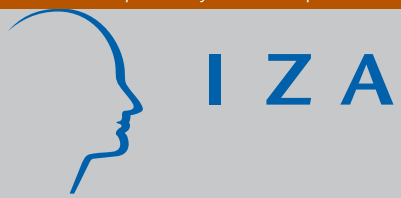

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ABSTRACT

Impact of Paternal Temporary Absence on Children Left Behind*

Using the first two waves of the Vietnam Living Standards Survey, we investigate how a father's temporary absence affects children left behind in terms of their school attendance, household expenditures on education, and nonhousework labor supply in the 1990s. The estimating subsample is children aged 7-18 in households in which both parents usually coreside and the mother has not been absent. Our results indicate that paternal temporary absence increases nonhousework labor supply by his son. The longer the absence of the father, the larger the impact. One additional month of paternal temporary absence increases a son's nonhousework labor supply by approximately one week. However, a daughter's nonhousework labor supply is not affected. We find no evidence that paternal temporary absence influences his children in terms of school attendance or education-related household expenditures.

JEL Classification: I22, O15, P36

Keywords: parental absence, temporary migration, schooling, human capital investment, child labor, Vietnam, VLSS

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1 Introduction

This paper is concerned with migration that involves a temporary geographic separation of the migrating household member from those remaining. It has often been argued that labor migration has a potentially powerful role in alleviating poverty and promoting economic development in the migrant-sending countries.[1] One channel through which migration may facilitate economic development at the origin is via the impact of remittances on the formation of human capital. By increasing financial resources available to households left behind, migrants' remittances are expected to make child education affordable. Yang (2008), Cox Edwards and Ureta (2003), Calero et al (2009), Davies et al (2009) and Acosta (2006) do indeed find a positive impact of remittances on child education.[2] However, remittances are not the only consequence of labor migration to the remaining households. The geographic separation of a household member from the rest of the household also causes, among other things, a loss of manpower at the household, a change in the opportunity cost of each remaining member's time, and possibly a change in the household budgeting process. These consequences can lead to a reallocation of household resources at the origin, which may or may not influence child education positively. Therefore, it is important to examine the non-remittance impact of migration on children left behind. We investigate the impact of paternal temporary migration on three outcomes: his child's school attendance, the household expenditure for his child's education, and his child's labor supply.

Few papers have studied the non-remittance impact of migration on children in the migrant-sending households. McKenzie and Rapoport (2006, 2007) examine the effect of having a migrant household member on the schooling of children in the origin households. Their cross-sectional study of Mexican data indicates that having a household member who has migrated to the US negatively affects child education at the origin. They speculate that having a migrant household member gives children an opportunity to gain, through migration, a job without much schooling, which in turn discourages child schooling at the origin. Using data from rural China, de Brauw and Giles (2008) examine more explicitly the relationship between the availability of rural-urban migration opportunities and school attendance. Their study confirms McKenzie and Rapoport's speculation. Lu and Treiman (2007: Table 7) also analyze the impact of having a migrant house-

[1] See for instance GCIM (2005: Chap. 2), IOM (2005: Chaps. 13-14, 16) and World Bank (2006: Chap. 2).

[2] The impact of remittances on other outcomes at the migrant-sending households has been investigated by Guzmán et al (2008), Azam and Gubert (2005, 2006), Cox-Edwards and Rodríguez-Oreggia (2009), Funkhouser (1992), Osili (2004, 2007), and Rodriguez and Tiongson (2001) among others.

hold member on the education of children in the origin households, using South African panel data. Their data allow them to distinguish between migrant-sending households with and without remittances, for migrants do not necessarily remit to their origin households. This information was not available to McKenzie and Rapoport, who were therefore unable to control for remittances. Lu and Treiman's fixed-effects estimates suggest that the probability of school enrollment increases if the household receives migrant remittances, whereas if the household does not receive remittances from their migrant household members there is no statistically significantly effect. Gibson et al (2009: Table 9) also find little impact of having a migrant household member in New Zealand on the education of children remaining in Tonga, though they do not control for remittances. All of these studies use an indicator of having *any* migrant household member as a proxy for migration.

Migration of a household member, a working-age member in particular, may also affect the remaining children's labor suppy. Since a change in a child's labor supply may influence the child's schooling through his/her time budget constraint, the impact of migration of household members on child labor is also of interest to us. However, there is only a sparse literature on this. Chen (2006), using Chinese household panel data, examines the impact of paternal migration on a child's housework. She finds weak evidence that a father's absence increases the probability that his daughter spends time doing laundry at home. Utilizing the first two waves of the Vietnam Living Standards Survey (which we also use in this paper), Edmonds and Turk (2004: Table 14.10) find that a child is more likely to work in a household whose head used to live somewhere else, compared to a child in a household whose head has never lived anywhere else. This finding does not directly address the relationship between migration and child labor.[3]

In this paper, we concentrate on one particular form of parental migration—a combination of paternal temporary absence and maternal presence in households where fathers are the chief decisionmakers.[4] The relationship between migration and child education has not previously been studied in this specific household context. The studies on migration and child education mentioned above do not distinguish migrants by their household member status. Hence these do not focus on

[3]There are also a few studies that examine the non-remittance impact of migration on the health of children at the remaining households, i.e., Hildebrandt and McKenzie (2005), Chen (2006), and Gibson et al (2009).

[4]Thus, our estimating subsample is similar to Chen's, although her data set is Chinese. Ideally, we would like to compare the effects of different forms of parental migration, that is, the impact of both parents migrating, or only the father, or only the mother. A couple comprise two non-identical individuals who do not necessarily have the same preference. Furthermore, they are not necessarily equally powerful in the process of household decisionmaking. Hence child outcomes may differ according to the form of parental absence. Unfortunately, our data do not allow us to examine this issue. (The precise definition of temporary absence is given in the next section.)

parental absence. Still, there is some evidence of a negative association between parental absence and child outcomes (for the US, see Haveman and Wolfe, 1995), and there is a general concern about how parental migration may affect children left behind (see for example Bryant, 2005). The impact of parental absence on child labor is also of interest even though Chen has already studied it in the context of China. This is because none of the studies referred to above look at child education and child labor together even though these two child outcomes seem closely related in household decisionmaking, e.g., Cigno and Rosati (2005: Chap. 2).

Using the first two waves of the Vietnam Living Standards Survey (VLSS) collected in the 1990s, we estimate the effect of paternal absence on three outcome measures for each remaining child. The outcomes of interest are (i) the child's school attendance, (ii) household expenditure for the child's education, and (iii) the child's labor supply. The Vietnamese household panel data allow us to control for time-invariant unobservables that might select migrant-sending households. Moreover, the survey collected information on the length of absence of each household member, enabling us to construct a few different measures of paternal absence. Vietnam is an interesting country in its own right, not least because of its narrowing of the gender gap in educational attainment during the 1990s (Bélanger and Liu, 2004). The country's education system is well summarized elsewhere: we refer readers to Glewwe and Jacoby (1998) and Glewwe and Patrinos (1999: Section 2) for the late 1980s to the early 1990s, and Nguyen (2004) for the 1990s.

We describe the data in the next section. The findings are presented in Section 3, where we also report robustness checks. To summarize, our estimates suggest that a father's temporary absence increases the nonhousework labor supply of his son, *ceteris paribus*. This effect is stronger, the longer is the father's absence. On the other hand, nonhousework labor supply by his daughter does not seem affected. Moreover, we find no evidence that temporary paternal absence affects school attendance or education-related household expenditures on his children left behind. In Section 4, we discuss potential reasons for our results and reach some conclusions. All tables are attached to the end of the paper.

2 Data

We use the first two waves of VLSS, conducted from September 1992 to October 1993 and from December 1997 to December 1998. These are nationally representative of Vietnam in 1992 and

have broadly comparable survey questionnaires. Some 80% of 4,800 households in the first wave of VLSS are rural, and the rest urban. Out of these, 4,305 households were also surveyed in the second wave. VLSS is one of the few panel surveys for developing countries that contains data on the number of months of absence (up to 12 months during the 12 months prior to the survey interview) of household members.[5]

Our estimating sample comprises households in which (i) the household head is male and has only one wife over the period, (ii) the couple has at least one child of their own,[6] and (iii) the wife has not been away from the household during the 12 months prior to the interview, but the husband may or may not have been so. In Vietnam, children typically start five-year compulsory primary education at the age of 6. Lower-secondary education covers grades 6 to 9, while upper-secondary schooling covers grades 10 to 12, at which point the entrance examination is taken for those wishing to go on to university. Our sample covers children aged 7 to 18, i.e., from primary to upper-secondary schooling ages. All children in our estimating subsample are within this age range in both waves. We did not include children aged 6. This is because an academic year typically starts in October, and many 6 year-old children are interviewed before primary school entrance. Consequently any indicator variable aiming to pick up school attendance for these children could measure nonattendance arising from interview timing rather than from a choice not to enroll.[7]

In wave 2, a household head is defined as the person with the highest income in the household and who makes major decisions for the household. Unfortunately this definition was not explicitly given in the 1992-93 survey questionnaire. We therefore backcast the wave-2 information. The original data include female-headed households. However, out of 177 children whose mothers were household heads, only 33 had their mothers temporarily away from their households in one or both waves, making it impossible to examine the impact of temporary absence conditional on female headship. Therefore, we remove these female-headed households from our analysis, and concentrate on male-headed households. As noted above, we also exclude children with

[5]In principle, individuals who had been away for more than 6 months are not regarded as household members in the survey. However, this rule does not apply to the household head, his/her spouse with a marriage certificate, and pupils/students who stay away from home for studying but are still dependent on the household. We exploit this exception to the data-collection rule.

[6]This includes adopted children, who represent less than 0.4 percent of all children.

[7]We do not include the higher-education age (18-22) group because we find that the number of daughters is significantly lower than the number of sons in this age group, suggesting that many daughters leave their parental households after upper-secondary schooling.

temporarily absent mothers in male-headed households because there are only 71 such children across the two waves.

Our sample restrictions place paternal temporary absence in a particular context. That is, our investigation is about the impact of the temporary absence of the father who is the most powerful in the household—as measured in terms of having the highest income and making major decisions—provided that the less powerful wife remains at the origin.[8] Our estimating subsample is a balanced panel of 1,700 children in 964 households, consisting of 855 sons in 651 households and 845 daughters in 640 households.

We are interested in three child outcomes: school attendance, total household expenditure for the child's educatiuon, and nonhousework labor supply. School attendance is an indicator variable referring to the current academic year, or to the previous academic year if the survey interview took place during the summer holidays. We also classify a child as attending school if he/she stopped attending some time during the last 12 months. Thus, school attendance refers to any attendance during the last 12 months. Likewise our measures of paternal temporary absence refer to the 12 months prior to the interview (although we do not know during which months he was absent).

The second dependent variable is total household expenditure (in thousands of dong) for the education of each of the head's children during the 12 months prior to the interview.[9] VLSS asked for not only the total but also detailed itemized educational expenditures for each child. However, because the questionnaires for the two waves are slightly different, these itemized expenditures are not necessarily comparable across the two waves.[10] Moreover, many households did not report itemized expenditures, because the questionnaire allowed them to report only the total amount if

[8]Unfortunately, we do not explicitly know whether or not the reported temporary absence is employment-related: the questionnaire simply asked how many months an individual had been away from her/his household. However, since our estimating subsample comprises those households in which the main income earner may be absent, it seems likely that the migration is employment-related. Note that we also do not know where the absent head went.

[9]Expenditure figures are expressed at the January 1998 price level after adjusting by both monthly and regional price indices.

[10]In the 1992-93 survey, information on the following items was collected: (i) tuition and registration fees, (ii) contribution to parents' associations or school, including in-kind contribution such as rice, (iii) uniforms and sports clothes, (iv) books and school supplies, (v) transportation to school, (vi) pocket or food money at school, value in kind of room and board for students at boarding school, and lunch money at nursery school or kindergarten, (vi) others, such as club activity and extra classes. In the 1997-98 survey, education-related household spending was itemized in slightly more detail. These are (i) tuition and registration fees to study outside of school district, (ii) private tutoring or extra classes, (iii) contribution to parents' association, (iv) contribution for building fund, (v) fees for examination papers or examination, (vi) contribution for special events such as New Year's Day, (vii) uniforms and other clothing required by the school, (viii) purchase or rental of textbooks, (ix) purchase of paper, pens, pencils, books, bags, and other school tools, (x) transportation, lunch money, value of food if living as a lodger, (xi) others such as school-related accident insurance. According to Behrman and Knowles (1999: Section 5), tuition and registration fees are a relatively small proportion of total school-related household expenditures in 1996.

they could not recall expenditure item by item. For this reason, we are unable to disaggregate reliably total household expenditure into itemized expenditures.[11]

The third outcome variable is nonhousework labor supply, measured as the number of weeks during the last 12 months. Nonhousework refers to any work *unrelated* to housework such as cleaning the house, cooking for the family and repairing household goods. Although the VLSS collected information on housework labor supply, we do not include housework in our estimation because it referred only to the last seven days. What we need is information referring to the last 12 months, and this is becase our measures of paternal temporary absence refers to this period. VLSS collected information on main and secondary jobs separately. Our labor supply measure refers only to the main job of each child, for two reasons. First, only a fraction of children had a secondary job. Second, for those who had a secondary job, the total number of weeks can exceed the number of weeks available in a year when we aggregate labor supply to main and secondary jobs.[12]

Note that the VLSS contains information on remittance amounts only if the remitter is not a household member. Since the household head is always regarded as a household member in the data,[13] we cannot separate earnings from temporary migration from total household income. Furthermore, a reliable measure of total household income is not available. However, VLSS does contain data on total household expenditure that is consistent across the two waves, and this is measured over the 12 months prior to the survey date. We use this total household expenditure as a proxy for total household permanent income which includes the earnings by the father regardless of his absence status.[14] This implies that our measure of income could have been smoothed over

[11]Questions on household expenditures for each child's education were asked only if the child had attended school during the last 12 months. We recode the expenditure variable from missing to zero if the child had not attended school during the period.

[12]The questions on economic activities of household members changed across the waves. The second wave has a separate section on selfemployed agricultural work, where questions are disaggregated by types of agricultural activities. Here, we again find that for many children, the total number of weeks can exceed the number of weeks available in a year if we simply aggregate reported labor supply across different types of agricultural activities. In order to deal with this issue among children whose main job involved selfemployed agricultural activities, we do not aggregate labor supply across different agricultural activity types for each child, but concentrate on the activity type for which the child spent the largest number of weeks during the last 12 months. As Edmonds and Pavcnik (2005: 406-407) warn, we need to be cautious with our results, as there is a possibility that cross-wave variations in our measure of labor supply is driven by the change in response behavior due to the change in the questionnaire across the waves.

[13]See footnote 5.

[14]See World Bank (2001: 47-55) for details of the calculation. The expenditure figures provided by VLSS are adjusted by both regional and monthly price deflators within each wave. We express these figures at the January 1998 price level. Glewwe and Jacoby (2004), Edmonds (2005), and Rosati and Tzannatos (2006) also use this expenditure variable as a proxy for household permanent income.

the last 12 months via paternal temporary absence if the absence took place to cover a shortfall in household income during the same period.

[Insert Table 1 here]

The means of the outcome variables are presented in the upper panel of Table 1, stratified by the gender of the child and his/her father's temporary-absence status.[15] On average, a child with a temporarily absent father is slightly more likely to attend school than a child with a nonabsent father. However, the difference is not statistically significant. Roughly, 80 percent of the sample attend school.

For daughters, educational expenditure in households where the father was not absent is greater than in households where he was temporarily absent, while the opposite applies to boys. However, the difference across present- and absent-father households is not statistically significant for either girls or boys. Note that educational expenditure on daughters is less than expenditure on sons in households where their fathers were away for at least one month during the last 12 months. On the other hands, in households without an absent father, the educational expenditures on sons and daughters are on average similar to each other.

Comparing nonhousework labor supply between present- and absent-father households, sons on average provide less labor in households with their fathers being temporarily absent than in households with nonabsent fathers, although the difference is not statistically significant. The means also indicate that in households with temporarily absent fathers, daughters supply more labor than sons (difference of about four weeks during the last 12 months) on average.

The lower panel of Table 1 displays the means of child and household characteristics. The mean age of children in this 7-18 years old sample is about 12 years. Most child-year observations are either in the primary or lower-secondary schooling age range.[16] Slightly less than 80 percent of children were attending a public school, i.e., most of children who attend school are going to public school. Children are more likely to have been temporarily absent from their parental

[15] In our estimating subsample, 11.2 percent of 845 daughters and 11.4 percent of 855 sons are in households residing in urban Vietnam. As these percentage figures are lower than 20 which is the percentage of urban observations in the original data set, rural observations are slightly overrepresented in our study.

[16] Note that the age-group dummies, which we use to approximate the level of school, are not mutually exclusive. This is because a child at a threshold age of, say, 11 can typically be either in the last year of primary schooling or the first year of lower-secondary schooling. We use these age dummies because the first wave of VLSS does not contain information on the level of current schooling.

households during the last 12 months if their fathers were temporarily away from their households than otherwise. This is statistically significant.

The number of household members is fairly similar across columns, with a mean of about six. The number of the household head's children aged 7-18 is also quite similar across columns with a mean of about three. Couples appear younger in households where the husband has temporarily become absent, but this age difference is statistically significant only among wives in our sample of daughters. We also notice that there is some indication that the highest completed school grade is likely to be higher for a temporarily absent father than for a nonabsent father. A similar difference appears to exist between wives of temporarily absent heads and wives of nonabsent heads.

The value of owned dwelling (our proxy for household wealth) is lower in households with paternal temporary absence than in households without, but the difference is not statistically significant.[17] Total household per capita expenditure is around two million dong across columns. The conditional number of months of paternal temporary absence is around four among boys and 4.5 among girls.[18]

[Insert Table 2 here]

In Table 2, the means of our three dependent variables are further stratified by the child's age group. The age range 7-11 is typically of primary schooling, and the next age range 11-15 is of lower-secondary schooling. The last age range 15-18 covers upper-secondary schooling children.[19] The table shows that school attendance is lower for older children. We observe that in the youngest age group, over 90 percent of children had attended school during the last 12 months. In the lower-secondary schooling age group, the share of school-attending children falls. Still, over 80 percent of children had attended school on average. The table shows a sharp drop in the share in the eldest age range. In the 15-18 years old group, the share of school-attending children is below 70 percent. At this upper-secondary school level, a school attendance gender gap seems

[17] The value is zero if the household does not own a dwelling. The housing-value figures are expressed at the January 1998 price level after adjusting for both monthly and regional price indices. If we did not exclude missing observations, there were 100 out of 1,800 children (5.5 percent of the total) with missing housing value.

[18] We have amended (sometimes based on assumptions) the inconsistencies we found in the original data sets, regarding each household member's relationship to the household head, sex, age, and highest completed school grade. The codes are available at `http://econrsss.anu.edu.au/~tamura/boothtamura09`.

[19] See footnote 16. However, we should also note that as Nguyen (2004: 430) points out, many children begin the first grade of primary school at a later age than 6, and many children repeat grades. Hence these age ranges are only rough approximations of schooling levels.

to emerge. The share of daughters who had attended school is only 48 percent on average, while that of sons is 64 percent. These proportions are roughly consistent with Glewwe and Jacoby (1998) and Nguyen (2004) and hence indicate that our estimating subsample maintains the pattern in the original VLSS. We also note that there is no remarkable difference between children with temporarily absent fathers and non-absent fathers.

The mean of the total household expenditure for the child's education is higher for older children in spite of the fact that there are proportionately more non-school attending children in older age groups (and the expenditure is zero for non-attending children). This suggests that the cost of education rapidly rises as the level of schooling rises. Note that households with temporarily absent fathers appear to spend less on girls than on boys on average. Furthermore, the gender gap is the greatest in the upper-secondary schooling age group, regardless of the paternal absence status. This gender gap does not seem a sole product of data construction, i.e., not due to the fact that the expenditure is zero for non-school attending children. The mean expenditure conditional on school attendance is 829,000 dong for a son and 747,000 dong for a daughter in the 15-18 years old group.

Turning to nonhousework labor supply, older children supply more labor on average, regardless of paternal absence. This is as we expected *a priori.* In the primary schooling age group, children with temporarily absent fathers seem to work less than children with nonabsent fathers. However, this (statistically insignificant) difference reverses in the lower-secondary age group, and becomes statistically significant in the sample of daughters. In the upper-secondary schooling age range, boys with temporarily absent fathers work less than those with nonabsent fathers, and the opposite applies to girls. However, the difference is not statistically significant. We also note that daughters with temporarily absent fathers supply more labor than sons with temporarily absent fathers in the lower- and upper-secondary schooling age ranges.

These observations suggest that it is important to control for the child's age as well as gender in our econometric analysis in Section 3.

[Insert Table 3 here]

As we shall be using fixed-effects estimation in the next section, the impact of our variable of interest—the number of months the father was away—will be identified off changes in that variable

across the two waves. To get a feel for the number of changers, consider the two transition matrices in Table 3. Panel (a) shows the distribution of sons by the length of paternal absence across the two waves, and Panel (b) shows that of daughters. Children with absence status-changing fathers are counted in shaded cells in both panels. For instance, there are 10 daughters whose fathers were absent for one month in the first wave but were not absent in the second wave. There are 3 sons whose fathers were absent for 2 months in both waves 1 and 2. The matrices show that we have 84 daughters and 82 sons whose fathers changed the length of absence across the two waves, i.e., about 10 percent of the estimating subsample. We notice that shorter paternal absences are more common for both daughters and sons than are longer absences. The frequency distributions show that very few male heads reported an absence of 10 months or more.

[Insert Table 4 here]

The last table in this section presents pairwise correlation coefficients between our key variables. In each cell in Table 4, there are two coefficients: the first one refers to the levels of the paired variables, and the second to the across-wave changes. We observe that paternal temporary absence is not correlated to any of our three dependent variables. However, the dependent variables are correlated to each other. Not surprisingly, households spend more on the education of a child when the child attends school. Children supply more labor when they do not attend school, and there is a negative correlation between labor supply and educational expenditure. However, it is also important to remember that school attendance does not prevent children from supplying nonhousework labor. By looking at an indicator of whether the child supplied at least one week of nonhousework labor instead of looking at labor supply in terms of the number of weeks, we find that the share of children who had not supplied nonhousework labor at all during the last 12 months falls as the average age of the subsample rises. In the 7-11 years old group, 76.5 percent of sons and 78.7 percent of daughters record zero week. In the 11-15 years old group, about half the children had worked at least 1 week: 54 percent of sons and 52.5 percent of daughters had not worked at all. We find that children who had not supplied labor at all are a minority at the upper-secondary schooling age 15-18: only 32.4 percent of sons and 28 percent of daughters. Note that these percentage figures are all lower than the proportions of school-attending children shown in Table 2, which in turn indicates that there are children who attend school and also do a

nonhousework job at all schooling ages. This observation is consistent with Edmonds and Turk (2004: 513) who notes that schooling and a moderate amount of work were compatible in Vietnam even at the primary schooling level because children were not required to attend school all day. Typically, children become free from school before lunch time.

We now turn to econometric analysis in order to investigate if there is any relationship between paternal temporary absence and each of the three child outcomes once we control for a number of exogenous attributes.

3 Results

Our estimates of the impact of paternal temporary absence are summarized in Tables 5 and 6. In each table, there are two panels: the upper panel (a) presents the estimates for sons, and the lower panel (b) for daughters.[20] In each panel, we have the three child outcomes of interest (school attendance, education-related household expenditure, and nonhousework labor supply) as headings labeled I, II, and III. Under each of these dependent-variable headings, there are three columns: A, B, and C in Table 5, and C, D, and E in Table 6.[21] For Column A, we pool the data across the two waves and use the ordinary least squares (OLS) estimator. The estimated model is

$$y_{iw} = \beta_0 + m'_{iw}\beta_1 + x'_{iw}\beta_2 + z'_{iw}\beta_3 + t'_{iw}\beta_4 + u_{iw} \tag{A}$$

where y_{iw} is the outcome of child i in wave w; m_{iw} is the measure of temporary absence of child i's father; x_{iw} is a vector of characteristics of child i; z_{iw} denotes characteristics of the household to which child i belongs; t_{iw} contains the survey-year dummies;[22] β_0 is the common intercept; and u_{iw} is the i.i.d. error term.[23] For Column B, in order to control for factors that influence the outcome at the commune level, we add commune dummies k_{iw}, i.e.,

$$y_{iw} = \beta_0 + m'_{iw}\beta_1 + x'_{iw}\beta_2 + z'_{iw}\beta_3 + t'_{iw}\beta_4 + k'_{iw}\beta_5 + u_{iw} \tag{B}$$

[20] We have checked, using the likelihood ratio test, the validity of estimating models pooling daughters and sons together, and found that this was rejected by the data. For this reason, we present the results of estimation for sons and daughters separately.

[21] Column C in Table 5 is reproduced in Table 6 for ease of comparison.

[22] In each VLSS wave, there are two calendar years, e.g., $t'_{iw} = (1993_{iw}, 1997_{iw}, 1998_{iw}) = (0,0,1)$ if the observation is in 1998.

[23] Since each child is in the same household located in the same commune across the two waves, we do not need household and commune subscripts.

We present OLS estimates first in order to show later how misleading cross-sectional studies can be in this area of research.

The problem with the OLS using pooled cross-sectional data is that the error term contains unobservables, which potentially have important effects on the outcome. That is,

$$u_{iw} = \alpha_i + v_{iw},$$

and the time-invariant unobservable characteristics at the individual, household and commune levels (α_i) may impact both y_{iw} and m_{iw}, causing endogeneity. However, the longitudinal nature of our survey data allows us to remove such unobservables, as far as these did not change across the two waves. Thus, in Column C, we present estimates from the following fixed-effects (FE) model:

$$\ddot{y}_{iw} = \ddot{m}'_{iw}\lambda_1 + \ddot{x}'_{iw}\lambda_2 + \ddot{z}'_{iw}\lambda_3 + \ddot{t}'_{iw}\lambda_4 + \ddot{v}_{iw} \tag{C}$$

where $\ddot{y}_{iw} = y_{iw} - \bar{y}_i$ and $\bar{y}_i = \frac{1}{2}\sum_{w=1}^{2} y_{iw}$, and so on. It should be noted here that all time-invariant variables drop out, e.g., the father's educational attainment in z_{iw}. Commune-fixed effects also drop out because only households which did not move across the two waves can form the panel in our data set.

Time-invariant unobservables are taken care of by the FE estimator, but there may still remain time-varying unobservables in the error term affecting both the child outcome and paternal absence. To deal with this possibility at the commune level, we add interactions of commune dummies with the second-wave dummy on the right hand side of the FE model (C), i.e.,

$$\ddot{y}_{iw} = \ddot{m}'_{iw}\lambda_1 + \ddot{x}'_{iw}\lambda_2 + \ddot{z}'_{iw}\lambda_3 + \ddot{t}'_{iw}\lambda_4 + \ddot{\kappa}'_{iw}\lambda_5 + \ddot{v}_{iw} \tag{D}$$

where by denoting the indicator function by $1_{iw}[\cdot]$, we have $\kappa_{iw} = k'_{iw}1_{iw}[w=2]$. The estimates are presented in Column D in Table 6.

Finally, the FE estimator cannot capture the heterogeneity that may exist in terms of levels in explanatory variables. For instance, an across-wave increase in the dwelling value from 10 million to 15 million dong in a household is not distinguished from an across-wave increase from 40 million to 45 million dong in another household. However, these two households are very different in terms of held wealth. In order to control not only for across-wave changes but also initial-wave

levels, we subtract the first-wave level from the second-wave level to express explanatory variables in terms of across-wave changes. We then add some of our explanatory varaibles in terms of the wave-1 level to the list of all explanatory variables which are expressed in terms of across-wave changes. The model is

$$\Delta y_i = \delta_0 + \Delta m_i'\delta_1 + \Delta x_i'\delta_2 + \Delta z_i'\delta_3 + x_{i1}'\delta_4 + z_{i1}'\delta_5 + k_i'\delta_6 + \Delta v_i \qquad \text{(E)}$$

where $\Delta y_i = y_{i2} - y_{i1}$, and so on. Notice we have included initial levels of some child and household characteristics, x_{i1} and z_{i1}, and also time-invariant commune dummies. This first-differenced (FD) estimator with initial levels is used to obtain the estimates in Column E.

Each column shows estimates from three separate regressions, i.e., Specifications 1, 2, and 3. In Spec [1], paternal absence is measured by the indicator of whether or not the father had been away for at least one month during the last 12 months. In Spec [2], the indicator in Spec [1] is disaggregated into two dummies: 1 to 3 months, and 4 to 12 months.[24] In the third specification, paternal absence is measured by the number of absent months. Thus, each panel in Tables 5 and 6 contains estimates from 27 separate regressions. Let us now turn to these estimates.

[Insert Tables 5 & 6 here]

3.1 School attendance

We first estimate the conditional association between the school attendance indicator and paternal temporary absence by pooling the data across the two waves and using the OLS estimator. We control for the child's age, its square, age-group (11-15, 15-18) indicators, the father's age, its square, the mother's age, its square, the number of household members aged over 18, the number of the father's children aged 7-18, the female share of these children in the household, the value of the owner-occupied dwelling, total household expenditure per capita, survey year dummies, and survey month dummies. We also control for both father's and mother's highest completed

[24] We have chosen this cutoff because 4 is close to the mean number of father-absent months conditional on the incidence of paternal absence, as Table 1 shows. Due to the small number of children having temporarily absent fathers, further disaggregation by the number of paternal-absent months does not yield informative results.

school grades.[25] Since the OLS estimator is used for a dummy dependent variable, this is a linear probability model.

Column A under Heading I in Table 5(a) shows some weak evidence that, if a father has been absent for 4 or more months during the last 12 months, his son is about 10 percent more likely to have attended a school during the same 12 months than a boy whose father has not been absent. There is no statistically significant effect of paternal absence on his daughter's school attendance in the corresponding column in Table 5(b).

The estimates in Column A are obtained after controlling for characteristics of the child and his/her households including parents. However, characteristics of the residential community, such as remoteness and the availability of schools, can also influence children's school attendance. VLSS collected commune-level information, but only in rural areas, which means the use of commune-level data requires us to discard observations in 30 communes out of 150.[26] Since our sample is already small, we prefer not to lose any observation. Hence we do not control for any specific commune-level characteristics, but simply add commune dummies. The estimates are shown in Column B. We find that, in panel (a), the positive coefficient on the longer-absence indicator in Spec [2] has lost statistical significance. On the other hand, there is now weak evidence of a positive association between paternal absence of 4 or more months and his daughter's school attendance (see Panel (b) of Table 5).

Even after controlling for commune-fixed effects, the use of pooled data is prone to selection bias because there likely are unobserved characteristics of the child, his/her parents, household and commune which influence both paternal absence and the child's school attendance. In Column C, we present FE estimates that difference out unobserved time-invariant characteristics associated with each child. Note that both commune dummies and parental school grades are now dropped from the right hand side of the equation, as these are time-invariant. The estimates provide no evidence of any impact of paternal absence on school attendance. This is also true even after we add interactions of commune dummies with the second-wave dummy, i.e., time-varying commune-fixed effects, as Column D in Table 6 shows.

As a further robustness check, we additionally control for initial levels of some of the explana-

[25] As robustness checks, we also estimated all our models dropping child age and its square, and also total household expenditure. See Section 3.4. We did not include birth order because we have no information on the head's children who are not household members by definition.

[26] Discarding uban communes results in a loss of more than 11 percent of our estimating subsample. See footnote 15.

tory variables. In order to do so, we switch from FE to FD and use the OLS estimator because doing so allows us to add variables in levels to the right hand side of the estimated equation. More specifically, in addition to the across-wave changes controlled for to obtain estimates in Column C, we add the initial (i.e., wave 1) levels of the child's age, the father's age, the mother's age, the value of dwelling, and the total household expenditure per capita. We also control for both parents' highest completed school grades, survey-month dummies, and commune dummies. The estimates are presented in Column E. Again we find no evidence of any statistically significant impact of paternal absence on his child's school attendance.

3.2 Total household expenditure for the child's education

In Column A under Heading II in Table 5(a), the OLS esimates without commune-fixed effects show weak evidence that the incidence of paternal absence is positively associated with the total household expenditure for his son's education (Spec [1]). It indicates that, in households where the male head has been absent for one or more months, the expenditure on his son is approximately 66,000 dong higher than in households where the male head has not been absent.[27] However, once we control for commune-fixed effects, Column B shows that none of the OLS coefficients are statistically significant.

To control for time-invariant heterogeneity, we obtain FE estimates in Column C. For sons, both coefficients and the corresponding t-statistics are close to zero in all three specifications. For daughters, on the other hand, the coefficients get larger, although these are still statistically insignificant. We further control for time-varying commune-fixed effects in Column D in Table 6. This does not give statistical significance to the estimates. Neither does controlling for both across-wave changes and initial levels (Column E).

3.3 Nonhousework labor supply

We now turn to the third dependent variable, the child's nonhousework labor supply during the 12 month prior to the interview. In Column A under Heading III in Table 5(a), the OLS estimates show some weak evidence that on average, sons supply less nonhousework labor in households where their fathers have been temporarily absent than in households where their fathers have not

[27] According to the commune price data of VLSS, one thousand dong was an approximate price for 300g of processed ordinary rice or 50g of pork meat in 1998.

been absent. A son works about three weeks less if his father has been absent for at least one month than his father has not (Spec [1]). Recall that this was also implied earlier in our summary statistics table, Table 1. However, statistical significance does not survive once we control for commune-fixed effects, as Column B shows. We do not find OLS evidence of association between paternal temporary absence and his daughter's nonhousework labor supply, as Columns A and B in Table 5(b) show.

In Column C, we control for time-invariant heterogeneity by utilizing the longitudinal nature of our data. For sons, the FE estimates are now all positive, while the OLS estimates were all negative. The FE estimates are also statistically significant at less than 5 percent. Each additional month of paternal temporary absence seems to increase his son's nonhousework labor supply by about one week (Spec [3]). We also find for daughters that the sign of the FE estimates is opposite of the sign of the OLS estimates. However, these are not statistically significant.

We further control for time-varying commune-fixed effects by including interactions of commune dummies with the second-wave dummy. The estimates in Column D in Table 6(a) show that the incidence indicator of paternal absence is no longer statistically significant for sons (Spec [1]). However, statistical significance survives in Specs [2] and [3]. It appears that a short absence (i.e., less than the average length conditional on an absence incidence) does not matter. But the evidence suggests that a longer paternal temporary absence increases his son's nonhousework labor supply. These FE estimates are robust in Column E where we also control for parental education and initial levels of wealth and income (as measured by the value of owned dwelling and the total household expenditure per capita in wave 1, respectively). Every additional month of paternal temporary absence increases his son's nonhousework labor supply by about one week (Spec [3]). Having the father temporarily absent for 4 or more months increases the son's nonhousework labor supply by about five weeks (Spec [2]).

On the other hand, we do not find any statistical evidence of the impact of paternal temporary absence on his daughter's nonhousework labor supply.

3.4 Further robustness checks

We have conducted additional checks on the robustness of our results. First, we attempt to instrument paternal temporary absence, to control for potential endogeneity. Variables with which we

experimented include the number of rainy days during the last year at a regional level,[28] the number of natural disasters during the last 5 years at the commune level, the typical number of months in a year during which the main road to outside the commune becomes impassable, the typical share of temporary labor emigrants in the commune population, the typical number of temporary labor emigrants from the commune, the typical number of months the commune's temporary labor emigrants spend outside the commune, indicator of residing in net-emigration commune, indicator of residing in net-immigration commune, availability of nonagricultural work at the commune level, typical agricultural-sector wages for males at the commune level, typical agricultural-sector wages for females at the commune level, the commune-level fertilizer price, and the number of working-age men at the household level.[29]

Among these, we found that the across-wave change in the commune-level fertilizer price together with its wave-1 level work best as instruments.[30] However, these are unfortunately weak instruments and suffer from the related problems.[31] It is interesting that in general, when we instrument the across-wave change in paternal temporary absence by the across-wave change in the fertilizer price and its wave-1 level, the sign of the estimated impact of paternal absence remains the same as our FE and FD estimates in Table 6. However, no statistical significance is observed across the child outcomes and the specifications, including nonhousework labor supply by a son. In addition, estimated coefficients become implausibly large. On the other hand, we also find that both F statistic and R^2 for all, i.e., both excluded and included, instruments at the first stage are very low for all three child outcomes. This in turn seems to indicate that the across-wave change in paternal temporary absence is reasonably exogenous in our FE and FD models, and we may not need to instrument it. In any case, we do not present these 2SLS estimates here, as we do not trust weak instruments.[32]

Second, we re-estimated all our models without controlling for total household expenditure per capita, as it is possibly endogenous in each equation. Third, we dropped the child's age and its square, as these are highly correlated with the two school-level dummies (11-15 years old dummy, and 15-18 years old dummy). Excluding these variables from the right hand side of each equation

[28] The data source is the US Federal Climate Complex Global Surface Summary of Day Data (Ver. 7) downloaded from the US National Climatic Data Centre's website, `http://www.ncdc.noaa.gov/oa/mpp/freedata.html`.

[29] The use of commune-level variables requires us to discard children in urban areas. See footnote 26.

[30] Due to the liberalization of the input market, the fertilizer prices had dropped during the 1990s. See Benjamin and Brandt (2004).

[31] The F statistic for the excluded instruments at the first stage reaches at most 4.

[32] The estimates are available upon request.

did not change our results, however.[33]

4 Discussion and conclusion

The principal aim of this paper was to see if a father's temporary absence influences his child in terms of school attendance, household expenditures on education, and labor supply. Our data source was the first two waves of VLSS, and the estimating subsample was children in households where both partners usually coreside. Our analysis indicates that *ceteris paribus,* paternal absence increased nonhousework labor supply by his son in Vietnam in the 1990s. The longer the absence of the father, the larger the impact. One additional month of paternal absence increases his son's nonhousework labor supply by approximately one week. However, we did not find any statistical evidence that paternal temporary absence alters nonhousework labor supply by his daughter. Moreover, paternal temporary absence seems to influence neither his child's school attendance nor the total household expenditure for his child's education.

As we mentioned in the introduction, McKenzie and Rapoport (2006, 2007) and de Brauw and Giles (2008) found some evidence that in Mexico and China, the availability of migration opportunities affects human capital investment negatively. One explanation for this negative relationship is that children in households with migration opportunities have easy future access to low-skilled jobs via migration. In households with such opportunities, human capital investment in children might be discouraged, depending on returns to education and future discounting. However, in our study of the impact of paternal temporary absence, we found no evidence of a negative relationship between paternal absence and his child's human capital investment. One can speculate as to different reasons for our finding. For example, it is possible that, in 1990s Vietnam, people generally continued to regard education highly, and that migration opportunities implied by paternal absence were simply not attractive enough to give up schooling.

Our finding about child labor supply is intuitively appealing. It perhaps indicates that, compared with girls' labor, boys' labor is more substitutable for the fathers' labor. Since fathers are more likely to supply nonhousework labor than mothers, paternal absence induces nonhousework labor supply by his son. It seems reasonable to expect that the longer the father's absence, the greater is the need for substitution in his household. This is particularly likely to be true when the

[33] The estimates are available upon request.

father's main economic activity is based on household-owned agriculture and other selfemployed business. These were indeed the most common form of employment in Vietnam in the 1990s.

Although we did not find any effect of paternal absence on a daughter's nonhousework labor supply, it is possible that her housework labor supply was affected by her father's temporary absence. As we mentioned in the introduction, Chen (2006) found such an impact of paternal absence on the probability that his daughter does laundry work at home in China. Unfortunately, VLSS does not provide us with a good measure of housework during the 12 months prior to the survey interview. Hence we concentrated on nonhousework in this paper.

Interestingly, although we saw strong correlations among the three dependent variables in Table 4, the *ceteris paribus* impact of paternal temporary absence on his son is significant in terms of only nonhousework labor supply. Neither school attendance nor household investment in education is affected. As mentioned earlier (at the end of Section 2), children were not required to attend school for long hours a day in Vietnam in the 1990s, which could allow sons to substitute for temporarily absent fathers without sacrificing schooling. This might be one reason for our findings about boys. However, due to the time endowment constraint, it is likely that boys with absent fathers need to sacrifice playing and socializing time, if not schooling. Thus, among boys in households with temporarily absent fathers, there may be a potential tradeoff between learning adult responsibility through a nonhousework job and nurturing social and creative skills through leisure activities. Unfortunately, VLSS does not contain information on leisure time consumption, and this remains speculation.

As better data become available in the future, we hope that the impact not only of paternal but also maternal absence can be further investigated, and that the underlying reasons for any observed impact of parental absence can be more precisely examined. Nonetheless, our findings do suggest that parental absence may have intergenerational effects. So far these effects have not sufficiently been considered in the literature on migration and human capital investment in migrant-sending households.

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Table 1: Summary Statistics (Sample Means and Mean Differences)

Person-years aged 7-18

	Sons			Daughters		
Father absent at least 1 month?	Yes	No	Mean dif.	Yes	No	Mean dif.
Outcomes of interest						
Attended school, last 12 months (proportion)	.85	.82	.02	.81	.77	.04
Household expenditure related to education of the child, last 12 months (thousand dong)	287.01	257.16	29.85	185.98	241.74	-55.76
Labor supply to market, last 12 months (# weeks)	11.91	14.67	-2.75	16.37	15.15	1.22
Child characteristics						
Age (# years)	11.96	12.07	-.11	11.79	12.15	-.36
Aged 7-11 (proportion)	.44	.41	.03	.44	.40	.04
Aged 11-15 (proportion)	.49	.48	.00	.47	.49	-.01
Aged 15-18 (proportion)	.24	.24	-.00	.20	.25	-.04
Attended public school (proportion)	.78	.79	-.01	.79	.75	.04
Absence from home, last 12 months (# months)	.45	.08	.36***	.27	.07	.20**
Household characteristics						
# household members	6.05	6.00	.05	6.24	6.16	.08
# household members aged over 18	2.47	2.52	-.05	2.48	2.52	-.03
# father's children, aged 7-18	2.77	2.77	.00	2.87	2.81	.05
Female share of these children	.25	.27	-.02	.69	.70	-.01
Father's age (# years)	40.44	41.04	-.60	39.97	40.92	-.95
Father's highest school grade completed 0 (proportion)	.03	.05	-.01	.00	.04	-.03*
1 to 4 (primary not completed)	.26	.20	.06	.23	.21	.02
5 to 8 (primary completed)	.22	.28	-.06*	.21	.29	-.07*
9 to 11 (lower secondary completed)	.40	.35	.04	.43	.33	.09**
12 (upper secondary completed)	.06	.09	-.02	.09	.10	-.00
Mother's age (# years)	37.86	38.57	-.71	36.98	38.35	-1.37**
Mother's highest school grade completed 0 (proportion)	.12	.10	.01	.12	.11	.01
1 to 4 (primary not completed)	.30	.26	.04	.20	.28	-.07*
5 to 8 (primary completed)	.30	.26	.03	.24	.26	-.02
9 to 11 (lower secondary completed)	.22	.29	-.06	.38	.26	.12***
12 (upper secondary completed)	.03	.06	-.02	.02	.07	-.04*
Value of housing (million dong)	22.48	26.44	-3.95	22.49	26.22	-3.72
Household expenditure per capita, last 12 months (thousand dong)	1954.25	2140.10	-185.84	1904.35	2090.01	-185.65
Father's absence from home, last 12 months (# months)	3.99			4.59		
# person-years	102	1608		101	1589	

Data: Balanced panel of household head's children from VLSS 1992-93 & 1997-98

Notes: (i) Mean dif. is the difference in the means between children with temporarily absent fathers and children with non-absent fathers; (ii) Father's temporary absence refers to the 12 months prior to the interview; (iii) * statistically significant at 10%, ** at 5%; *** at 1%

Table 2: Sample Means of Outcome Variables by Child's Sex, Child's Age and Paternal Absence

Person-years aged 7-18

(a) Sons

	Aged 7-11		Aged 11-15		Aged 15-18	
Father absent at least 1 month?	Yes	No	Yes	No	Yes	No
Attending school, last 12 months (proportion)	.95	.92	.86	.86	.68	.61
Household expenditure related to education of the child, last 12 months (thousand dong)	104.47	100.29	264.84	285.93	653.44	504.67
Labor supply to market, last 12 months (# weeks)	5.31	8.74	17.58	15.17	18.92	23.69
# person-years	45	661	50	785	25	398

(b) Daughters

	Aged 7-11		Aged 11-15		Aged 15-18	
Father absent at least 1 month?	Yes	No	Yes	No	Yes	No
Attending school, last 12 months (proportion)	.91	.91	.87	.80	.47	.50
Household expenditure related to education of the child, last 12 months (thousand dong)	82.91	109.86	208.43	290.59	362.19	376.12
Labor supply to market, last 12 months (# weeks)	5.37	7.36	22.25	16.22	28.42	26.29
# person-years	45	640	48	782	21	409

Data: Balanced panel of household head's children from VLSS 1992-93 & 1997-98

Table 4: Correlation Matrices

	Sons (1710 child-years)			Daughters (1690 child-years)		
	Paternal absence	School attendance	Educational expenditure	Paternal absence	School attendance	Educational expenditure
School attendance	.02 .01			.01 .02		
Educational expenditure	.01 .01	.20*** .22***		-.00 .00	.27*** .33***	
Labor supply	-.03 .04	-.32*** -.30***	-.14*** -.16***	.03 -.00	-.34*** -.18***	-.16*** -.19***

Data: Balanced panel of household head's children from VLSS 1992-93 & 1997-98

Notes: *** statistically significant at 1%; In each cell, there are two coefficients. The first one refers to the levels of the variables, and the second to the across-wave changes;
Paternal Absence: total # months the father was absent during the last 12 months;
School attendance: indicator of school attendance during the last 12 months;
Educational expenditure: total household expenditure for child's education, last 12 months;
Labor supply: total # weeks doing nonhousework job during the last 12 months

Table 3: Transitions

Distribution of children by the length of paternal absence

(a) Sons

Paternal absence (# months)		1997-1998													
		0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*Σ*
1992-1993	*0*	769	5	4	7	3	2	2	1	2	1	2	1	1	800
	1	7	0	2	0	0	0	0	0	0	0	0	0	0	9
	2	10	1	3	2	0	0	0	1	0	0	0	0	0	17
	3	6	1	0	0	0	0	0	0	1	0	0	0	0	8
	4	4	0	0	1	0	0	0	0	0	0	0	0	0	5
	5	3	0	0	0	0	0	0	0	0	0	0	0	0	3
	6	2	0	0	0	0	0	0	0	0	0	0	0	0	2
	7	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	8	6	0	0	0	0	1	0	0	0	0	0	0	0	7
	9	0	0	0	0	2	0	0	0	0	0	0	0	0	2
	10	0	0	0	0	0	0	0	0	0	0	1	0	0	1
	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Σ	808	7	9	10	5	3	2	2	3	1	3	1	1	855

(b) Daughters

Paternal absence (# months)		1997-1998													
		0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*Σ*
1992-1993	*0*	758	3	4	5	2	1	6	0	3	6	1	0	4	793
	1	10	0	0	0	0	0	0	0	0	0	0	0	0	10
	2	8	1	2	0	0	0	0	1	0	0	0	0	0	12
	3	2	3	0	0	0	0	0	0	2	0	0	0	0	7
	4	2	0	0	2	0	0	0	0	0	0	0	0	0	4
	5	4	0	0	0	0	0	0	0	0	0	0	0	0	4
	6	8	0	0	0	0	0	0	0	0	0	0	0	0	8
	7	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	8	3	0	0	0	0	0	0	0	0	0	0	0	0	3
	9	0	0	0	0	2	0	0	0	0	0	0	0	0	2
	10	0	0	0	0	0	0	0	0	0	0	1	0	0	1
	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Σ	796	7	6	7	4	1	6	1	5	6	2	0	4	845

Data: Balanced panel of household head's children from VLSS 1992-93 & 1997-98

Notes: (i) Father's absence refers to the 12 months prior to the interview. (ii) The number of children with an across-wave change in the length of paternal absence in the shaded cells. **There are 84 daughters in 61 households and 82 sons in 61 households whose father's absence length differs across the two waves.** Note that 61 households in which 84 daughters resided are not necessarily the same 61 households in which 82 sons resided, although the number of households is the same for the samples of sons and daughters. There are 96 households in total.

Table 5: Estimates of the Impact of Paternal Absence on Children Left Behind

(a) Sons

	[I] School attendance (indicator)			[II] Household expenditure for education of the child (thousand dong)			[III] Non-housework labor supply (# weeks)		
	(A) OLS	(B) OLS	(C) FE	(A) OLS	(B) OLS	(C) FE	(A) OLS	(B) OLS	(C) FE
Spec [1]									
Father absent at least 1 month (indicator)	.04 (1.37)	.03 (1.03)	.03 (.95)	65.94* (1.70)	28.89 (.69)	8.86 (.14)	-3.09* (1.86)	-.68 (.36)	4.51** (2.25)
Spec [2]									
Father absent 1 to 3 months (indicator)	.01 (.38)	.00 (.21)	.05 (1.15)	40.05 (1.07)	-23.48 (.49)	-6.56 (.14)	-2.05 (1.11)	-1.06 (.43)	3.57 (1.22)
Father absent 4 to 12 months (indicator)	.09* (1.66)	.07 (1.44)	.01 (.26)	102.79 (1.33)	104.47 (1.45)	28.61 (.24)	-4.58* (1.72)	-.13 (.06)	5.71** (2.48)
Spec [3]									
# paternal absent months	.00 (1.05)	.00 (.73)	.00 (.20)	8.40 (.97)	7.07 (.85)	-.55 (.04)	-.52 (1.41)	-.04 (.16)	.92*** (2.78)
Commune-fixed effects	No	Yes		No	Yes		No	Yes	
R^2	.28	.37		.33	.40		.22	.43	

(b) Daughters

	[I] School attendance (indicator)			[II] Household expenditure for education of the child (thousand dong)			[III] Non-housework labor supply (# weeks)		
	(A) OLS	(B) OLS	(C) FE	(A) OLS	(B) OLS	(C) FE	(A) OLS	(B) OLS	(C) FE
Spec [1]									
Father absent at least 1 month (indicator)	.00 (.28)	.04 (1.19)	.07 (1.11)	-.31 (.01)	37.48 (1.37)	65.21 (1.41)	1.18 (.57)	.69 (.36)	-1.22 (.50)
Spec [2]									
Father absent 1 to 3 months (indicator)	-.03 (.60)	-.00 (.02)	.04 (.59)	-31.22 (1.42)	8.80 (.34)	51.16 (1.01)	1.31 (.46)	-1.07 (.41)	.86 (.24)
Father absent 4 to 12 months (indicator)	.04 (1.15)	.08* (1.77)	.08 (1.03)	28.98 (.90)	63.51 (1.54)	76.34 (1.23)	1.06 (.37)	2.30 (.87)	-2.87 (.88)
Spec [3]									
# paternal absent months	.00 (.62)	.00 (1.34)	.00 (.68)	1.53 (.36)	7.92 (1.52)	8.59 (1.13)	.30 (.89)	.19 (.58)	-.42 (1.00)
Commune-fixed effects	No	Yes		No	Yes		No	Yes	
R^2	.32	.41		.32	.43		.25	.45	

Data: Balanced panel of household head's children from VLSS 1992-93 & 1997-98

Notes: (i) **The sample consists of 1710 child-years (= 855 sons x 2 waves in 651 households) for each estimation in panel (a), and 1690 child-years (= 845 daughters x 2 waves in 640 households) for each estimation in panel (b)**; (ii) * statistically significant at 10%, ** at 5%, *** at 1%; (iii) absolute value of *t*-statistic in parentheses; (iv) *t*-statistics are clustered at the household level; (v) Since R^2 is the same for each specification in each OLS column, the figure is presented only once at the bottom of each column in each panel. R^2s from FE are not presented, as they are not comparable with OLS's.

Other control variables in all specifications: child's age, child's age^2, age-group indicators (proxy for level of schooling), father's age, his age^2, mother's age, her age^2, # household members older than the sample, # head's children in the sample's age range (7-18), female share of these children, the value of housing, total household expenditure per capita, survey-year dummies, survey-month dummies

Additional control variables for OLS: both father's and mother's highest completed school grades

Table 6: Estimates of the Impact of Paternal Absence on Children Left Behind

(a) Sons

	[I] School attendance (indicator)			[II] Household expenditure for education of the child (thousand dong)			[III] Non-housework labor supply (# weeks)		
	(C) FE	(D) FE	(E) FD	(C) FE	(D) FE	(E) FD	(C) FE	(D) FE	(E) FD
Spec [1]									
Father absent at least 1 month (indicator)	.03 (.95)	.03 (.92)	.03 (.69)	8.86 (.14)	18.86 (.23)	-4.16 (.05)	4.51** (2.25)	2.83 (1.38)	3.27 (1.42)
Spec [2]									
Father absent 1 to 3 months (indicator)	.05 (1.15)	.03 (.73)	.04 (.77)	-6.56 (.14)	17.50 (.15)	1.37 (.01)	3.57 (1.22)	.43 (.15)	1.59 (.50)
Father absent 4 to 12 months (indicator)	.01 (.26)	.03 (.64)	.01 (.29)	28.61 (.24)	20.44 (.21)	-10.51 (.11)	5.71** (2.48)	5.61** (2.10)	5.19* (1.70)
Spec [3]									
# paternal absent months	.00 (.20)	.00 (.14)	-.00 (.17)	-.55 (.04)	-2.94 (.24)	-7.16 (.58)	.92*** (2.78)	.88** (2.23)	.90** (2.02)
Time-varying commune-fixed effects	No	Yes		No	Yes		No	Yes	

(b) Daughters

	[I] School attendance (indicator)			[II] Household expenditure for education of the child (thousand dong)			[III] Non-housework labor supply (# weeks)		
	(C) FE	(D) FE	(E) FD	(C) FE	(D) FE	(E) FD	(C) FE	(D) FE	(E) FD
Spec [1]									
Father absent at least 1 month (indicator)	.07 (1.11)	.06 (1.10)	.03 (.55)	65.21 (1.41)	34.88 (.85)	37.05 (.80)	-1.22 (.50)	-1.73 (.58)	-1.34 (.42)
Spec [2]									
Father absent 1 to 3 months (indicator)	.04 (.59)	.12 (1.49)	.07 (.83)	51.16 (1.01)	30.22 (.67)	4.02 (.08)	.86 (.24)	2.39 (.70)	2.44 (.61)
Father absent 4 to 12 months (indicator)	.08 (1.03)	.01 (.21)	.00 (.03)	76.34 (1.23)	38.90 (.66)	65.43 (1.05)	-2.87 (.88)	-5.28 (1.26)	-4.60 (1.04)
Spec [3]									
# paternal absent months	.00 (.68)	-.00 (.17)	-.00 (.56)	8.59 (1.13)	4.43 (.59)	7.12 (.89)	-.42 (1.00)	-.70 (1.14)	-.62 (.97)
Time-varying commune-fixed effects	No	Yes		No	Yes		No	Yes	

Data: Balanced panel of household head's children from VLSS 1992-93 & 1997-98

Notes: (i) **The sample consists of 1710 child-years (= 855 sons x 2 waves in 651 households) for each estimation in panel (a), and 1690 child-years (= 845 daughters x 2 waves in 640 households) for each estimation in panel (b)**; (ii) * statistically significant at 10%, ** at 5%, *** at 1%; (iii) absolute value of *t*-statistic in parentheses; (iv) *t*-statistics are clustered at the household level; (v) Column C is reproduced from Table 3 for comparison; (vi) The difference between Columns C and D is that we have interactions of commune dummies with the second-wave dummy as explanatory variables for the latter.

Control variables for Column E: child's age in wave 1, change in child's age, change in child's age^2, change in age-group indicators (proxy for level of schooling), father's age in wave 1, change in his age, change in his age^2, mother's age in wave 1, change in her age, change in her age^2, change in # household members older than the sample, change in # head's children in the sample's age range (7-18), change in female share of these children, the value of housing in wave 1, change in the value of housing, total household expenditure per capita in wave 1, change in total household expenditure per capita, both father's and mother's highest completed school grades in wave 1, commune dummies, survey-year dummy in each wave, change in the survey month, wave-1 survey-month