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MIGRATION AND FERTILITY: THE PHILIPPINE EXPERIENCE, 1963-1983

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ABSTRACT

Data requirements in the investigation of the interaction between the two most important demographic phenomena in the country today, namely, rural-to-urban migration and fertility are adequately provided by the 1983 National Demographic Survey (NDS). Empirical analysis utilizing more advanced statistical techniques of the effect of women migration from rural to urban areas on their subsequent fertility suggests a threshold level below which increasing years of urban residence is associated with increasing fertility. It is only after about fifteen years or more exposure to the urban millieu that a moderate decline in fertility among migrants is observed. Rural-to-urban migration per se is not sufficient to bring down overall national fertility.

INTRODUCTION

With the increasing integration of population dimensions in development planning and with the present expansion of the family planning program to that of family welfare, greater efforts are being exerted to enhance the knowledge concerning the mechanisms by which fertility could be reduced through the manipulation of the social, economic and other demographic parameters. One of the factors believed to have an influence upon fertility is migration. While the relationship between these two factors has already been recognized in Philippine literature, the magnitude of the direct effect of migration on fertility has not been assessed.

To date, the plethora of migration studies conducted in the Philippines has been mainly concerned with the direct effects of migration and has tended to emphasize the volume and direction of population movements (Nava, 1959; Pascual, 1966a, 1966b; Kim, 1972; Zosa, 1973; Flieger et.al., 1976; Smith, 1977; Pryor, 1979; Bernardo, 1981). Few studies have dealt with the indirect effect of migration, that is, through natural increase. On the local level, Hendershot (1971; 1973) focused on the capital city of Manila and on the provinces of Pangasinan and Iloilo to examine the possible linkage between migration and fertility. More recent literature have dealt with the nation as a whole (Hendershot, 1976; Hiday, 1978; Pernia, 1983). In addition, while scientific case studies indicated the important linkage between migration and fertility, the nature of the relationship is not clear.

The mechanism of migration and fertility interaction merits closer examination to buttress the formulation of policy responses better suited to the local realities of the economic and demographic situation. The present investigation is envisioned to upgrade

the state of knowledge on the intricate relationships between migration and fertility and to uncover the possibilities of complementarity and substitutability in policies designed to guide the flow of population movements, on one hand, and policies aimed at reducing fertility, on the other.

DATA

The 1983 NDS is the main source of data for this paper. The survey was primarily designed to obtain fertility estimates at the national and regional levels and to investigate the extent and effectiveness of contraceptive practice among the sample respondents. Apart from these data, adequate information on migration history, work activities, and nuptiality patterns of the respondents were also collected. For the purposes of this analysis, the sample is limited to ever-married women between ages 15 and 49 years. Ever-married women includes all women who were currently married in 1983 or who had been married at some time previous to the survey.

THE DEPENDENT VARIABLE: FERTILITY

The 1983 NDS collected data on births using the pregnancy history record. All the respondent's children,including those born before her first marriage and those living away from home, were accounted for, but children of the husband by any previous marriage were excluded.

The indicator of fertility utilized in this study is the number of children ever-born to women. By definition, children ever-born (CEB) is the summation of two components, namely, number of children reported still living and number of children reported dead.

THE INDEPENDENT VARIABLE: MIGRATION STATUS

Migration status consists of two categories: rural-to-urban migrants and rural stayers. Rural-to-urban migrants are defined as individuals whose place of residence at age 15 was rural (i.e., other than city or poblacion) but who have moved to an urban area for the first time and are still residents of an urban area at the time of the survey. On the other hand, rural stayers consist of individuals whose place of residence at age 15 was rural and who have never changed residence since then.

METHODS

The paper undertakes two levels of analysis to investigate the relationship between migration and fertility. The first type of analysis presents a distribution of arithmetic means of live births for the migrants and the stayers who were classified according to various categories of selected socio-economic and demographic variables.

The second type of analysis utilizes an analytic technique based on the autoregressive fertility model by Lee and Farber (1981, 1984) which provides the statistical control required to isolate the effect of rural-to-urban migration on the fertility of migrants. The autoregressive technique generates a series of observations or successive terms such that the values of any term in the series is partly dependent on the value of those preceding it in time.

In order to properly distill the effect of migration on fertility, rural-to-urban migrants have to be compared with rural stayers having similar fertility behavior prior to migration. A positive indication of an adaptation effect occurs when rural-to- urban migration causes similar pre-migration fertility patterns to differ after migration. To further isolate the adaptation effect from the selection effect, statistical controls are introduced for individual characteristics, such as, current age, age at first marriage and education. Based on Lee and Farber (1981), the autoregressive function to test the incremental effect of migration on fertility is defined as:

$$CEB_t = \beta_0 + \beta_1 CEB_{t-1} + \beta_2 AGE_{1983} + \beta_3 AGEM + \beta_4 EDUC_{1983} + \sum_{t,t-s} MIG + e$$

(Equation 1)

where:

CEB_t	=	number of children ever born per woman at time t
CEB_{t-1}	=	number of children ever born in the previous five-year period
AGE_{1983}	=	age of the woman in single completed years at time of survey (1983)
AGEM	=	age at (first) marriage of the woman, also expressed in completed years
$EDUC_{1983}$	=	completed level of education of the woman in 1983 expressed in single years
MIG	=	migration status, treated as a dummy variable. It takes on the value of 1 if the woman migrated from a rural area s periods prior to t; 0 if otherwise.
e	=	random term representing other factors not included in the function

In the above fertility function, the cumulative fertility of a migrant at a given point in time t is dependent upon the cumulative fertility of the previous five-year period together with other exogenous variables. The adaptation effect, which is represented by

the migration coefficient, $\alpha_{t,t-s}$ in Equation (1), measures the "incremental" effect of migration s periods prior to t. A negative coefficient ($-\alpha_t$) means that a migrant of s periods prior to t in comparison to a rural stayer of the same age, age at first marriage, and education, and who have borne the same number of children by period t-1, will have α_t less additional children between period t-1 and t. A zero coefficient ($\alpha_t = 0$) signifies no change in fertility behavior.

The effect of rural-to-urban migration during the first five year period following the move (s=1) is represented by $\alpha_{t,t-1}$. If $\alpha_{t,t-1}$ is negative and $\alpha_{t,t-s}$ is equal to zero for s1, fertility is temporarily reduced immediately after migration, but with no change in fertility with increasing length of urban residence. This reflects the pure disruption hypothesis by Goldstein (1973) and Goldstein and Tirasawat (1977). The adaptation effect of migration is indicated by consistent negative migration coefficients throughout the length of urban residence (i.e., $\alpha_{t,t-s}$ is negative for s equal to or greater than 1).

To investigate the "incremental" effect of rural-to-urban migration on the fertility of migrants, 25 regressions based on Equation (1) will be estimated for the following five-year interval migration cohorts: 1979-83, 1974-78, 1969-73, 1964-68 and 1959-63. They will be observed for each of the five years of observation (t): 1983, 1978, 1973, 1968, and 1963. The sample of eligible migrants for the application of Equation (1) were those who had been married at the latest by the end of the interval period in which the migration took place. The same restrictions were imposed for the stayers with respect to a given five-year observation period.

To investigate the cumulative adaptation effect of migration on fertility, Equation (1) is slightly modified by merging together all the migrant cohort groups as follows:

$$CEB_t = \beta_0 + \beta_1 CEB_{t-5} + \beta_2 AGE_{1983} + \beta_3 AGEM + \beta_4 EDUC_{1983} + \sum_{j-1}^{5} \alpha_j MIG_J + e$$

(Equation 2)

where:

CEB_{t-5} = children ever born to women up to five years previous to time t

MIGj = 1 if the woman is in migration cohort j,
0 if otherwise where j takes on the following values:

1 if migrant cohort 1979-83
2 if migrant cohort 1974-78
3 if migrant cohort 1969-73
4 if migrant cohort 1964-68
5 if migrant cohort 1959-63

In this equation, the adaptation effect is measured by the coefficient of the migration dummy variable, $\mathcal{L}$, which represents the difference in cumulative fertility between rural stayers and rural-to-urban migrants during period j, controlling for fertility cumulated up to five years prior to t, education and other demographic variables. To control for period effects, a regression will be run for each of the five observation periods, namely, 1983, 1978, 1973, 1968 and 1963, generating five regressions in all. The sample of women to be included in a particular year of observation shall consist of those who are classified as ever-married for that year of observation; otherwise, the observation for that woman will be omitted for the said year.

MIGRANT-STAYER FERTILITY DIFFERENTIALS

While the inverse association between migration and fertility is substantiated by findings conducted in both developed and developing countries, the existence of deviant cases raises question on the relationship between the two factors. To shed light on the elusive linkage between migration and fertility, this section presents an analysis of such relationships, controlling for selected socio-economic and demographic variables.

Current Age

The data on fertility, as measured by the number of children ever-born (CEB) for migrants and stayers (Table 1), demonstrate that, in totality, rural-to-urban migrants have less children than their stayer counterparts. An average of 3.8 children were ever born to the migrants in comparison to a mean of 4.2 live births among rural stayers. The t-statistic used to test the hypothesis that the mean CEB of the migrant and stayer populations are not equal shows that the 0.4 child difference is a significant one. In addition, the completed family size for rural-to-urban migrants is on the average 6 children, while the corresponding figure for rural stayers is 7 children.

Age at First Marriage

For analytical purposes, migrants and stayers are categorized according to three marriage cohorts, namely: (1) those marrying at less than 20 years; (2) 20-24 years; and (3) 25 years and over. The above classification can be partly justified by its close correspondence with the computed means in age at first marriage, namely, 17.7 years, 21.9 years and 28.7 years, for those who reported that they married "too young," "at about the right age," and "older than the usual age," respectively. In addition, the minimum

Table 1. Mean Number of Live Births Per Ever-Married Woman 15 to 49 by Current Age and Migration Status Controlled for Selected Variables, Philippines, 1983 NDS

Control Variables	Migration Status: Rural Stayers	Migration Status: Rural-Urban Migrants
Age at Time of Survey		
15-19	0.6 (98)	*
20-24	1.8 (224)	1.3 (42)
25-29	3.0 (303)	2.3 (110)
30-34	4.2 (232)	3.7 (95)
35-39	5.6 (228)	4.7 (60)
40-44	6.3 (183)	5.5 (83)
45-49	7.0 (196)	6.1 (57)
Total	4.2 (1464)	3.8 (455)
Age at First Marriage		
<20	4.7 (881)	4.8 (176)
20-24	3.7 (450)	3.6 (202)
≥25	2.8 (132)	2.3 (77)
Total	4.2 [(1464)]	3.8 (455)
Education		
No schooling	5.2 (81)	4.9 (14)
Elementary	4.7 (935)	4.6 (208)
High school	3.0 (324)	2.7 (87)
College	2.6 (123)	2.7 (87)
Total	4.2 [(1463)]	3.8 (455)
Economic Activity		
Yes	4.7 (364)	3.8 (167)
No	4.1 (1100)	3.9 (288)
Total	4.2 (1464)	3.8 (455)
Occupation		
White collar	4.0 (147)	3.7 (98)
Service	4.3 (22)	3.9 (32)
Agricultural & production	5.3 (187)	3.7 (37)
Economically inactive	4.1 (1100)	3.9 (288)
Total	4.2 (1464)	3.8 (455)

* No respondent in this category.

cut-off age of 25 years is closely associated with recommended age at marriage by the Philippine Population Program (Domingo, 1985).

Domingo (1985) has shown that the negative relationship between migration and fertility is manifested only among those who married at 25 years or over where migrants have 0.5 children less than rural stayers. No association is found among the early-marrying women. Without a concomitant increase in the entry to marital union among the rural-to-urban migrants, the impact of migration on fertility does not seem to be significant (Table 1).

Analysis of the relationship between age at marriage and fertility corroborates the dominant influence of the timing of marital union over the number of offsprings that a couple would have. The data presented above exhibited an accelerating effect of delaying marriage on fertility reduction. Early marriage was positively associated with a large family size. Those who married before their twentieth birthday had the highest parity with around 5 children, on the average. Deferment of marriage to the age group 20-24 years reduced the average family size by one child. The pattern held for both migrants and stayers. Further postponement of marriage to 25 years and above resulted in a reduction of 1.9 live births for rural stayers and 2.5 live births among migrants.

Education

Another variable which clouds the negative relationship between migration and fertility is education. Table 2 shows the mean number of live births of ever-married women by educational attainment for both migrants and stayers. The paucity of cases in the no schooling category limits our analysis on migrant- stayer fertility differentials to ever married women with some formal schooling. The negative relationship between migration and fertility virtually disappeared after controlling for the educational level of the woman. The pattern was even more reversed for the high school educated with migrants in the high school with migrants producing 0.3 live births more than their stayer counterparts. The lower fertility of stayers in comparison to migrants in the high school category suggests that increasing education to the secondary level may have induced changes in the values and behavior of rural women towards greater consciousness of social responsibility and a more favorable disposition to new challenges.

The educational level of the woman is probably the most commonly researched socioeconomic indicator in the study of fertility differentials. Reviews of literature on education and fertility relations conducted in the Philippines point to an inverse relationship for women with some schooling, although the existence of deviant cases were also observed (Encarnacion, 1974).

Findings of this study support the classical pattern of relationship between the number of children ever born and educational level -- the average number of births for both

migrants and stayers decreases from the lowest educational category to the highest, the difference ranging from 1.9 births among migrants to 2.1 births among the stayers. The data demonstrate that the greatest impact of schooling on the number of children is when women go beyond the elementary level to high school.

Reduction in fertility for each higher level of education (except college) is greater for stayers than for migrants. The largest families are found among those without any formal schooling. Fertility is reduced by 0.5 births and 0.3 births for stayer and migrants, respectively, upon completion of elementary education. The shift from primary to secondary education generated the greatest reduction in the number of children ever-born reaching 1.7 births among rural stayers and 1.3 births among migrants. A further increase in education to the college level showed a decline of 0.4 live birth for rural stayers and 0.6 live birth for the migrants.

Education may negatively influence fertility by effecting changes in the preferences of the woman for consumption items rather than for children. Raising the level of education may widen a woman's horizon of interests, causing competition with the desires for a large family size. Still another possible effect of education lies in improving the status of the wife within the household and facilitating greater participation in the family decision-making process, as well as allowing more freedom from the husband's authority.

Employment

Another factor through which migration may indirectly affect the fertility behavior of migrants is through their participation in the labor force. Exposure to the work environment in urban areas might induce some transformation in women's values toward a smaller family size.

The mean number of live births by employment for migrants and stayers is also presented in Table 1. Examination of the data reveals that the negative relationship between migration and fertility is apparent only among the economically active. Migrants who are economically active have 3.8 live births on the average, while the corresponding figure for the rural stayers is 4.7 children. Among the economically inactive women, the discrepancy in fertility was minimal with the migrants having only 0.2 child less than their stayer counterparts.

The association between employment status and fertility is another well-researched subject in the area of fertility analysis although with less conclusive results. Empirical studies conducted in developed countries have shown female employment status to be negatively associated with fertility (Whelpton et.al., 1966; Weller, 1977). Evidence of a negative relationship between the two factors is empirically well- documented in industrialized societies. In the Philippines, Encarnacion (1974), utilizing the

1968 National Demographic Survey, found no significant relationship between a woman's labor force participation rate and her marital fertility, while Harman (1970) noted that women "workers" have fertility levels higher than the average.

Findings of this study provide conflicting evidence to the negative relationship between labor force participation and fertility for both migrants and stayers. The pattern prevailing among rural stayers buttresses the inverse association between employment status and fertility. On the other hand, the fertility of economically active rural-to-urban migrants is practically identical with those who are inactive.

Occupation

To further clarify the relationships among migration, fertility, labor force participation, and economic activity were classified according to occupational categories. Findings relating to all respondents demonstrate that the negative association between migration and fertility held in all occupational groups (Table 1). Stayers consistently showed higher fertility than their migrant counterparts, ranging from a marginal 0.3 live birth among those engaged in white collar occupations to 1.6 live births for those in agricultural and production occupations.

The figures for both migrants and stayers indicate that employment in white collar occupations does not necessarily diminish the average family size relative to the non-economically active women as would have been expected. Examination of the composition of the white collar occupational category reveals that most women are into clerical work and in sales rather than in the higher status of professional, technical and related workers. It is possible that the sense of fulfillment generated by the participation of women in the lower end of the white collar occupational spectrum has not compensated for the alternative satisfaction provided by having children.

TEST OF MIGRANT FERTILITY ADAPTATION

Utilization of a more sophisticated technique, the autoregressive model, eliminates a number of caveats commonly associated with the use of CEB data as an indicator of fertility. This model has the advantage of permitting analyses of the differentials in the number of births between rural stayers and rural-to-urban migrants within specific five-year periods before and after their migration. In this regard, separate analysis was conducted for each of the five migration cohorts to determine differences in the effect of migration on the reproductive behavior of these migration cohorts. The use of the autoregressive model also segregated the disruptive effect and selection effect of migration on fertility from that of adaptation.

Incremental Adaptation Effect of Migration on Fertility

The migration coefficients in Table 2 were obtained from the ten regression estimates of Equation (1) for the pre- migration observation periods. Each cell corresponds to a regression estimate for a particular migration cohort within a given five-year observation period before migration. The vertical panel of the table shows the four migration cohorts and the horizontal panel presents the four five-year observation periods. For example, the coefficient in the first column of the first row represents the estimate of in Equation (1) corresponding to migrant cohort 1979-83 and observed for the first five-year period before migration, that is in the period ending in 1978. The coefficient in the second column for the same row represents the estimate of migration effect on the fertility behavior of the same migration cohort observed in the ten years before migration or by 1973.

The results from Table 2 indicate that migrants bore fewer additional births during the first five-year period before migration in comparison to a control group of rural stayers. This is reflected in the negative coefficients of all four migrant cohorts of which two cases are significant. For example, migrants who moved between 1974 and 1978 in comparison to a group of rural stayers with similar number of children ever born in 1968 bore .31 less births within the interval 1968-73. Likewise, the additional births of the migrant cohort 1979-83 within the first five years immediately prior to migration was 0.18 short of the corresponding level exhibited by stayers.

The negative migration coefficients for the first five-year pre-migration period can be interpreted in two ways. It could be regarded as a deliberate deferment of childbearing by migrants in anticipation of moving out of the place of origin. On the other hand, the movement can also be viewed as being influenced by the selectivity of the migration process whereby those who have a smaller family size have the greater propensity to migrate. The latter argument is, however, weakened by the presence of significant positive coefficients for 10 years or more before migration, indicating that rural-to-urban migration is not necessarily selective of the less fertile population.

In order to assess the quantitative impact of rural-to-urban migration on the fertility of migrants after their arrival into an urban area, migration coefficients were estimated for each of the five post-migration periods. The regression coefficients are listed in Table 3. The first column of the table represents the migration coefficients of all the migration cohorts observed during the first five years of migration period. For example, the coefficient located in the fifth row under the first column, +.14, measures the migration effect on the fertility of women who migrated between 1959 and 1963 and who were observed within this same interval. For this same migration cohort, the second to fifth columns illustrate the migration effect on fertility for the first five-year period up to 20-24 years after migration.

Table 2. Rural-to-Urban Migration Effect On Fertility by Migrant Cohort and Five-Year Periods Before Migration Controlling for Education and Other Demographic Variables (Using Equation 1)

Migrant Cohort	Five-Year Period Before Migration: 5 to 9 Years (1)	10 to 14 Years (2)	15 to 19 Years (3)	20 to 24 Years (4)	Size of Sub-Sample (5)
1979-83	-.18 (2.18)*	-.10 (0.90)	-.05 (0.39)	-.08 (1.17)	1538
1974-78	-.31 (6.93)*	+.03 (0.11)	+.15 (3.79)*		1231
1969-73	-.13 (1.20)	+.15 (2.58)*			920
1964-68	-.05 (0.10)				642

* Significant at .10 level (F-test)

There is some indication that the reproductive behavior of migrants is affected by the disruptive process associated with migration. The significant negative coefficients for the more recent migrant cohorts suggest that the displacement resulting from a change in residence from a rural to an urban area has generated pressures that have restrained the fertility of migrants. A case in point would be the 1974-78 migrant cohort which bore .26 fewer births within the subsequent five-year period following migration in comparison to their stayer counterparts. The disruptive effects of the move appear to be camouflaged by the positive coefficients observed among the oldest migration cohorts, although the paucity of cases for rural-to-urban migrants in these categories may have affected the results. In addition, the positive coefficients for the first five post-migration period were not found to be significant at the .10 level.

It also appears that a substantial period of urban exposure is essential before rural-to-urban migration can have a significant negative impact upon fertility. This is in reference to migrant cohort 1959-63 which exhibited a significant reduction in fertility

only after twenty years since the time of migration. Such a statement is, however, weakened by the paucity of cases for this migration cohort.

Cumulative Adaptation Effect of Migration on Fertility

The migration coefficients based on the five regression estimates of Equation (2) are presented in Tables 4 and 5. The pattern that emerged complements the findings in the previous analysis.

Evidence is given of the strong effect of the disruptive process on fertility as reflected by the significant negative migration coefficients for the five-year observation period

Table 3. Rural-to-Urban Migration Effect on Fertility by Migration Cohort and Five-Year Periods After Migration and By Education and Other Demographic Variables (Using Equation 1)

Migrant Cohort	Five-Year Observation Period After Migration: 0 to 4 Years (1)	5 to 9 Years (2)	10 to 14 Years (2)	15 to 19 Years (3)	20 to 24 Years (4)	Size of Sub-Sample
1979-83	-.03 (0.10)					1538
1974-78	-.26 (4.28)*	-.02 (0.04)				1231
1969-73	-.22 (2.48)*	+.17 (1.57)	-.03 (0.07)			920
1964-68	+.04 (0.06)	-.14 (0.60)	+.12 (0.44)	-.18 (1.64)		642
1959-63	+.14 (0.65)	-.07 (0.17)	-.17 (0.79)	+.02 (0.01)	-.18 (1.90)*	423

* Significant at .10 level (F-test)

during the time of migration. With increasing urban residence, however, the negative effect of migration on fertility reverses into a positive one. This is demonstrated by the significant positive migration coefficients 5 to 14 years after the time of migration. The above pattern suggests a fast adjustment in the new urban environment by the rural migrants, following a short period of displacement. Having temporarily suspended childbearing during the five-year period of migration, rural-to- urban migrants tend to catch up after some period of adjustment in the urban area. This finding substantiates the notion that the desired number of children is achieved.

An overview of the values displayed in Tables 4 and 5 shows that the pattern of relationship between migration and cumulative fertility among the different migration cohorts broadly replicates that in the previous section. The pattern of relationship that emerges with respect to these two demographic parameters implies a threshold level below which increasing urban residence yielded higher fertility for migrants relative to rural stayers. One possible explanation for this is increasing the length of stay in the urban areas up to a certain point may be a precondition to bring about an improvement in economic status and an enhancement of the total individual welfare. Higher levels of living, in turn, facilitate greater accessibility to medical facilities and services, and, hence, lesser predisposition to pregnancy wastage. Longer urban residence beyond the threshold level results in significant declines in fertility. The figures suggest that a considerable length of urban exposure -- fifteen years or more -- may be required before the process of migration can successfully lower the cumulative fertility of rural-to-urban migrants as compared to rural stayers.

As it turns out, the above results show that while there is a positive indication that childbearing has been delayed or deferred by migrants as a result of displacement in the urban area, this does not appear to consistently prevail throughout the time reference of urban residence. While traces of adaptation are detected, there is no strong evidence to support the expectation that increasing the duration of urban residence per se brings about reductions in fertility among the migrants. From a long-term perspective, migrants had at certain points produced more births than rural stayers within a given five-year interval. In addition, the element necessary to reduce the cumulative fertility of migrants below that of rural stayers -- about fifteen years or more of urban exposure -- is characteristic only of migrant women who will by then have almost reached the end of their childbearing period. Since the effect of migration on the additional number of births within the oldest reproductive age groups would be less significant than its effect on the younger ages, whatever declines in the fertility of rural-to-urban migrants occurring after migration will not suffice to compensate for the increase in fertility.

Table 4. Rural-to-Urban Migration Effect on Fertility by Migration Cohort and Five-Year Periods Before Migration Controlling for Education and Other Demographic Variables (Using Equation 2)

Migrant Cohort	Five-Year Period Before Migration			
	5 to 9 Years (1)	10 to 14 Years (2)	15 to 19 Years (3)	20 to 24 Years (4)
1979-83	+.04	-.39	-.03	+.02
	(0.25)	(3.95)	(0.01)	(0.01)
1974-78	-.35	-.02	+.12	
	(3.91)*	(0.01)	(0.25)	
1969-73	-.04	-.12		
	(0.03)	(0.14)		
1964-68	-.06			
	(0.00)			

* Significant at .10 level (F-test)

Some reasons could be advanced for the failure of rural-to-urban migration to produce the desired negative effect on the fertility of migrants subsequent to the move. Substantiated by Philippine migration literature in the decisive role of the family and kinship network in propelling rural-to-urban migration and in aiding migrant adjustment in the urban area, it is possible that the success of assimilation by the migrant to the urban norms and values is, to a large extent, influenced by the family and kin. The maintenance of close family and kinship ties with those already in the urban areas, as well as those still in the rural place of origin, appears to have prevented or delayed the adoption of new behavioral patterns with regard to childbearing that is typical of the urban population. The traditional reproductive behavior that the migrants had in the rural areas seems to have been cushioned and preserved by the presence of close family members and kin.

Table 5. Rural-to-Urban Migration Effect on Fertility by Migrant Cohort and Five-Year Periods After Migration and By Education and Other Demographic Variables (Using Equation 2)

Migrant Cohort	Five-Year Period Before Migration				
	0 to 4 Years (1)	5 to 9 Years (2)	10 to 14 Years (3)	15 to 19 Years (4)	20 to 24 Years (5)
1979-1983	-.05				
	(0.26)				
1974-78	-.27	+.05			
	(4.47)*	(0.36)			
1969-73	-.25	+.31	+.17		
	(3.29)*	(7.14)*	(3.40)*		
1964-68	-.05	+.09	+.32	-.09	
	(0.09)	(0.31)	(4.28)*	(0.52)	
1959-63	+.14	+.23	+.01	-.22	-.36
	(0.68)	(2.41)*	(0.21)	(2.37)*	(8.86)*

*Significant at .10 level (F-test)

The figures presented heretofore do not provide strong evidence to support the hypothesis that rural-to-urban migrants produced fewer births during their entire period of urban residence in comparison to a control group of rural stayers. It appears that rural-to-urban migrants were unable to successfully adopt the lower fertility norms characteristic of the urban population. The study concludes that rural-to-urban migration per se is not sufficient to bring down the fertility of migrants below that of rural stayers.

SUMMARY AND CONCLUSIONS

In this paper, the migration-fertility analysis is approached in two ways. The first type of analysis uses crosstabulation of the mean numbers of live births for migrants and stayers,who in turn are classified according to selected demographic and socioeconomic variables. The second analytical approach uses an autoregressive model.

Given its limitations, the crosstabulation analysis could only go as far as to conclude that rural-to-urban migration, to a certain degree, influences the migrant's behavior towards a smaller family size. The negative association virtually disappears and is sometimes reversed when controlling for socio- economic and other demographic variables.

To a greater degree, age at marriage appeared to be a more powerful factor than migration in bringing about a reduction in fertility. Deferment of marriage to 25 years or above generated a reduction in the average family size by two children. In comparison, rural-to-urban migration appeared to lower the fertility of migrants by only .3 live births. In fact, among all the parameters examined, it is the nuptiality variable that turned out to be the most crucial determinant of fertility. This finding reinforced what has already been documented by various sociological literature.

Although to a lesser extent, strong evidence is also provided for the significant impact of increasing education on fertility reduction. This holds true for both migrants and stayers.

The use of autoregressive model as an alternative approach to analyze the relationship between migration and fertility counteracted some of the caveats posed by simple bivariate tabulations. It has the facility of distinguishing between births occurring before migration and those produced after the move, as well as provides information on births within a given time interval.

The findings of this study show that the relationship between migration and fertility is not linear, but rather points to a threshold level. Below the threshold level, increasing the length of residence in an urban area significantly raises the cumulative fertility of women migrants over that of stayers, due probably to improvements in the levels of living, and, hence, to better accessibility to health and medical care. It is only after about fifteen years or more of urban exposure that migration appears to reduce the fertility of migrants below that of rural stayers.

The data presented thus far suggest that migration from a rural to an urban area and the change in residence involved result in only very moderate fertility decline. In sum, the study concludes that rural-to-urban migration is not likely to reduce the cumulative fertility of migrants nor the over-all national fertility.

It is possible that the close family and kinship network established by the migrants has acted to prevent a successful assimilation of fertility values and reproductive behavioral patterns of women at the place of urban destination. It appears that rural-to-urban migration has not significantly changed the character of the migrant family structure. The analysis of migrant behavior can be greatly enhanced by examining it from the household perspective.

While the findings of this study do not provide strong evidence to support the significant negative influence of rural- to-urban migration per se on the fertility of the migrants, a previous inquiry on the topic by Raymundo and Cabegin (1985) suggests the potential role of an urban-reared residence background in depressing the fertility of urban natives vis-a-vis the fertility of migrants and rural stayers. It is desirable to sub-

ject the generalization of this paper to a closer investigation by incorporating additional data on urban non- migrants to shed more light on the complex relationships among migration, urbanization, and fertility.

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