Home Leaving and Migration of Young Adults in Indonesia: The Role of Education and Household Assets

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Abstract

The departure from parental home, whether to migrate or to establish an independent household nearby, is one of the salient events experienced by young adults during their life course. This paper investigates the factors determining home leaving among young adults in Indonesia, using data from three waves of the Indonesia Family Life Survey, IFLS1(1993), IFLS2(1997) and IFLS3(2000). The paper exploits the longitudinal nature of the survey to answer the following questions: what role do parental/household assets and human capital play in influencing whether am individual: i) co-reside with their parents, ii) establish new households near his/her parents' households (move locally), iii) migrate. Preliminary findings suggest that age, potential wages, and household assets influence home leaving and migration decisions of sons. For daughters, wages of potential spouses influence decision to migrate but not to move locally. Different types of assets influence local move and migration differently.

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1 Introduction

The departure from parental home is one of the most important events experienced by the young adults during their life-course. The age at which young people leave and the reasons why they leave vary across societies. Often, home leaving coincides with other life course events such as completion of schooling, marriage, or entry into the labor market. Even within the same society we see variation in the pattern of home leaving with respect to age, sex, reason to leave, and destination. Some adult children decide to make a long distance move away from their parents while others choose to leave home but stay within the proximity of their parental home. While there have been many studies on migration in developing countries, surprisingly little have been studied in the context of developing countries about the decision of adult children to leave the parental home only to establish new households nearby.

This paper investigates home leaving and migration among young adults in Indonesia, using data from two waves of the Indonesia Family Life Survey, IFLS2 and IFLS3 (collected in 1997 and 2000, respectively). In particular the paper will focus on the role of education and assets in influencing home leaving and migration decision. The paper attempts to answer the following questions. How does education of individuals, as well as their parents, influence the propensity to leave home? What is the role of assets in influencing home-leaving? What are the differential effects of education and assets on the decision to move locally (leaving parental home but still reside within the same sub-district) and to migrate (move outside the same sub-district).

To motivate the question let us consider a case where a child, having completed junior schooling, arriving at a juncture where a decision has to be made (by himself or by his parents) whether he would leave the village to find better economic opportunities or to find better senior high school, or to stay with his parents. Some of the young adults facing this decision would leave but some others would stay. Those who decided against migrating or whose family decided against sending them to migrate continue to stay with their parents. Some of them eventually left the parental household only to move locally. For these individuals, leaving pare ntal home are less likely to be motivated by finding opportunity to work than by other reasons such as looking for independence or because suchb co-residency is no longer desirable. For example, a baby born to a young couple who co-resided with the parents may finally force them to leave home because of disagreement about the level of household public goods (Foster and Rosenzweig 2002). Death of a household could also influence the decision of household members whether to continue co-residing. The household may be divided when one of the sons took over as the new head and the others leave.[1] Foster and Rosenzweig 2002 note that the majority of household divisions in their sample occurred after the death of the head.

The paper's ultimate goal is not only to investigate what factors determine why young adults leave their parental home but also try to differentiate between local moves and migration.[2] This

[1]Note that who become the household head is not entirely exogenous to home leaving/migration decision. Who becomes the head may be based on characteristics that also affect home-leaving decision. This potential problem is pointed out by Schultz (1999) in a study that looks at how selection of household head may bias the estimates of household saving behavior.

[2]Thomas et al 2001, studying the attrition problem in the Indonesia Family Life Survey, analyze at the household level between households that were found during 'local tracking' and 'second tracking' (for longer-distance movers).

paper also focuses on the role of household assets. If assets facilitate households to finance migration of the children we can expect a positive correlation between household/parental assets and the probability of home leaving. On the other hand, higher productive assets are also correlated with profitability of household enterprise which may influence household head to keep some of his children to help run the business.[3]

2 Literature review

In many studies on home-leaving in developed countries, the emphasis is usually on individual decision to leave and the factors influencing that decision (Goldscheider and Goldscheider 1999). In addition to education and demographic variables such as age and sex, some of the factors usually considered are conditions of the household such as living condition or state of the dwelling, family structure, parental income or assets, relationship between household/family members. [4] Local economic conditions such as the housing market, labor market or availability of economic opportunities are also often considered as the driving factors. A significant share of the literature focuses on the joint decision between marriage (or starting a partnership) and home leaving.

Although those factors are also at play in developing countries, the emphasis in home leaving literature in developing countries is somewhat different. Home leaving is more often studied in the context of migration, mostly rural -urban or rural-rural (see the review by Lucas 1997). An important strand of the literature systematically known as the New Economic of Labor Migration looks at migration not as a result of individual decision making, but as a part of optimizing strategies used by the household or family (Stark 1991). Some of these studies look at migration of a household member as a part of family strategies to insure themselves against local risks. Sending a child away the village is seen as a mechanism to bypass the constraint of the credit and insurance market (see discussion in Stark 1982). This idea has been supported by a number of empirical studies under different settings, such as in Botswana (Lucas and Stark 1985), rural India (Rosenzweig and Stark 1989), the Philippines (Lauby and Stark 1988) among others.

The studies that focus specifically on home leaving, in developing countries are few. There are several cross country studies, for example the study by DeVos (1989) use household data from six Latin America countries to look at socio-demographic determinants of home leaving. Zeng, et al (1994) used census data to compare the age of home leaving in China and South Korea, as well as Japan, the US, and Sweden. Johnson and DaVanzo (1998) go beyond cross sectional data and use a longitudinal survey of households study the effects of economic as well as cultural influences on home leaving in peninsular Malaysia.

As in migration literature, along with age and sex, education is one of the most important factors that are considered as determinants of home leaving. Higher education is usually associated

[3]Local culture and norms may dictate who among the children would stay and help run the family business, but the choice may also be based on the children's characteristics. Foster and Rosenzweig 2002 finds that in the context of rural India, the less educated male members of the households were the ones who were more likely to leave; their education was redundant in the join household.

[4]Indeed, co-residence is an important source of support from parents to their adult children , along with intergenerational transfer (Rosenzweig and Wolpin 1993).

with earlier home leaving either because of individuals who have higher education are likely to have better employment opportunities or because individuals leave home to pursue higher education available elsewhere. [5] Johnson and DaVanzo (1998) use hazard model estimations and find that own education does tend to accelerate home leaving. They also find that sons and daughters whose mothers were well educated tend to leave home early. While the study above looks at the effects of own education and mother's education on the probability of leaving, Foster and Rosenzweig (2002) instead look at the *variation* of education in the household as one of the factors driving young adult men to leave their parental home. The authors develop a collective household model where conflicts over public good in the household may lead to household division. Their empirical findings suggest that the variance of education within a household is positively associated with household division.

Since marriage is one of the main reasons for young adult to leave home, the timing of marriage plays a crucial role in determining home leaving decision. Marriage used to be the main reason for female to leave households in the US, and home leaving and marriage are thus sometimes modeled as a joint decision by the individuals. [6]Marriage is also an important route for leaving home in developing countries, but instead of a result of an individual decision, some studies argue that marriage and home leaving (or migration) is a result of family or household decision making. For example, Rosenzweig and Stark (1989) show that the practice of sending daughters to marry and reside in other regions is consistent with the strategy of the household to insure themselves against local agricultural risks.

While marriage may play an important role in home-leaving decisions in developing countries, it is evident that home-leaving does not always coincide with marriage in Indonesia. In fact in Java, it is common for a young married couple to live with either set of parents "until they are considered to be able to manage their own affairs" (Koentjaraningrat, 1985: p.133). Levine and Kevane (2003) study the variations in residence after marriage using a special module on adat (traditions) from 1997 IFLS find that there is a considerable variation between communities and ethnic groups. Among the Minang in Sumatra, it is very common for a young Minang male to leave his parental home to find work elsewhere before he is married. Indeed leaving home to other region is considered as a process of coming of age among young men (Quisumbing et al, 2004).

What determines the timing of a young couple to leave the parental home? The individuals who co-reside with the parents after marriage may be very different whether in terms of own, parental, or household characteristics, from the individuals who leave the households at marriage. They may also be different from the individuals that leave the household for other reasons. In this paper I try to differentiate between those who leave for marriage or for other reason, although there are some reservations about the validity of using the reported reasons for leaving.

In this paper I look at the role of assets, and in particular land, in determining the probability of leaving as well as the distance of the moves. The relationship between land assets and the propensity to migrate is a focus of the study by Connell (1976) who finds a U-shape pattern in out-

[5]In the migration literature, the empirical regularity suggests a positive relationship between education and migration. For example, the study on lifetime migration in Venezuela by Schultz (1982) show that the more educated to be 'less deterred by distance and more responsive to relative wage and and employment differences'.

[6]see for example Goldscheider and Goldscheider, 1999 for the literature in the US

migration from Indian villages where the poor and the rich having higher propensities to migrate than the middle class. Rosenzweig and Wolpin (1985) incorporate returns to specific experience (on family land) into their model of intergenerional family in rural settings to explain the spatial proximity and the immobility of family generations who own land. Kuhn (2000), looking at how landholding influences the propensity to migrate among individuals in the Matlab area of Bangladesh, finds that land availability in the village increases the probability of individual migration and not of family migration, and the effects are stronger for the landless. Landholding does not seem to have a significant effect on the probability of a male adult to leave home, among the agricultural household in India, according to the study by Foster and Rosenzweig (2002).

Finally, some studies also look at home leaving as a result of a specific events or shocks. While changes in the pattern of home leaving in a population may be seen as a consequence of underlying long term changes in the socio-demographic factors and the level of economic development, unanticipated events such as economic crisis, may also have some more immediate effects on home leaving decision. For instance, Thomas, Frankenberg, and Smith (2003) find that households in Indonesia adjust their composition to cope with economic crisis. Our study period includes the period in which Indonesia was hit by the Asian financial and economic crisis. However I will not focus our investigation on the effects of the crisis, even though I will try to address it.

3 Descriptive Analysis

3.1 Living Arrangement

Before focusing on the sample of the children of the head age 15-39, just to provide an overall picture of the household structure in IFLS, we begin by looking at a table of living arrangement among all 15-39 years old. Table 1 shows that close to 85 percent of male in the youngest age group (15-19) lived with their parents. Less than 2 percent of the rest lived independently either alone or as the head or spouse of a nuclear family. Moving to the older age groups, the percentage that lived in an independent household increases, but only at the oldest age group (30-39) did the percentage exceed those who live with their parents. For the young women, the picture is a little bit different. Less than 75 percent of women age 15-19 still lived with their parents. Around 56 percent of women ages 25-29 lived as head or spouse and only 31 percent still lived with their parents.

Such cross-tabulations suggest that young women leave home earlier than men. It is also consistent with tendency of newly married couple to live with the parents of the grooms rather than with the brides' parents. Another table on living arrangement is presented, now by marital status, in order to look at the pattern of postnuptial co-residency. Table 2 shows the percentages of male and female who lived with their parental home by their marital status at the time of the survey in 1997. Almost 60 percent of the 15-19 male who were married still lived in their parental home. The percentage becomes smaller as we move to the older age groups: 31 percent among the 20-24, 21 percent among the 25-29, and a round 12 percent among the 30-39. For women, less than 40 percent women ages 15-19 who were married lived in their parental home. But as with men, the percentages become smaller in the older age groups: 38 percent among the 20-24, 24 percent among the 25-29,

and among the women age 30-39 who were married, the percentage of those living with their parents is around 14 percent. The table also shows that the large majority of married individuals who still lived in their parental households lived there with their spouses.

The fact that a large number of married couples co-reside with a set of parents suggest that one should not put the focus on the age of marriage to study the age of home leaving. This result is also found elsewhere in the region. For example Tan and Jones (1990) find that less that the majority of the married women in Malaysia did not live in independent households immediately after marriage.

3.2 Household Assets and Change in Household Assets

Around 58 percent of all households reported to have some kind of business assets, with around 34 percent reported to own some farm business assets, and 32 percent reported to own some non-farm business assets. Around 52 percent of households reported to own some, interestingly, around 36 percent of households reported to have some land that is not used for home and neither for businesses.

3.3 Home Leaving between 1997 and 2000

The first thing we want to see is, between 1997 and 2000, how many sons and daughters had left their parental home? As shown in Table 3, around 34 percent of sons and 36 percent of daughters of the head in 1997 had left their parental home by 2000. About two-third of those who left were found in the new households. Less than 2 percent were not found because the parental households were not found, and less than one percent had died. Among male 15-39 years old, the main reason to leave home was to work or to find work, while marriage was the second most important reason (Table 3). Among female, "family reason" was the most important reason (32 percent). Included in this category is "follow spouse" (see Appendix Table 2), which is a different category from marriage.[7] The percentage of female who were reported to have left for marriage reason is 22 percent. Working or finding work was the second main reason why female 15-39 years old left their parental home. [8]

4 Model

In this section is briefly sketch a model of home-leaving to help motivate the empirical approach of this paper. The model borrows from the model of home-leaving described by Laferrere and Bessiere (2003), the main difference being the role of household productive assets that I introduce into the

[7]There are several reasons why one should be concerned with the validity of these reported reasons. First, the question was answered by the head of the original households and not by the departed members. Second, the answers may have been influenced by events that have occurred between the time of the departure and the interview and not necessarily reflect the real reason why the decision to leave home was taken at the time the individuals left home. Because I have data on individuals who left but were found in the new households, I am able to cross-check whether individuals who were reported by the head of the original household to have left because of marriage did marry around the time they left the households. Out of the 367 individuals who meet these criteria, only 60 percent have the same year of marriage as the year they left the households, and about 17 percent were off by more than 1 year.

[8]Divorce is included in the "other" category. It is well known that although the rate of divorce in Southeast Asia was among the highest in the 1960s, in following decades the rate has fallen sharply, a fall that is attributed to decrease in arranged marriage, among other reasons (see Jones 1994).

budget constraint. As in their model, the parent is assume to be altruistic toward his child and is assume to maximize the following:

$$u = u_p(x_p, l_p, z) + \beta u_s(x_s, l_s, z)) \tag{1}$$

where x_i is consumption of a private good, l_i is leisure, with $i = p, s$ denoting parent and son, respectively. Household public good is represented by z, and β is the parameter of altruism. The son maximizes:

$$U = U_s(x_s, l_s, z) + r(d) \tag{2}$$

where $r(d)$ denotes the utility shifter associated with co-residency status $d = h, c, m$, representing living with the parent, living independently but close to the parent, and migrating, respectively. Living independently shifts the utility of the son upwards. [9] It is assumed that $r(h) = 0$. Under co-residence, the parent maximizes (1) subject to the joint household full income constraint:

$$x_p + x_s + w_h.l_p + w_h.l_s + p.z = Y_p + Y_s + w_h.(T_p + T_s) \tag{3}$$

where Y_p and Y_s are the parent's and the son's income, respectively and w_h is wages at the origin (village of the parent). T_i is total time available for i, $T_i = l_i + n_i$. Household business contributes to the parental income (and the joint household income). Parental income is given by the product of the productivity factor θ and the value of the productive assets A, and household labor income so that $Y_p + Y_k = \theta A + w_h(n_p + n_s)$. [10] Assume that should the son move locally, he will face the same prices and wages as he did when he lived with his parent. The only difference from co-residency is that the son has to pay for z himself. Note that he will receive utility from increased privacy. But suppose now the son migrated, the parent's and the son's budget constraints are given by:

$$x_p + p.z_p = \theta(1 - \kappa)A + w_h.n_p + \tau \quad (parent) \tag{4}$$

$$x_s + p_m.z_s = \theta\kappa A + w_m.n_s + \tau \quad (son) \tag{5}$$

where p_m and w_m are price of housing services and wages at the new location, respectively. The parameter κ is a fraction of household productive assets that is claimed by the son (Foster and

[9] Note that I am assuming that parent does not value privacy, r does not enter into his utility function. A study on the effect of pensions on Union Army veterans in the United States in the 1940s shows that rising income substantially increased the demand by the veterans for living separately from their children (Costa 1997).

[10] The income specification is somewaht similar to that described by Foster and Rosenzweig (2002). Their model starts with a joint household j consisting of N individuals ($i = 1, , N$). These individuals are claimants, who have property rights over a divisible asset that produces income stream to the household. Income of claimant if they live independently is y_i is a function of claimant i wages W_i, his claim of asset $\kappa_{ij}A_j$ times the individual specific productivity factor θ_i , income shock ϵ_i, and transfer, τ_i : $y_i = \theta_i\kappa_{ij}A_j + W_i + \epsilon_i + \tau$. Joint household income is $y_j^N = \theta_j N A_j + NW_i + e_j N + \tau_j N$.

Rosenzweig 2002).[11] When transfer τ is positive, these separate households will act as if they pool their resources, so the two budget constraint (4) and (5) will be the following:

$$x_p + p.z_p + x_s + p_m.z_s = \theta A + w_h.n_p + w_m.n_s \tag{6}$$

If τ is zero, for example if both the parent and the son are income constrained, then the child will maximizes his own utility function, $U_s = U(x_s, z_s)$ subject to the autarchic income $Y_s = \theta\kappa A + w_m.n_s$.

Suppose now that the monetary costs associated with migrating is D_m (assume the cost to move locally to be negligible). Denote the son's indirect utility of consumption by $V_{(d)}$ where d again refers to co-residency status. He will choose x_s, n_s, z_s by comparing the three possible indirect utility functions:

$$\begin{aligned} V_h &= V(p, p_m, w_h, w_c, w_m, A) \\ V_c &= V(p, p_m, w_h, w_c, w_m, A) \\ V_m &= V(p, p_m, w_h, w_c, w_m, A) \end{aligned} \tag{7}$$

He will migrate if $V_m - V_h > r_h - r_m + D_m$, the difference in the indirect utility out of consumption between migrating and living with his parents is greater than the cost of privacy plus the cost of migrating and $V_m - V_c > r_c - r_m + D_m$, the difference in the indirect utility between migrating and moving locally is also greater than the difference in privacy costs plus the associated moving costs. [12]

The role of assets is of particular interest. In the model above, productive assets influence home-leaving and migration decision through income. In studying migration and remittances in Kenya, Hoddinott (1994)consider a collective household model where the parent and the son is trying to maximize over the choice of a composite good and leisure under two possible state of the world: one in which the son migrated, and the other in which the son remained in his village. [13] The migration probability is a function of prices, origin and destination wages, and transfers from other members of the household. It is assumed that wages that the son would have received should he remain in the village is a function of the amount of land he would have received from his parent, L^{ps}, and the wage of the parent is a function of the amount of land he has L^s. This leads to the following reduced form of migration probability:

$$M = m(age, education, L^{ps}, L^p, HH\ dem.\ char.) \tag{8}$$

For the reduced form to be valid, the household demographic characteristics are presumed to be exogenous. The model indicates that the amount of land received from the parent would reduce the incentive to migrate as the prospective son, but it doesn't indicate the effects of parental land

[11] At this point I am assuming that κ is exogenous or predetermined by local culture and norms. But this claim could be a function of net transfer and residency status, $\kappa = \kappa(\tau, d)$, where for example $\frac{\partial \kappa}{\partial \tau} > 0$ and $\frac{\partial \kappa}{\partial d} < 0$.

[12] Similarly, he will move locally if $V_c - V_h > r_h - r_c$ and $V_c - V_m > r_m - r_c - D_m$, and he will stay with his parents if $V_h - V_c > r_c - r_h c$ and $V_h - V_m > r_m - r_h - D_m$.

[13] Father and son maximize the Nash welfare function $N = [U_s^m - U_s^h]^{\alpha s}.[U_p^m - U_p^h]^{\alpha p}$ where $\alpha s + \alpha p = 1$, subject to four budget constraints corresponding to father and son under the two states of the world. Included in the budget constraints are transfer from parents to son and son to parents.

holding. The empirical findings in the Hoddinott 1994 suggest that in rural Kenya, parental land holding per capita is positively associated with the probability of migration, lending support to the hypothesis that households with more assets are able to borrow to help send their sons to migrate when migration entails significant financial cost.

Foster and Rosenzweig 2002 estimate a household-level probit model of household division (with a dependent variable equals 1 whenever if an adult male has left the household) which could be summarized in the following reduced form:

$$M = m(N, W, age, educ, L) \tag{9}$$

where N and W are the number of claimants and wives of claimants, respectively, *age* is age of household head (and its squared term), *educ* consists of the mean, maximum, and the variance of education of the claimants, and L is the amount of land owned. While the model predict that land-holding will be negatively associated with household division, the empirical findings suggest that it is not statistically significant.

5 Empirical Model

Following the discussion in the previous section, I consider the following reduced form:

$$M_s = m(\text{age}, \text{educ}, \text{par.educ}, \text{wages}, \text{hh assets}) \tag{10}$$

The migration process is assumed to be affected by wages at the origin, therefore the migration probability equation need to include some variables that capture these effects. I consider two alternatives: first, I use the district average residuals (one for male and one for female) obtained by estimating a wage function that controls for age, education and sex. The sample includes all IFLS 1997 respondents ages 15-65 who reported positive wages.[14] The coefficients on districts summarize each district's labor market conditions in terms of how much individual characteristics such as age, education, and potential experience were valued. I will then include these district coefficients as one of the explanatory variables in the home leaving/migration estimations that are estimated using linear probability as well as probit models. Because of the non-linearity of the wage equation, and the fact that variables such as age and education enter the wage and migration equation in different way, and also the non-linear form of the migration equation (in the case of probit), I will be able to identify the district wage effect in the migration equation. However, to really justify the inclusion of the district wage in the migration equation I would need a variable that could help predict district

[14]The following equation is estimated separately for male and female:

$$logW_{ij} = \alpha_0 + \alpha_1 E_{1i} + \alpha_2 E_{2i} + \alpha_3 E_{3i} + \alpha_4 X_i + \alpha_5 X_i^2 + \sum_{j=1}^{J} \beta_j R_j$$

where W_i is the wage of individual i, $E_{1i}, E_{2i}, and E_{3i}$ are individual i's years of education (linear splines with knot points at 6 and 12), X is potential experience, and R_j is a dummy variable representing region $j, j = 1..., J$.

wages but would not affect migration in other ways than through local wages.

The second alternative is to estimate a wage function for male and female and then use the predicted wages for individuals and their potential spouses obtained from the wage function. For male respondents, predicted wages for their potential wives are predicted by assuming that the potential wives are 4 year younger and have 20% less schooling years. Conversely, for female respondents, predicted wages for their potential husbands are predicted by assuming that the potential husbands are 4 years older and 20% more two variables that are assumed to drive wages at the origin: proportion of population of individuals age 10-65 employed in industry and manufacturing sector and proportion employed in service sector, with the proportion of 10-65 in agriculture sector being the left out category. The maintained assumption of using these variables is that the effect of these sectoral composition only influence decision on home-leaving/migration through local wages. [15][16] [17]

However it turns out that the two predicted wages (for own and potential spouse) are highly correlated (0.96) and thus including both will induce multi-collinearity. In the home leaving/migration estimation, I only include predicted own wage at the origin.

Having obtained the variables that may characterize wages at the origins, I then estimate home leaving and migration probabilities specified by the following reduced form:

$$Pr(M = j|x) = m(age, education, parentaleducation, assets, wages) \tag{11}$$

I estimate the above equation using a linear probability model as well as probit first using a dependent variable which equals 1 whenever the child has left home (regardless of destination). I then also estimate a similar linear probability model using a dependent variable which equals 1 only when the child has left home *and* own sub-district. As the explanatory variables, in the base specification, I use age, age squared, own education (non-linear), predicted log wages, and whether the household own any land. I then add parental education, and also use value of different types of assets in place of the land ownership dummy variables. [18]

I also estimate the model above as a reduced form of a trichotomous choice model. The three possible outcomes take the value of $j = 0, 1, 2$ where $M_s = 0$ if the individual still lived with the parents, $M_s = 1$ if the individual had left the parental home but live within the same sub-district,

[15] Data on the districts characteristics are from the National Socio-Economic Survey, the SUSENAS.

[16] In this case, the following equation is estimated separately for male and female:

$$logW_{ij} = \alpha_0 + \alpha_1 E_{1i} + \alpha_2 E_{2i} + \alpha_3 E_{3i} + \alpha_4 X_i + \alpha_5 X_i^2 + \sum_{j=1}^{3} \beta_{j=1} R_j$$

where the only difference from the previous equation is that R_j now represent district characteristics: proportion of 10-65 employed in industry and manufacturing, and proportion of 10-65 employed in service sector.

[17] There is also a potential bias arising from the fact that the fraction of population working in each sector are not exogenous.

[18] In one of the specifications. I include dummy variables for ethnicities, which are constructed based on the daily language spoken at home. I use ethnic language spoken in the household as a proxy for ethnicity. There are around 20-30 major ethnic languages in Indonesia. In many households where there are more than one ethnic language spoken, instead of creating a rule to assign the ethnicity the individuals identified mostly with, I assign each combination a unique dummy variable.

and $M_s = 2$ if the individual had migrated outside the sub-district. With staying with the parents as the base category, the probabilities estimated are:

$$Pr(M_s = 1|x) = \frac{exp(\mathbf{x}\beta_1)}{1 + exp(\mathbf{x}\beta_1) + exp(\mathbf{x}\beta_2)}$$

$$Pr(M_s = 2|x) = \frac{exp(\mathbf{x}\beta_2)}{1 + exp(\mathbf{x}\beta_1) + exp(\mathbf{x}\beta_2)}$$

Probability of staying is given by:

$$Pr(M_s = 0|x) = \frac{1}{1 + exp(\mathbf{x}\beta_2) + exp(\mathbf{x}\beta_3)}$$

where $\mathbf{x}$ is a $1 \times K$ vector containing the explanatory variables that are on the right hand side of the reduced form equation (10).[19]

One of the weaknesses of multinomial logit specification is that it entails a strong assumption of IIA (independence from irrelevant alternatives), implying that the relative probabilities for any of two available alternatives depend only on the attributes of those alternatives. In particular it assumes that the unobservables in each alternatives are not correlated with each other. To relax this assumption one could instead estimate a hierarchical model such as the nested logit. Under this model, we would think of the individual having first choose between migrating or not, and if he decided to stay, he would then decide whether he would co-reside with his parents or establish an independent household.[20]. Another possible empirical specification that relax the IIA assumption is the multinomial probit, where the unobservables for each alternatives are assumed to have a normal distribution and there are arbitrary correlations between the unobservables. However, nested logit and multinomial probit both require some alternative-specific variables which I don't have in the current context.

6 Data and sample construction

As noted above, the sample consists of children of household heads ages 15 to 39 who were found or interviewed in the households during the IFLS2 (1997) survey. Table 3 shows age, sex, and relationship to the household head of all 1997 respondents. Out of 33,000 individuals interviewed in IFLS2, the number of eligible observations is 5,983, of which 3,138 are men and 2,845 are women (Table 1).

When the survey revisited the household in 2000, the individuals can be categorized according to their interview status as : (1) found in the same (parental) household, (2) found in different household, having left their parental household,(3) not found even though the parental household was found, (4) found to have died by 2000, or (5) not found because the parental household was not found. For those who were found in different household and those whose household were found ((2) and (3)), information was also collected from the head of the original households about the reasons

[19]The marginal change is defined as $\frac{\partial Pr(y=j|\mathbf{x})}{\partial x_k} = Pr(y = j|\mathbf{x})\{\beta_{jk} - \sum_{h=1}^{J} Pr(y = j|\mathbf{x})\}$.The discrete change (for example from $x_k = 0$ to $x_k = 1$) is defined as $\frac{\Delta Pr(y=j|\mathbf{x})}{\Delta x_k} = Pr(y = j|\mathbf{x}, x_k = 1) - Pr(y = j|\mathbf{x}, x_k = 0)$.

[20]Alternatively, one could set up the decision tree as one where the individual choose whether to co-reside with her parents or not, and if not, whether she decide to move locally or migrate

why the individuals moved, when they moved (month and year), and where they moved.[21] In our cross tabulations I generally include all of the eligible individuals, unless noted otherwise.

For the multivariate analysis, the individuals whose households were not found or interviewed during the 2000 survey (around 1.8 percent from each sex) had to be dropped from the sample because it is unknown whether these individuals had left their parental households. For the multivariate analysis, we also had to drop individuals who were known to have died by 2000 (less than 1 percent) as well as individuals who had missing values in any of the following variables: household assets, locations they moved to, whether or not they own any land. A little over 1.5 percent of the eligible observations were dropped because of these criteria. In all, for the multivariate analysis, I dropped around 4 percent of the eligible observations. Table 2 shows how the final analysis data was constructed.

7 Results

Wage regression results are presented in Table 7. The first column for each sex ((1) and (3)) show the results using district dummy variables, and the column (2) and (4) show the results using district employment characteristics in place of the dummy variables. I use a linear spline in education with knot points at 6 and 12 years, allowing for different slopes for those with 0-6, 6-12, and 12 or more years education. The coefficients represent the change in the slopes from the preceding interval. For male, the effect of education is non-linear and increasing in slope and there seems to be a larger change in slopes for those with senior high school or more. For female, the effect of education is also non-linear but there does not seem to be advantages for female with more than senior high school over those with 6-12 years of education. Potential experience also has non-linear effect for both male and female.

The proportion of population working in the broad category of industry and manufacturing sector seems to be positively associated with higher wages for male and female, and the same is true for the proportion in the service sector (proportion working in agriculture being the left out category). As discussed in the previous section, I use the results from the above regressions to construct district average wages and relative wages.

The results from the linear probability models of home leaving/migration suggest that using either the district coefficients from the wage equation or the predicted wage give the same qualitative results. I only report the results using the predicted wage (Table 8-11). For male, the coefficients on average wages and relative wages are not statistically significant in home-leaving estimations. Only age seems to be statistically significant. On the other hand, migration decision seems to be driven not only by age, but also by wages, own education, as well as assets. As expected, higher average wages tend to keep male from migrating; the coefficients are negative in all specifications. On the other hand, for male, higher wages of potential spouse in the district are positively correlated with the propensity to migrate. [explaination?] Own education increases propensity to migrate, consistent with the empirical regularity found from other studies.

[21] The options for answering the destination of the moves are: same village, same sub-district, same district, same province, different province, and different country.

Land ownership seems to be positively associated with home leaving (Table 8) but not with migration (Table 9). This suggests landowning household may encourage sons to set up their own independent households but does not necessarily facilitate migration of the sons. When assets are broken down into different categories, the effects of assets on home-leaving become insignificant, while on migration, an interesting pattern emerged. The value of homestead seems to be negatively associated with migration, suggesting that low value of housing tend to push sons to leave. The value of land that is not used for housing or business is also positively associated with migration. If this type of land is used as a collateral to secure a loan to finance the sons' migration, there is no reason why house is not used as a collateral. It is more plausible that this negative association comes about because this type of land is used by household as a liquid asset. Parental education variables do not turn out to be statistically significant for men in most specifications.

The results for women (Table 10 and 11) are a little bit different. Own education does not matter for home-leaving and migration decision of the daughters. This is consistent with the descriptive findings that a large numebr of moves by the woman were family- or marriage-related rather than for employment reason. Coefficient on wages seem to support this story. Average wages are not statistically significant in either home-leaving or migration estimation. On the other hand, coefficients on wages of potential spouse in the district are statistically significant and have negative signs. Higher wages of male in the district seem to deter the female from migrating. Mother's education seem to be negatively correlated with decision to leave home but not to migrate, while father's education does not seem to influence either decision. Similar to the results for male, land ownership seem to be positively associated with the probability to migrate. When values of different assets are used in the regression, none of them seem to be significant except in one specification in the migration estimation (Table 11, column 3) where the value land that is not used for business is positively related to migration.

As discussed in the previous section, I also estimate the model using the multinomial logit specification. The coefficients from the multinomial logit regressions are reported in Table 13 (for male) and Table 15 (female). Tables 12 and 14 use the results from the third specificatiuon in the multinomial logit regressions to report the changes in probabilities given the change in explanatory variables for male and female, respectively. Overall the qualitative results are consistent with the results from the linear probability model estimations. For the male, age, wages and household assets are the variable that are statistically significant. As in the LPM results, the results on district wages show that they don't influence decision to leave home, but higher average wages keep men from migrating. Higher relative wages are positively associated with both home-leaving and migration. Land ownership increase probability of leaving home but has not effect on migration. On the other hand value of business asstes other than land increases the probability of moving locally but decrease the probability of migrating. Having better housing keep one from migrating, but having land not used for business seems to facilitate migration.

Table 12 says that for male, holding all variables at their mean, an increase in the value of land not used for business by one standard deviation will increase the the predicted probability of migrating by 0.340 and decrease decrease the probability of moving locally by -0.020. An increase

in relative wage decreases the predicted probability of migrating much more than it decreases the predicted probability of moving locally.

8 Conclusion

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Table 1. Living arrangement of 15-39 years old, IFLS2 1997

		Nuclear HH		Non-nuclear HH		Total
	Live alone	Child of head	Head or spouse	Head or spouse	Other	Total
Male						
1.15-19	22	1,610	3	18	244	1,897
	(1.16)	(84.87)	(0.16)	(0.95)	(12.86)	(100.00)
2.20-24	14	885	41	35	239	1,214
	(1.15)	(72.90)	(3.38)	(2.88)	(19.69)	(100.00)
3.25-29	20	513	255	122	261	1,171
	(1.71)	(43.81)	(21.78)	(10.42)	(22.29)	(100.00)
4.30-39	34	274	1,281	476	256	2,321
	(1.46)	(11.81)	(55.19)	(20.51)	(11.03)	(100.00)
Total	90	3,282	1,580	651	1,000	6,603
	(1.36)	(49.70)	(23.93)	(9.86)	(15.14)	(100.00)
Female						
1.15-19	30	1,437	57	35	378	1,937
	(1.55)	(74.19)	(2.94)	(1.81)	(19.51)	(100.00)
2.20-24	11	795	206	90	268	1370
	(0.80)	(58.03)	(15.04)	(6.57)	(19.56)	100.00
3.25-29	9	420	550	214	158	1,351
	(0.67)	(31.09)	(40.71)	(15.84)	(11.70)	(100.00)
4.30-39	12	326	1,556	621	145	2,660
	(0.45)	(12.26)	(58.50)	(23.35)	(5.45)	(100.00)
Total	62	2,978	2,369	960	949	7,318
	(0.85)	(40.69)	(32.37)	(13.12)	(12.97)	(100.00)

*Row percentages in parentheses.

Table 2. Proportion of adult age 15-39 residing with parents, by marital status

	Age 15-19		Age 20-24		Age 25-29		Age 30-39	
	Total	**% with parent**	**Total**	**% with parent**	**Total**	**% with parent**	**Total**	**% with parent**
Male								
Never married	1,884	84.9	946	84.2	475	82.3	175	72.6
Married	40	60.0	245	31.4	697	20.5	2,100	12.1
Spouse in hh	36	55.6	233	28.8	669	20.2	2,048	11.8
Separated/divorced/widower	2	100.0	14	78.6	16	87.5	45.0	53.3
All male	1,926	84.4	1,205	73.4	1,188	46.1	2,320	17.5
Female								
Never married	1,689	78.3	665	80.0	251	74.9	159	69.2
Married	245	46.1	667	37.9	1,044	24.2	2,304	14.3
Spouse in hh	222	41.9	598	34.8	961	20.7	2,182	12.8
Separated/divorced/widower	19	68.4	37	81.1	56	76.8	193	44.0
All female	1,953	74.2	1,369	59.5	1,351	35.8	2,656	19.7

Table 3. Status of interview in 2000

Status of interview in 2000	**Male**	**Female**	**Total**
Same households	2,077	1,814	3,891
% of total	(66.19)	(63.76)	(65.03)
Died	21	13	34
% of total	(0.67)	(0.46)	(0.57)
Original hh not found	58	51	109
% of total	(1.85)	(1.79)	(1.82)
Left household (total)	982	967	1949
% of total	(31.29)	(33.99)	(32.58)
found in new hh	642	666	1,308
% of total	(20.46)	(23.41)	(21.86)
new hh not found	340	301	641
% of total	(10.83)	(10.58)	(10.71)
Total	3,138	2,845	5,983

*15-39 year old, children of household head.
Column percentages in parentheses.

Table 4. Home-Leaving and Migration by Age

	Male				Female			
Age group	Stay	Moved w/in subdistrict	Migrated	Total	Stay	Moved w/in subdistrict	Migrated	Total Total
1.15-19	1,085	43	371	1,499	881	90	380	1,351
	(72.38)	(2.87)	(24.75)	(100.00)	(65.21)	(6.66)	(28.13)	(100.00)
2.20-24	528	67	231	826	465	68	220	753
	(63.92)	(8.11)	(27.97)	(100.00)	(61.75)	(9.03)	(29.22)	(100.00)
3.25-29	295	57	117	469	233	42	95	370
	(62.90)	(12.15)	(24.95)	(100.00)	(62.97)	(11.35)	(25.68)	(100.00)
4.30-39	169	23	58	250	235	25	43	303
	(67.60)	(9.20)	(23.20)	(100.00)	(77.56)	(8.25)	(14.19)	(100.00)
Total	2,077	190	777	3,044	1,814	225	738	2,777
	(68.23)	(6.24)	(25.53)	(100.00)	(65.32)	(8.10)	(26.58)	(100.00)

*Row percentages in parentheses.

Table 5. Home-Leaving and Migration by Education

	Male				Female			
Completed schooling	Stay	Moved locally	Migrated	Total	Stay	Moved locally	Migrated	Total
1.No school	46	7	8	61	66	10	17	93
	(75.41)	(11.48)	(13.11)	(100.00)	(70.97)	(10.75)	(18.28)	(100.00)
2.Some primary	194	33	66	293	167	36	50	253
	(66.21)	(11.26)	(22.53)	(100.00)	(66.01)	(14.23)	(19.76)	(100.00)
3.Compl. primary school	633	62	199	894	503	72	190	765
	(70.81)	(6.94)	(22.26)	(100.00)	(65.75)	(9.41)	(24.84)	(100.00)
4.Compl. junior h.s.	615	36	274	925	526	51	258	835
	(66.49)	(3.89)	(29.62)	(100.00)	(62.99)	(6.11)	(30.90)	(100.00)
5.Compl. senior h.s.	584	51	227	862	550	56	223	829
	(67.75)	(5.92)	(26.33)	(100.00)	(66.34)	(6.76)	(26.90)	(100.00)
Total	2,072	189	774	3,035	1812	225	738	2775
	(68.27)	(6.23)	(25.50)	(100.00)	(65.30)	(8.11)	(26.59)	(100.00)

*Excluding those with missing education. Row percentages in parentheses.

Table 6. Sectoral employment, male and female 10+

	Proportion age 10+ who were employed		
Sector	Male	Female	Total
Agriculture	42.9	43.3	43.0
Industry	19.3	15.0	17.7
Services	37.9	41.8	39.3
Total	100.0	100.0	100.0

Source: National Socio-economic Survey 1997
The numbers are estimated using individual weights

Table 7. Wage regression, 15-59 male and female

	Male		Female	
	(1)	(2)	(3)	(4)
Education (years, spline)				
0 - 6	0.062	0.073	0.055	0.049
	[6.465]***	[7.130]***	[4.548]***	[4.319]***
6 - 9	0.044	0.042	0.13	0.143
	[3.356]***	[3.052]***	[7.158]***	[8.151]***
9 - 12	0.066	0.051	0.011	0.004
	[4.051]***	[3.078]***	[0.472]	[0.193]
Potential experience	0.049	0.049	0.053	0.054
	[12.149]***	[12.497]***	[10.495]***	[10.606]***
Potential experience squared	-0.001	-0.001	-0.001	-0.001
	[10.478]***	[10.553]***	[7.977]***	[8.084]***
District variables				
prop (10+ in industry)		0.009		0.005
		[4.476]***		[1.973]**
prop (10+ in services)		0.007		0.005
		[6.364]***		[3.636]***
Constant	6.081	5.19	5.323	4.802
	[51.896]***	[58.602]***	[37.553]***	[39.130]***
Observations	5465	5373	3328	3299
R-squared	0.295	0.230	0.329	0.247
F-tests of joint significance (p-values)				
Education variables	0.000	0.000	0.000	0.000
Experience variables	0.000	0.000	0.000	0.000
District dummy variables	0.000	-	0.000	-
District variables	-	0.000	-	0.000

Robust t statistics in brackets. Omitted category is the proportion of age 10+ working in agricultural sector. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 8. Linear probability model of leaving home, sons of head 15-39

	Dep var: 1 if leave parental home but move locally			
	(1)	(2)	(3)	(4)
Age group				
Age 20-24	0.0643	0.0568	0.0567	0.0587
	[5.140]***	[4.498]***	[4.071]***	[4.226]***
Age 25-29	0.1080	0.0947	0.0967	0.1009
	[5.278]***	[4.472]***	[4.082]***	[4.124]***
Age 30-34	0.0894	0.0714	0.0868	0.1029
	[2.945]***	[2.366]**	[2.409]**	[2.726]***
Age 35-39	-0.0034	-0.0200	-0.0323	-0.0242
	[0.110]	[0.649]	[1.014]	[0.716]
Own education				
Some primary school	0.0208	0.0208	0.0492	0.0423
	[0.472]	[0.470]	[1.112]	[0.922]
Completed primary school	-0.0191	-0.0151	0.0079	0.0092
	[0.463]	[0.366]	[0.193]	[0.216]
Completed junior high	-0.0501	-0.0428	-0.0145	-0.0137
	[1.134]	[0.969]	[0.317]	[0.287]
Completed senior high	-0.0812	-0.0736	-0.0500	-0.0520
	[1.546]	[1.398]	[0.891]	[0.882]
Father's education				
Some primary school		-0.0033	-0.0115	-0.0145
		[0.164]	[0.523]	[0.635]
Completed primary school		-0.0169	-0.0201	-0.0286
		[0.853]	[0.890]	[1.227]
Completed junior high		-0.0284	-0.0436	-0.0486
		[1.321]	[1.812]*	[1.943]*
Completed senior high		-0.0312	-0.0393	-0.0480
		[1.449]	[1.588]	[1.900]*
Mother's education				
Some primary school		-0.0381	-0.0408	-0.0403
		[2.545]**	[2.495]**	[2.430]**
Completed primary school		-0.0230	-0.0185	-0.0121
		[1.413]	[1.010]	[0.645]
Completed junior high		-0.0184	-0.0100	-0.0028
		[0.869]	[0.420]	[0.115]
Completed senior high		-0.0187	-0.0111	-0.0064
		[0.895]	[0.459]	[0.262]
Assets (dummy)				
Own any land =1	0.0179	0.0169		
	[1.850]*	[1.718]*		
Business assets (Rp/100)				
log (land used for business+1)			0.0020	-0.0404
			[0.019]	[0.361]
log (other business assets+1)			0.1756	0.1765
			[1.688]*	[1.062]
Non-business assets (Rp/100)				
log(homestead+1)			-0.0465	-0.0139
			[0.542]	[0.168]
log(land+1)			0.0496	0.0589
			[0.504]	[0.550]
log(other hh assets+1)				0.0080
				[0.063]
Predicted monthly wages(Rp)				
log(average wages)	-0.0207	-0.0120	-0.0025	-0.0148
	[0.958]	[0.536]	[0.100]	[0.598]
relative wage[a)]	0.0854	0.0919	0.0728	0.1030
	[1.327]	[1.426]	[0.999]	[1.359]
Constant	0.1276	0.1000	0.0353	0.0897
	[1.007]	[0.758]	[0.251]	[0.619]
Observations	2942	2942	2525	2525
R-squared	0.037	0.043	0.046	0.049
Joint significance(p-values)				
Age variables	0.000	0.000	0.000	0.000
Own education	0.160	0.250	0.255	0.367
Father's education		0.247	0.135	0.107
Mother's education		0.209	0.102	0.077
Wage variables	0.338	0.353	0.601	0.371
Asset variables			0.173	0.363

[a] predicted wage of potential spouse/predicted own wage. Omitted categories are: age-group 15-19 , 0 years of own education, 0 years of father's education, 0 years of mother's education. Absolute value of t statistics are in brackets with significance at 10%(*),5%(**), and 1%(***). indicated.

Table 9.Linear probability model of leaving home, sons of head 15-39

	Dep var: 1 if leave parental home and migrate			
	(1)	(2)	(3)	(4)
Age group				
Age 20-24	0.0442	0.0470	0.0382	0.0486
	[2.004]**	[2.073]**	[1.552]	[1.890]*
Age 25-29	-0.0059	-0.0015	-0.0178	0.0026
	[0.195]	[0.049]	[0.531]	[0.074]
Age 30-34	-0.0018	0.0053	0.0208	0.0404
	[0.043]	[0.118]	[0.422]	[0.786]
Age 35-39	-0.1681	-0.1560	-0.1563	-0.1781
	[3.359]***	[3.069]***	[2.711]***	[3.104]***
Own education				
Some primary school	0.1343	0.1359	0.1206	0.1441
	[2.425]**	[2.581]***	[2.040]**	[2.385]**
Completed primary school	0.1076	0.1073	0.0933	0.0988
	[2.004]**	[2.114]**	[1.636]	[1.701]*
Completed junior high	0.1254	0.1267	0.1071	0.1169
	[2.016]**	[2.132]**	[1.625]	[1.728]*
Completed senior high	-0.0058	-0.0039	0.0022	0.0158
	[0.070]	[0.048]	[0.025]	[0.174]
Father's education				
Some primary school		0.0085	-0.0021	0.0163
		[0.282]	[0.064]	[0.497]
Completed primary school		0.0141	0.0232	0.0444
		[0.451]	[0.676]	[1.276]
Completed junior high		-0.0051	0.0023	0.0138
		[0.133]	[0.054]	[0.317]
Completed senior high		-0.0192	-0.0185	0.0010
		[0.470]	[0.414]	[0.021]
Mother's education				
Some primary school		0.0369	0.0190	0.0217
		[1.463]	[0.705]	[0.779]
Completed primary school		0.0096	0.0082	0.0176
		[0.345]	[0.269]	[0.556]
Completed junior high		0.0483	0.0333	0.0363
		[1.192]	[0.759]	[0.802]
Completed senior high		0.0592	0.0546	0.0625
		[1.384]	[1.156]	[1.282]
Assets (dummy)				
Own any land =1	0.0141	0.0147		
	[0.777]	[0.800]		
Business assets (Rp/100)				
log (land used for business+1)			-0.0042	0.1407
			[0.025]	[0.789]
log (other business assets+1)			-0.0776	-0.1727
			[0.446]	[0.602]
Non-business assets (Rp/100)				
log(homestead+1)			-0.4504	-0.4140
			[2.497]**	[2.267]**
log(land+1)			0.3128	0.4214
			[1.848]*	[2.332]**
log(other hh assets+1)				-0.1276
				[0.495]
Predicted monthly wages(Rp)				
log(average wages)	-0.0913	-0.0990	-0.1118	-0.1134
	[2.339]**	[2.408]**	[2.521]**	[2.466]**
relative wage[a)]	0.4808	0.4870	0.4959	0.4614
	[4.063]***	[4.120]***	[3.908]***	[3.519]***
Constant	0.3840	0.3963	0.5609	0.5593
	[1.746]*	[1.718]*	[2.260]**	[2.186]**
Observations	2942	2942	2525	2525
R-squared	0.019	0.023	0.046	0.029
Joint significance(p-values)				
Age variables	0.000	0.000	0.004	0.000
Own education	0.000	0.000	0.019	0.015
Father's education		0.912	0.456	0.259
Mother's education		0.158	0.581	0.748
Wage variables	0.000	0.000	0.000	0.001
Asset variables			0.052	0.035

[a] predicted wage of potential spouse/predicted own wage. Omitted categories are: age-group 15-19 , 0 years of own education, 0 years of father's education, 0 years of mother's education. Absolute value of t statistics are in brackets with significance at 10%(*),5%(**), and 1%(***). indicated.

Table 10.Linear probability model of leaving home, daughters of head 15-39

	Dep var: 1 if leave parental home but move locally			
	(1)	(2)	(3)	(4)
Age group				
Age 20-24	0.0367	0.021	0.0285	0.0271
	[2.413]**	[1.346]	[1.642]	[1.519]
Age 25-29	0.0756	0.0529	0.0655	0.0636
	[3.422]***	[2.331]**	[2.522]**	[2.386]**
Age 30-34	0.0536	0.0194	0.0287	0.0213
	[1.989]**	[0.696]	[0.935]	[0.686]
Age 35-39	0.0291	-0.0095	-0.0043	-0.0123
	[0.825]	[0.260]	[0.102]	[0.303]
Own education				
Some primary school	0.036	0.0414	0.0381	0.0225
	[0.885]	[1.001]	[0.852]	[0.488]
Completed primary school	-0.0075	0.0047	-0.0059	-0.0149
	[0.202]	[0.124]	[0.143]	[0.344]
Completed junior high	0.0001	0.0121	0.0228	0.024
	[0.003]	[0.297]	[0.511]	[0.519]
Completed senior high	0.0267	0.0331	0.0599	0.0653
	[0.581]	[0.697]	[1.145]	[1.196]
Father's education				
Some primary school		-0.0031	-0.0191	-0.0323
		[0.126]	[0.693]	[1.129]
Completed primary school		-0.0059	-0.0188	-0.0354
		[0.242]	[0.688]	[1.257]
Completed junior high		-0.0266	-0.0418	-0.05
		[0.984]	[1.373]	[1.580]
Completed senior high		-0.0464	-0.0626	-0.0744
		[1.690]*	[2.015]**	[2.313]**
Mother's education				
Some primary school		-0.0284	-0.0207	-0.0148
		[1.417]	[0.941]	[0.651]
Completed primary school		-0.0617	-0.057	-0.056
		[3.027]***	[2.536]**	[2.433]**
Completed junior high		-0.0313	-0.0187	-0.0168
		[1.282]	[0.670]	[0.588]
Completed senior high		-0.0564	-0.0467	-0.0422
		[2.327]**	[1.743]*	[1.531]
Assets (dummy)				
Own any land =1	0.0155	0.0146		
	[1.350]	[1.283]		
Business assets (Rp/100)				
log (land used for business+1)			0.0209	-0.0698
			[0.169]	[0.524]
log (other business assets+1)			0.2123	0.3087
			[1.811]*	[1.689]*
Non-business assets (Rp/100)				
log(homestead+1)			-0.0869	-0.0885
			[0.728]	[0.723]
log(land+1)			-0.0401	0.0036
			[0.341]	[0.029]
log(other hh assets+1)				-0.0661
				[0.453]
				(continued)
Predicted monthly wages(Rp)				
log(average wages)	-0.0471	-0.0189	-0.0271	-0.0389
	[2.046]**	[0.807]	[1.034]	[1.463]
relative wage[a)]	0.0427	0.0165	0.0458	0.0498
	[1.162]	[0.446]	[1.116]	[1.173]
Constant	0.2837	0.1884	0.204	0.2882
	[1.728]*	[1.142]	[1.121]	[1.550]
Observations	2699	2699	2331	2331
R-squared	0.015	0.026	0.03	0.031
Joint significance(p-values)				
Age variables	0.009	0.105	0.068	0.069
Own education	0.338	0.512	0.245	0.235
Father's education		0.253	0.261	0.271
Mother's education		0.013	0.043	0.030
Wage variables	0.036	0.609	0.252	0.119
Asset variables			0.184	0.312

[a] predicted wage of potential spouse/predicted own wage. Omitted categories are: age-group 15-19 , 0 years of own education, 0 years of father's education, 0 years of mother's education. Absolute value of t statistics are in brackets with significance at 10%(*),5%(**), and 1%(***). indicated.

Table 11.Linear probability model of leaving home, daughters of head 15-39

	Dep var: 1 if leave parental home and migrate			
	(1)	(2)	(3)	(4)
Age group				
Age 20-24	0.0035	0.0132	0.0176	0.0208
	[0.147]	[0.535]	[0.660]	[0.750]
Age 25-29	-0.0523	-0.0372	-0.04	-0.0444
	[1.611]	[1.101]	[1.085]	[1.160]
Age 30-34	-0.1997	-0.1789	-0.1842	-0.1788
	[5.153]***	[4.323]***	[4.217]***	[3.897]***
Age 35-39	-0.1316	-0.1054	-0.0855	-0.0733
	[2.374]**	[1.841]*	[1.314]	[1.068]
Own education				
Some primary school	0.044	0.0216	0.0259	0.0195
	[0.886]	[0.438]	[0.497]	[0.359]
Completed primary school	0.1154	0.0867	0.083	0.075
	[2.287]**	[1.710]*	[1.548]	[1.336]
Completed junior high	0.0731	0.0449	0.0341	0.0201
	[1.335]	[0.807]	[0.585]	[0.332]
Completed senior high	-0.002	-0.0313	-0.0238	-0.0413
	[0.029]	[0.435]	[0.313]	[0.523]
Father's education				
Some primary school		0.0573	0.0782	0.0665
		[1.946]*	[2.498]**	[2.029]**
Completed primary school		0.0646	0.0684	0.0639
		[1.989]**	[1.972]**	[1.762]*
Completed junior high		0.0409	0.0506	0.0416
		[0.992]	[1.136]	[0.895]
Completed senior high		0.0452	0.0841	0.0839
		[1.093]	[1.917]*	[1.843]*
Mother's education				
Some primary school		0.0356	0.027	0.0291
		[1.370]	[0.961]	[0.992]
Completed primary school		0.0182	0.0091	0.0115
		[0.596]	[0.273]	[0.335]
Completed junior high		0.0301	-0.0073	-0.0083
		[0.746]	[0.171]	[0.189]
Completed senior high		0.0291	0.0135	0.0116
		[0.657]	[0.284]	[0.237]
Assets (dummy)				
Own any land =1	0.0415	0.0404		
	[2.334]**	[2.235]**		
Business assets (Rp/100)				
log (land used for business+1)			0.0573	-0.0057
			[0.344]	[0.032]
log (other business assets+1)			0.1112	0.2123
			[0.625]	[0.818]
Non-business assets (Rp/100)				
log(homestead+1)			-0.0479	-0.0078
			[0.239]	[0.038]
log(land+1)			0.3649	0.3518
			[2.119]**	[1.888]*
log(other hh assets+1)				-0.0344
				[0.152]
Predicted monthly wages(Rp)				
log(average wages)	-0.0571	-0.0616	-0.0391	-0.0200
	[1.291]	[1.344]	[0.790]	[0.392]
relative wage[a)]	-0.2585	-0.2427	-0.2058	-0.1963
	[4.096]***	[3.814]***	[2.959]***	[2.711]***
Constant	0.9816	0.9446	0.7428	0.6125
	[3.363]***	[3.203]***	[2.305]**	[1.841]*
Observations	2699	2699	2331	2331
R-squared	0.028	0.032	0.033	0.031
Joint significance(p-values)				
Age variables	0.000	0.000	0.000	0.000
Own education	0.020	0.049	0.224	0.270
Father's education		0.188	0.136	0.184
Mother's education		0.685	0.846	0.872
Wage variables	0.000	0.000	0.010	0.024
Asset variables			0.097	0.202

[a] predicted wage of potential spouse/predicted own wage. Omitted categories are: age-group 15-19 , 0 years of own education, 0 years of father's education, 0 years of mother's education. Absolute value of t statistics are in brackets with significance at 10%(*),5%(**), and 1%(***). indicated.

Table 12. Changes in predicted probabilities from multinomial logit : estimation of home leaving: sons (from Table 13. column (3))

	Stay	Moved	Migrated
Pr(y| x)	0.696	0.047	0.257

	x	sd(x)	Ave. |change|	Moved	Migrated
Marginal effect					
Land used for business	0.050	0.073			
± 1 standard dev.			0.004	0.001	0.005
Marginal effect			0.055	0.011	0.071
Other business assets	0.069	0.068			
± 1 standard dev.			0.014	0.013	0.008
Marginal effect			0.210	0.195	0.120
Homestead	0.145	0.049			
± 1 standard dev.			0.005	-0.005	-0.003
Marginal effect			0.099	-0.094	-0.054
Land not used for business	0.031	0.062			
± 1 standard dev.			0.014	-0.001	0.021
Marginal effect			0.227	-0.020	0.340
Average wage	6.534	0.447			
± 1 standard dev.			0.021	-0.015	-0.017
Marginal effect			0.047	-0.034	-0.037
Relative wage	1.537	0.366			
± 1 standard dev.			0.050	0.018	-0.075
Marginal effect			0.137	0.050	-0.206
Discrete change from 0 to 1					
Age groups					
Age 20-24	0.270	0.444	0.031	0.029	0.017
Age 24-29	0.124	0.330	0.051	0.077	-0.040
Age 30-34	0.082	0.275	0.117	0.036	-0.176
Age 35-39	0.027	0.163	0.051	0.001	-0.077
Own education					
Some primary school	0.093	0.290	0.039	0.021	0.037
Completed primary school	0.280	0.449	0.068	-0.010	0.101
Completed junior high	0.308	0.462	0.047	0.023	0.049
Completed senior high	0.284	0.451	0.053	0.080	-0.014
Father's education					
Some primary school	0.305	0.460	0.060	-0.013	0.091
Completed primary school	0.268	0.443	0.053	-0.011	0.079
Completed junior high	0.107	0.309	0.040	-0.032	0.060
Completed senior high	0.184	0.387	0.064	-0.057	0.096
Mother's education					
Some primary school	0.303	0.460	0.017	-0.013	0.026
Completed primary school	0.252	0.434	0.030	-0.046	0.006
Completed junior high	0.094	0.292	0.010	-0.006	-0.009
Completed senior high	0.099	0.299	0.030	-0.046	0.014

Table 13. Multinomial logit of Home Leaving and Migration Relative to Staying with Parents:Sons, using predicted wages

	(1)		(2)		(3)		(4)	
	Moved locally	Migrated	Moved locally	Migrated	Moved locally	Migrated	Moved locally	Migrated
Age variables	locally							
Age 20-24	1.3108	0.3362	1.1805	0.3427	1.1314	0.2901	1.2354	0.3527
	[6.038]***	[2.960]***	[5.310]***	[2.926]***	[4.857]***	[2.299]**	[4.972]***	[2.675]***
Age 25-29	1.6991	0.1291	1.4842	0.1439	1.4366	0.0545	1.5884	0.1766
	[6.503]***	[0.799]	[5.411]***	[0.855]	[4.961]***	[0.296]	[5.160]***	[0.924]
Age 30-34	1.4120	0.1277	1.1067	0.1541	1.2492	0.2666	1.4994	0.4026
	[3.859]***	[0.540]	[2.884]***	[0.630]	[3.039]***	[0.984]	[3.511]***	[1.427]
Age 35-39	-0.3631	-1.2355	-0.6318	-1.1789	-1.1356	-1.1935	-0.9241	-1.5513
	[0.461]	[2.613]***	[0.794]	[2.471]**	[1.053]	[2.257]**	[0.852]	[2.398]**
Own education								
Some primary school	0.5754	0.9363	0.5737	0.9726	0.8547	0.8744	0.8603	1.0381
	[1.223]	[2.253]**	[1.214]	[2.339]**	[1.579]	[2.057]**	[1.561]	[2.311]**
Completed primary school	-0.0025	0.7240	-0.0064	0.7221	0.2172	0.6156	0.2680	0.6868
	[0.005]	[1.798]*	[0.014]	[1.788]*	[0.405]	[1.490]	[0.493]	[1.569]
Completed junior high	-0.7044	0.7689	-0.6412	0.7818	-0.2971	0.6497	-0.2639	0.7437
	[1.287]	[1.786]*	[1.154]	[1.807]*	[0.477]	[1.453]	[0.414]	[1.573]
Completed senior high	-1.4860	0.0250	-1.4085	0.0358	-1.1290	0.0314	-1.1913	0.1324
	[1.970]**	[0.049]	[1.844]*	[0.069]	[1.344]	[0.058]	[1.372]	[0.232]
Father's education								
Some primary school			-0.0236	0.0470	-0.1396	-0.0253	-0.1333	0.0841
			[0.098]	[0.290]	[0.539]	[0.143]	[0.490]	[0.447]
Completed primary school			-0.2396	0.0587	-0.2307	0.1056	-0.3244	0.2219
			[0.902]	[0.351]	[0.814]	[0.578]	[1.081]	[1.141]
Completed junior high			-0.6393	-0.0665	-0.9573	-0.0519	-0.9794	0.0158
			[1.607]	[0.319]	[2.134]**	[0.228]	[2.135]**	[0.066]
Completed senior high			-0.8030	-0.1406	-0.8910	-0.1458	-1.0327	-0.0422
			[1.902]*	[0.651]	[1.994]**	[0.620]	[2.181]**	[0.170]
Mother's education								
Some primary school			-0.4660	0.1544	-0.5482	0.0516	-0.5720	0.0672
			[2.182]**	[1.171]	[2.395]**	[0.363]	[2.342]**	[0.452]
Completed primary school			-0.2583	0.0306	-0.1759	0.0283	-0.0552	0.0901
			[1.042]	[0.204]	[0.660]	[0.174]	[0.198]	[0.530]
Completed junior high			-0.0782	0.2584	0.1058	0.1914	0.2491	0.2222
			[0.199]	[1.266]	[0.252]	[0.856]	[0.583]	[0.958]
Completed senior high			-0.0928	0.3074	0.0914	0.2885	0.1800	0.3408
			[0.204]	[1.401]	[0.187]	[1.200]	[0.351]	[1.363]
Assets dummy								
Own any land=1	0.3345	0.1081	0.3285	0.1087				
	[1.965]**	[1.160]	[1.902]*	[1.158]				
Business asset								
log (land+1)					-0.0021	0.0003	-0.0064	0.0080
					[0.145]	[0.039]	[0.415]	[0.850]
log (other bus assets+1)					0.0322	-0.0017	0.0267	-0.0074
					[1.944]*	[0.182] *	[0.985]	[0.498]
Non-business asset								
log (homestead+1)					-0.0173	-0.0246	-0.0089	-0.0226
					[0.925]	[2.782]***	[0.430]	[2.432]**
log (land+1)					0.0150	0.0178	0.0182	0.0241
					[1.090]	[2.226]**	[1.218]	[2.733]***
log (other)							0.0037	-0.0071
							[0.150]	[0.542]
Predicted wage								
log(average wages)	-0.4552	-0.5221	-0.2692	-0.5466	-0.1305	-0.5917	-0.3572	-0.6263
	[1.283]	[2.618]***	[0.714]	[2.623]***	[0.326]	[2.631]***	[0.850]	[2.665]***
relative wages	2.7107	2.7186	2.8014	2.7462	2.4563	2.7590	3.0628	2.6527
	[2.512]**	[4.668]***	[2.571]**	[4.694]***	[2.106]**	[4.358]***	[2.516]**	[3.999]***
Constant	-2.0231	-0.3886	-2.8206	-0.3961	-3.4725	0.3964	-2.6654	0.4479
	[1.023]	[0.335]	[1.347]	[0.328]	[1.556]	[0.306]	[1.143]	[0.329]
Observations	2942	2942	2942	2942	2525	2525	2525	2525
χ^2 of joint significance (p-values)								
Age	0.000		0.000		0.000		0.009	
Own education	0.000		0.000		0.007		0.009	
Father's education			0.528		0.127		0.069	
Mother's education			0.150		0.273		0.320	
Wages	0.000		0.000		0.000		0.000	
Household assets					0.012		0.025	

[a] predicted wage of potential spouse/predicted own wage. Omitted categories are: age-group 15-19 , 0 years of own education, 0 years of father's education, 0 years of mother's education. Absolute value of z statistics are in brackets with significance at 10%(*),5%(**), and 1%(***) indicated.

Table 14. Changes in predicted probabilities from multinomial logit : estimation of home leaving: daughters (from Table 15. column (3))

	Stay	Moved	Migrated
Pr(y| x)	0.662	0.077	0.261

	x	sd(x)	Ave. |change|	Moved	Migrated
Marginal effect					
Land used for business	0.051	0.073			
± 1 standard dev.			0.001	-0.001	0.001
Marginal effect			0.007	-0.010	0.009
Other business assets	0.071	0.068			
± 1 standard dev.			0.007	0.010	-0.005
Marginal effect			0.103	0.155	-0.072
Homestead	0.142	0.052			
± 1 standard dev.			0.017	-0.003	-0.023
Marginal effect			0.330	-0.051	-0.444
Land not used for business	0.032	0.063			
± 1 standard dev.			0.015	0.003	0.020
Marginal effect			0.244	0.048	0.318
Average wage	6.565	0.542			
± 1 standard dev.			0.040	0.001	-0.060
Marginal effect			0.074	0.001	-0.111
Relative wage	0.771	0.230			
± 1 standard dev.			0.087	0.019	0.113
Marginal effect			0.382	0.081	0.492
Discrete change from 0 to 1					
Age groups					
Age 20-24		0.442	0.067	0.064	0.037
Age 24-29		0.359	0.072	0.108	-0.020
Age 30-34		0.230	0.076	0.090	0.024
Age 35-39		0.134	0.126	-0.030	-0.159
Own education					
Some primary school		0.301	0.135	0.032	0.171
Completed primary school		0.457	0.081	0.002	0.120
Completed junior high		0.462	0.089	-0.021	0.134
Completed senior high		0.445	0.030	-0.044	0.018
Father's education					
Some primary school		0.463	0.006	-0.006	-0.003
Completed primary school		0.453	0.015	-0.012	0.023
Completed junior high		0.317	0.023	-0.033	-0.001
Completed senior high		0.367	0.034	-0.032	-0.019
Mother's education					
Some primary school		0.471	0.016	-0.025	0.016
Completed primary school		0.440	0.006	-0.008	0.008
Completed junior high		0.284	0.026	0.002	-0.036
Completed senior high		0.279	0.038	0.000	0.057

Table 15. Multinomial logit of Home Leaving and Migration Relative to Staying with Parents:Daughters, using predicted wages

	(1)		(2)		(3)		(4)	
	Moved locally	Migrated	Moved locally	Migrated	Moved locally	Migrated	Moved locally	Migrated
Age variables								
Age 20-24	0.5305	0.0747	0.3164	0.1022	0.4196	0.1346	0.4436	0.1494
	[2.729]***	[0.629]	[1.585]	[0.835]	[2.015]**	[1.023]	[2.019]**	[1.098]
Age 25-29	0.9387	-0.1564	0.6450	-0.1091	0.7992	-0.1044	0.8505	-0.1317
	[3.496]***	[0.903]	[2.310]**	[0.609]	[2.673]***	[0.529]	[2.646]***	[0.638]
Age 30-34	0.5228	-1.2094	0.0547	-1.1490	0.1990	-1.1858	0.1790	-1.1338
	[1.401]	[4.511]***	[0.141]	[4.156]***	[0.486]	[3.976]***	[0.397]	[3.687]***
Age 35-39	0.3044	-0.6706	-0.2120	-0.5820	-0.0898	-0.4525	-0.1759	-0.3833
	[0.553]	[2.001]**	[0.378]	[1.695]*	[0.137]	[1.156]	[0.238]	[0.957]
Own education								
Some primary school	0.4064	0.3217	0.4021	0.1859	0.3365	0.2272	0.1628	0.1555
	[1.002]	[0.953]	[0.974]	[0.543]	[0.797]	[0.621]	[0.374]	[0.419]
Completed primary school	0.0920	0.6684	0.1600	0.5184	0.0154	0.5024	-0.1083	0.4369
	[0.220]	[2.065]**	[0.376]	[1.577]	[0.035]	[1.427]	[0.239]	[1.218]
Completed junior high	0.2089	0.4507	0.2094	0.3068	0.3877	0.2898	0.4912	0.2113
	[0.443]	[1.330]	[0.435]	[0.887]	[0.784]	[0.782]	[0.955]	[0.560]
Completed senior high	0.5786	0.1031	0.4958	-0.0582	0.9454	0.0475	1.1636	-0.0408
	[0.911]	[0.250]	[0.764]	[0.139]	[1.390]	[0.105]	[1.618]	[0.088]
Father's education								
Some primary school			0.0732	0.3407	-0.0493	0.4473	-0.1959	0.3546
			[0.330]	[1.934]*	[0.214]	[2.344]**	[0.813]	[1.791]*
Completed primary school			0.0687	0.3660	-0.0454	0.3907	-0.2227	0.3306
			[0.280]	[1.977]**	[0.178]	[1.930]*	[0.834]	[1.579]
Completed junior high			-0.3413	0.2055	-0.4626	0.2555	-0.5095	0.1844
			[0.951]	[0.912]	[1.244]	[1.037]	[1.345]	[0.723]
Completed senior high			-0.8497	0.1926	-0.9051	0.3924	-1.0085	0.3605
			[2.112]**	[0.844]	[2.197]**	[1.593]	[2.371]**	[1.421]
Mother's education								
Some primary school			-0.2233	0.1609	-0.1543	0.1185	-0.0993	0.1432
			[1.168]	[1.136]	[0.773]	[0.786]	[0.470]	[0.909]
Completed primary school			-0.8171	0.0144	-0.7501	-0.0351	-0.7933	-0.0174
			[3.249]***	[0.090]	[2.843]***	[0.204]	[2.809]***	[0.097]
Completed junior high			-0.2100	0.1309	-0.1009	-0.0568	-0.1152	-0.0551
			[0.594]	[0.616]	[0.279]	[0.245]	[0.308]	[0.231]
Completed senior high			-0.8819	0.0796	-0.8432	0.0050	-0.7931	0.0040
			[1.808]*	[0.349]	[1.626]	[0.020]	[1.510]	[0.016]
Assets dummy								
Own any land=1	0.2758	0.2548	0.2699	0.2493				
	[1.793]*	[2.658]***	[1.723]*	[2.571]**				
Business asset								
log (land+1)					0.0026	0.0040	-0.0103	-0.0008
					[0.202]	[0.461]	[0.736]	[0.085]
log (other bus assets+1)					0.0300	0.0094	0.0440	0.0162
					[2.073]**	[1.014]	[1.912]*	[1.133]
Non-business asset								
log (homestead+1)					-0.0145	-0.0043	-0.0149	-0.0022
					[0.866]	[0.430]	[0.860]	[0.207]
log (land+1)					0.0023	0.0179	0.0065	0.0177
					[0.175]	[2.157]**	[0.469]	[1.969]**
log (other)							-0.0078	-0.0029
							[0.366]	[0.225]
Predicted wage								
log(average wages)	-0.8486	-0.3818	-0.3915	-0.3569	-0.5424	-0.2485	-0.7887	-0.1735
	[2.160]**	[1.715]*	[0.946]	[1.549]	[1.229]	[0.988]	[1.671]*	[0.670]
relative wages	0.3257	-1.3236	-0.0690	-1.2769	0.4196	-1.0233	0.6077	-0.9650
	[0.588]	[4.014]***	[0.121]	[3.823]***	[0.682]	[2.793]***	[0.919]	[2.541]**
Constant	2.1648	3.1865	0.3842	2.7749	0.6557	1.6784	2.0171	1.1810
	[0.879]	[2.123]**	[0.150]	[1.821]*	[0.240]	[1.003]	[0.700]	[0.685]
Observations	2699	2699	2699	2699	2331	2331	2331	2331
χ^2 of joint significance (p-values)								
Age	0.000		0.000		0.000		0.000	
Own education	0.068		0.160		0.267		0.301	
Father's education			0.117		0.142		0.191	
Mother's education			0.073		0.188		0.164	
Wages	0.000		0.002		0.029		0.032	
Household assets					0.042		0.097	

[a] predicted wage of potential spouse/predicted own wage. Omitted categories are: age-group 15-19 , 0 years of own education, 0 years of father's education, 0 years of mother's education. Absolute value of z statistics are in brackets with significance at 10%(*),5%(**), and 1%(***) indicated.

App. Table 1. 1997 household members by age and relationship to the head

	Head	Child of head	Other member	Total
Male				
0.0-14	-	4,475	971	5,446
1.15-19	45	**1,547**	334	1,926
2.20-24	90	**841**	274	1,205
3.25-29	403	**486**	299	1,188
4.30-39	1,794	**264**	262	2,320
5.40+	3,945	44	304	4,293
All male	6,277	7,657	2,444	16,378
Female				
0.0-14	-	4,276	1,061	5,337
1.15-19	48	**1,387**	518	1,953
2.20-24	35	**765**	569	1,369
3.25-29	45	**383**	923	1,351
4.30-39	184	**310**	2,162	2,656
5.40+	1,020	83	3,777	4,880
All female	1,332	7,204	9,010	17,546
Male + Female				
0.0-14	-	8,751	2,032	10,783
1.15-19	93	2,934	852	3,879
2.20-24	125	1,606	843	2,574
3.25-29	448	869	1,222	2,539
4.30-39	1,978	574	2,424	4,976
5.40+	4,965	127	4,081	9,173
All male + female	7,609	14,861	11,454	33,924

Note: after dropping 10 heads of households whose age were 0-14.

App. Table 2 Reasons for Leaving Home, 15-39

	Same HH	Marriage	Family reason	Economic reason	School	Other	Total
0.Same hh	3,891	0	0	0	0	0	3,891
1.Work/JobSearch	0	0	0	608	0	0	608
2.School	0	0	0	0	217	0	217
3.FollowSpouse/Parent	0	0	344	0	0	0	344
4.Marriage	0	475	0	0	0	0	475
5.Divorce	0	0	0	0	0	3	3
7.Birth	0	0	0	0	0	1	1
8.Help family	0	0	31	0	0	0	31
9.Need place to stay	0	0	178	0	0	0	178
10.Other	0	0	0	0	0	3	3
11.Not a HHM	0	0	0	0	0	1	1
12.New opportunites	0	0	0	4	0	0	4
13.Want independence	0	0	52	0	0	0	52
14.Argue w/ HHM	0	0	0	0	0	2	2
16.To live w/ other family	0	0	3	0	0	0	3
20.Was HHM,not listed	0	0	0	0	0	2	2
21.Want to Return	0	0	2	0	0	0	2
29.Follow Family	0	0	8	0	0	0	8
98.DK	0	0	0	0	0	14	14
99.Missing	0	0	0	0	0	1	1
Total	3,891	475	618	612	217	27	5,840