

MIGRATION AND FERTILITY IN TAIWAN

Ming-Cheng Chang*

I. INTRODUCTION

Urbanization has been associated with fertility level. The difference between urban and rural fertility in developed countries is not only common, but there also tends to be an inverse relationship between fertility and size of community. Even in many of less developed countries, such a pattern exists¹. It is unquestionable that the urban environment in the long run has an impact on the reduction of human fertility, although in the early stages of urbanization, there is evidence of higher urban than rural fertility in certain areas.² Urbanization refers to the process whereby an increasing proportion of a country's population comes to live in cities. It implies a change of environment of a substantial portion of the population which may result in a change in the value placed on large families. This is particularly true when urban mortality is lower than rural, so that more children survive.³ However, it has also been argued that urbanization results in change in family structure from the extended to the nuclear family with a concomitant reduction in the value placed on having many children.⁴ Additional changes in family pattern which are sometimes said to explain fertility reduction due to urbanization are increases in the proportion of women never marrying and increase in the age at marriage.

A series of studies dealing with interrelations between migration and fertility show diverse results. Studies of Latin American cities suggest, for example, that higher fertility among rural-urban migrants than for urban nonmigrants.⁵ In contrast to these findings,

* Chief, Research and Planning Division, Taiwan Provincial Institute of Family Planning, Taichung, Taiwan.

1. United Nations, Population Bulletin (1965) P.124.

2. United Nations, The Determinants and Consequences of Population Trends, 1973, P.91.

3. William J. Goode, World Revolution and Family Patterns (New York: The Free Press, 1963)

4. Robert H. Weller, "The effect of labor force participation on the relation between migration and fertility in San Juan, Puerto Rico," *Milbank Fund Quarterly*, 48 (January 1970), PP.51-70.

5. B. Hutchinson, "Fertility, Social Mobility, and Urban migration in Brazil," *Population Studies*, 12 (March 1959), PP. 214-222. G. German, Inquiry into the social effects of urbanization in a working class sector of greater Buenos Aires," in Phillip M. Hauser, ed. Carmen A. Miro' and Ferdinand Rath, "Preliminary Findings of Comparative Fertility Survey in Three American Countries." *The Milbank Memorial Fund Quarterly*, 43 (October 1965), PP.36-62.

research on Puerto Rico has indicated that migration tends to depress fertility throughout the childbearing period.⁶ In United States, most of studies generally point to lower fertility rates for migrants than for nonmigrants.⁷ However, several studies have noted that higher fertility was observed among farm migrants as compared with urbanities.⁸ In Thailand, it was found that compared to nonmigrants in their place of destination, the fertility level of lifetime migrants are not very different, but those of 5-year migrants are considerably lower.⁹

The situation in Taiwan is not clear. There are still substantial fertility differentials by level of urbanization, despite the fact that fertility has fallen slightly more in the cities and towns than in the rural areas during some certain periods.¹⁰ However, the recent vital statistics¹¹ have shown that total fertility rate for each of these areas has declined almost the same speed during 1963 and 1973. It was 38.6 percent for cities (from 4,690 to 2,880), 39.2 percent for towns (from 5,320 to 3,235), and 38.2 percent for rural areas (from 5,880 to 3,610). Since Taiwan has experienced a rapid rate of urban growth due to the combined of a high rate of natural increase and a continual flow of people from the rural areas to cities, we may ask the question: "Was this slow down declining fertility for the rural areas due to the effect of higher fertility among rural-urban migrants or others?!. Although many fertility studies have been done in Taiwan, none of them has touched on this point because the data for such a study were not available until the 1973 Taiwan fourth KAP survey was conducted.

The main purpose of this paper is to determine the independent effect of migration on fertility in Taiwan. The principal focus will be on rural-urban migrants. It also attempts to examine fertility patterns of migrants moving from places of lesser level of urbanization toward higher ones. The basic hypothesis is that migrants who exposed to higher level of urban life tend to depress their fertility.

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6. George C. Myers and Earl W. Morris, "Migration and Fertility in Puerto Rico", *Population Studies*, 20 (1966-67) PP.85-96, Macisco, Weller and Bouvier, "Some General Considerations on Migration, Urbanization and Fertility in Latin America", in Arthur A Campbell, et al (eds) 1971, PP.285-297.
 7. Clyde V. Kiser, "Birth Rates among Rural Migrants in Cities", *The Milbank Memorial Fund Quarterly*, 16 (October 1938), PP.369-381.
 - , "Residence and Migration" in Charles F. Westoff, Robert G. Potter, Jr., and Philip C. Sagie, *The Third Child: A Study in Prediction of Fertility*: Princeton University Press. PP.157-182.
 8. David, Goldberg, "The Fertility of Two-Generation Urbanities", *Population Studies* 12 (1959), PP.214-222.
 - Otis Dudley, Duncan, "Farm Background and Differential Fertility." *Demography* 2 (1965). PP.240-249.
 9. Sidney, Goldstein, "Interrelations between Migration and Fertility in Thailand.", *Demography* 10:22 (May 1973) PP.225-241.
 10. Freedman, Ronald, Albert I, Hermalin, and T. H. Sun, "Fertility Trends in Taiwan: 1961-1970", *Population Index* 38, No.2 (April-June), P.150, 1972.
 11. Taiwan Demographic Fact Book, Ministry of Interior, ROC., September, 1974.

As background for the reader, it should be reported that Taiwan is in a transitional stage as far as fertility is concerned. Between 1963 and 1973, the crude birth rate fell from 36.3 to 23.8, a reduction of about 34 percent. On the other hand, the crude death rate stayed at low level ranging from 6.1 to 4.8 during the corresponding period. As in most developing countries, few have as yet adopted a small family norm. Most of couples prefer a moderate size of family (3 or 4 children) with 1 or 2 sons. Contraceptive knowledge and approval of contraception became universal (96 percent of women had knowledge of at least one contraceptive method and 94 percent of women said they approved of contraception). Yet actual contraceptive use lags behind favorable attitudes. There is considerable diversity in fertility behavior in both urban and rural areas; the reasons for these differences can be studied.

II. DATA AND APPROACH

The present analysis is based on data from island-wide fertility and KAP survey made in Taiwan in 1973. A sample of 6,000 married women, aged 20-39, was chosen to represent all the married women in the corresponding childbearing years in Taiwan, except for the few townships (30 out of 361) in which most of Taiwan's small aborigine population lives. A three stage cluster sampling method was applied in the selection of sample. In the first stage, 56 townships were selected from the 331 non-aboriginal townships in Taiwan. Then sample lins (neighbourhoods) were picked up within the sample townships and finally women within these lins were selected in such a way as to maintain an equal probability of selection for all women. The household register was used to identify married women between 20-39. Where a selected woman was found to be no longer living at the address shown in the register, attempts were made to determine where she was living by asking people then living at the address and others in the neighbourhood. Where an address could be obtained, the interview was taken at the new address. Of the total sample size, 5,588, or 93 percent were successfully interviewed. To ensure the quality of data, 5 percent of the interviewed women were selected for postenumeration survey. The results show that most of response errors fall in an acceptable range.

Informations obtained during the interview covered each woman's fertility and contraceptive history, her desired number of children, and her attitudes toward, knowledge of family planning. In addition measures of socioeconomic status, migration status, family values and living arrangements, and modern consumer goods were included.

Residential background was based on responses to questions on husband's birthplace,

number of movements after marriage, and length of time living in the current place. The responses to the type of area of husband's birth compared to the type of area of current place of residence were classified into 24 categories: native born nonmigrants living in the four types of areas (large city, small city, towns, and rural township); migrants born in five types of areas (adding those born in Mainland China to the above mentioned types of areas) and currently living in different types of areas or same type of areas but different districts or townships, i.e. born in the rural township and migrated to other rural township. There are some foreign born Chinese and living in Taiwan being excluded from the study. For each of migration categories, we shall consider whether or not they had moved after marriage and how long they have stayed in the current places. These four types of areas represent four levels of urbanization. According to the 1973 figure, the population size in each type of area was:

Large cities	(all over 300,000)
Small cities	(100,000 to 300,000)
Towns	(25,000 to 100,000)
Rural townships	(under 25,000)

The choice of dependent variable for the study of fertility in a dynamic population is difficult. The most accurate measure, completed family size, is not the most useful because it is not available until after the change have taken place. In this study, four fertility indicators are used: number of children ever born, desired and expected number of children, as well as contraceptive use. Since the actual fertility may be a misleading measure due to changes in the time of births, we also used desired and expected family size to measure future fertility.

A longitudinal study by using interview data collected in Taiwan shows that desired or expected number of children provide a reasonable basis for estimating future behavior for aggregated of women¹². Besides, a large proportion of women in Taiwan are aware of effective means of birth control and have used these to 'limit family size. In our sample, 68 percent of women had ever used contraception and one half are using at time of interview. Three out of four approved of sterilization and about half said they approved of abortion for limiting family size. This somewhat indicated that couples in Taiwan are more likely to be able to reduce their unwanted children and reach their desired or expected family size.

The questions on desired and expected family size as well as contraceptive use were worded as follows in the Taiwan survey:

12. Freedman, Ronald, Albert I. Hermalin and Ming-Cheng Chang, "Do Statements about Desired Family Size Predict Fertility? The Case of Taiwan, 1967-70", *Demography*, Vol. 12, Number 3, August 1975.

Many people do not have or expect to have just the number of children they most want. If you were just getting married and could choose exactly the number you want, how many children would you most like to have when you are through having children?

Considering everything, how many more do you really think you will have?

What contraceptive methods are you using now?

The multivariate technique utilized in this study is called Multiple Classification Analysis (MCA). This technique is an extension of "dummy variable" multiple regression analysis and is applied to eliminate the effect of the demographic and socioeconomic variables on each of the four fertility measures.

The various measures employed in this study have limitation. A number of total moves will be missed because of return or repeated moves. Women who were divorced, separated will not fall in our sample. The detailed information on residential history between the place of origin and the place of destination is not available. The migration is that of husband and therefore is only an approximately indicator of the migration of the wife.

III. EMPIRICAL ANALYSIS

A. *Residence, Migration, and Fertility*

Desired and Expected Number of Children

Urban-rural differentials in desired number of children still persisted in Taiwan in 1973 (the last row of both upper and lower panel in Table 1). Desired family size was smaller the more urban the place of residence. However, a small difference in this desired fertility between women living in urban townships and in rural townships suggests that modernization is quite similar in these two areas.

As women were classified on the basis of their husbands' lifetime migration status, wives of migrants generally wanted fewer children than did nonmigrants (the last column of Table 1). Regardless of migration streams, again, there was no much difference in desired number of children between migrants' wives who originated in urban townships and those who originated in rural townships. Wives of the Mainlanders wanted smaller family size than did native born Taiwanese. In the stream from rural townships toward greater urban places, women tended to want fewer children. The lowest desired fertility level characterizes those whoses destination was the large cities whereas the highest level was observed in those who went to the rural townships. However, it was not true for wives of migrants who originated in the urban townships in which those going to the large

Table 1

Mean desired number of children by migration status and type
of area of origin and destination, Taiwan, 1973

Migration Status and Type of Area of Origin	Place of Residence in 1973				Total
	Large city	Small city	Urban township	Rural township	
Birthplace of husband:					
	<u>Observed</u>				
Same township (nonmigrant)	3.19	3.22	3.52	3.54	3.47
Different township but born in:					
Large city	3.02	*	*	*	3.02
Small city	*	*	*	*	*
Urban township	3.16	3.08	3.31	3.43	3.22
Rural township	3.07	3.17	3.25	3.50	3.21
Mainland China	2.68	2.78	3.20	3.09	2.83
Total	3.01	3.08	3.41	3.45	3.35
	<u>Adjusted^a</u>				
Same township (nonmigrant)	3.17	3.24	3.53	3.52	3.46
Different township but born in:					
Large city	3.01	*	*	*	3.01
Small city	*	*	*	*	*
Urban township	3.17	3.11	3.31	3.43	3.23
Rural township	3.11	3.20	3.26	3.50	3.23
Mainland China	2.74	2.89	3.14	3.04	2.87
Total	3.00	3.09	3.41	3.45	3.32

^a Adjusted for age effect by using the MCA technique.

* Sample size less than 53.

cities wanted slightly larger family size than those going to the small cities. Surprisingly, women who came from the urban townships and resided in the large cities wanted larger family size than those from rural townships.

As compared with wives of nonmigrants in the place of origin, migrants in the eight streams from urban townships or rural townships to the four types of areas consistently wanted fewer children (the upper panel of Table 1). The significant differences in the average desired number of children are found in the streams from the rural or semi-rural townships to the large cities and the small cities, especially those moving from the rural townships to the large cities.

In all streams, wives of migrants also tended to want smaller family size than their counterparts in the place of destination. Among those who move from the rural and semi-rural areas to the cities, the most striking differences in this fertility measure are found in the stream from the urban townships to the small cities followed by the streams from the rural townships to the large cities, to the small cities, and from the urban townships to the large cities in order. On the other hand, the differences are not great for those who moved to the rural townships.

It is possible that lower average desired number of children among wives of migrants than among that of nonmigrants may be a result of peculiar age distributions of wives of migrants. In a separate tabulation, wives of migrants who moved to the larger or small cities are relatively concentrated in younger age groups. In general, younger women want smaller family size than older women in Taiwan. Other things being equal, the observed means would be lower among the migrants than the nonmigrants in these streams. Surprisingly, adjustments¹ for age effect do not alter the observed differentials to any marked degree. (see the lower panel of Table 1) This suggests that the desired fertility differentials between migrants and nonmigrants by age groups may not be the same as the overall pattern. A closer examination of the average desired number of children and the distribution of desired number of children by wife's age groups may be valuable.

The mean desired number of children is lower for younger than for older women in each of migration streams as well as in each type of area for nonmigrants (see Table 2). In all migration streams, wives of migrants either in younger or older age group tended to want fewer children than female residents in the place of origin. For older women aged 30-39, they also wanted fewer children than their counterparts at place of destination. However, for younger women aged 20-29 the average desired number of children was not necessarily lower than wives of nonmigrants in their places of destination. In the streams from the urban or rural townships to the large cities, the average desired number of

1) Adjusted for age effect by using the MCA technique.

Table 2

Distributions of Desired Number of Children and Its Mean by Wife's Age Groups,
Migration Status and Migration Stream, Taiwan, 1973

Migration Status and Migration Stream	Desired Number of Children					Total	Mean	Sample size ^b
	Two or fewer ^a	Three	Four	Five or more	20-29			
Nonmigrants who lived in 1973 in:								
Large city	35.3	46.0	12.0	6.7		100.0	2.86	150
Small city	25.0	53.4	18.2	3.4		100.0	3.02	88
Urban township	18.1	42.8	34.9	4.2		100.0	3.26	404
Rural township	15.7	46.2	31.7	6.4		100.0	3.30	625
Lifetime migrants who moved from:								
Large city to Large city	37.6	44.0	13.8	4.6		100.0	2.84	109
Urban township to:								
Large city	28.3	49.7	18.9	3.1		100.0	2.96	159
Small city	30.0	46.3	21.2	2.5		100.0	2.90	80
Urban township	25.3	53.3	18.7	2.7		100.0	2.95	75
Rural township	23.8	41.3	28.6	6.4		100.0	3.17	63
Rural township to:								
Large city	31.6	50.8	15.0	2.6		100.0	2.88	193
Small city	26.9	45.4	24.1	3.7		100.0	3.01	108
Urban township	25.6	48.7	19.2	6.4		100.0	3.05	78
Rural township	16.7	46.7	27.8	8.9		100.0	3.31	90
Mainland Chinese	44.7	41.2	12.7	1.3		100.0	2.68	456

(Continued Table 2)

Nonmigrants who lived in 1973 in:

Large city	12.1	39.4	38.2	10.3	100.0	3.50	165
Small city	11.3	36.6	46.5	5.6	100.0	3.46	71
Urban township	4.5	30.7	49.6	15.2	100.0	3.82	355
Rural township	5.0	31.6	50.7	12.7	100.0	3.76	694
Lifetime migrants who moved from:							
Large city to Large city	22.0	38.5	36.3	3.3	100.0	3.23	91
Urban township to:							
Large city	16.2	37.3	40.1	6.4	100.0	3.38	142
Small city	10.0	54.0	30.0	6.0	100.0	3.36	50
Urban township	4.4	39.7	41.2	14.7	100.0	3.72	68
Rural township	14.9	22.4	50.8	11.9	100.0	3.67	67
Rural township to:							
Large city	13.4	46.5	33.9	6.3	100.0	3.35	127
Small city	13.0	40.2	42.9	3.9	100.0	3.38	77
Urban township	12.1	39.4	40.9	7.6	100.0	3.48	66
Rural township	10.1	29.1	48.1	12.7	100.0	3.72	79
Mainland Chinese	32.1	40.8	23.8	3.4	100.0	2.99	446

a Only less than one percent of women wanted one child.

b Excluding those who said "don't know".

children for the younger women was slightly higher than those at the place of destination. Apparently, a small increase in average desired number of children in these two streams after adjustment is in part due to the effect of higher desired fertility among them.

There was a considerable difference in the distribution of desired number of children between younger women under age 30 and older women over age 30 for migrants at each stream and nonmigrants at each type of areas (see Table 2). The main differences result from a greater choice of three and two or fewer children¹, rather than four or more for the younger women, and a desire for three and four rather than five or more among the older women.

In all streams, wives of migrants in the younger age group tended to have higher proportions wanting three and two or fewer children than nonmigrants at the place of origin (see the upper panel of Table 2). As compared with younger women at the place of destination, it was also true for most of migration streams, the exceptions being in the streams from urban or rural townships to large cities in which slightly higher proportions wanting three and two or fewer children were found in the nonmigrant group. On the other hand, in all streams wives of migrants in the older age group tended to have higher proportions wanting four and three or fewer children than that of nonmigrant women at both place of origin and destination.

The differences in the distribution of the desired fertility between migrants and nonmigrants at the place of origin and destination can be measured by the index of dissimilarity.² In our data the index of dissimilarity ranges from 3.9 to 28.8 (see Table 3). Overall, the index of dissimilarity is consistent to the basic pattern of mean differences in desired fertility between migrants and nonmigrants at the place of origin and destination. The larger the mean difference, the higher the index of dissimilarity is. For example, in the stream from the rural townships to the large cities, the mean difference in the desired fertility between migrants and nonmigrants at the place of origin is as high as -0.47 ($3.07-3.53$) and the corresponding index of dissimilarity is also high: 20.5 for the younger women and 23.3 for the older women. On the other hand, as compared with the nonmigrant group at the place of destination, the mean difference in the desired fertility becomes small, -0.12 ($3.07-3.12$) and the index of dissimilarity is also low, 7.8 for the younger women and 8.3 for the older women, indicating generally close similarity between the desired fertility of the migrant and nonmigrant women at the place of destination.

1) In this category only less than one percent of women wanted one child.

2) The index of dissimilarity shows the percentage of cases that would have to be redistributed in order to have the two distributions resemble each other exactly. The index can range from 0 to 100. For a description of how the index is calculated, see Shryock and Siegel, 1973, p. 179.

Table 3

Index of Dissimilarity of the Distribution of Desired Number
of Children between Migrant and Nonmigrant
Group at the Place of Origin and Destination by Wife's Age Groups,
Taiwan, 1973

Migration Stream	Index of Dissimilarity			
	Origin		Destination	
	20-29	30-39	20-29	30-39
From Large city to Large city	3.9	9.9	3.9	9.9
From Urban township to:				
Large city	16.1	18.1	10.6	6.0
Small city	15.4	28.8	19.6	17.8
Urban township	17.8	9.0	17.8	9.0
Rural township	7.9	11.6	8.1	9.9
From Rural township to:				
Large city	20.5	23.3	7.8	8.3
Small city	11.2	16.7	11.3	18.0
Urban township	12.5	14.9	15.7	16.3
Rural township	3.9	5.1	3.9	5.1

The data on desired number of children were obtained from responses to a question about the additional children wanted by the respondent (wife). Adding this response to

the actual number of living children is the way to identify the desired fertility for the respondents who said they wanted more children. For those who have already reached their desired family size, the desired fertility is measured from responses to a question about the number of children the respondent said she would have if she could start married life over and have just the number of children she wanted. Although statements about "wanting no more children," have related to the actual fertility behavior,¹ there was a discrepancy between desired and actual fertility in Taiwan. This is especially true for women over 30, many of whom had a larger number of children than they desired. The discrepancy is in part due to the fact that many women in their thirties had the children they wanted before the practice of contraception was common. Many began to practice only after they had all or more than the number wanted¹³ However, it seems a better situation for those who wanted additional children to achieve their desired family size because the practice of birth control for both spacing and limiting their children was more prevalent in 1973 than previous years.¹⁴

In order to predict completed family size, the wives in our sample were asked how many children they had at the time of interview and how many they expected to bear in the future. In case of sterilized couples, the expected fertility is measured in terms of number of children they had at interview. Now allowance was made for the children who may die in future years. As we expected, for both younger and older women in each migrant and nonmigrant group the expected fertility is higher than the desired one (see Table 4). The basic pattern of differences in the expected fertility between migrants in each stream and nonmigrants at the place of origin and destination is similar to that of the desired fertility. Of course, the completed fertility in the future may not be the same as the expected fertility. Many wives will not bear all the children they expect, because they become subfecund or because they will change their minds about how many they want. Many others will bear more than they expect, because they will have accidental pregnancies or will decide to have more children. Presumably, proportion of women with such situations in each category would be roughly same. The actual fertility differentials in the future between migrants and nonmigrants will not be altered to much.

1) *A longitudinal study in Taiwan (1967-1970) demonstrates that women who said in 1967 that they wanted no more children or who had all the living children they wanted during the next three years had relatively few live births. For a detailed discussion, see Freedman, Hermalin, and Chang, 1975, p.408.*

13. Freedman, Ronald, Lolagene C. Coombs, Ming-Cheng Chang, and Te-Hsiung Sun. 1974. "Trends in Fertility, Family Size Preferences, and Practice of Family Planning: Taiwan, 1965-1973." *Studies in Family Planning*, Vol. 5, NO. 9 (September), pp.270-288.

14. Chang, Ming-Cheng, 1974. "Practice of Family Planning and Changes in Reproductive Patterns, Taiwan: 1965, 1967, 1970, 1973." Report T 299, SR 77. Taichung: Taiwan Provincial Committee on Family Planning.

Table 4

Mean Expected Number of Children by Wife's Age,
Migration Status, and Migration Streams, Taiwan, 1973

Migration Status and Migration Stream	Wife's Age Group		Total	
	20-29	30-39	Observed	Adjusted*
Nonmigrants who lived in 1973 in:				
Large city	3.28	4.20	3.76	3.74
Small city	3.35	4.15	3.72	3.74
Urban township	3.43	4.34	3.86	3.87
Rural township	3.58	4.38	4.01	3.97
Lifetime migrants who move from:				
Large city to Large city	3.17	3.69	3.40	3.39
Urban township to:				
Large city	3.39	3.96	3.66	3.68
Small city	3.23	3.80	3.44	3.56
Urban township	3.17	4.28	3.73	3.63
Rural township	3.29	4.29	3.81	3.82
Rural township to:				
Large city	3.07	3.98	3.43	3.51
Small city	3.31	4.01	3.61	3.64
Urban township	3.40	4.15	3.75	3.78
Rural township	3.47	4.25	3.84	3.84
Mainland Chinese	2.98	3.65	3.31	3.30

*Adjusted for age effects by using the MCA technique.

Number of Children Ever Born

The desired fertility is reflected in the actual fertility behavior. Regardless of migration status among native born Taiwanese, the data on cumulative fertility also confirm urban-rural residence to be related to fertility level. As shown in the data below, the average number of children ever born, with age standardized, ranged from 3.05 per woman in large cities to a high of 3.39 for those in rural townships.

Type of Area	Wife's Age				Total	
	20-24	25-29	30-34	35-39	Observed	Age Standardized
Large city	1.46	2.51	3.58	4.25	3.02	3.05
Small city	1.42	2.69	3.57	3.35	2.99	3.11
Urban township	1.53	2.71	3.97	4.67	3.31	3.32
Rural township	1.63	2.82	3.99	4.72	3.46	3.39
Mainland Chinese	1.99	2.52	3.32	3.74	2.94	2.95

Moreover, the urban-rural fertility differentials exist at all age levels; and the differences appear to be substantially greater at the older ages. The underlying factors accounting for urban-rural differentials may thus have a greater impact on women who are getting close to their reproductive years than on fertility differentials during the earlier years of childbearing. This pattern may reflect a strong tendency, especially on the part of rural women, to initiate fertility regulation late in the reproductive cycle to restrict the number of children ever born rather than to use such control to space children during the earlier years of childbearing. In fact, a separate analysis by Chang indicated that before 1970 contraception was mainly used for limiting rather than spacing births. Although between 1970 and 1973 there was a large increase in contraceptive use among women who wanted additional children, only one-fifths of women were using contraception for spacing births in 1973. But since a considerable portion of the urban women consists of migrants to the cities, further attention must certainly be given to the influence of migration in accounting for the lower fertility levels of the urban women.

In general, the actual fertility in terms of mean live births for wives of migrants was lower than that of nonmigrants both at the place of origin and destination. The differentials are much pronounced between migrants and nonmigrants at the place of origin. These differentials are consistent with that observed for both desired and expected fertility just discussed. Although the differentials are not particularly large between migrants and nonmigrants at the place of destination, overall, these data again suggest that migration is associated with lower fertility at the place of destination.

Type of Area	Mean Live Births			
	Observed		Age Standardized	
	Migrant	Nonmigrant	Migrant	Nonmigrant
	<u>Destination</u>			
Large city	2.94	3.21	3.01	3.13
Small City	2.95	3.05	3.11	3.12
Urban township	3.28	3.32	3.30	3.36
Rural township	3.33	3.49	3.33	3.42
	<u>Origin</u>			
Urban township	3.10	3.32	3.21	3.36
Rural township	3.05	3.49	3.14	3.42

When a distinction is made among migrants for type of place of origin and destination. The pattern of differentials between wives of migrants at each stream and nonmigrants at the place of origin and destination was somewhat different. In the stream from rural townships to urban townships, the actual fertility was higher than that of counterparts at the place of destination (see first column of Table 5). This may be in part due to the effect of varying age composition of women among migration streams. As we mentioned earlier, women in this stream tended to be older than nonmigrants at the place of origin and destination. Other things being equal, they would bear more children simply because their duration of marriage was longer. Duration of marriage is a function of age of a woman and her age at marriage. Women with same age may have different duration of marriage if their ages at marriage differ. Urban women are more likely to postpone their marriage than rural women. Therefore, within the same age group the duration of marriage for urban women may be shorter than that of rural women. To eliminate the effect of age distribution of women as well as age at marriage adjustments for duration of marriage was made through the direct standardization method in which all women in our sample as a standard population. The results are shown in the second column of Table 5. In the streams from the rural townships to the urban township or to other rural townships, the standardized averages become smaller than the observed ones reflecting that duration of marriage for women in these streams was longer than the general women in Taiwan. This was also true for wives of nonmigrants living in the rural townships. On the other hand, the reversal pattern was found in the other streams indicating that women in these stream tended to be younger and shorter duration of marriage than all women in Taiwan.

With duration of marriage standardized, the actual fertility differentials between

Table 5
 Mean Number of Children Ever Born by Migration Status
 and Migration Streams, Taiwan, 1973

Migration Status and Migration Stream	Mean Number of Children Ever Born	
	Observed	Adjusted*
Nonmigrants who lived in 1973 in:		
Large city	3.21	3.23
Small city	3.05	3.27
Urban township	3.32	3.35
Rural township	3.49	3.42
Lifetime migrants who moved from:		
Urban township to:	2.82	3.04
Large city	3.19	3.32
Small city	2.89	3.20
Urban township	3.23	3.24
Rural township	3.27	3.31
Rural Township to:		
Large city	2.78	3.13
Small city	2.99	3.20
Urban township	3.33	3.28
Rural township	3.38	3.28
Mainland Chinese	2.97	2.81
R ²	52.7%	

*Adjusted for the effect of duration of marriage by using the MCA technique.

wives of migrants and nonmigrants either at the place of origin and destination come more close to the pattern of differentials measured in terms of desired family size. With the sole exception of the stream from the urban townships to the large cities, the mean live births for wives of migrants in each stream was lower than that of nonmigrants at the place of origin and destination. Moreover, women whose husbands moving from the rural townships to the cities tended to have lower fertility level. Again, like the desired fertility differentials, the actual fertility for women moving from the urban townships to the large cities was higher than those going to small cities.

Although the introduction of standardization for duration of marriage has led to the results that the actual fertility level for almost of migration streams tended to be lower than nonmigrant groups both at the place of origin and destination, it was not necessarily true for women with different age group (Table 6). Lower fertility for migrants is characteristic primarily of the age groups over 30 in the large cities. The differences are less and more irregular for those under 30. In the stream from the urban townships to the large cities, women aged 20-24 and 25-29 have higher fertility than their nonmigrating urban counterparts in the same age group. On the other hand, wives of migrants in the older age groups exhibited lower fertility, especially for those aged 35-39. It is also true for those moving from one large city to another. In the stream from the rural townships to the large cities, with the exception of the youngest age group, wives of migrants in the other age groups tended to have lower fertility than nonmigrants both at the place of origin and destination. In the remaining streams, it is not generally consistent with this pattern. For example, in the stream from one urban township to another the mean live births for wives of migrants in each age group were lower than that of nonmigrants. Nevertheless, with few exceptions, there was a tendency that the fertility for younger wives of migrants was higher than nonmigrants and the opposite was observed for the older women. This implies that migration and fertility are related because the women aged 35-40 are almost through their reproductive years.

The higher fertility for rural-to-urban younger migrants than urban nonmigrants does not necessarily mean that migration does not affect fertility level. A cumulative measure of fertility in terms of number of children ever born fails to identify how many of the children were born before a move and how many after. It is possible that younger migrant couples only spent short period in urban place and a part of their children were born or conceived in rural areas. The concept of "crossover" may also be used to explain few exceptions observed among older women in the stream from the urban townships or the rural townships to the small cities. In the following section we will examine the reality of this hypothesis.

Table 6

Mean Number of Children Ever Born by Wife's Age Groups and
Migration Status and Migration Streams, Taiwan, 1973

Migration Status and Migration Stream	Wife's Age Groups				Total
	20-24	25-29	30-34	35-39	
Nonmigrants who lived in 1973 in:					
Large city	1.36	2.42	3.77	4.55	3.21
Small city	1.48	2.55	3.42	4.52	3.05
Urban township	1.53	2.76	3.98	4.73	3.32
Rural township	1.59	2.86	4.03	4.47	3.49
Lifetime migrants who moved from:					
Large city to Large city Urban township to:	1.35	2.35	3.33	3.72	2.82
Large city	1.62	2.80	3.64	4.38	3.19
Small city	1.54	2.60	3.38	4.77	2.89
Urban township	1.39	2.40	4.12	4.48	3.23
Rural township	1.93	2.69	3.72	4.48	3.27
Rural township to:					
Large city	1.50	2.38	3.46	4.14	2.78
Small city	1.34	2.90	3.92	4.04	2.99
Urban township	1.71	2.73	3.75	4.92	3.33
Rural township	1.69	2.71	3.90	4.76	3.38
Mainland Chinese	1.99	2.52	3.32	3.71	2.97

B. *Fertility Prior to Migration and Duration of Residence Differentials*

Fertility Prior to Migration

Whether migration is selective of those whose fertility differs from those in the place of origin or who alter their fertility behavior after movement to a new environment can be examined from those who migrated after marriage by tracing their fertility prior to migration. This was done by comparing date of migration and dates of live births in the record of individual pregnancy history and then cross tabulated by their ages at arrival in the current place of residence, which were divided into five age groups: less 20, 20-24, 25-29, 30-34, and 35-39.

There are several limitations of using age specific fertility at migration to compare fertility of nonmigrants in the place of origin. First, because our sample women only cover those whose ages between 20 to 39, comparisons are necessarily restricted to this age range. Second, different cohorts of women may fall in the same age category at time of migration and therefore may lead to some bias caused by cohort effects on fertility. Fortunately, a great majority of wives of such migrants (74.2% to 91.8%) were under thirty years of ages and heavy concentration in their twenties, when they arrived in the current place of residence (see Table 7). There are extremely few women whose ages at arrival in destination were in 35 years of age or over. A time series analysis by Freedman and others indicated that during 1961 and 1970, changes in marital fertility rates for younger age cohort of women 20-24 and 25-29 were relatively small¹⁵. Therefore the bias caused by the effects of cohort would be not great.

Among migration streams, there are minor and irregular differences in the age-specific fertility levels prior to migration between migrants and nonmigrants in the place of origin (see Table 8). Out of thirty comparisons, twenty one categories show that migrants before arrival in the current place of residence had slightly lower average number of children born than nonmigrants in the place of origin. For example, such differences vary from 0 to -0.17 for the stream from the urban townships to the large cities and from -0.31 to +0.23 in the stream from the rural townships to the large cities. In these two streams, further comparisons of the age-specific fertility levels of migrants before arrival in the current place of residence and nonmigrants in the place of destination show that migrants in each age group exhibit lower fertility, the sole exception being in the stream from the urban townships to the large cities in which migrants' wives 20-24 had the same fertility level as their nonmigrating counterparts (see Table 6 and Table 8). These data seem to suggest that the lower cumulative fertility among older migrants'

15. Freedman, Ronald, Albert I. Hermalin, and Te-Hsiung Sun. 1972. "Fertility Trends in Taiwan: 1961-1970." *Population Index*, Vol. 38, No. 2 (April-June), PP.141-166.

Table 7

Age Distribution of Wives of Migrants at Arrival in Current
Place of Residence by Migration Stream

Migration Stream	Age at Arrival in the Place of Destination						Sample Size
	20-	20-24	25-29	30-34	35-39	Total	
From one large city to another	6.5	30.6	37.1	24.2	1.6	100.0	62
From urban township to:							
Large city	12.1	37.9	34.3	12.7	3.0	100.0	166
Small city	7.9	44.4	27.0	19.1	1.6	100.0	63
Urban township	8.8	47.4	35.1	7.0	1.8	100.0	57
Rural township	7.6	52.8	20.7	18.9	—	100.0	53
From rural township to:							
Large city	9.9	37.9	33.0	14.8	4.4	100.0	182
Small city	8.9	42.5	29.2	12.4	7.1	100.0	113
Urban township	6.1	46.4	32.9	12.2	2.4	100.0	82
Rural township	12.7	32.9	36.7	15.2	2.5	100.0	79

Table 8

Mean Number of Children Ever Born at Migration for
Those who Moved After Marriage and Differences in
Mean Live Births between Migrants and Nonmigrants at Place of Origin
by Wife's Age at Time of Migration, Taiwan, 1973

Migration Stream	Wife's Age at Time of Migration			
	20-24	25-29	30-34	35-39
	<u>Mean Live Births at Migration</u>			
From Large city to Large city	1.10	2.30	3.59	*
Urban township to:				
Large city	1.36	2.76	3.92	*
Small City	1.44	2.46	3.58	*
Urban township	1.24	2.95	4.80	*
Rural township	1.17	2.92	3.92	*
Rural township to:				
Large city	1.44	2.55	4.17	4.97
Small city	1.60	2.48	3.81	5.13
Urban township	1.42	2.79	3.90	*
Rural township	1.30	2.58	4.23	4.90
	<u>Mean Difference in Live Births between Migrants and Nonmigrants at Place of Origin</u>			
From Large city to Large city	-0.26	-0.12	-0.18	*
Urban township to:				
Large city	-0.17	0.00	-0.06	*
Small city	-0.09	-0.30	-0.40	*
Urban township	-0.29	+0.20	+0.10	*
Rural township	-0.36	+0.16	-0.25	*
Rural township to:				
Large city	-0.15	-0.31	+0.14	+0.23
Small city	+0.01	-0.38	-0.22	+0.39
Urban township	-0.17	-0.07	-0.13	*
Rural township	-0.29	-0.28	+0.20	+0.16

* Less than 7 cases.

wives than among their nonmigrating counterparts at the place of destination is associated with considerable reduction in fertility after their arrival in the large cities.

As mentioned earlier, migration is highly selective of better educated couples. The observed differences shown in Table 8 may be in part due to the effects of educational differentials between migrants and nonmigrants at the place of origin. In a separate analysis not shown here, the differences after controlling educational effects become negligible-less than 0.12. These data tend to support our hypothesis that fertility of migrants before movement is similar to that of nonmigrants with similar background characteristics in the place of origin.

Duration of Residence Differentials

Now let us turn to discuss the relationship between length of residence in large cities and fertility. To examine this problem, a cross-tabulation of current age of wife and marital status at arrival in large cities was made.

In Table 9, we present average number of children for wives of migrants who moved from the rural and semi-rural townships to the large cities before and after marriage by wife's age group. The table also shows mean length of residence in urban areas and mean children ever born at the place of destination.

In the stream from the rural township to the large cities, the average number of children ever born for women who moved before marriage were substantially lower than those who said they moved after marriage (2.32 against 3.09). On the average, women who moved before marriage have lived in the large cities 26.4 months (82.8-56.4) longer than those moving after marriage. For those who moved after marriage, the average number of children which took place in the large cities was only 1.16 of which 0.22 (2.15-1.93) was conceived before arrival in the place of destination.¹ In other words, if we do not allow duration of pregnancy prior to migration for these 0.22 children, on the average each of these women spent about little more than four years to get a baby in a large city. On the other hand, the nonmigrants who lived in the large cities spent about three years and quarter to get one child (see Table 10). A similar pattern is found for those who moved from the urban townships to the large cities. This suggests that rural-to-urban migration is associated with lowering fertility levels for migrants.

Within each age group, the average number of children is consistently lower for those moving before marriage than for those moving into the large cities after marriage (see

1) Calculated by comparing birth order similar to that of migrants prior to arrival in large cities and then get number of children born after that birth and time interval between that birth order and time of interview.

Table 9

Mean Number of Children Ever Born and Mean Number of Children Born and Conceived at Place of Origin and Length of Residence in Large Cities for the Migrants in the Streams from Rural and Semi-Rural Townships to Large Cities by Marital Status at Migration and Wife's Age Groups, Taiwan, 1973.

Wife's Age Group	Marital Status at Migration and Sample Size	Length of Residence in Large Cities (in months)	Mean Live Births (1)	Mean Live Births at Migration (2)	Mean Children Conceived before Migration	Mean Number of Children Born in Large Cities (3) = (1) - (2)
A. Urban Townships to Large Cities						
20-24	Single	29	44.3	1.52		
	Married	23	24.5	1.74	0.70	1.00
25-29	Single	52	70.5	2.73		
	Married	49	40.4	2.94	1.81	2.04
30-34	Single	30	122.7	3.64		
	Married	45	79.5	3.67	1.67	2.00
35-39	Single	26	168.3	4.23		
	Married	50	104.8	4.46	2.82	3.06
Total	Single	137	97.2	2.93		
	Married	167	68.3	3.41	1.92	2.19
B. Rural Townships to Large Cities						
20-24	Single	44	29.4	1.36		
	Married	38	23.8	1.67	1.00	1.11
25-29	Single	45	64.0	2.20		
	Married	50	34.0	2.56	1.42	1.85
30-34	Single	22	117.6	3.14		
	Married	56	62.3	3.56	2.11	2.25
35-39	Single	21	189.2	3.62		
	Married	43	94.5	4.37	3.07	3.22
Total	Single	132	82.8	2.32		
	Married	187	56.4	3.09	1.93	2.15

Table 10
 Average Interval of Getting A Child for those who Moved to Large
 Cities After Marriage from Urban and Rural Townships,
 Taiwan, 1973

Wife's Age	Average Interval of Getting A Child in Large Cities (in months)		
	Urban Township to Large City	Rural Township to Large City	Nonmigrants in Large Cities*
20-24	23.5	35.5	25.5
25-29	35.8	29.8	27.4
30-34	39.8	42.9	38.2
35-39	63.9	72.7	61.2
Total	45.8	48.6	39.5

* Calculated by matching birth order similar to that of migrants before arrival in large cities and then get number of children born after that birth order and time interval between that birth order and time of interview. The average interval of getting a child for nonmigrants in large cities is obtained by dividing time interval by number of children born after that birth.

Table 9) The difference is greatest for women aged 35-39. Since these women are approaching their reproductive ages, the changes in these differentials can be expected to be very small when they complete their family size. It should be noted that there is a small increase in the average number number of children born in the large cities as age advances. For example, in the stream from the rural townships to the large cities it was 0.67 for women aged 20-24 as compared to 1.30 for those aged 35-39. It may be concluded that among the migrants with the same age group those who exposed to urban life longer tended to have lower fertility level than those experiencing with shorter period. The higher fertility level for younger migrants moving from rural areas to large cities after marriage was in part due to the effect of "crossover".

As compared with nonmigrants at the place of destination, wives of migrants who moved from the rural townships to the large cities have substantially lower fertility level (see the following figures). It is also true for migrants' wives in the 25-29, 30-34, and 35-39. For younger women aged 20-24, the fertility level for migrants moving before marriage is the same as that of nonmigrants. Since city nonmigrants have exposed to urban life longer than migrants, this lower fertility levels for migrants may be due to the effects of migration. Before drawing this conclusion, we shall carefully examine whether or not it is still true after further control educational differentials between migrants and nonmigrants.

Wife's Age Group	Average Number of Children Ever Born	
	Nonmigrants in Large City	Those Who Moved from Rural Townships to Large Cities before Marriage
20-24	1.36	1.36
25-29	2.42	2.20
30-34	3.77	3.14
35-39	4.55	3.62
Total	3.21	2.32

C. Migration, Education and Fertility

A previous study in Taiwan has shown that among socioeconomic variables, education is the most powerful factor affecting fertility behavior¹⁶.

With the trend toward more education among migrants, as previously noted, it would

16. Freedman, Ronald, Lolagene C. Coombs, and Ming-Cheng Chang. 1972. "Trends in Family Size Preferences and Practice of Family Planning: Taiwan, 1965-1970." *Studies in Family Planning*, Vol. 3, No. 12 (December), pp. 281-296.

be possible for fertility differentials between migrants and nonmigrants to be merely a reflection of educational selection, but this has not been the situation. The overall differences in three fertility measures discussed between migrants and nonmigrants either in the place of origin or destination were not primarily to the effects of educational differentials between them, but represented genuine fertility differentials.

As shown in Table 11, three fertility measures after adjustment for age or duration of marriage and education are similar to those standardized for age or marriage duration. With the sole exception of the actual fertility for large-city in-migrants who originated in the urban townships, the patterns of differences in each of three fertility measures between migrants and nonmigrants either at the place of origin, as discussed in the section B, still exist, but the differentials appear to be narrowing.

None of these differences in each of three fertility measures between migrants and nonmigrants at the place of destination is large enough to be statistically significant, though migrants exhibit lower fertility levels. On the other hand, however, in the streams from the rural and semi-rural townships to the cities (large or small), the differentials in terms of desired and expected fertility appear to be statistically significant, when comparison is made at the place of origin. The same situation is found in the actual fertility differentials for those who moved from the rural townships to the large or small cities.

Since our sample women are still in their reproductive ages, the average number of children is subject to be influenced by irregular fertility pattern among younger age groups. A close examination of older women is more meaningful.

As shown in the following figures, after education standardized, women aged 35-39 in the stream from the rural and semi rural townships to the large cities tended to have lower average number of children than nonmigrants either at the place of origin and destination. Moreover, migrants who arrived in the large cities before marriage have substantially lower fertility levels than do migrants who moved after marriage, especially

Migration Stream	Average Number of Children Born (Education Standardized)				
	Arrival in Large City			Nonmigrants at Place of:	
	Before Marriage	After Marriage	Total	Origin	Destination
From Urban Township to Large City	4.29	4.49	4.42	4.78	4.57
From Rural Township to Large City	3.64	4.37	4.14	4.66	4.57

Mean Differences in Adjusted Desired^a, Expected^a, Actual^b Number of Children between Migrants and Nonmigrant at Place of Origin and Destination by Migration Streams, Taiwan, 1973

Migration Stream	Average Desired Number of Children		Difference in Mean Desired Children between Migrants and Nonmigrants at Place of:		
	Migrant	Nonmigrant at		Origin	Destination
		Origin	Destination		
From One Large City to Another	3.11	3.21	3.21	-0.10 ⁻	-0.10 ⁻
From Urban Township to:					
Large city	3.21	3.49	3.21	-0.25 ⁺	-
Small city	3.16	3.49	3.27	-0.33 ⁺	-0.11 ⁻
Urban Township	3.30	3.49	3.49	-0.19 ⁺	-0.19 ⁻
Rural Township	3.41	3.49	3.45	-0.18 ⁻	-0.04 ⁻
From Rural Township to:					
Large city	3.14	3.45	3.21	-0.31 ⁺	-0.07 ⁻
Small city	3.19	3.45	3.27	-0.24 ⁺	-0.08 ⁻
Urban Township	3.30	3.45	3.49	-0.15 ⁻	-0.19 ⁻
Rural Township	3.46	3.45	3.45	+0.01 ⁻	+0.01 ⁻

^a Adjusted for age and educational effects by using the MCA technique.

^b Adjusted for the effects of marriage duration and education by using the MCA technique.

⁺ Statistical significance at 95% level.

⁻ Statistical insignificance at 95% level.

(Continued Table 11)

	Mean Expected Number of Children		Difference in Mean Expected Children between Migrants and Nonmigrants at Place of:		Mean Live Births		Difference in Mean Live Births between Migrants and Nonmigrants at Place of:		
	Migrant	Nonmigrant at	Origin	Destination	Origin	Destination	Origin	Destination	
3.52	3.79	3.79	-0.26 ⁻	-0.26 ⁻	3.13	3.23	3.23	-0.10 ⁻	-0.10 ⁻
3.63	3.84	3.79	-0.21 ⁺	-0.11 ⁻	*3.34	3.33	3.23	+0.01 ⁻	+0.10 ⁻
3.59	3.84	3.78	-0.25 ⁺	-0.19 ⁻	3.21	3.33	3.27	-0.12 ⁻	-0.06 ⁻
3.73	3.84	3.84	-0.11 ⁻	-0.11 ⁻	3.23	3.33	3.33	-0.11 ⁻	-0.10 ⁻
3.78	3.84	3.88	-0.07 ⁻	-0.10 ⁻	3.29	3.33	3.40	-0.14 ⁻	-0.11
3.54	3.88	3.79	-0.34 ⁺	-0.25 ⁻	3.14	3.40	3.23	-0.26 ⁺	-0.09 ⁻
3.62	3.88	3.78	-0.26 ⁺	-0.16 ⁻	3.16	3.40	3.27	-0.24 ⁺	-0.11 ⁻
3.81	3.88	3.84	-0.07 ⁻	-0.03 ⁻	3.31	3.40	3.33	-0.09 ⁻	-0.02 ⁻
3.80	3.88	3.88	-0.08 ⁻	-0.08 ⁻	3.34	3.40	3.40	-0.06 ⁻	-0.06 ⁻

for those who originated in the rural areas. This indicates that education does not explain away the fertility differentials between migrants and nonmigrants.

As far as level of development of areas is concerned, there are only minor differences in each of three fertility measures, with age or duration of marriage and education standardized, between migrants who originated in higher level of development of the rural and semi-rural areas and those from the corresponding areas with lower level of development (see Table 12). This suggests that level of development within rural and semirural areas seems not an important variable in explaining overall fertility differentials among migrants.

The findings discussed in this section seem not to support one of our hypotheses that fertility of rural-to-urban migrants is an intermediate value between that of migrants and nonmigrants.

D. Differentials in Contraceptive Practice

Lower desired and expected fertility among migrants than among nonmigrants should be reflected in more active practice of contraception than their nonmigrating counterparts. In this section, we shall examine, to what extent, migrants differ from nonmigrants with respect to fertility regulation.

Before discussing differentials in contraceptive practice, it should be reported that the family planning program in Taiwan has been implemented since 1964. Data of the present study show that by 1973, contraceptive knowledge and approval of contraception became universal (96 percent of women had knowledge of at least one contraceptive method and 94 percent of women said they approved of contraception) Moreover, three out of four approved of sterilization and about half said they approved of abortion for limiting family size. This somewhat indicates that the psychic and market costs of fertility regulation are lower and motivation has become an important condition for fertility regulation.¹⁷

Use of contraceptives including sterilization is more prevalent among migrants than among nonmigrants. The proportions standardized on marriage duration and education of migrants who were currently using contraception at the time of interview are consistently higher than that of nonmigrants either in the place of origin and destination (see Table 13). With the exception of those who moved from the urban townships to the rural townships, the use of contraception is much more pronounced among city

17. Easterlin, Richard A. 1975. "An Economic Framework for Fertility Analysis." *Studies in Family Planning*, Vol. 6, No. 3 (March), PP.54-63.

Table 12

Average Desired, Expected, and Actual Number of Children by
Level of Areal Development^a and Migration Stream, Taiwan, 1973

Migration Stream and Level of Development at the Place of Origin	Desired Children ^b	Expected Children ^b	Children Ever Born ^c
From Urban Township to Large City			
Higher Level of Development	3.18	3.65	3.31
Lower Level of Development	3.22	3.80	3.39
From Urban Township to Small City			
Higher Level of Development	3.16	3.70	3.17
Lower Level of Development	3.15	3.49	3.25
From Rural Township to Large City			
Higher Level of Development	3.19	3.53	3.22
Lower Level of Development	3.10	3.55	3.09
From Rural Township to Small City			
Higher Level of Development	3.26	3.65	3.23
Lower Level of Development	3.13	3.61	3.16

^a In terms of relative proportion of people engaging in farming.

^b Adjusted for wife's age and education.

^c Adjusted for marriage duration and wife's education.

Table 13

Proportion of Women who were Currently Using Contraception^a
at time of Interview by Migration Status and Migration Stream, Taiwan 1973

Migration Stream	% ^b Currently Using Contraception				
	Migrants	Nonmigrants at		Difference	
		Origin	Destination	Origin	Destination
From One Large City to Another	57.5	55.1	55.1	2.4	2.4
From Urban Township to:					
Large City	62.2	51.2	55.1	11.0	7.1
Small City	58.7	51.2	48.3	7.5	10.4
Urban Township	52.7	51.2	51.2	1.5	1.5
Rural Township	60.2	51.2	49.6	9.0	10.6
From Rural Township to:					
Large City	58.5	49.6	55.1	8.9	3.4
Small City	62.3	49.6	48.3	12.7	14.0
Urban Township	55.1	49.6	51.2	5.5	3.9
Rural Township	55.9	49.6	49.6	6.3	6.3

^a Including sterilization

^b Adjusted for marriage duration and husband's and wife's education by using the MCA technique.

immigrants who originated in the rural and semi-rural townships. Furthermore, in these two streams, those who arrived in the cities before marriage were more likely to use contraception than those who arrived after marriage, as the figures below show: There is no doubt that lower actual fertility levels among migrants resulted from their active practice of contraception which was fostered from their small desired and expected family size.

Place of Origin	% Currently Using Contraception (Duration of Marriage and Husband's and Wife's Education Standardized)			
	Arrival in Large City		Arrival in Small City	
	Before Marriage	After Marriage	Before Marriage	After Marriage
Urban Township	65.2	59.8	62.3	55.2
Rural Township	61.4	56.7	64.5	60.9

E. Summary and Conclusion

In this study, we have made use of three fertility measures in terms of number of children desired, expected, and ever born by our study women at the time of survey in an attempt to assess how lifetime migration was related to these fertility measures for the marital female population 20-39 in 1973 in Taiwan.

The three observed fertility measures consistently indicated that migrants in all streams tended to have lower fertility than that of nonmigrants either in the place of origin or destination. The most striking differentials are found in the stream from rural townships to large cities. This is also true for most of migration streams, when control for effects of age or duration of marriage is made. The sole exception is the large-city immigrants who originated in the semi-rural townships; their overall actual fertility was higher than that of their nonmigrating counterparts in the place of destination. Nevertheless, when wife's age is considered, it is found that among older age groups (30-34 and 35-39), migrants generally exhibited lower fertility levels. Obviously, the overall higher actual fertility of migrants compared with nonmigrants in the place of destination is due to the effects of higher fertility levels among younger women with their ages less than 30. It is still not known that whether these younger women would have larger completed family size than that of city nonmigrants, when they pass through their reproductive years, though they expressed that they wanted and expected slightly more children. The desired and expected children may be subjective to change for these younger women as they live in urban area longer.

The lower cumulative fertility of migrants compared with nonmigrants in both places of origin and destination seems not due to selectivity of those whose fertility was already low in the place of origin. Analysis of the age-specific fertility of migrants before their arrival in the place of destination showed that migrant's fertility prior to migration was similar to that of their nonmigrating counterparts with similar age and education in the place of origin. Obviously, the lower cumulative fertility for the city immigrants who originated in the rural and semi-rural areas resulted from reduction of fertility after movement to the cities. Since rural-urban fertility differentials among nonmigrants still persist in Taiwan, it can be concluded that urbanization is associated with lower cumulative fertility among both migrants and nonmigrants.

More relevant to the present analysis are the findings regarding the possible effect of length of residence in urban areas on fertility of rural-to-urban migrants. Our data clearly show that among the city immigrants who originated in the rural and semi-rural areas, those who moved before marriage have lower fertility levels than those who moved after marriage, even after control for age. This finding suggests that exposure to urban life appears to be related to lower fertility if that migration takes place at relatively earlier age thereby allowing the reproductive period to be spent mostly in urban surroundings. Since urban nonmigrants have lived in the cities longer than migrants, the lower fertility among migrants compared with urban nonmigrants is associated with migration.

The selectivity of age and education does explain away a portion of the differences in the fertility of migrants and nonmigrants, the basic finding remains valid that migrants in almost all streams have the overall lower desired and expected fertility than that of nonmigrants in both places of origin and destination. However, from statistical viewpoint, these differentials are only significant for the city immigrants who originated in the rural or semi-rural areas and nonmigrants in the place of origin. The result among older wives of migrants who moved from the rural and semi-rural areas to the large cities—that is lower cumulative fertility among migrants than among nonmigrants in both places of origin and destination—is not affected by education, and the interpretation that much of changes in fertility is caused by spending the reproductive years in urban areas. The finding seems not support the hypothesis that fertility of rural-to-urban migrants is an intermediate value between nonmigrants in the place of origin and destination.

A further examination on practice of family planning indicated that the lower cumulative fertility of migrants compared with nonmigrants seems due to their preference and expectation for smaller families implemented by their more intensive and successful use of contraception.

Consequently, the conclusion from the present analysis is that migration from the rural and semi-rural areas to large urban areas appears to be related to lower fertility especially for migration taking place before marriage.

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台灣人口遷移和生育力關係之研究

張明正*

中文摘要

本文旨在探討台灣地區遷移者與非遷移者間之差異生育力，尤其着重於由鄉村遷入都市者。¹研究資料取自足以代表民國六十二年全島主要育齡婦女之生育力抽樣調查資料，並利用統計交叉法和複分類分析法加以分析。移動者係指該等婦女丈夫出生地與現住地不同行政區域為準，並分院（省）轄、市、鎮、鄉四主要行政區域作為移動流向統計的依據。

無論那一類型移動的流向，移動者平均希望，期望及實際生育力皆比移動者在遷出地或目的地為低。此現象經控制妻之年齡或結婚期間及夫妻之教育程度仍舊存在。不過，就統計顯著性而言，僅由鄉鎮遷入都市者與鄉鎮非移動者有此生育力差異。一般而言，移動者累積生育力較低主要是由於希望生育較少孩子數，並積極有效實行家庭計劃所致。移動本身並非導致生育行為改變的因素，因為移動者在遷移前之生育力與同年齡層和教育程度在移動所在地之非移動者相似。顯然地，遷入都市者比鄉鎮非移動者生育力較低，是移居都市後生育力下降的結果。都市環境的影響確實有助於生育力之下降，尤其對早年遷入都市者影響更甚。

* 家庭計劃研究所研究計劃組組長