, father migrating	-0.0116*	-0.0347*	-0.0142	-0.0361***	-0.0845***	-0.0120
	(0.0068)	(0.0204)	(0.0170)	(0.0062)	(0.0219)	(0.0169)
Living with unmarried mother	-0.0401***	-0.1026***	-0.1116***	-0.0594***	-0.1139***	-0.1011***
	(0.0129)	(0.0341)	(0.0228)	(0.0132)	(0.0356)	(0.0241)
Living with father, parent divorced	-0.0705***	-0.1437***	-0.0564**	-0.0814***	-0.1372***	-0.0656**
	(0.0115)	(0.0322)	(0.0264)	(0.0117)	(0.0326)	(0.0256)
Living with mother, parent divorced	-0.0412***	-0.0875***	-0.0644***	-0.0481***	-0.0950***	-0.0613***
	(0.0065)	(0.0168)	(0.0145)	(0.0066)	(0.0172)	(0.0149)
Living with father, mother died	-0.0955***	-0.1287***	-0.0559***	-0.0884***	-0.0892***	-0.0300**
	(0.0150)	(0.0231)	(0.0155)	(0.0145)	(0.0233)	(0.0146)
Living with mother, father died	-0.0499***	-0.1170***	-0.0722***	-0.0540***	-0.0841***	-0.0472***
	(0.0054)	(0.0094)	(0.0064)	(0.0053)	(0.0099)	(0.0067)
Parental age				0.0046***	-0.0012	0.0007
				(0.0011)	(0.0039)	(0.0030)
Parental age squared				-0.0001***	-0.0000	-0.0000
				(0.0000)	(0.0000)	(0.0000)
Less than primary school				Reference		
Parents with a primary degree				0.0574***	0.1025***	0.0377***
				(0.0029)	(0.0073)	(0.0049)
Parents with a secondary degree				0.0702***	0.2025***	0.0957***
				(0.0030)	(0.0079)	(0.0064)
Parents with a high school degree				0.0703***	0.2671***	0.1694***
				(0.0030)	(0.0095)	(0.0090)
Parents with college, university				0.0614***	0.2876***	0.2760***
				(0.0033)	(0.0115)	(0.0148)
Religion (yes=1, no=0)				-0.0026	-0.0215**	-0.0218***
				(0.0029)	(0.0084)	(0.0071)
Migration during past 5 years (yes=1, no=0)				-0.0438***	-0.0827***	-0.0637***
				(0.0064)	(0.0182)	(0.0130)
Household size				-0.0146***	-0.0316***	-0.0127***
				(0.0010)	(0.0021)	(0.0016)
Proportion of children				0.0229***	0.0363**	-0.0096
				(0.0067)	(0.0179)	(0.0175)
Proportion of elderly				0.0695***	0.1232***	0.0009
				(0.0125)	(0.0327)	(0.0233)
The poorest quintile				Reference		
The near poorest quintile				0.0288***	0.0723***	0.0120**
				(0.0034)	(0.0082)	(0.0057)
The middle quintile				0.0467***	0.1316***	0.0364***
				(0.0035)	(0.0092)	(0.0066)
The near richest quintile				0.0616***	0.2038***	0.0912***
				(0.0035)	(0.0097)	(0.0077)
The richest quintile				0.0701***	0.2921***	0.2062***
				(0.0036)	(0.0109)	(0.0096)
Urban areas	0.0160***	0.1460***	0.1821***	Omitted	Omitted	Omitted
	(0.0023)	(0.0074)	(0.0079)			
Ethnic group fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes
Commune fixed-effects	No	No	No	Yes	Yes	Yes
Constant	0.4199***	-23.310***	-2.1635***	0.3561***	-21.433***	-2.4350***
	(0.0138)	(1.2458)	(0.7846)	(0.0256)	(1.2345)	(0.7752)
Observations	158,256	55,353	60,690	158,256	55,353	60,690
R-squared	0.100	0.142	0.102	0.205	0.369	0.322

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

4.2. Robustness analysis

As mentioned, the main problem in estimating the effect of parental absence is the endogeneity bias. We conducted analyses to examine this issue. Table 3 shows the estinated effect of parental absence using the small and large model specifications. If the estimate of parental absence is sensitive to unobservable selection bias, it would differ significantly between the small and large model specifications. Table 3 shows very similar results from the small and large model specifications.

We then used the instrumental variable (IV) regression to estimate the effect of parental absence. The IV regression is a traditional method for addressing the problem of endogeneity. This method requires finding an instrumental variable that affects parental absence but is not correlated with the error term in the equation for children's education. Finding such exogenous instrumental variables is challenging. Each endogenous variable requires at least one instrumental variable. In Table 3, there are seven variables indicating parental absence. For simplicity, we combined all these seven variables into a single dummy that indicates parental absence. Table A.3 in the Appendix reports the OLS regression of children's education on parental absence using similar model specifications as in Table 3. It shows that parental absence is negative and statistically significant at the 1% level in all the regressions.

Next, following the approach of Klein and Vella (2010) and Lewbel (2012; 2018), we constructed heteroscedasticity-based instruments for parental absence. We first regressed parental absence on all the control variables. The test statistic of the Breusch-Pagan test of heteroscedasticity was over 10,000, indicating that the null of homoscedastic errors was firmly rejected. The control variables and the errors from the first stage were used to construct instruments for parental absence. The IV results, which are reported in

Table A.4 in the Appendix, indicate a negative and significant effect of parental absence on children's education. In this study, we present the IV estimates as the robustness analysis instead of the main finding. The reason is that with the IV method, we could only estimate the effect of a single variable of parental absence, but we were interested in the effects of different types of parental absence. In addition, our IV method used an internal instrumental variable, which is not as good as an exogenous one.

4.3. Heterogeneous effects

We considered the possibility that parental absence may confound characteristics such as parental education or household wealth by running the OLS regression similarly to Table 3 but with interaction terms. We ran the models with the interaction terms between parental absence and parental education and between parental absence and household wealth quintiles separately. Table 4 reports the results.[4] Most of the interaction terms are only significant for primary and lower schooling. At this level of education, the coefficients of the interaction terms are positive, indicating that parental education and household wealth have a beneficial role in reducing the adverse impact of parental absence. In other words, the negative effect of parental absence is partly compensated if the remaining parent is better educated or if the household is relatively well-off. However, this offsetting effect is only significant for younger children from 7 to 15 years of age.

[4] To save space, we have only reported the coefficients for the variables reflecting parental absence, parental education, and wealth quintile.

Table 4. OLS regression of school enrollment with interactions

Explanatory variables	Dependent variables					
	Enrolled in primary or secondary (yes=1, no=0)	Enrolled in high schools (yes=1, no=0)	Enrolled in college or university (yes=1, no=0)	Enrolled in primary or secondary (yes=1, no=0)	Enrolled in high schools (yes=1, no=0)	Enrolled in college or university (yes=1, no=0)
	(1)	(2)	(3)	(4)	(5)	(6)
Living with single parent (yes=1, no=0)	-0.0918***	-0.0978***	-0.0344***	-0.0912***	-0.0960***	-0.0302***
	(0.0081)	(0.0125)	(0.0073)	(0.0075)	(0.0128)	(0.0077)
Parents with primary degree * Living with single parent	0.0372***	0.0050	-0.0098			
	(0.0099)	(0.0187)	(0.0119)			
Parents with secondary degree * Living with single parent	0.0560***	-0.0004	-0.0257**			
	(0.0094)	(0.0187)	(0.0128)			
Parents with high school * Living with single parent	0.0598***	0.0414*	0.0042			
	(0.0096)	(0.0225)	(0.0217)			
Parents with college, university * Living with single parent	0.0657***	0.0271	-0.0320			
	(0.0098)	(0.0284)	(0.0373)			
The near poorest quintile * Living with single parent				0.0315***	-0.0234	-0.0158
				(0.0100)	(0.0193)	(0.0111)
The middle quintile * Living with single parent				0.0384***	0.0147	-0.0129
				(0.0106)	(0.0211)	(0.0129)
The near richest quintile * Living with single parent				0.0648***	0.0204	-0.0219
				(0.0095)	(0.0220)	(0.0164)
The richest quintile * Living with single parent				0.0665***	0.0389*	-0.0261
				(0.0086)	(0.0215)	(0.0188)
Parents with less than primary	Reference					
Parents with primary degree	0.0536***	0.1014***	0.0400***	0.0567***	0.1017***	0.0381***
	(0.0030)	(0.0077)	(0.0054)	(0.0029)	(0.0073)	(0.0049)
Parents with secondary degree	0.0650***	0.2018***	0.0999***	0.0696***	0.2016***	0.0961***
	(0.0030)	(0.0083)	(0.0067)	(0.0030)	(0.0079)	(0.0064)
Parents with high school degree	0.0649***	0.2624***	0.1706***	0.0697***	0.2660***	0.1700***
	(0.0031)	(0.0098)	(0.0093)	(0.0030)	(0.0095)	(0.0090)
Parents with college, university	0.0556***	0.2841***	0.2811***	0.0608***	0.2866***	0.2765***
	(0.0034)	(0.0119)	(0.0152)	(0.0033)	(0.0115)	(0.0148)
The poorest quintile	Reference					
The near poorest quintile	0.0288***	0.0724***	0.0124**	0.0251***	0.0765***	0.0156**
	(0.0034)	(0.0082)	(0.0057)	(0.0034)	(0.0087)	(0.0062)
The middle quintile	0.0469***	0.1316***	0.0369***	0.0424***	0.1294***	0.0400***
	(0.0035)	(0.0092)	(0.0065)	(0.0035)	(0.0097)	(0.0069)
The near richest quintile	0.0621***	0.2039***	0.0918***	0.0558***	0.2015***	0.0960***
	(0.0035)	(0.0096)	(0.0077)	(0.0035)	(0.0100)	(0.0080)
The richest quintile	0.0710***	0.2926***	0.2069***	0.0646***	0.2886***	0.2113***
	(0.0036)	(0.0109)	(0.0096)	(0.0036)	(0.0111)	(0.0099)
Ethnic group fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes
Commune fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes
Other control variables	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.3616***	-21.4370***	-2.4402***	0.3589***	-21.4101***	-2.4257***
	(0.0256)	(1.2341)	(0.7750)	(0.0256)	(1.2338)	(0.7750)
Observations	158,256	55,353	60,690	158,256	55,353	60,690
R-squared	0.205	0.369	0.322	0.205	0.369	0.322

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

5. Conclusions

This study used large-scale data from Vietnam to analyze the impacts of parental absence due to migration, death, or divorce on children's school enrollment for children aged 7 to 22 years. We found that children from two-parent families have a better chance of enrolling at all levels of education than those from single-parent families. This is consistent with earlier findings in developed and developing countries (e.g., Yang & Fan 2012, McLanahan et al. 2013). Within single-family types, the negative effect on children of parental divorce is higher than the effect of parental death, while the effect of parental migration is the lowest. Comparing the effect of single father and single-mother households, we found that children living with a single mother tend to have higher school enrollment than those living with a single father. This finding indicates the important role of mothers in children's education, especially for younger children (less than or equal to 15 years old).

We also examined the heterogeneous effect of parental absence. We found that the negative impact of parental absence in wealthier households was less pronounced than in poorer ones. The effect of parental absence was also weakened in families with better-educated parents, yet the impact was significant only at the primary and lower secondary levels.

Although more studies are needed to fully understand the relationship between parental absence and child education in Vietnam and other developing countries, this study has important implications. Firstly, it is important to distinguish in analyses between parental absence due to migration and parental absence due to other family disruptions such as divorce or death. Secondly, our study highlights the role that wealth and parental education can play in offsetting the negative effect of parental absence on a child's education.

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Appendix

Table A.1. Summary statistics of control variables

Variable	Type	Mean	Std. Dev.	Min	Max
Gender of children (male=1, female=0)	Binary	0.539	0.498	0	1
Age of children	Discrete	14.386	4.510	7	22
Parental age	Discrete	43.647	7.549	21	92
Parents without education	Binary	0.199	0.399	0	1
Parents with primary degree	Binary	0.285	0.451	0	1
Parents with secondary degree	Binary	0.305	0.460	0	1
Parents with high school degree	Binary	0.150	0.357	0	1
Parents with college, university	Binary	0.062	0.241	0	1
Religion (yes=1, no=0)	Binary	0.176	0.380	0	1
Migration during past 5 years (yes=1, no=0)	Binary	0.030	0.170	0	1
Urban areas	Binary	0.276	0.447	0	1
Northern Mountain	Binary	0.136	0.343	0	1
Red River Delta	Binary	0.212	0.409	0	1
Central Coast	Binary	0.244	0.429	0	1
Central Highland	Binary	0.083	0.276	0	1
Southeast	Binary	0.150	0.357	0	1
Mekong River Delta	Binary	0.176	0.381	0	1
Household size	Discrete	4.530	1.357	2	23
Proportion of children	Continuous	0.311	0.208	0	0.89
Proportion of elderly	Continuous	0.024	0.078	0	0.8
Number of observations	274,299				

Table A.2. Logit regression of children's enrollment

Explanatory variables	Dependent variables					
	Enrolled in primary or secondary (yes=1, no=0)	Enrolled in high schools (yes=1, no=0)	Enrolled in college or university (yes=1, no=0)	Enrolled in primary or secondary (yes=1, no=0)	Enrolled in high schools (yes=1, no=0)	Enrolled in college or university (yes=1, no=0)
	(1)	(2)	(3)	(4)	(5)	(6)
Gender of children (male=1, female=0)	-0.2149***	-0.4383***	-0.5112***	-0.2479***	-0.5187***	-0.5082***
	(0.0245)	(0.0210)	(0.0250)	(0.0257)	(0.0230)	(0.0267)
Age of children	0.8738***	12.5612***	3.4344***	1.0933***	13.7047***	4.2717***
	(0.0504)	(0.7085)	(0.5039)	(0.0512)	(0.7590)	(0.5306)
Age of children squared	-0.0559***	-0.3891***	-0.0940***	-0.0658***	-0.4255***	-0.1167***
	(0.0022)	(0.0208)	(0.0124)	(0.0022)	(0.0223)	(0.0130)
Living with both parents	Reference					
Living with father, mother migrating	-0.5536***	-0.2008	-0.0300	-0.7842***	-0.4279**	-0.2056
	(0.2087)	(0.1622)	(0.2003)	(0.2131)	(0.1748)	(0.2242)
Living with mother, father migrating	-0.2161*	-0.1728*	-0.0874	-0.4852***	-0.4759***	-0.0987
	(0.1266)	(0.0976)	(0.1007)	(0.1418)	(0.1141)	(0.1026)
Living with unmarried mother	-0.6275***	-0.4680***	-0.8579***	-0.8176***	-0.5041***	-0.4860**
	(0.1587)	(0.1551)	(0.2226)	(0.1668)	(0.1611)	(0.2145)
Living with father, parent divorced	-1.0159***	-0.6847***	-0.3601*	-0.9796***	-0.7871***	-0.3144*
	(0.1186)	(0.1482)	(0.1856)	(0.1249)	(0.1549)	(0.1802)
Living with mother, parent divorced	-0.6577***	-0.4253***	-0.4131***	-0.6810***	-0.4834***	-0.3629***
	(0.0814)	(0.0787)	(0.0972)	(0.0876)	(0.0830)	(0.1069)
Living with father, mother died	-0.9615***	-0.6127***	-0.4406***	-0.9032***	-0.5383***	-0.2891**
	(0.1156)	(0.1129)	(0.1342)	(0.1255)	(0.1214)	(0.1410)
Living with mother, father died	-0.5996***	-0.5517***	-0.5385***	-0.5673***	-0.4671***	-0.2851***
	(0.0560)	(0.0439)	(0.0532)	(0.0590)	(0.0496)	(0.0566)
Parental age				0.0383**	0.0368	0.0251
				(0.0183)	(0.0233)	(0.0242)
Parental age squared				-0.0006***	-0.0005*	-0.0002
				(0.0002)	(0.0002)	(0.0002)
Parents without education				Reference		
Parents with primary degree				0.6838***	0.5673***	0.5112***
				(0.0337)	(0.0333)	(0.0484)
Parents with a secondary degree				1.0778***	1.0419***	0.8907***
				(0.0443)	(0.0364)	(0.0522)
Parents with a high school degree				1.4170***	1.5609***	1.3197***
				(0.0704)	(0.0494)	(0.0602)
Parents with college, university				1.6493***	2.1037***	1.8490***
				(0.1311)	(0.0968)	(0.0724)
Religion (yes=1, no=0)				-0.0583	-0.1030***	-0.1595***
				(0.0434)	(0.0354)	(0.0414)
Migration during past 5 years (yes=1, no=0)				-0.9362***	-0.5835***	-0.3367***
				(0.1147)	(0.1027)	(0.0809)
Household size				-0.1603***	-0.1844***	-0.0879***
				(0.0106)	(0.0118)	(0.0127)
Proportion of children				0.2818**	0.3291***	-0.2296*
				(0.1102)	(0.0939)	(0.1193)
Proportion of elderly				0.8410***	0.7584***	0.1072
				(0.2174)	(0.1758)	(0.1638)
The poorest quintile				Reference		
The near poorest quintile				0.3575***	0.3546***	0.2184***
				(0.0390)	(0.0367)	(0.0624)
The middle quintile				0.6699***	0.6129***	0.4821***
				(0.0473)	(0.0407)	(0.0606)
The near richest quintile				1.1189***	0.9993***	0.9094***
				(0.0580)	(0.0442)	(0.0628)
The richest quintile				1.7184***	1.7407***	1.6305***
				(0.0823)	(0.0557)	(0.0666)
Urban areas	0.3745***	0.7246***	1.0161***	-0.2026***	0.0926**	0.2662***
	(0.0541)	(0.0389)	(0.0408)	(0.0524)	(0.0364)	(0.0374)
Ethnic group fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes
Regional dummies	No	No	No	Yes	Yes	Yes
Constant	-0.3163	-101.46	-32.9302***	-1.3115***	-110.51	-41.7465***
	(0.2872)	(6.0109)	(5.1266)	(0.4990)	(6.4537)	(5.4416)
Pseudo R2	0.1757	0.1099	0.1013	0.2688	0.2212	0.1953
Observations	158,256	55,353	60,690	158,256	55,353	60,690

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A.3. OLS regression of children's enrollment

Explanatory variables	Dependent variables					
	Enrolled in primary or secondary schools (yes=1, no=0)	Enrolled in high schools (yes=1, no=0)	Enrolled in college or university (yes=1, no=0)	Enrolled in primary or secondary schools (yes=1, no=0)	Enrolled in high schools (yes=1, no=0)	Enrolled in college or university (yes=1, no=0)
	(1)	(2)	(3)	(4)	(5)	(6)
Living with single parent	-0.0434***	-0.0996***	-0.0614***	-0.0541***	-0.0860***	-0.0322***
	(0.0033)	(0.0070)	(0.0054)	(0.0034)	(0.0070)	(0.0054)
Gender of children (male=1, female=0)	-0.0118***	-0.0913***	-0.0820***	-0.0142***	-0.0921***	-0.0703***
	(0.0013)	(0.0043)	(0.0041)	(0.0013)	(0.0040)	(0.0039)
Age of children	0.1069***	2.9479***	0.2871***	0.1091***	2.7006***	0.3467***
	(0.0027)	(0.1472)	(0.0766)	(0.0026)	(0.1359)	(0.0716)
Age of children squared	-0.0058***	-0.0910***	-0.0085***	-0.0059***	-0.0836***	-0.0101***
	(0.0001)	(0.0043)	(0.0019)	(0.0001)	(0.0040)	(0.0017)
Urban areas	0.0164***	0.1468***	0.1830***	-0.0074***	0.0137**	0.0440***
	(0.0023)	(0.0074)	(0.0079)	(0.0022)	(0.0061)	(0.0061)
Religion (yes=1, no=0)				-0.0028	-0.0187***	-0.0219***
				(0.0028)	(0.0066)	(0.0053)
Migration during past 5 years (yes=1, no=0)				-0.0470***	-0.1065***	-0.0510***
				(0.0072)	(0.0181)	(0.0116)
Household size				-0.0159***	-0.0320***	-0.0102***
				(0.0010)	(0.0020)	(0.0015)
Proportion of children				0.0294***	0.0561***	-0.0185
				(0.0067)	(0.0168)	(0.0162)
Proportion of elderly				0.0883***	0.1329***	0.0051
				(0.0124)	(0.0305)	(0.0212)
Parental age				0.0061***	0.0043	0.0035
				(0.0011)	(0.0039)	(0.0027)
Parental age squared				-0.0001***	-0.0001	-0.0000
				(0.0000)	(0.0000)	(0.0000)
Parents with an education degree				Reference		
Parents with primary degree				0.0661***	0.1210***	0.0411***
				(0.0029)	(0.0067)	(0.0044)
Parents with a secondary degree				0.0811***	0.2223***	0.0934***
				(0.0030)	(0.0072)	(0.0056)
Parents with a high-school degree				0.0812***	0.2950***	0.1803***
				(0.0031)	(0.0084)	(0.0083)
Parents with college, university				0.0741***	0.3260***	0.3050***
				(0.0033)	(0.0100)	(0.0125)
The poorest quintile				Reference		
The near poorest quintile				0.0308***	0.0732***	0.0070
				(0.0033)	(0.0073)	(0.0049)
The middle quintile				0.0475***	0.1290***	0.0320***
				(0.0034)	(0.0081)	(0.0056)
The near richest quintile				0.0626***	0.2068***	0.0935***
				(0.0033)	(0.0085)	(0.0067)
The richest quintile				0.0745***	0.3113***	0.2458***
				(0.0035)	(0.0094)	(0.0084)
Ethnic group fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes
Region fixed-effects	No	No	No	Yes	Yes	Yes
Constant	0.4198***	-23.3906***	-2.1615***	0.3371***	-21.3200***	-2.8360***
	(0.0138)	(1.2458)	(0.7845)	(0.0258)	(1.1526)	(0.7388)
Observations	158,256	55,353	60,690	158,256	55,353	60,690
R-squared	0.099	0.141	0.101	0.143	0.263	0.199

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A.4. IV regression of children's enrollment

Explanatory variables	Dependent variables					
	Enrolled in primary or secondary schools (yes=1, no=0)	Enrolled in high schools (yes=1, no=0)	Enrolled in college or university (yes=1, no=0)	Enrolled in primary or secondary schools (yes=1, no=0)	Enrolled in high schools (yes=1, no=0)	Enrolled in college or university (yes=1, no=0)
	(1)	(2)	(3)	(4)	(5)	(6)
Living with single parent	-0.0729***	-0.1029***	-0.1094***	-0.0717***	-0.1137***	-0.0445***
	(0.0148)	(0.0336)	(0.0266)	(0.0071)	(0.0162)	(0.0117)
Gender of children (male=1, female=0)	-0.0117***	-0.0913***	-0.0816***	-0.0142***	-0.0923***	-0.0704***
	(0.0013)	(0.0043)	(0.0042)	(0.0013)	(0.0040)	(0.0039)
Age of children	0.1070***	2.9469***	0.2894***	0.1091***	2.6904***	0.3478***
	(0.0027)	(0.1476)	(0.0766)	(0.0026)	(0.1359)	(0.0716)
Age of children squared	-0.0058***	-0.0910***	-0.0086***	-0.0059***	-0.0833***	-0.0101***
	(0.0001)	(0.0044)	(0.0019)	(0.0001)	(0.0040)	(0.0017)
Urban areas	0.0168***	0.1468***	0.1841***	-0.0072***	0.0148**	0.0445***
	(0.0023)	(0.0075)	(0.0079)	(0.0022)	(0.0061)	(0.0061)
Religion (yes=1, no=0)				-0.0027	-0.0184***	-0.0217***
				(0.0028)	(0.0066)	(0.0053)
Migration during past 5 years (yes=1, no=0)				-0.0463***	-0.1053***	-0.0504***
				(0.0072)	(0.0182)	(0.0116)
Household size				-0.0173***	-0.0344***	-0.0112***
				(0.0011)	(0.0023)	(0.0017)
Proportion of children				0.0393***	0.0634***	-0.0134
				(0.0075)	(0.0171)	(0.0170)
Proportion of elderly				0.0980***	0.1382***	0.0046
				(0.0130)	(0.0306)	(0.0212)
Parental age				0.0064***	0.0047	0.0037
				(0.0011)	(0.0039)	(0.0027)
Parental age squared				-0.0001***	-0.0001	-0.0000
				(0.0000)	(0.0000)	(0.0000)
Parents with an education degree				Reference		
Parents with primary degree				0.0655***	0.1194***	0.0402***
				(0.0030)	(0.0068)	(0.0044)
Parents with a secondary degree				0.0804***	0.2201***	0.0921***
				(0.0030)	(0.0073)	(0.0057)
Parents with a high-school degree				0.0803***	0.2923***	0.1788***
				(0.0031)	(0.0085)	(0.0084)
Parents with college, university				0.0731***	0.3233***	0.3034***
				(0.0033)	(0.0100)	(0.0126)
The poorest quintile				Reference		
The near poorest quintile				0.0304***	0.0723***	0.0066
				(0.0033)	(0.0073)	(0.0049)
The middle quintile				0.0467***	0.1274***	0.0312***
				(0.0034)	(0.0082)	(0.0056)
The near richest quintile				0.0617***	0.2046***	0.0925***
				(0.0033)	(0.0086)	(0.0067)
The richest quintile				0.0734***	0.3085***	0.2444***
				(0.0035)	(0.0096)	(0.0085)
Ethnic group fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes
Region fixed-effects	No	No	No	Yes	Yes	Yes
Constant	0.4206***	-23.3821***	-2.1798***	0.3336***	-21.2312***	-2.8466***
	(0.0138)	(1.2491)	(0.7842)	(0.0258)	(1.1527)	(0.7385)
Observations	158,256	55,353	60,690	158,256	55,353	60,690
R-squared	0.098	0.141	0.100	0.143	0.262	0.198

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1