DOES MIGRATION DISRUPT FERTILITY? A TEST USING THE MALAYSIAN FAMILY LIFE SURVEY

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ABSTRACT

The disruption hypothesis suggests that migration interrupts fertility during the period of the move. This may be due to the psychological and physiological consequences of the stressful situation associated with the movement itself or the fairly common separate living arrangements of spouses during the early stages of the migration process. In this study, we examine the disruption hypothesis using the Malaysian Family Life Survey life history data. We used ordinary least squares and censored regression models to test the effect of marital separation on fertility surrounding the time of migration. While migrants do appear to experience more temporary separations than non-migrants, our analysis failed to indicate any disruptive effect associated with migration.

Keywords: Migration, fertility, disruption hypothesis, Malaysian Family Life Survey.

INTRODUCTION:

The disruption hypothesis suggests that in the period immediately before and after a change of residence migrants would show a particularly low level of fertility, due to the disruptive factors associated with the migration process. Two factors usually mentioned are the physiological consequences of the stressful situation typically associated with moving and the fairly common separation of spouses during the early stages of the migration process. The suggested drop in fertility attributable to disruption is expected to be only temporary, and a more normal pace or even somewhat accelerated pace of fertility is expected to resume gradually.

In this study, the disruption hypothesis is tested using Malaysian Family Life Survey (MFLS) data on martial separation and pregnancy history. This analysis determines whether separation between spouses has a negative effect on migration-interval fertility, i.e., fertility around the time of migration.

LITERATURE REVIEW :

Few empirical studies have investigated the disruptive effects of migration. Goldstein (1973) and Goldstein & Tirasawat (1977), who proposed the model, found lower fertility among recent migrants to urban areas in Thailand than urban natives of similar age. Similar results were observed by Goldstein & Goldstein (1983) for Malaysia. Lee (1985) found that the fertility rate of rural-urban migrants in Cameroon was significantly lower than that of rural non-migrants during the period 1-5 years before migration. However, the delayed birth due to the disturbance of movement was made up during the first ten years of urban residence. This study suggests that after the disruptive effects of migration have passed, a more normal pace of fertility may be resumed, and, in fact, the pace may accelerate to compensate for earlier delays in childbearing. But depending on its severity, the disruption of fertility may nonetheless affect the average number of children ever born.

Migration from the countryside to the city represents a drastic change in the physical, social, and cultural environment. Thus, it is not surprising that many studies find that rural-urban migrants have higher rates of disease than urban natives (Way, 1976; Velemirovic, 1979; Baker, 1984). It has been noted that rural-urban migrants have increased risks for the development of certain infectious diseases (e.g., tuberculosis), hypertension, coronary heart disease, Type-2 diabetes, and obesity. Since fertility is the outcome of many biological forces, the physical ability of women and men to have children may be seriously impeded during the initial stages of migration.

Fertility disruption may also be caused by the increased temporary separation of spouses that characterizes the period surrounding migration. It is well known that rural-urban migration in many Asian countries usually does not involve movement of all members of the family and that migrants retain close ties with their places of origin (Nelson, 1976). The wife is often among family members left behind in the rural areas. Marital separation has been found to be associated with migration in Thailand, where migrant fertility is lower than that of non-migrants (Goldstein *et al.* 1973).

METHODOLOGY :

In order to test for physiological disruption in the fertility of rural-urban migrants, detailed information would be needed on the health characteristics of the couples before and after migration. Unfortunately, the data used in this study does not provided such information. Thus, we will focus on the effects of marital separation on migration-interval fertility.

The Data and Working Sample:

The Second Malaysian Family Life survey was carried out in Peninsular Malaysia in 1988-1989. MFLS-2 was designed as a follow-up to MFLS-1, which was fielded in three rounds in 1976-1977. Both surveys produced household level retrospective and current data from women and their husbands, covering traditional topics of demographic research, as well as social and economic factors affecting family decision-making.

MFLS-1 sampled private households in Peninsular Malaysia which included at least one ever-married woman aged less than 50 years at the time of the initial visit. A total of 1,262 households completed Round 1 of the survey. In MFLS-2, 889 of the women who were primary respondents to MFLS-1 completed the Female Life History Questionnaire. These questionnaires record detailed information on marriage, pregnancy outcomes, and the use of contraception. The data also provide information from both wife and husband on education, employment, earnings, ethnicity, and other household characteristics. Perhaps most important for the present study, the survey also contains retrospective data from the wife in the household on her place of birth, residence at age 15, and subsequent locational change.

From the panel surveys, couples were selected on the following criteria:

1) the couple is married at the time of the survey;
2) the wife was married only once; and
3) information of the work history of the husband is available.

In this study, rural-urban migrants are defined as those whose current residence is urban but whose residence prior to marriage was rural. By this definition, 95 couples are classified as migrants. In those cases were the couple has moved more than once, we consider only the first move to an urban area. This is to avoid having more than one observation per couple, which might induce correlated observations.
The MFLS ascertained whether spouses were ever separated, when the separation occurred, and the duration of each temporary separation. Separations were defined as "complete" or "incomplete": complete separations lasted for a period of three months or more; incomplete were separations for several days each week during a period of three months or more. The respondent was asked to estimate what proportion of that time she was actually separated from her husband if the separation was incomplete. The information obtained on incomplete separations was weighted by the proportion of time spouses were in fact separated to allow these data to be combined with information on complete separations for an estimate of total separation of spouses.

Estimation procedure:

To test the disruption hypotheses, we use regression analysis. The dependent variable used in the estimation is the number of birth outcomes in the two-year interval surrounding the time of migration. The key independent variable is the number of months in the migration interval during which the couple was separated. A negative coefficient for this variable would be consistent with the hypothesis that temporary separation associated with migration disrupts fertility.
In addition to marital separation, other influences on fertility are considered in the multivariate analysis. In the following, we examine these variables and justify their inclusion in the model.
***Husband's Income*:** Numerous studies confirm a positive relationship between income and fertility *ceteris paribus*; however, changes in income influence other variables like education, health, female labor force participation, and socio-economic status of the family. This requires a distinction between the direct effect of income on fertility and the indirect effect via other socio-economic variables.
***Wife's education*:** Since the market wage correctly measures the value of time a woman forgoes while devoting her time to children, the same could be assessed through the wife's education, which reflects her market productivity in the absence of a market wage. The usual assumption made by the Chicago-Columbia school is that children are relatively more intensive in mother's time than other forms of consumption goods are. According to Willis (1974), the opportunity cost of the time input in children increases with the opportunity cost or shadow price of a woman's time, which is proxied by her education.
Husband's education: Husband's education is assumed to reflect factors other than the income effect (e.g., efficiency in child bearing or rearing, or contraceptive knowledge).
***Infant and child mortality*:**
According to the theory of demographic transition, higher mortality is associated with higher fertility. Olsen (1980) suggests that infant mortality generates a replacement effect as parents try to ensure a given number of surviving children. In the process, however, replacement may exceed loss because of

the uncertainty of life. On the other hand, it is possible for the death of a child to reduce subsequent fertility if the occurrence increases the expected cost (including monetary, opportunity, and psychic costs) of future births.

***Wife's age*:** The wife's age is assumed to represent both proximity to the termination of the fecund period and exposure to the risk of child bearing.

***Age of woman at marriage*:** Age of woman at marriage is simultaneously determined (in a life cycle sense) with the number of children as those who wish to have fewer children tend to marry late (DeTray, 1977). Gronau (1973) believes that age or "years married" could be used as a proxy for "home experience," which, in turn, captures the effect of on-the-job training on wife's value of time.

***Fecundity*:** Given imperfect and costly fertility control, variations in fecundity should explain a significant proportion of the variation in the number of total births to couples. Fecundity values are estimated in Rosenzweig and Schultz (1985)

Other variables that affect fertility are ethnicity, gender of firstborn child, wife's labor force participation, and wife's literacy. (See Table 1 for a complete list and description of explanatory variables.)

Because the period under consideration is rather short, a large proportion of the sample had no births. As a consequence, the use of least squares yields inconsistent estimates. Accordingly, we employ maximum likelihood methods to estimate a limited dependent variable (Tobit) model. Because the properties of the Tobit model may be sensitive to the imposed and unverifiable assumptions of normality of the underlying distribution of unobservables, the Tobit estimates could be more asymptotically biased than those estimates obtained using the linear model (Nelson, 1981). We report coefficient estimates from the linear and censored normal models.

ESTIMATION RESULTS :

If migrant/non-migrant patterns of total separation are determined for intervals between specified parities, the data indicate that a higher proportion of migrants than non-migrants experienced some marital separation, although the proportion of separations is low for both groups (see Table 2). The greatest degree of separation (16.3 percent) was reported by migrant women moving to urban places between migration and the birth of the second child. Among non-migrants, no more than 6.6 percent reported any separations during a given birth interval.

Table 3 reports the ordinary least squares (OLS) and Tobit coefficients describing how the set of socioeconomic variables affects migration-interval fertility. The specified fifteen inputs directly explain, using OLS, 47.4 percent of the variation in migration-interval fertility.

Overall, the results indicate that migration-interval fertility is mainly influenced by income-related and supply-side variables. The negative coefficient of husbands' income at migration reflects the often large increase in earnings associated with the migration. The negative income effect, however, is diminished by the positive effect of husbands' education. Being Malay has a negative effect on migration-interval fertility. Having a child or infant child die prior to migration exerts a strong positive effect on fertility. Child mortality experiences presumably generates a replacement effect. There is a strong negative relationship between age at migration and fertility surrounding the time of migration. As expected, couples with a higher biological propensity to conceive do have more births around the time of migration.

Finally, the number of months apart turns out to be insignificant in both the linear and censored normal models. Assuming that temporary separations were accurately reported, these data do not support the hypothesis that greater separation of spouses in connection with migration interferes with migrant fertility. Disruption associated with migration might exist, but its causes must lie elsewhere.

SUMMARY AND CONCLUSIONS

In this study we examined the validity of the disruption hypothesis using the MFLS life history data. In particular, we used information on migration, pregnancy history, and temporary separations to determine whether the marital separation associated with migration interferes with fertility.

The data suggest that a higher proportion of migrants that a higher proportion of migrants than non-migrants experiences some marital separation. However, when we used regression analysis to test the effect of marital separation on migrant-interval fertility, the data show no support for the disruption hypothesis.

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Table 1: A Model of Migrant Fertility at the Time of Migration

Variable	Definition
Endogenous Variable	
Migration-Interval Fertility	Number of live births - one year before migration to one year after.
Explanatory Variables	
Income	Log of husband's earnings (cash and kind) at the time of migration.
Wife's ED	Years of schooling completed by wife.
Wife's Literacy	Dummy variable: 1 if wife reports that she can read and write and her ED < primary
Husband's ED (a)	
College	Dummy variable: 1 if husband completed one or more years of college (1989).
Secondary	Dummy variable: 1 if husband completed lower secondary, or postsecondary school (1989).
Primary	Dummy variable: 1 if husband completed 1 to 6 years of school (1989).
Husband's Literacy	Dummy variable: 1 if husband reports that he can read and write and his ED < primary.
Race (b)	
Chinese	Dummy variable: 1 if husband is Chinese.
Malay	Dummy variable: 1 if husband is Malay
Infant/Child Mortality	Dummy variable: 1 if wife reports that an infant or child died prior to migration.
Wife's Age at Migration	Wife's age at time of first rural-urban move.
Wife's M-age	Wife's age at marriage.
Fecundity	Fecundity estimates from Rosenzweig and Schultz (1985)
Number of Months Apart	Number of months in the two-year migration interval during which the couple was separated.

(a) Reference group: Husband possesses no formal education.
(b) Reference group: Indian

Table 2 : Percentage of Women Reporting Temporary Separation (Total) From Spouse By Migration Status

Rural-Urban Migrants		Non-Migrants	
0 Parity at migration		Non-migrant at birth 1	
Marriage => Migration	1.5	Marriage => B1	2.6
Migration => B1	6.0		
Parity 1 at migration		Non-migrant at birth 2	
Marriage => B1	7.0	Marriage => B1	2.1
B1 => Migration	11.6	B1 => B2	6.4
Migration => B2	16.3		
Parity 2 at migration		Non-migrant at B3	
Marriage => B1	0.0	Marriage => B1	2.7
B1 => B2	6.2	B1 => B2	5.1
B2 => Migration	6.2	B2 => B3	6.2
Migration => B3	12.5		
Parity 3 at migration		Non-migrant at birth 4	
Marriage => B1	0.0	Marriage => B1	2.2
B1 => B2	6.2	B1 => B2	4.9
B2 => B3	12.5	B2 => B3	4.4
B3 => Migration	6.2	B3 => B4	6.6
Migration => B4	12.5		

B1 = First birth
B2 = Second birth
B3 = Third birth
B4 = Fourth birth

Table 3: Migration Interval Fertility

	Estimation Method	
Explanatory Variables	**ML Tobit**	**OLS**
Constant	4.6380	3.4332
Income	-0.2736*	-0.2403*
Wife's ED	-0.0027	0.0172
Wife's Literacy	-0.7076	-0.3856
Wife Work	-0.2341	-0.0886
Husband's ED		
College	1.1311**	0.3919
Secondary	1.1148**	0.7859**
Primary	0.0717	-0.0836
Husband's Literacy	0.1694	0.2245
Race		
Chinese	0.1287	0.0141
Malay	-0.4108*	-0.3521*
Infant/Child Mortality	0.7897**	0.4316**
Wife's Age at Migration	-0.1192**	-0.4845**
Wife's M-age	0.0384	0.0094
Fecundity	2.8899*	2.2298*
Number of Months Apart	0.0092	0.0088
R-squared		0.4741
* $p < 0.05$; ** $p < 0.01$		
