On the Road
Marriage and Mobility in Malaysia

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ABSTRACT

Migration choices of husbands and wives in a dynamic and developing country are studied in the context of an economic model of the household. Data are drawn from the second wave of the Malaysia Family Life Survey. Exploiting the retrospective histories, we compare moves that take place before marriage with those made during the marriage; among the latter, moves that are made with the spouse are distinguished from those made alone. The evidence indicates that male mobility is primarily economic in motivation and related to labor market factors. Moves by women, however, seem to be more closely related to fertility or family considerations. Migration is apparently not simply an individual decision; the attributes of the spouse are an important influence on mobility, albeit in an asymmetric manner. Moving toward a broader definition of the household, we find the characteristics of the parents, parents-in-law, and also the (relative) age and gender of siblings all influence mobility in a rich, if complex, way.

I. Introduction

Many empirical models of migration focus on the perspective of an individual and compare individual benefits and costs of migration. This is unfortunate since several recent papers, which explore the links between family and migration, have provided a rich set of insights into the behaviors underlying migration decisions (see, for example, Stark 1991). Migration and the family are likely to

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be closely linked throughout the life cycle. When children are adolescents, parents probably make many family location decisions unilaterally. Then begins a gradual and often tortuous weaning process as children increasingly have a say in where they live. The link between family and migration may be tightest at marriage as the new couple bargains about where they will live. Post-marriage migrations are the resolution of conflicting incentives and desires of husbands and wives about job and family. But, even for postmarriage migrations, the attributes of parents, in-laws, and siblings may matter if migration choices are made within a wider extended family context. In this paper, we examine migration from the perspective of the entire household and consider the role of parental background as well as sibling and spousal characteristics.

This paper provides new evidence on the importance of the family in migration choices in the context of a developing country. Mobility of men and women in Peninsular Malaysia over the last 30 to 40 years is examined using retrospective data from the second Malaysian Family Life Survey (MFLS-2). Malaysia is an especially interesting study site in part because it has undergone a dramatic demographic and economic transformation during this time. In addition, Malaysia contains rich ethnic diversity with living arrangements and customs differing dramatically between the three main ethnic groups—Malays, Chinese, and Indians. Moreover, MFLS-2, which provides a wealth of information about mobility and the family, is uniquely well-suited for this study. Many surveys report whether an individual has ever moved or include information on the most recent move. In contrast, in MFLS-2, each male and female adult respondent provides details on every move of more than three months duration since age 15. Comprehensive demographic and economic information was collected on all household members, in addition to information on members of the extended family. This provides an opportunity to examine migration from the perspective of the entire family and to consider, in addition to an individual's own characteristics, the role of parental background as well as sibling and spousal characteristics.

The impact of spousal characteristics will obviously differ depending on whether moves occur before or during the marriage. This may also be true for attributes of the extended family, and so we explicitly contrast the determinants of premarriage mobility. A key contribution of this study is an in-depth examination of post-marriage mobility. Exploiting another strength of MFLS-2, we have matched the migration histories of husbands and wives. We find that, although in many cases a husband and wife move together, a substantial fraction of postmarriage moves are made alone. The distinction between joint and solo moves has received little attention in the literature, but it turns out to be critical for understanding postmarriage mobility.

Developing a unified theory that incorporates all these complexities and then empirically tests the predictions of the theory is beyond the scope of this paper. Our goal is more modest. Given the extraordinarily rich data sources, we seek to inventory the major empirical regularities in a systematic way. Our approach is guided by insights from the theoretical literature which are laid out in the next section. After describing the data, we compare premarriage with postmarriage mobility and then examine in greater depth joint and solo moves made during marriage.

II. Empirical Models of Family Migration

A. Motivation

Early models of migration described the choice to move as an *individual* decision whereby an individual will migrate if the discounted value of the mover's expected income or utility stream in a different location is sufficiently large to cover the present value of costs of migration (Sjaastad 1962). In general, mover characteristics associated with higher returns to migration, smaller benefits of staying in the current location and lower moving costs will raise the probability of moving. For example, young persons with a longer lifetime to accumulate any benefits of the migration investment are more likely to move. Similarly, the better educated will move to locations where expected returns to human capital (earnings) are higher than in the current location (Harris and Todaro 1970). This offers an explanation for why the more educated tend to migrate out of rural to urban areas where, typically, returns to education are higher. The more educated may also be better informed about labor market opportunities in alternative destinations, especially germane in the context of a developing country (see, for example, Greenwood 1973; Levy and Wadycki 1974; Massey et al. 1987). In developing countries such as Malaysia, women work in the formal sector considerably less than men do, implying that, at least on labor market motives, men will be more mobile than women. Finally, poorer individuals may be more constrained by pecuniary costs of migrating, which suggests that an individual's wealth will have a positive impact both on the probability of migration and on the distance moved. If education and wealth are positively correlated, this is another rationale for education's influence on mobility.

More generally, migration is a *family,* rather than purely individual, choice (Stark 1991), an insight that opens up an array of potential family influences on mobility. First, start with the role of parents. During adolescence, the decision to move may be largely determined by parents as they choose to move the entire family. In these cases, parental characteristics could be a dominant force behind mobility decisions. The influence of parents may extend beyond the time their children have left home. If credit constraints are important, father's education, which is correlated with family wealth, may lower the cost of moving. Better-educated parents, having moved more themselves, may also have lowered the "psychic" cost of moving to their offspring. These arguments suggest that paternal and, possibly, maternal education may affect migration choices.

The second reason the family may matter is that individuals marry and mostly live and move with their spouses. At a minimum, spousal influence begins temporally with the marriage itself. When men and women live apart before marriage (still the dominant mode in Malaysia), one or both must change their residence in order to live together. For example, over 55 percent of the couples in MFLS-2 lived in different districts prior to marriage. The spouse and spouse's family will also enter the mobility calculation at this point, in part because more than half of ever-married couples had arranged marriages. While the prevalence of arranged marriage has declined over time, it remains an important facet of Malaysian life (Tan and Jones 1990). Because courtship in Malaysia is often a long and drawn-out process, and

many marriages are arranged, future in-laws may even have an impact on mobility prior to the marriage. Since parents and parents-in-law are often intimately involved in living arrangements following marriage, their influence by no means stops at the date of marriage. Data from the Malaysian Marriage Survey document that only a quarter of Malaysian couples were able to set up their own home immediately after their marriage, with the rest moving in with one set of parents.[1]

After marriage (ignoring extended-household members), the couple will move if the weighted sum of the benefits to husband and wife associated with moving exceeds the weighted sum of the costs (Mincer 1978). The weights in this calculation are indicative of their relative bargaining power. A key prediction of this model is that, as long as these individual benefits are not perfectly correlated, marriage should inhibit family mobility. In Malaysia, where women are still much less likely than their husbands to participate in the monetary labor market, wives are the tied partners in moves that are labor market related. Consequently, this model predicts that male mobility will decline after marriage whereas female mobility may increase. If labor market factors largely motivate the migration choice, male traits may dominate post-marriage mobility.

Implicitly, this assumes that the husband and wife always move together, but the couple also has the choice of one person moving alone, at least for some period of time. The motivations for solo mobility may be quite distinct from those of joint moves, and the motivations may be substantially different for men and women. For example, although male mobility is likely to be associated with labor market search throughout the life course, this motivation may be important for married women only when they move with their husbands. Stark (1995) argues that marriage may induce some solo migration by providing an insurance policy (the income of the spouse who remains at home) against urban unemployment.

Two reasons have been suggested to explain solo moves by men: job search and short-term income accumulation. Mobility can be viewed as a form of sequential job search (see McCall and McCall 1987; Pessino 1991). A man explores alternative job markets (locations) and only eventually settles in the place where his future earnings prospects are superior. Since he will not stay in rejected locations, his wife does not accompany him to avoid also incurring her moving costs while he tests the waters in each location. Income supplementation is another possible motive for solo moves. Men may move temporarily to a higher-income site to accumulate a nest egg for the future while, possibly, remitting some money back home. Assuming the move is for a relatively short duration, his family will not travel with him because he plans to return home.

The reasons wives move alone may be less influenced by purely labor market or income considerations but reflect, instead, family and social demands. Ethnographic evidence for Malaysia suggests that moves by women without their husbands reflect life-cycle changes in their need for assistance from other non-co-resident kin and their willingness to assist relatives in need. For example, many Malaysian women

1. Practices and customs differ significantly across the ethnic groups. Malays are matrilocal, and 70 percent of couples living with parents were in the bride's parents' home. In contrast, 70 percent of Chinese couples lived with the groom's parents immediately after marriage. Indians, who make up the third major ethnic group in Malaysia, are also patrilocal. Because of this ethnic diversity in living arrangements and customs, the influence of parents and parents-in-law may differ by ethnicity.

have a family member (usually the mother) in attendance at birth. This is especially true for the first birth when it is common for the woman to return home to her mother (Strange 1981). Since the husband stays behind, female solo mobility should peak around the time of the first pregnancy. Later in the life cycle, women's temporary migrations alone may involve assisting their siblings at the time of birth or helping elderly, frail parents.

The net can be cast beyond the individual and even immediate family members to take a broader perspective of the family. In many developing countries, information obtained through migration is shared among all members of the extended family. Ignoring incentive compatibility problems associated with reneging on implicit contracts, migration then provides benefits both to those who move, and to family members who stay behind if movers remit income back to the origin household (Stark 1978). Several studies have argued that migration is a mechanism for a family to diversify risks (Stark and Levhari 1982; Rosenzweig and Stark 1989). This migration model also has implications for human capital investments. If households are resource constrained, it may be optimal to invest more human capital in one member, who is then sent to an area with a higher return to education.

If migrations are jointly decided within an extended family, then conceptually, all attributes of all family members should enter the migration decision. For example, in principle, the education, age, and marital status of all siblings would belong in the model. Unfortunately, such data on sibling characteristics are not available in the MFLS-2 and, for this reason, they are not part of our empirical specification. In our data, we only know the gender-specific numbers of siblings and whether siblings are younger or older than a potential migrant.[2] Our data do allow us to characterize siblings (of both husbands and wives) in terms of scale (total number) as well as their gender and age composition. Since very little is empirically known about whether and which traits of siblings influence individual mobility decisions, even the admittedly incomplete information available in our data represents an advance.

A few caveats are in order. Specification of a complete model of fertility, human capital investments, and migration choices over the life course for all extended family members is a research agenda in and of itself. Similarly, many of the outcomes considered here are jointly determined. For example, Stark (1995) points out that if the success of migrants depends positively on their schooling levels, they may acquire more schooling. In the same vein, if the value of children is higher as migrants, migration may increase desired family size. While these ideas are important, implementing them empirically would raise several complex and currently unresolved issues, among which statistical identification is only one. Our aim here is more modest: to empirically describe how the size and composition of the extended household may affect migration decision-making.

B. Sources of Data

Data are drawn from the *NEW* sample in the second wave of the Malaysian Family Life Survey (MFLS-2) which was fielded in 1988 and 1989. Life history information

2. Specifically, each respondent reports the number of siblings alive when he or she was age 12.

was collected from 1,767 married women aged 18 through 49 along with their spouses; the sample used in this paper includes 1,505 currently married couples, both of whom completed interviews.[3] Each male and female respondent was asked his/her location (district and state) at birth and at age 15 and the timing and destination of all subsequent location changes of three months' duration. In the survey, the nature of a migration event differs for men and women. Among female respondents, a move is a change of house, while for men, only moves that involve crossing a district line are reported.[4] We use only interdistrict moves in order to match the migration histories of husbands and wives so that the relationship between mobility and marriage of men and women can be compared.[5]

In addition to their own sociodemographic characteristics—age, education, and ethnicity—all respondents report considerable detail about their lifetime marriage histories, their background, including the education of their parents, the demographic structure of their household when they were age 12, and whether they lived in an urban area at age 15. Not only do these data provide, in principle, a complete history of all moves of husbands and wives separately, but they also include a very rich contemporaneous and historical description of the respondents' extended families.

C. Migration of Husbands and Wives

Migration is seldom analyzed in the context of other key events over the life course. Table 1 illustrates the importance of one event, marriage, by temporally decomposing

3. There are 2,184 female primary respondents in the survey; of those, 15 percent had never married, and a very small fraction (2.6 percent) were widowed, divorced, or separated at the time of the survey. Never-married women tend to be relatively young and, as noted below, less likely to have ever moved away from their parental home. Not all husbands of the remaining 1,767 married women were interviewed. Eight percent of the men were too old (and completed an abbreviated life history starting at age 50), 1 percent refused to participate, and 5 percent were not in the household. Since the primary respondent and her spouse each answered questions on their own life histories, we know nothing about the migration behavior of those men who were not interviewed, and thus the bulk of the analysis in this paper focuses on the 1,505 married couples with complete information (although evidence regarding sample selectivity due to these restrictions is discussed below). Of all the restrictions, the one that may be important for interpretation of our results is the 5 percent of husbands who were not in the household. Half of them (47) were absent from the household each time it was visited by the interviewer, and the other half (48) were living away from home. Our sample will, therefore, slightly underrepresent couples who have made solo moves after marriage. Note, however, that there are several husbands in the survey who described their last move to a location which is not the current location of the household; these men were visiting their wives at the time of the survey and so are included in our analyses. Interviewers were instructed to schedule their interviews to maximize the number of spouses included in the survey. (See Peterson 1993, for details.)

4. As a frame of reference, in terms of area, Malaysian districts roughly correspond to counties in the United States.

5. These retrospective migration histories turn out to be remarkably accurate. Using a special subsample of respondents in MFLS-2, who were also surveyed in 1986/7 as part of MFLS-1, it is possible to compare reported migration histories for the same respondent that refer to precisely the same time in that person's life, but are reported 12 years apart. Smith and Thomas (1996) find, for example, that respondents were in the same location in both surveys 92 percent of the time. Respondents interviewed in both MFLS-1 and MFLS-2 are likely to be a select group and, in particular, they are likely to be less mobile than the average. Thus, this paper examines respondents in the NEW MFLS-2 sample which is a random sample of women and their spouses drawn in 1988.

Table 1
Migration of Husbands and Wives

Panel A: Moves before, at, and after marriage

	# Moves		Probability (Move)		Conditional # Moves	
	Male	Female	Male	Female	Male	Female
Total	2.39	1.63	74	73	3.25	2.24
	(0.06)	(0.04)			(0.07)	(0.05)
Before marriage	1.39	0.48	58	27	2.41	1.75
	(0.04)	(0.02)			(0.06)	(0.05)
At marriage	0.20	0.38	20	38	—	—
	(0.01)	(0.01)				
After marriage	0.80	0.76	40	42	2.02	1.82
	(0.03)	(0.03)			(0.06)	(0.05)

Panel B: Who moves at and after marriage?

Percentage of Moves:	Around Date of Marriage	During Marriage (Conditional on Moving)
Both move	12	62
Husband only	8	21
Wife only	26	17
Either move	46	100
Husband moves (alone or with wife)	20	83
Wife moves (alone or with husband)	38	79

Notes: Standard errors in parentheses. 1505 couples and 1495 postmarriage moves used in calculations.

all moves by whether they occurred before, at, or after the marriage date. All moves (since age 15) are reported in the first row of Panel A. Women in Malaysia are a good deal less mobile than their husbands; in MFLS-2 the average married woman reports 1.6 migration events, three-quarters of an event less than the average man. Roughly one-quarter of both men and women report never moving, thus implying that this gender disparity is concentrated in the number of migrations among movers as shown in the third column of the table.[6]

6. Relative to those included in our sample, female respondents in the NEW MFLS-2 who are not in our sample are less mobile and report, on average, about a half move less. These women fall into two distinct groups. First, there are those who have never married. Given our focus on marriage and mobility, the analysis necessarily excludes these women. It is prudent, nevertheless, to ask whether they differ from those in our sample. The unmarried women are much less mobile, having made only 0.7 moves on average;

The potential importance of marriage is illustrated by the temporal ordering.[7] Premarital mobility accounts for virtually all gender differences. On average, male prenuptial moves are nine-tenths of a move greater than women's, virtually equivalent to the gender disparity in the total number of moves. Before he marries, the average man engages in nearly three times as many moves as his wife. This difference is explained, in part, by the fact that for three-quarters of women, the first time they migrate across district boundaries is after they marry. However, even among those who did move prior to marriage, gender differences emerge. Among these people, male migrations exceed women's by two-thirds of a move.

The contrast with postmarital mobility is striking. The gender gap in the number of moves is small after marriage. Almost an identical proportion (60 versus 58 percent) of men and women do not move after getting married, indicating that a large fraction of couples never roam far during their marriage. However, among those who do move, mobility rivals that before marriage. For example, among movers, married men average two migrations whereas the average woman who moves while married does so 1.8 times.

Similarity in postmarital mobility of husbands and wives would not be surprising if couples always move together. While joint moves are a significant part of the story, mobility during marriage is far more complex. Its richness is revealed in the second column of Panel B, where the percentages of joint and single spouse migrations are displayed. Less than two-thirds of all postmarriage moves in the sample are joint. One in five moves involves only the husband, and the wife migrates alone for about a sixth of the moves reported by one or the other of the couple. Thus, a quarter of all marital moves made by men, and a fifth by women, are solo journeys made without the spouse.

At first glance, Table 1 appears to support Mincer's hypothesis (1978) that marriage inhibits male mobility while encouraging female migration. There are fewer postmarital than premarital migrations by men, while the reverse is true for women. However, this conclusion is premature because of our failure to control for confounding factors influencing mobility, such as exposure in each state. In our data, men and women have similar marriage durations, but women have less premarital expo-

they are also younger (their average age is 24, whereas women in the sample are 32) and better educated (having completed 10.4 years of schooling compared with the sample average of 7.7 years). In a regression of number of moves on age, education, ethnicity, and location at age 15, we find that the entire mobility gap between these women and those in our sample can be accounted for by differences in the relationship between mobility and age. The second group is potentially more troubling since these women have been married. They are older (40 years on average) and less educated (5.4 years on average); they are also less mobile and report about one-quarter of a move less, on average. While this difference is significant (the t-statistic is 2.0), it is entirely explained by differences in observed characteristics, particularly education. In a regression of the number of moves on education and a control for whether the woman is in the sample, the mobility gap falls to 0.01 with a t-statistic of 0.1. We conclude that sample selectivity is probably not a dominant concern.

7. Each migration event is recorded as a destination and date of move (which may be a month and year or only an age). The histories are reported independently by the husband and wife. We have systematically examined each migration history in combination with the marriage history for each couple and identified moves that bring a couple together at the time of marriage as "moves at marriage." The remaining moves have been allocated to moves that took place prior to or during the current marriage. Examination of these histories also enabled us to match joint moves after marriage which are those in which the husband and wife report the same destination and dates that are no more than six months apart.

sure because they marry at a younger age. A simple adjustment that takes this into account explains 60 percent of the gender difference in the number of premarital moves. To explicitly test Mincer's view, migration rates of unmarried and married women during the same age interval are compared.[8] These differences, reported in the first column below, are negligible. However, after controlling for relevant observable characteristics—including age, education, and background—women are significantly more mobile after marriage. This effect dissipates with age until there is no marriage effect among women who marry after age 26.[9] Similarly, men who marry young are less mobile after marriage even after controlling for observable characteristics.

The Marriage Penalty

Females			Males		
Age Interval	(1) Unadjusted	(2) Adjusted	Age Interval	(1) Unadjusted	(2) Adjusted
19–21	−0.7	8.9	21–23	−13.8	−3.1
(0.2)	(2.8)		(2.7)	(0.5)	
22–25	−1.1	7.3	24–26	−6.3	−7.1
(0.4)	(2.0)		(2.1)	(2.1)	
26–28	−2.7	0.03	27–29	0.1	2.8
(0.6)	(0.1)		(0.03)	(1.0)	

Notes: Marriage penalty is probability of moving if married minus probability of moving if unmarried. *t*-statistics are in parentheses.

The evidence supports Mincer's conjectures with the amendment that only early marriage encourages female mobility while discouraging moves among men. In the following sections, we explore a more complex relationship between marriage and mobility following the temporal decomposition suggested by Table 1. The next section contrasts the determinants of pre- and postmarital moves. Analyses in section D draw out fundamental distinctions among types of postmarriage moves, in particular, between joint and solo mobility of husbands and wives.

D. Pre- and Postmarital Mobility

Evidence on the determinants of the number of pre- and postmarital moves is presented in Tables 2 and 3, separately for men and women. The covariates include sociodemographic attributes of each respondent and spouse, namely education, age

8. Respondents who get married during the interval are excluded from the calculation.

9. The adjusted estimates are based on probit regressions of the probability that the respondent moves during the interval; the covariates are listed in Table 2. Age intervals differ by gender because of differences in age at marriage.

Table 2
Determinants of Number of Premarriage Moves

	Male				Female			
	(1)		(2)		(3)		(4)	
	β	*t*	β	*t*	β	*t*	β	*t*
Ethnicity: (1) if								
Chinese	−0.599	(5.5)	−0.583	(5.2)	−0.138	(2.4)	−0.107	(1.9)
Indian	−0.489	(4.5)	−0.485	(4.3)	−0.092	(1.6)	−0.069	(1.2)
Spouse different race	—		0.347	(1.2)	—		−0.419	(2.7)
Education: (1) if								
Male								
Completed primary	0.170	(1.2)	0.181	(1.3)	—		0.048	(0.6)
Completed Form 1–3	0.297	(2.0)	0.309	(2.1)	—		0.049	(0.6)
Completed Form 4–5	0.936	(6.1)	0.853	(5.1)	—		0.159	(1.8)
Completed Form 6/higher	1.272	(6.6)	1.051	(4.8)	—		0.122	(1.1)
Female								
Completed primary	—		−0.099	(0.8)	0.003	(0.1)	−0.011	(0.2)
Completed Form 1–3	—		−0.048	(0.4)	0.034	(0.5)	0.007	(0.1)
Completed Form 4–5	—		0.053	(0.3)	0.400	(5.1)	0.341	(4.0)
Completed Form 6/higher	—		0.379	(1.6)	0.981	(8.9)	0.927	(7.5)
Male's father completed primary	0.230	(2.2)	0.191	(1.8)	—		0.025	(.04)
Female's father completed primary	—		0.225	(2.1)	0.047	(0.9)	0.036	(0.6)
Male's mother completed primary	0.062	(0.6)	0.051	(0.5)	—		−0.019	(0.4)
Female's mother completed primary	—		−0.033	(0.3)	−0.010	(0.2)	−0.013	(0.3)
Number of sibs								
Male								
Total	0.045	(2.7)	0.046	(2.7)	—		0.005	(0.5)
Younger brothers	−0.067	(2.3)	−0.065	(2.2)	—		−0.009	(0.6)

Female								
Total	—		−0.009	(0.5)	0.031	(3.5)	0.030	(3.4)
Younger brothers	—		0.025	(0.8)	−0.007	(0.5)	−0.008	(0.5)
Location at age 15								
(1) if urban	−0.057	(0.6)	−0.078	(0.8)	−0.003	(0.1)	−0.015	(0.3)
Age at survey date								
Male	−0.021	(3.1)	−0.020	(1.5)	—		−0.008	(1.3)
Female	—		0.000	(0.0)	−0.008	(2.3)	0.000	(0.0)
Exposure (age at marriage: 15)								
(1) if								
0–2 years	−1.336	(3.0)	−1.239	(2.6)	−1.160	(3.8)	−1.055	(3.4)
3–4 years	−1.115	(3.1)	−1.047	(2.7)	−1.090	(3.6)	−1.003	(3.3)
5–6 years	−1.012	(3.5)	−0.943	(3.1)	−0.968	(3.2)	−0.890	(2.9)
7–8 years	−0.834	(3.1)	−0.760	(2.7)	−0.844	(2.8)	−0.790	(2.6)
9–10 years	−0.422	(1.6)	−0.374	(1.4)	−0.619	(2.0)	−0.569	(1.9)
11–12 years	−0.045	(0.2)	0.001	(0.0)	−0.708	(2.3)	−0.665	(2.2)
13–14 years	−0.047	(0.2)	−0.005	(0.0)	−0.302	(1.0)	−0.283	(0.9)
15–16 years	−0.099	(0.4)	−0.080	(0.3)	0.181	(0.6)	0.235	(0.7)
17–20 years	0.351	(1.3)	0.368	(1.3)	−0.216	(0.6)	−0.178	(0.5)
(1) if married more than once	0.028	(0.2)	0.058	(0.3)	0.316	(2.6)	0.350	(2.8)
R^2	0.19		0.20		0.24		0.25	
F-statistics								
All covariates	14.63	(0.00)	10.11	(0.00)	19.21	(0.00)	13.26	(0.00)
Own education	20.93	(0.00)	10.34	(0.00)	29.32	(0.00)	19.84	(0.00)
Spouse education	—		1.29	(0.27)	—		1.08	(0.36)
All spouse characteristics	—		1.02	(0.43)	—		0.71	(0.73)

Notes: 1505 observations in each regression. Regressions include constant and controls for missing information on parents' education. (t-statistics) below coefficient estimates, (p-values) next to F-statistics.

Table 3
Determinants of Number of Postmarriage Moves

	Husband		Wife	
	β	*t*	β	*t*
Ethnicity: (1) if				
Chinese	−0.373	(4.1)	−0.501	(5.9)
Indian	−0.316	(3.5)	−0.275	(3.2)
Spouse different race	0.722	(3.0)	0.608	(2.8)
Education: (1) if				
Husband				
Completed primary	0.040	(0.3)	0.026	(0.2)
Completed Form 1–3	0.163	(1.3)	0.099	(0.9)
Completed Form 4–5	0.312	(2.3)	0.202	(1.6)
Completed Form 6	0.784	(4.4)	0.566	(3.4)
Wife				
Completed Primary	0.057	(0.5)	0.052	(0.5)
Completed Form 1–3	0.004	(0.0)	−0.111	(1.1)
Completed Form 4–5	−0.145	(1.1)	0.192	(1.6)
Completed Form 6	−0.102	(0.5)	−0.152	(0.9)
Husband's father completed primary	0.198	(2.3)	0.222	(2.8)
Wife's father completed primary	0.269	(3.1)	0.202	(2.5)
Husband's mother completed primary	−0.126	(1.5)	−0.063	(0.8)
Wife's mother completed primary	−0.027	(0.3)	−0.019	(0.3)
Number of siblings				
Husband's				
Older brothers	−0.007	(0.3)	0.020	(0.8)
Older sisters	0.009	(0.4)	−0.011	(0.5)
Younger brothers	0.003	(0.1)	0.017	(0.9)
Younger sisters	0.012	(0.5)	0.015	(0.7)
Wife's				
Older brothers	−0.018	(0.7)	0.008	(0.4)
Older sisters	0.026	(1.1)	0.033	(1.4)
Younger brothers	−0.003	(0.1)	0.037	(1.8)
Younger sisters	−0.029	(1.3)	−0.025	(1.2)
Location at age 15				
Husband urban, wife urban	0.254	(2.3)	0.210	(2.1)
Husband urban, wife rural	0.204	(2.2)	0.076	(0.9)
Husband rural, wife urban	0.281	(2.7)	0.164	(1.7)
Age at survey date				
Husband	−0.021	(2.1)	−0.007	(0.8)
Wife	−0.008	(0.7)	−0.008	(0.9)

Table 3 (*continued*)

	Husband		Wife	
	β	*t*	β	*t*
Duration of marriage				
(1) if				
≤3 years	−2.001	(7.1)	−1.575	(6.2)
4–6 years	−1.662	(6.4)	−1.278	(5.4)
7–9 years	−1.324	(5.4)	−0.947	(4.3)
10–12 years	−0.993	(4.4)	−0.672	(3.3)
13–15 years	−0.662	(3.1)	−0.446	(2.3)
16–18 years	−0.516	(2.5)	−0.473	(2.5)
19–21 years	−0.288	(1.3)	−0.261	(1.3)
22–24 years	0.146	(0.6)	−0.081	(0.4)
(1) if married more than once	0.061	(0.4)	−0.284	(1.6)
R^2	0.17		0.15	
F-statistics				
All covariates	7.15	(0.00)	6.32	(0.00)
Husband's education	5.90	(0.00)	3.66	(0.01)
Wife's education	0.85	(0.49)	1.69	(0.15)
Husband's characteristics	2.87	(0.00)	2.24	(0.01)
Wife's characteristics	1.66	(0.06)	1.86	(0.03)

Notes: 1505 observations in each regression. Regressions include constant and controls for missing information on parents' education. (*p*-values) next to *F*-statistics.

at the time of the MFLS-2 survey, exposure,[10] and ethnicity. The influence of family background is captured by variables measuring the education of the respondent's parents and parents-in-law as well as sibling structure.[11]

Before presenting the results, a problem that plagues any analysis of family migration must be discussed. In the most general model, marriage and spatial location are joint outcomes, a consequence of job and marital search by both partners (see Stark 1988, for an excellent discussion). In the extreme, the characteristics of spouses, as

10. To allow flexibility in the effect of exposure, a set of dummy variables were created for different exposure periods. Exposure is measured in terms of the current marriage, and since a small proportion of people have been married previously (4–6 percent) we include a control to indicate whether this was the first marriage.

11. Since the number of moves takes on a discrete range of nonnegative values (from 0 to 13 in these data), we have experimented with alternative count models for the pre- and postmarital migration functions. Estimates based on a Poisson model are slightly more precise than the ordinary least squares (OLS) estimates, but inference is unchanged. Furthermore, apart from a scale effect, the coefficients estimates are also close. A Langrange multiplier test for overdispersion in the Poisson model (McCullagh and Nelder 1983) indicates the assumption that the mean and variance are equal is rejected in all models. The negative binomial model relaxes this assumption, but the coefficient estimates based on these two models are very close (although less precise in the negative binomial case). Estimates from an ordered probit are virtually identical to those of the negative binomial. In fact, apart from the scale factor, the Poisson, negative bino-

well as each person's pre- and postmarital mobility are jointly determined. While this suggests caution in the interpretation of results with spousal characteristics in a migration function, the importance of this source of correlation with unobserved characteristics is an empirical issue. Acknowledging this possible ambiguity, we provide an assessment of its empirical importance in the Malaysian context.

In light of the temporal ordering, spousal attributes would not normally be candidates for inclusion in models of premarital mobility. However, they may have an indirect influence through a selection effect. For example, since educated men stand to gain more from their postmarital migrations, they may prefer to marry more mobile women who will be less resistant to their wandering ways. In this interpretation, any effect of male education on his wife's premarital moves in part captures her unobserved inherent mobility propensity. To evaluate the empirical importance of this argument, Table 2 contains specifications that both include and exclude characteristics of the spouse in the premarital moves functions. *F*-tests for the significance of spouses' characteristics are reported at the foot of the table. Spousal attributes, taken one at a time or collectively, do not affect premarital mobility, but for one exception for men. For example, the *F*-test for the joint significance of all spousal characteristics is 0.7 in the male and 1.0 in the female equations. Neither is close to significant at conventional levels. The single exception is that the man's future father-in-law's schooling enhances his premarital mobility, a result to which we return below.[12] On balance, the evidence indicates that the contamination arising from unobserved heterogeneity correlated with spousal characteristics is likely to be small. Thus, our discussion of premarital mobility is limited to the model excluding spousal attributes.

Tables 2 and 3 indicate that male education is an important correlate of both his pre- and postmarital mobility, an effect that is particularly large in our highest-schooling group. Compared to those with no schooling, men who complete Sixth Form (high school) or above have 1.3 additional interdistrict migrations during their premarital years and 0.8 more moves in their postmarital years. The traditional migration literature would assign this result a labor market interpretation. Additional male schooling raises income gains across labor markets that can be reaped partly through moving. Schooling may increase premarital mobility if some of these additional migrations stem from attending school away from home. However, the size of the effects and their persistence during marriage, well beyond normal school-leaving ages, throws added weight behind a labor market interpretation.

In contrast to the persistent impact of male schooling across marital and age groups, female schooling depends critically on marital status and age. Paralleling our male results, a woman's schooling increases her premarital mobility, partly reflecting the added mobility associated with going to school. In contrast to our results for men, however, a woman's schooling has no detectable impact on her own or her husband's postmarital mobility. There is a basic asymmetry in that a husband's

mial, ordered probit, and OLS estimates are all very close. For ease of interpretation, OLS estimates are presented in the tables.

12. The only other significant spouse characteristic is in the female premarriage mobility regression: Women who marry husbands of a different race are more mobile. Interracial couples make up less than 2 percent of the sample and so, while this characteristic may be capturing intrinsic taste differences of these couples, we would not want to make too much of the result.

education matters a lot for his wife's postnuptial mobility, but female schooling is largely irrelevant to the family's (whether hers or his) mobility during marriage. The dominance of husbands' and wives' marital mobility by male traits argues that much of it may be economically oriented.

Because the spouse is not the only family member who may matter, we broaden our perspective of the family. A mother's education plays a limited role in the mobility of her children, before and after marriage, and it does little to influence the mobility of her children-in-law. In contrast, father's schooling matters a great deal. Better-educated fathers have more mobile sons before and after their sons marry. While a father's education has no influence on his daughter's mobility prior to marriage, it does have a positive impact during her marriage. The father-in-law's education turns out to be a powerful predictor of the number of postmarriage moves for both men and women; for men, it is actually larger in magnitude than the effect of one's own father's education (although this difference is not significant).[13]

Table 2 contains our estimates of the influence of siblings on premarital mobility. In addition to any scale effect, the composition of siblings may matter with "similar siblings" acting as substitutes. To allow for this possibility, the regressions include the total number of siblings, along with the number of younger brothers. Male mobility prior to marriage increases as sib-size increases. This may be because larger sib-sizes increase the shared total benefits from job-related search in alternative locations, the fruits of which will accrue to all family members. Alternately, larger families may be better able to amass the resources needed to support a migrant. In contrast, having more younger brothers reduces male mobility prior to marriage. Since the respondent is not married, his younger brothers are also not likely to be married. If the major responsibility for mobility-related search is shared among unmarried men, the mobility required of an individual unmarried male will be smaller when there are more of them in the family.

The ethnographic literature suggests that when a woman moves prior to marriage in Malaysia, she is moving to a member of her (extended) household. This may be to assist with child care or household duties or as a mechanism for the parents to retain some control over her behavior. Our results are consistent with the ethnographic evidence: Columns 3 and 4 of Table 2 indicate that scale is also a key determinant of premarriage mobility for women. In contrast with men, however, we find no empirical evidence for the role of composition for women's premarital moves, suggesting that the underling motivations for male and female mobility are quite different.

In contrast to the influence of siblings on premarital mobility, their effect is far more limited after marriage: there are no statistically significant sibling effects on the total number of postmarital moves for either spouse. The absence of any detectable impact obscures some important influences of siblings composition that emerge when types of moves are distinguished below.

Controlling for pre- or postmarital exposure, secular changes in mobility are cap-

13. One interpretation of paternal education impacts is through wealth effects, which may increase job search by raising reservation wages. Since the wealth effect of fathers-in-law must influence behavior over a shorter time frame (the postmarriage interval), equal lifetime wealth effects would imply stronger father-in-law effects on postmarriage moves.

tured by age at the survey date. Its negative effect implies that mobility has increased over time, suggesting that economic development and spatial mobility go hand in hand. The age effects are greater for men than for women and are not related to whether the moves were made before or during the marriage. While living in an urban place at age 15 has little bearing on premarital mobility, urban location does enhance postmarital mobility. The postmarital regressions include controls for the location of the husband and wife, with both living in rural areas at age 15 as the reference category. Male mobility is increased if the man or woman come from an urban place, but the wife's mobility is higher only if she lived in an urban place when 15 and does not depend on his location at that age.

Even after controlling for the other covariates in Tables 2 and 3, Indian, and especially Chinese respondents, are much less mobile than Malays, a result also reported by Lim (1983) and Baydar et al. (1990). These differences are especially large for Chinese men who, over their lifetime, make almost one full interdistrict move less than Malays. These ethnic differences reflect, in part, distinct cultural arrangements about marriage and the relative roles of the groom's and bride's families in the cultures, an issue to which we shall return below.

Recall that men with better-educated fathers-in-law are more mobile before marriage. A potentially disturbing interpretation of this correlation of a spousal attribute with premarital mobility is that it signals contamination of our mobility analysis with marriage-market selection effects. An alternative explanation is that it reflects temporal misclassification of these retrospectively reported moves so that events are mistakenly reported before marriage when they actually occurred after the marriage. A straightforward test is to exclude those moves that are reported one, two, or three years prior to the marriage. The positive influence of the education of the father-in-law on premarriage male mobility persists in all of these specifications. This suggests that temporal misclassification of migration events, relative to the marriage date, does not rank high as a plausible interpretation of the anomaly.[14]

A second possibility is that these moves are actually associated with the marriage itself. Malays are matrilocal and husbands tend to live in the same location as the wife's family. The impact of father-in-law's schooling on male premarital mobility is large and significant only for Malays, but not for the patrilocal Indian or Chinese men.[15] However, prospective Malay husbands often join the wife's family many years prior to the marriage, particularly if her family is relatively wealthy and the future father-in-law runs a business which will employ the prospective groom. During the premarriage period, the potential husband learns the family business and becomes more financially secure. To assess whether this explanation underlies the observed influence of the education of the father-in-law on mobility, male occupations at the time of marriage were matched with those of the fathers-in-law.[16] If this

14. The coefficient (and *t*-statistic) on father-in-law completing primary school is 0.23 (2.1) in the base regression; when all moves within 1, 2, and 3 years are excluded, the coefficients are 0.23 (2.2), 0.19 (1.9), and 0.19 (2.0).

15. The coefficient (and *t*-statistic) on father-in-law completed primary school is 0.26 (1.8) for Malays, 0.10 (1.0) for Chinese, and 0.01 (0.0) for Indians.

16. Some 75 different occupations are reported in the survey. Four examples are economist, accountant, bookkeeper, and clerical worker. Twenty percent of Malay sons share the same occupation as their father; only 16 percent share the same occupation as their wife's father.

explanation is correct, men who move prior to marriage are more likely to share their father-in-law's occupation if the man is Malay and the father-in-law is well educated. To examine this conjecture, ethnic-specific linear regression models of the probability that a man and his father-in-law share the same occupation were estimated.

If a Malay man did move prior to marriage, he and his father-in-law are about 20 percentage points more likely to share the same occupation if the father-in-law completed secondary school. Moreover, these men are 48 percentage points more likely to have the same occupation relative to those men who did not move prior to marriage but whose fathers-in-law are also well educated. Both of these differences are significant. To bolster this interpretation, a similar pattern does not emerge for the Chinese. The positive relationship between the education of the father-in-law and a man's mobility prior to marriage does appear to reflect mobility associated with the marriage itself—albeit of a subtle nature—and not with unobservable taste differences among these families.

Probability that male has same occupation as father-in-law

	Malay		Chinese	
	Move Prior to Marriage?		Move Prior to Marriage?	
	No	Yes	No	Yes
Father-in-law's education				
Completed primary	−0.10	0.02	−0.04	−0.10
(1.8)	(0.4)	(0.7)	(2.3)	
Completed secondary	−0.28	0.20	−0.13	−0.04
(1.9)	(2.7)	(1.2)	0.7)	

Notes: Regressions also include age and education of the respondent and his father. *t*-statistics are in parentheses.

In sum, we draw two main conclusions from the evidence in Tables 2 and 3. First, migration behavior is significantly enriched by setting the decision within the context of the family taking account of the background characteristics of both spouses. Second, there are substantial differences in the determinants of pre- and postmarriage mobility. In contrast with evidence for the United States (Mincer 1978), wives' characteristics matter very little in postmarriage mobility. Rather, the education of the husband, his father and his father-in-law determine these migration decisions. Although significant gender differences exist in the levels and determinants of premarriage mobility, no differences emerge in mobility after marriage, consistent with the Mincerian conjecture that marriage enhances women's mobility while suppressing it for men and that women are the tied movers.

Recall from Table 1 that over a quarter of a married woman's moves are not tied moves with her husband, but are, instead, moves on her own. Although virtually

ignored in the literature, solo spouse migration events are apparently an important phenomenon in the Malaysian context and perhaps in many other developing countries. If joint and solo moves are not governed by the same motivations, ignoring this distinction fails to uncover the richness underlying migration choices. A unique feature of the MFLS is that each respondent reports a migration history from age 15 to the date of survey. This feature is exploited by matching the histories of husbands with wives during their marriage to distinguish moves that are reported by only one spouse (solo moves) from those reported by both (joint moves). These moves are investigated in the next section.[17]

E. Couples and Loners: Postmarriage Moves

Are solo and joint moves different? In an income supplement model, male solo moves are of shorter duration than joint moves and will also be circular in that they involve a return to the place of origin. In the sequential job search model, if the migrant is disappointed in a location, he may move on after a short time either to return to the origin or to try his luck in a new location. If, however, he scores a hit, he may stay in the new location with his wife presumably following. This insight regarding the wife's subsequent mobility suggests one testable hypothesis distinguishing job search from income supplementation. If job search is the primary motive for solo moves by a man, then his wife will eventually move to the winning site in the job lottery. We explicitly test this conjecture below.

The contrast between a woman's solo and joint moves is even sharper. She may be the tied partner in joint moves which are largely governed by her husband's labor market prospects. Her solo moves, however, are related to family considerations. Some attributes of her moves alone should be similar to her husband's solo migrations. Compared to when they go together, their solo moves should take place early in the marriage, should not last as long, and should more commonly be circular trips. Indeed, circularity may be a stronger trait of her moves, implying that it should be less common for her husband to subsequently follow her. Since her joint moves are more strongly motivated by job-related traits of her husband, the probability that she moves alone (given that she migrates) will decrease as her husband's schooling increases.

To answer this question of whether joint and solo moves are different, we estimate multivariate models that highlight the distinctions between these different types of postmarriage moves. One could analyze whether a couple chooses to move together or whether the husband or wife moves alone, but this conditions on moving, which is itself a choice. Thus, our analysis examines whether a couple moves at any date

17. Because of recall error, not every migration event is reported by each respondent and so some moves that have been labeled as solo are in fact joint—the spouse just failed to report that move. We have taken considerable care in matching moves and, in many cases, have visually inspected the entire migration history for both a man and his wife. If all moves are joint, then drawing on results in Smith and Thomas (1996), around half of all moves should be reported as joint; in fact, 62 percent of reported moves are joint. Moreover, several women were not co-residing with their husbands at the time of the survey because their husbands had made a solo move. Finally, the evidence below indicates the motivations for joint and solo moves are different in a way that is plausible. Thus, we conclude that not all moves reported as being solo can be assigned to respondent error alone.

and, if so, whether the migration is joint, male solo or female solo. Estimates of these quadrivariate discrete choice models are presented in Table 4. Because the timing information in the survey is not exact, a discrete time-discrete choice model is estimated (measured in half-year intervals from marriage date).[18] A potential problem with this strategy is that moves are relatively infrequent events, with no moves accounting for the overwhelming majority of observations. The robustness of results has been checked by comparing the estimates in Panel A with comparable estimates based on move-level data in Panel B. All our conclusions carry through in both sets of specifications, indicating that conditioning on the choice to move does not generate misleading results in this particular case.[19]

As in Table 3, covariates include the demographic attributes of both husband and wife along with indicators of family background and structure of both families. To capture exposure, the regressions include total marriage duration, respondent's age at the survey date, and the interval between marriage date and the move. The estimates in Table 4 are based on a multinomial logit specification which assumes no correlation between the unobservables that affect each of the four choices. If there is such a correlation, one might expect it to show up if we condition on moving; as noted above, it does not. In fact, a Hausman test for the validity of the assumption of independence of irrelevant alternatives (IIA) cannot be rejected for no moves, male solo moves, or female solo moves.[20] IIA is rejected for joint moves, indicating that they may be systematically different from solo moves in unobservable ways.[21] However, conditioning on the decision to move, there is no evidence that IIA is rejected.

An alternative strategy involves estimating a multinomial probit using simulation methods and allowing correlations among the unobserved errors. We have explored this approach in some detail. In a model based on move-level observations that includes the key covariates contained in Table 4, multinomial probit estimates are close to the comparable multinomial logit estimates.[22] But, when the covariate list

18. Experiments with intervals of a year yield essentially the same results.

19. On average, each couple contributes nearly 12 observations (six years) to the time level sample. A simple way to incorporate couple-specific unobserved heterogeneity in this model is to generate a random variate for each couple and include it in the set of covariates. We have experimented with this model using a normal variate with zero mean and standard deviation ranging from 0.1 to 25. While the random effect is significant when its variance is large, the essence of the results below is unaffected by including this control in the model.

20. The test amounts to comparing coefficient estimates when all options are included with estimates when one option is dropped. If IIA holds, the estimates for the outcomes that are retained in both specifications should not change.

21. IIA is rejected using classical testing strategies. In view of the relatively large sample size of 18,068 observations, it may be prudent to use a more conservative Bayesian approach such as that suggested by Schwarz (1978) which picks the a posteriori most likely model. In that case, IIA is not rejected in any models.

22. The covariates are the husband's and wife's race, years of education, four sibling structure variables, and age along with time. For example, the coefficient on being Chinese is 9 percent smaller for a female solo move and 11 percent larger for a male solo move (relative to a joint move), and the multinomial probit and logit estimates are well within one standard error of each other. Moreover, while the diagonal elements of the covariance matrix of unobservables are large and well determined, the covariances are both small and insignificant (with t-statistics in this model of 0.1, -0.3, and 0.8). This suggests the Hausman tests described above are not without power and that IIA may not be a bad assumption in this instance.

Table 4
Multinomial Logits of Type of Move

	Panel A: Time Level Relative to No Move			Panel B: Move Level Relative to Joint Move	
	(1) Joint	(2) Husband Solo	(3) Wife Solo	(1) Husband Solo	(2) Wife Solo
Ethnicity (1) if					
Chinese	−0.756	0.404	−0.087	1.240	0.557
	(6.74)	(2.44)	(0.45)	(5.95)	(2.32)
Indian	−0.438	−0.374	0.127	−0.023	0.610
	(4.16)	(1.81)	(0.71)	(0.09)	(2.75)
Couple different race	0.746	0.153	−1.484	−0.625	−2.337
	(3.71)	(0.36)	(1.47)	(1.31)	(2.24)
Education					
Husband (years)	0.072	0.064	0.001	−0.003	−0.073
	(5.20)	(2.72)	(0.04)	(0.09)	(2.40)
Wife (years)	0.003	0.019	0.017	0.022	0.012
	(0.27)	(0.87)	(0.71)	(0.82)	(0.43)
(1) Father completed primary					
Of husband	0.316	0.110	0.314	−0.262	−0.106
	(3.20)	(0.66)	(1.65)	(1.31)	(0.47)
Of wife	0.308	0.551	0.232	0.307	0.023
	(3.07)	(3.07)	(1.26)	(1.48)	(0.11)
(1) Mother completed primary					
Of husband	−0.185	−0.269	0.189	−0.039	0.440
	(2.06)	(1.68)	(1.14)	(0.21)	(2.22)
Of wife	−0.004	−0.086	−0.091	−0.019	−0.138
	(0.05)	(0.57)	(0.54)	(0.11)	(0.69)
Number of siblings					
Husband					
Older brothers	−0.002	−0.031	0.128	−0.057	0.113
	(0.06)	(0.58)	(2.53)	(0.93)	(1.86)
Younger brothers	0.024	−0.083	0.004	−0.080	0.001
	(1.04)	(1.91)	(0.09)	(1.62)	(0.02)
Older sisters	0.002	0.011	−0.098	0.030	−0.109
	(0.07)	(0.21)	(1.72)	(0.48)	(1.60)
Younger sisters	0.024	−0.020	0.014	−0.079	−0.008
	(1.00)	(0.46)	(0.32)	(1.43)	(0.15)

Table 4 (*continued*)

	Panel A: Time Level Relative to No Move			Panel B: Move Level Relative to Joint Move	
	(1) Joint	(2) Husband Solo	(3) Wife Solo	(1) Husband Solo	(2) Wife Solo
Wife					
Older brothers	−0.011	−0.076	0.079	−0.055	0.084
	(0.40)	(1.54)	(1.61)	(0.92)	(1.40)
Younger brothers	0.030	−0.144	0.075	−0.192	0.039
	(1.21)	(3.02)	(1.70)	(3.35)	(0.75)
Older sisters	0.085	−0.075	−0.006	−0.201	−0.129
	(3.10)	(1.46)	(0.11)	(3.31)	(2.04)
Younger sisters	−0.026	−0.017	−0.011	0.005	−0.044
	(1.15)	(0.44)	(0.24)	(0.10)	(0.80)
Time					
Age at survey date	−0.033	−0.081	0.017	−0.054	0.051
Husband	(2.78)	(3.89)	(0.82)	(2.23)	(2.04)
Wife	−0.019	−0.033	−0.055	−0.006	−0.051
	(1.52)	(1.50)	(2.39)	(0.22)	(1.84)
Total exposure	0.052	0.100	0.034	0.068	0.002
(years of marriage)	(5.96)	(6.62)	(2.22)	(3.66)	(0.11)
Years to move	−0.095	−0.238	−0.336	−0.231	−0.335
(from marriage date)	(6.33)	(8.42)	(9.09)	(5.95)	(6.84)
(1) married more than once	−0.088	0.773	−0.263	0.995	−0.264
	(0.55)	(3.31)	(0.83)	(3.34)	(0.69)
Location at age 15					
Husband urban, wife urban	0.369	0.265	−0.225	−0.051	−0.453
	(3.10)	(1.25)	(0.99)	(0.20)	(1.68)
Husband urban, wife rural	0.143	0.522	−0.170	0.416	−0.358
	(1.37)	(3.01)	(0.88)	(2.02)	(1.60)
Husband rural, wife urban	0.353	0.568	−0.363	0.185	−0.797
	(3.22)	(3.03)	(1.57)	(0.81)	(3.00)

Notes: 18,068 observations in Panel A; P^2 for joint significance of all covariates is 632 (with 87 degrees of freedom). 1337 observations in Panel B; P^2 is 252.3 (with 58 degrees of freedom).

is expanded to include all variables listed in the table, the estimates tend toward the boundary of the parameter space, resulting in serious convergence difficulties. Similar problems arise in models based on time-level data. Numerical problems of this sort are inherent to the method of simulated moments and have been discussed by McFadden and Ruud (1994)[23] and Muhleisen (1991). In view of all of these facts, the results reported in the tables are based on multinomial logits with the fuller set of covariates.

Estimates in the first column of Panel A measure the differential effect of each covariate on the probability that a couple moves together during marriage relative to the probability that they stay put. The impact on the probability that the husband (wife) makes a solo move is reported in the second (third) column, both relative to not moving. The difference between the first and second columns indicates the effect on the probability that the husband makes a solo move rather than moving with his wife. Since it is difficult to visually deduce whether these differences are significant, Panel B reports the impact on the probability the that husband (wife) makes a solo move in the first (second) column relative to their moving jointly. The estimates in Panel B are conditional on the couple moving; as noted above, unconditional estimates are very close (the exact magnitudes can be inferred from Panel A).

Table 3 indicated that Malays are significantly more mobile than Chinese or Indians. Table 4 shows this gap largely reflects different propensities between the ethnic groups to move together. In fact, Chinese men actually engage in more solo moves than either Malays or Indians.[24] To keep the results manageable, estimates are presented with all three ethnic groups pooled.[25] In a small number of cases, the effects of covariates differ across the groups, and these are highlighted below.

Throughout the paper, male education has been viewed as affecting mobility largely through its associated labor market rewards, which should be larger when a husband migrates (alone or with his wife) than when a wife moves alone. Relative to not moving, a husband's education has no impact on the probability the wife moves alone, a positive effect on his solo moves, and a slightly higher (but not significantly different) positive impact on the couple moving together. The similarity of his schooling's effect on whether the husband migrates with or without his wife hints that both his joint and solo moves are motivated by labor market factors. Panel

23. To illustrate the problem, consider a simple binary probit model. The normal equation for maximum likelihood estimation is

$$\Sigma\, n[xf(\theta;\, 1)/\{f(\theta;\, 1)\,(1 - f(\theta;\, 1))\}] * [y - f(\theta;\, 1)] = 0,$$

where y is the dependent variable, x is a vector of regressors, f is the normal density function, and θ represents the coefficients to be estimated. The analogous method of moments estimator has the same form and may be interpreted as the solution to a weighted sum of residuals with the weights being given by the elements in the first square bracket. If f is unknown, then the method of simulated moments replaces it with simulated estimates and, since it is a probability, f is bound between zero and unity. Thus, the numerator of the weights may go to zero but the denominator (in the curly brackets) is bound away from zero. It is clear, therefore, that a solution may exist on the boundary of the parameter space because the weights have been driven to zero at that point.

24. Conditional on moving, Chinese and Indian women make more solo moves, which is not surprising since these are mostly visits back to their own families which are less common among the matrilocal Malays.

25. Sample sizes are small for saturated models. For example, of the 268 male solo moves, 32 were made by Indian men, 87 by Chinese, and the rest by Malays.

B shows that, given his wife moves, the probability she moves alone is significantly lower if he is better educated, indicating that her solo moves may have little to do with his labor market opportunities and are quite distinct from the tied joint moves. Our earlier result that women's schooling was not an important determinant of postmarital mobility is now amended to add that her schooling affects neither joint nor solo marital mobility of either spouse.

Paternal education has a powerful impact on mobility after marriage. If the father of the husband or wife is better educated, the couple makes more joint moves. Indeed, paternal education apparently promotes a couple's mobility in all its manifestations—joint and solo moves alike—further suggesting that father's schooling reflects, in part, the effect of wealth. While the wife's mother has no impact on any type of postmarital move, the husband's mother does. If she is better educated, her son is less likely to move either with his wife or on his own.

In Table 3, there were no sibling effects on the number of postmarriage moves. Using the same specification, we now find that distinguishing solo from joint moves is key. We have three main empirical results. First, male solo mobility is deterred if the husband or his wife has more younger brothers. For moves motivated by seeking information about job markets in alternative sites, the extended household should select the lowest-cost mover (young, unmarried brothers) to engage in this migratory search. Consequently, a married man with more younger brothers may not embark on as many exploratory moves. Similarly, a wife's younger brothers also have a depressing effect on male solo moves. In addition to being low-cost movers, her brothers come from a more diverse set of backgrounds than the husband's own brothers, perhaps inducing a greater reduction in the need for exploratory search. Combined, the effects of a woman's older and younger brothers and older sisters together also depress her husband's solo mobility.[26] Since these siblings and their spouses are likely to convey information (and younger sisters are not), this bolsters the diversity of information sources interpretation.

Our second empirical finding is that a woman's solo moves are encouraged by increasing the number of her brothers, by her husband's older brothers, and by the absence of his older sisters. While female solo moves may reflect care-giving to other family members or receiving care, the connection between siblings and mobility is centered on situations in which the wife is the care provider.[27] As in many other cultures, women in Malaysia dominate these care-giving duties. Consistent with our estimated positive effect of her brothers on her solo moves, her responsibilities to her own family will be greater if she has mainly brothers as siblings. (The coefficient on all brothers is 0.08 and the t-statistic is 2.2.) Apparently a woman's care-giving responsibility does not rest solely with her own family but extends to her husband's

26. The coefficient on the number of all three sib groups combined is -0.09 and the t-statistic is 3.2.

27. As discussed above, a key event for which a woman receives care is her first birth. To determine whether the impact of siblings involves care giving or receipt of care, sibling variables were interacted with an indicator variable for time within three months of the woman's first birth. If the sibling effects are capturing the care provided by siblings during the woman's pregnancy, their effect should be picked up in these interaction effects. That turns out not to be the case. The interactions are small and insignificant, while the main effects of siblings are unaffected by the interactions. Thus, solo moves associated with siblings take place outside mobility that might be associated with her first birth. We will revisit those events below.

family, especially if he has few older sisters for whom she is a good substitute. She makes more solo journeys if he has more older brothers, but the effect is attenuated as her husband has more older sisters.

Our third empirical finding concerns joint moves which are more frequent when the wife has more older sisters, a result strongest for the Chinese and entirely concentrated early in marriage. Chinese women in Malaysia often live near their parents and provide care in times of need. This suggests that the presence of many older sisters reduces a daughter's responsibilities, allowing her and her husband to move farther away.

Three time dimensions are included in the regressions: the husband's and wife's age at the survey date, the cumulative duration of the marriage, and the number of years since marriage to the migration. The first two index cohort and time effects are constant for a particular couple, while the third clocks the running time to the move. The negative age effect signals that Malaysian mobility has increased over time, not surprising in a dynamic developing country with expanding and changing labor market conditions. This secular increase in mobility is concentrated in labor market-oriented moves (joint and male solo) with little effect on the more family-oriented female solo moves. Similarly, mobility is highest for those who married young, which may be compensating for the shorter time before marriage to engage in migration. While this affects all types of moves, it is especially pronounced among male solo moves.

The probability of moving should decline with years since marriage, and solo migrations should fall more rapidly than joint moves. Male solo exploratory moves will decline faster to amortize the gains from search. For women, the concentration of her births early in her marriage implies that the decay in solo mobility with marriage duration should be even more pronounced for women. All the evidence supports these interpretations. While joint moves decline with marriage duration, the probability of the husband making a solo move decreases faster and the probability the wife moving alone falls faster still, and all of these differences are significant. In fact, over 40 percent of female solo moves are made in the first two years of marriage compared with less than 20 percent of joint moves.[28]

In Malaysia, as in many countries, it is not unusual for a woman's mother to help her immediately before and after a birth, especially the first birth. Occasionally, this is accomplished by the mother moving to the daughter, but more commonly the daughter moves temporarily to her mother's house. To explore this issue, the model was re-estimated including an indicator variable if the move was within three months of the woman's first birth. At that time, she is significantly more likely to make a

28. Living in a rural location at age 15 is associated with fewer joint moves after marriage, and urban women are more likely to accompany their husbands than those women from rural areas. Conditional on moving, there is some evidence that male solo moves are more common if the husband lived in an urban place at age 15 while his wife was in a rural area at the same age. These solo moves may indicate that the husband is returning to an urban place for short-term employment. A clearer pattern emerges for women where solo moves are much more frequent if both spouses came from a rural background. Since urban origins may weaken kinship ties, mobility associated with receiving help from the wife and her husband's relatives may be especially characteristic of rural areas.

Table 5
Correlation between Type of Move and Characteristics of Move Relative to Joint Moves

	Male Solo	Female Solo
Duration of trip		
12–24 months	−1.301	−0.624
	(4.33)	(2.24)
>24 months	−1.867	−1.574
	(7.42)	(6.25)
Distance (km)	1.223	−1.350
	(1.52)	(1.51)
Destination		
(1) If foreign country	1.176	−0.074
	(3.50)	(0.16)
Urban location (includes KL)	0.516	−0.395
	(2.61)	(1.99)
Kuala Lumpur	−0.046	0.299
	(0.16)	(0.97)
(1) If first move after marriage	0.179	0.834
	(0.95)	(4.08)
(1) If circular move	1.493	1.352
	(8.99)	(7.49)

Notes: 1337 observations. Regressions include all covariates in Table 4. P_2 for significance of all covariates is 470.9 (with 72 degrees of freedom) and for significance of move characteristics is 109.3 (with 16 degrees of freedom).

solo move relative to staying at home or moving with her husband.[29] Because the decisions to move and have a child are likely to be jointly determined, one should hesitate before giving a causal interpretation, but it remains highly suggestive about the motivation for female solo migrations.

Several predictions regarding distinctions between solo and joint moves involve characteristics of the move itself. These move-level attributes have been added to the regressions in Panel B of Table 4 to assess the empirical support for the predictions. Since the effects of demographic characteristics are little affected by these additional covariates, only the move characteristics are reported in Table 5. Because decisions to move and the characteristics of that move emanate from the same underlying choices, these results are purely descriptive.

If this is the first trip after marriage (perhaps associated with her first birth), then the odds of a woman going it alone increase dramatically. Nearly a quarter of all

29. The estimated coefficient on the covariate in the female solo case is 0.74 with a t-statistic of 3.7. Since other coefficients are virtually unaffected, the full set of estimates is not reported.

her solo moves are made around her first pregnancy, versus only 11 percent of joint moves, and over 70 percent of all circular moves that occur around the time of the first pregnancy are made alone. Compared with joint migrations, solo moves are about one year shorter.[30] Although about 30 percent of male and female solo moves last less than a year, only one in ten joint moves are that short. Controlling for all other characteristics, a move is far more likely to be solo if it lasts six months or less.

By far the most powerful predictor of whether a trip is solo is its circularity. Almost two-thirds of male solo moves involve circular trips to a new destination and then back again to the origin; a slightly lower proportion of female solo moves follow this pattern. In sharp contrast, only one in five joint moves is circular. A distinguishing attribute of these moves is who goes first. If male solo moves are mostly motivated by job search rather than income remittance, women will follow their husbands once he has hit the job jackpot. In contrast, husbands will not temporally follow their wives' solo moves. Among all joint moves, about half report moving on exactly the same date, while the other half are roughly equally divided between men and women reporting moves before the other. Among joint circular outbound moves, however, men move before their wives 35 percent of the time and women before their husbands about 20 percent of the time. This supports our suggestion that job search is an important motivation for male solo moves in addition to income supplementation.

III. Conclusion

Exploiting the retrospective histories reported by respondents in MFLS-2, migration decisions of husbands and wives in Malaysia have been analyzed. Our point of departure is that mobility is not an individual decision but varies systematically with the formation of families though marriage and with the characteristics of members of the extended family. For openers, it has proved insightful to distinguish moves that take place before marriage from those made at or during the marriage. In addition, among the latter there is a considerable amount of solo mobility, and the motivation for these moves appears to be substantially different for men and women. Our evidence indicates that male mobility is primarily economic in motivation and related to labor market factors, whereas female mobility is more closely tied to family considerations.

One's spouse is the key member of the extended family, but the influence of a spouse's attributes is asymmetric. For example, better-educated men are more mobile before and after marriage, while a woman's education affects her mobility only before marriage. During marriage, husband's attributes dominate their joint migration decisions as well as his solo moves. As we move toward a broader definition of the

30. Destination also matters. Men are significantly more likely to travel alone when going to a foreign country or to an urban location. Since moves to both these relatively expensive destinations are likely to be associated with income supplementation or job search, this male pattern is as expected. Women, in contrast, make a solo move more frequently if the destination is rural, suggesting that they are maintaining close ties with their rural families.

household and incorporate the characteristics of the parents, parents-in-law, and also the age and gender of siblings, there is evidence that they all influence mobility in a rich, if complex, way. In particular, the education of fathers and fathers-in-law has a powerful influence on mobility. We argue that this is a wealth effect enabling greater job and marriage market search by the man. Our findings with respect to the role of siblings are also consistent with our interpretation of male mobility being primarily economic in nature and female mobility having more to do with the (extended) family.

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