

THE EFFECT OF LABOR FORCE PARTICIPATION ON THE RELATION BETWEEN MIGRATION STATUS AND FERTILITY IN SAN JUAN, PUERTO RICO

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Knowledge of the relation that exists between migration and fertility is essential for understanding population dynamics and trends in the developing areas. In addition to providing an example of differential demographic behavior, the association between migration and fertility is crucial in assessing properly the effect of rapid urbanization on fertility.

During recent decades, the less-developed countries have undergone rapid urbanization, to the extent that Arriaga can state: "The degree of urbanization reached by countries such as Argentina, Brazil, . . . and Venezuela is comparable to that of countries of the western European type."¹ Almost all developing nations have seen a large influx of the rural population into the major metropolitan areas. As a result of a number of factors, urban fertility generally is lower than rural fertility. It has been suggested, therefore, that urbanization is a strong force leading to lower fertility.² Because the major portion of this urbanization in the developing nations is attributable to massive rural-urban migration,³ it is necessary to study the fertility of migrants to the cities of these countries. The experience of these migrants will influence the future natural increase of the large cities, which—as increased urbanization oc-

curs—will play a much greater role in determining national growth levels.⁴

Another key question, although not studied here, is whether the urban social structure itself will experience change in the face of a rapid influx of rural-urban migrants. Theoretical grounds may be cited to support the view that the normative system of any group is threatened by an excessively rapid increase in new members.⁵ The magnitude of rural-urban migration in developing nations is such that one may speculate whether the migrants may change the cities rather than vice-versa. At least, their presence may promote considerable normative disorganization, which itself may militate against controlled fertility.⁶ Of relevance is Petersen's contention that the initial consequence of dissolution of traditional rural social structures in early modern Europe was an *increase* in fertility.⁷ That situation may have its microdemographic parallel in the questions at hand.

Although it is generally the case that rural fertility is higher than urban fertility, authorities do not agree on whether rural-urban migrants have fertility different from that of urban nonmigrants. Thus, previous research by Manske based on Swiss data led to the conclusion that "in-migrants as a rule have higher birth rates and marital fertility rates than the local born."⁸ Winkler,⁹ Goldberg¹⁰ and Duncan¹¹ have also concluded that urban in-migrants have higher fertility than do their city-born counterparts. However, in an earlier study conducted in the United States, Kiser concluded that the marital fertility of native white urban in-migrants who migrated *before* their marriage was *not* higher than that observed among city-born individuals of comparable age and social status.¹²

Although Germani reports that migrants have higher fertility than nonmigrants and that length of the migrant's residence in the city is associated negatively with family size,¹³ Zarate concludes that fertility is not related clearly to duration of residence in Monterrey, Mexico.¹⁴ Tabah and Samuel report

no differential fertility among in-migrants and women born in Santiago, Chile.¹⁵ Moreover, data gathered in Peru indicate virtually no difference between the age-standardized fertility of migrants to Lima and natives of Lima (3.45 and 3.30 children ever born, respectively).¹⁶ Hatt,¹⁷ Macisco¹⁸ and Myers and Morris,¹⁹ using survey and census data collected in Puerto Rico, report that migration is associated negatively with fertility.

One reason for the lack of agreement in the literature may be related to differences in study design, the samples studied and the influence of the key factors of migration and fertility. In addition, the lack of controls for differing age structures, age at marriage and variations in child spacing, as well as the time of migration, are but a few of the formal factors that make comparisons difficult. Selective migration may be operative.

The present report is an analysis of census data collected in San Juan, Puerto Rico. Since 1940, Puerto Rico has been characterized by rapid economic growth, extensive urbanization and a rather large-scale migration from nonmetropolitan to metropolitan areas. Thus, recent census data indicate that over two-thirds of all ever-married women living in the San Juan Standard Metropolitan Statistical Area were born in *municipios* outside that area. Migration has played an important role in the expansion of the urban population, particularly for San Juan, by compensating for the extensive out-migration to the United States.²⁰

Despite the unanimity of empirical results in Puerto Rico, the task remains of specifying the chain of relations that produces the negative association between migration and fertility. The effect of education on the migration-fertility relation is one link in this chain and has been examined in a recent report, which shows that when differences in education are controlled migrants still have lower fertility than nonmigrants among women in the reproductive period. However, among older women, the wives of migrants have higher fertility and the assumption is made that much of this differential is the

result of spending most of the reproductive years in nonmetropolitan surroundings.²¹

Another possible link, which is examined in the present report, is the role of labor force participation as an intervening variable. Traditionally it has been assumed that, because people move for economic reasons, migrants should be more likely than nonmigrants to be in the labor force. Basing her conclusions on an analysis of the 1960 census data for the United States, Miller rejects this postulate for whites, but accepts it for nonwhites.²² Data from Santiago, Chile²³ and Bombay, India²⁴ also indicate higher rates of labor force participation for in-migrants than for the metropolitan natives. Thus, the relation between migration and labor force status has not been established clearly, either cross-culturally or for various subgroups of a given population.

The relation between female labor force participation and fertility is fairly well established in Puerto Rico. Census data for areas²⁵ and individuals,²⁶ together with survey data²⁷ indicate a negative association. Weller, reporting survey data collected in San Juan, finds an inverse relation between female employment and fertility among women with more than six years of schooling and attributes this to more frequent and efficient use of contraceptive techniques.²⁸ Macisco, using areal data for *municipios*, finds an inverse relation between four indicators of labor force activity (combining both sexes) and fertility.²⁹ Thus, sufficient evidence is available to suggest that the following propositions should be examined:

Persons who migrate are more likely than nonmigrants to be in the labor force; labor force participation, especially by females, leads to lower fertility. Accordingly, if one controls the differentials in labor force participation, the relation between migration and fertility should be diminished.

SOURCE OF DATA

This study is based on special tabulations derived from the 1960 Census of the Commonwealth of Puerto Rico. Through

the cooperation of both the United States Census Bureau and the Puerto Rico Planning Board it has been possible to generate cross-tabulations that allow analyses of migrants and nonmigrants with reference to their fertility behavior. These tabulations include data on labor force that could serve as an intervening variable in determining the relation between migration and fertility. Two groups have been considered in this study. These are the nonmigrants, who resided in the San Juan Standard Metropolitan Statistical Area in both 1955 and 1960, and the migrants to San Juan who indicated a nonmetropolitan place of residence in 1955. This excludes migrants to San Juan from the two remaining SMSA's of Ponce and Mayaguez. Within the limitations of the data, this study compares nonmetropolitan migrants to the San Juan SMSA with their nonmigrant counterparts at place of destination. The migration status is that of the husband rather than the wife; the age-specific fertility rates are those of the female. The fertility measure utilized is total number of children ever born to females in five age groups (cumulative fertility rates). The females are those legally married with spouse present at the time of the 1960 Census.³⁰

The various measures employed have limitations. The five-year migration measure does not deal adequately with return or repeated moves, nor does it give any information on length of residence. The migration status is that of the husband and, therefore, is only an approximate indicator of the migration status of the wife.

The fertility measure gives no information on the spacing of births, nor can it be related to the time of the move. Therefore, it is not possible to speak of births occurring before or after the migration, although one can make some inferences regarding this point. It is not possible to speak of marriage duration, which would seem to be a very important factor. Because no direct data are available on duration of marriage, one cannot tell whether migrants have been married for shorter periods of time. Therefore the possibility exists that any ob-

served differential in cumulative fertility may be a function of shorter exposure to the risk of childbearing. In addition, not having direct data on age at first marriage may also mask some of the differentials in fertility.³¹

The tabulations also include labor force status and occupation of wife at the time of the census. Again, these are somewhat inadequate in that they do not contain measures of past labor force experience. It is not possible to relate timing of births with entrance into or exit from the labor force.

Methodologically, these data are not identical with the theoretical typologies being employed by the authors. In addition to not including all possible moves within the 1955–1960 interval, these data do not permit analysis by length of residence, and do not contain measures of the wife's rural-urban background.³² In addition, nonmetropolitan is not necessarily synonymous with rural, as Puerto Rico has numerous small cities and villages under 50,000 population. Nevertheless, these two categories are approximations of the ideal measurement; i.e., rural-urban migrants and urban nonmigrants.

RESULTS

Migration and Fertility

Wives of migrants into the San Juan SMSA had an average of 2.7 children as compared with 3.1 for the wives of nonmigrants. This finding is consistent with the previous work of Myers and Morris based on the 1960 Puerto Rican census, although somewhat different definitions for migration have been used.³³ As migration to the city tends to be selective of the young, one should not compare the fertility rates of rural-urban migrants and nonmigrant city dwellers without taking age composition into account. Thus, in Table 1 it can be seen that, although approximately one-half of the wives aged 15–44 of migrants are under 30 years of age, only 39 per cent of the wives of San Juan nonmigrants fall into this age group. However, even when age composition is standardized, the wives

of migrants still exhibit cumulative fertility rates lower than those of nonmigrants—2,890 and 3,014 per 1000, respectively.

Although such standardized rates are important, the age-specific rates, which are presented in Table 2, are more instructive. Migrants have lower fertility in all age groups except the oldest, where their fertility is virtually identical to that of nonmigrants. This lends support to the notion that fertility is indeed affected by migration. The migration status is that of the husband, but it seems reasonable to assume that, especially for those women over age 35, the wife also was a migrant into San Juan after 1955. If this is the situation, and the fact is also considered that these women married men who were, on the average, 3.5 years older, one can then speculate that most of their reproductive experience took place in a nonmetropolitan environment. This would partially explain the crossover phenomenon that has been noted elsewhere.³⁴

TABLE 1. DISTRIBUTION OF WOMEN BY AGE, AND MIGRATION STATUS OF HUSBAND, SAN JUAN SMSA, 1960

<i>Age</i>	<i>Nonmigrants</i>	<i>Migrants</i>	<i>Total</i>
14-19	548 (4.3)	61 (6.2)	609
20-24	1,755 (13.9)	218 (22.2)	1,973
25-29	2,617 (20.7)	209 (21.3)	2,826
30-34	2,792 (22.2)	217 (22.1)	3,009
35-44	4,911 (38.9)	276 (28.2)	5,187
Total	12,623 (100.0)	981 (100.0)	13,604

Source: Unpublished special tabulations prepared for this project by the United States Bureau of the Census from data made available by the Puerto Rico Planning Board.

TABLE 2. TOTAL CHILDREN EVER BORN PER 1,000 LEGALLY MARRIED WOMEN, SPOUSE PRESENT, BY AGE OF WIFE

<i>Migration Status</i>	<i>Age of Wife</i>					<i>Total</i>
	<i>14-19</i>	<i>20-24</i>	<i>25-29</i>	<i>30-34</i>	<i>35-44</i>	
Migrants	1,213	1,491	2,368	3,078	3,996	2,717
Nonmigrants	1,361	1,948	2,798	3,214	3,793	3,096
Ratio of migrants:nonmigrants	.89	.77	.85	.96	1.05	.88

Source: Same as Table 1.

Migration and Labor Force

Table 3 indicates, by sex and migration status, the proportion of each age group in the labor force in 1960. Although no apparent relation exists between migration and labor force participation by the husband, a very definite relation is found between migration and the wife's labor force participation. In all age groups except the youngest, the wives of migrants are more likely to be in the labor force than are the wives of nonmigrants, and the largest differences occur in the age categories most important for fertility purposes—20–29 years. Thus, the proposition that migrants are more likely than nonmigrants to participate in the labor force receives empirical support among the females, but not among the males.

When occupational status of husband is examined, both migrants and nonmigrants are equally likely to be employed in white-collar occupations (Table 4). This still is true after wife's labor force status is controlled, although a definite relation is seen between husband's white-collar employment and the probability of the wife's being in the labor force. However, when wife's occupation is considered, approximately 38 per cent of the employed wives of migrant husbands were in professional and managerial occupations, compared with 24 per cent of the employed wives of San Juan natives. Thus, the often expressed view of the rural-urban migrant as relatively uneducated and unadapted to the white-collar skills required in the urban economy is not supported by these results.

In brief, labor force status and occupation vary insignificantly among males in relation to migration experience. On the other hand, wives of migrants are more likely than the wives of nonmigrants to be economically active, especially in the period during which childbearing is most intense—age 20–29. Furthermore, the wife of a migrant to San Juan is more likely to be employed in a white-collar occupation than is the wife of a nonmigrant.

As husband's labor force and occupational status apparently

TABLE 3. LABOR FORCE PARTICIPATION OF HUSBAND AND WIFE BY AGE OF WIFE AND MIGRATION STATUS OF HUSBAND

<i>Age</i>	<i>Total</i>	<i>Husband in Labor Force</i>	<i>Per Cent in Labor Force</i>	<i>Wife in Labor Force</i>	<i>Per Cent in Labor Force</i>
Nonmigrants in San Juan SMSA					
14-19	548	516	94.2	69	12.6
20-24	1,755	1,647	93.8	420	23.9
25-29	2,617	2,510	95.9	772	29.5
30-34	2,792	2,675	95.8	844	30.2
35-44	4,911	4,597	93.6	1,396	28.4
Total	12,623	11,945	94.6	3,501	27.7
Migrants from nonmetropolitan areas to San Juan SMSA					
14-19	61	57	93.3	7	11.5
20-24	218	206	94.5	67	30.7
25-29	209	194	92.8	80	38.3
30-34	217	195	89.9	73	33.6
35-44	276	254	92.0	81	29.3
Total	981	906	92.4	308	31.4

Source: Same as Table 1.

TABLE 4. OCCUPATION AND MIGRATION STATUS

<i>Occupation</i>	<i>Migrants</i>		<i>Nonmigrants</i>	
	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>
Husband's occupation				
Professional and managerial	229	24.4	2,956	24.1
Clerical and sales	185	19.7	2,504	20.4
Manual	494	52.7	6,644	54.1
Agricultural	29	3.1	186	1.5
Total	937†	100.0	12,290††	100.0
Wife's occupation				
Professional and managerial	117	38.4	831	24.1
Clerical and sales	88	28.9	1,223	35.5
Manual	99	32.5	1,390	40.4
Total	304*	100.0	3,444**	100.0

† Excludes 44 men whose occupation was not reported.

†† Excludes 333 men whose occupation was not reported.

* Excludes four women whose occupation was not reported.

** Excludes 57 women whose occupation was not reported.

Source: Same as Table 1.

bear little relation to migration status, these factors have not been treated in the remaining portions of this study.

Wife's Labor Force Participation and Fertility

The strong inverse relation between fertility and female labor force participation, which has been well documented in previous studies, is also present in the San Juan SMSA data (Table 5). In all age groups except the youngest, workers have fertility much lower than that of nonworkers. A negative relation exists between wife's occupation and fertility, with wives employed in "professional and managerial" and "clerical and sales" occupations having much lower fertility (1,929 and 1,654 children ever born per 1,000, respectively) than wives employed in "manual" occupations (3,023). The fertility of the latter is almost as high as that of women not in the labor force. It is not known to what extent these differences are affected by age composition, but other studies conducted in San Juan and Lima, Peru, also have indicated that female white-collar workers tend to have fertility markedly lower than that of manual workers, who tend to have fertility similar to that of women not in the labor force.³⁵

Migration, Labor Force Activity and Fertility

It has been observed that the fertility of the wives of migrants is lower than that of nonmigrants' wives in all age groups except the oldest. However, the wives of migrants are more

TABLE 5. CHILDREN EVER BORN BY WIFE'S LABOR FORCE STATUS AND AGE

<i>Age</i>	<i>Labor Force</i>	<i>Nonlabor Force</i>	<i>Ratio of LF:NLF</i>
14-19	1,411	1,325	1.06
20-24	1,075	2,167	.50
25-29	1,915	3,132	.61
30-34	2,386	3,563	.67
35-44	2,881	4,170	.69
Total	2,287	3,370	.68

Source: Same as Table 1.

TABLE 6. TOTAL CHILDREN EVER BORN PER 1,000 LEGALLY MARRIED WOMEN BY AGE, LABOR FORCE STATUS OF WIFE AND MIGRATION STATUS OF HUSBAND

<i>Labor Force Status</i>	<i>Age of Wife</i>					<i>Total</i>
	<i>14-19</i>	<i>20-24</i>	<i>25-29</i>	<i>30-34</i>	<i>35-44</i>	
Wife in labor force						
Migrant	571 (7)	776 (67)	1,675 (80)	2,288 (73)	2,802 (81)	1,896 (308)
Nonmigrant	1,594 (69)	1,124 (420)	1,939 (772)	2,395 (844)	2,885 (1396)	2,321 (3501)
Ratio of M:NM	.35	.69	.86	.96	.97	.82
Wife not in labor force						
Migrant	1,296 (54)	1,808 (151)	2,798 (129)	3,479 (144)	4,492 (195)	3,092 (673)
Nonmigrant	1,328 (479)	2,207 (1335)	3,157 (1845)	3,569 (1948)	4,153 (3515)	3,394 (9122)
Ratio of M:NM	.98	.82	.89	.97	1.08	.91

Source: Same as Table 1. Number of cases in parentheses.

likely to be in the labor force and to be employed in a white-collar occupation; a factor conducive to lower fertility.

This increased labor force activity on the part of females may partially "explain away" the differential fertility by migration types. In other words, a comparison of the working wives of migrants and nonmigrants may yield smaller differences than those originally observed between migration and fertility, whereas a comparison between wives not in the labor force also may show reduced differential fertility between migrants and nonmigrants.

Table 6 presents data on children ever born by migration status, labor force status and age of wife. With one exception the crude cumulative fertility rate is lower for migrants than for nonmigrants. This, then, is not in agreement with the suggested working hypothesis that if the differential labor force activity of migrants and nonmigrants is eliminated the fertility differences will tend to disappear. Migration still remains a factor in explaining fertility differences. It can be seen that when age-specific rates are examined, the differential fertility between migrants and nonmigrants is greatest when the wife is in the labor force and under 30 years of age. Inasmuch as

TABLE 7. CHILDREN EVER BORN PER 1,000 LEGALLY MARRIED WOMEN BY OCCUPATIONAL STATUS AND MIGRATION STATUS

<i>Occupational Status</i>	<i>Females</i>
Professional and managerial	
Migrants	1,935 (117)
Nonmigrants	1,928 (831)
Ratio of M:NM	1.00
Clerical and sales	
Migrants	1,250 (88)
Nonmigrants	1,684 (1223)
Ratio of M:NM	.74
Manual	
Migrants	2,586 (99)
Nonmigrants	3,056 (1390)
Ratio of M:NM	.84

Source: Same as Table 1. Number of cases in parentheses.

fertility is measured cumulatively, the foregoing suggests that the wives of migrants may migrate to the city in search of employment and marry much later than the wives of nonmigrants. However, the cumulative effect with respect to family size may be negligible. It is also important to emphasize that the older women probably lived significant portions of their lives in rural sections and migrated to San Juan after their child-bearing was practically completed. When occupation is considered, the differentials are increased somewhat (Table 7).

CONCLUSIONS

This has been an examination of the interrelations between rural-urban migration, labor force activity and fertility. Several studies conducted in Puerto Rico have indicated that migrants to the metropolitan areas have lower fertility than do the urban natives. The basic hypotheses in this study have

been that migrants are more likely than nonmigrants to be participants in the urban labor force; that participation in the labor force, especially by females, is associated with low fertility; and, therefore, that controlling for this differential rate of labor force activity would reduce considerably the relation observed in Puerto Rico between rural-urban migration and lower fertility.

Using census data collected in the San Juan SMSA in 1960, the authors note that migrants have lower fertility than nonmigrants among women less than 35 years of age, but not among older women. As the latter undoubtedly spent the major portion of their reproductive lives in the high fertility rural sectors of Puerto Rico, this age-specific pattern is interpreted as supporting the relation between migration to the urban milieu and lower fertility.

The hypothesis that migrants are more likely to be engaged in labor force activity is not supported for males. However, the wives of migrants are more likely than the wives of nonmigrants to be employed and are much more likely to occupy white-collar positions. Among wives, both labor force and occupational status are strongly related to fertility.

Controlling for the differential rate of labor force activity on the part of migrants does not substantially reduce the differential fertility of urban natives and rural-urban migrants. This is true even when occupation is considered. However, the general pattern is that fertility is highest among urban nonmigrants, lower among migrants with wives not in the labor force and lowest among migrants with wives in the labor force. The authors conclude that both female labor force activity and migration from rural areas to the San Juan SMSA are associated with lower fertility. Controlling the effects of one does not substantially reduce the effects of the other. In an earlier paper it was noted that women married to migrants tended to be better educated than their nonmigrant counterparts. Even controlling for this differential in educational attainment did not substantially affect the relation between

migration and fertility. Thus, it has been established that differences in fertility between in-migrants and nonmigrants of San Juan are not wholly attributable to differences in educational attainment or occupational characteristics. In the remainder of this paper the authors would like to indulge in a speculative exercise. Although no direct evidence is presented in this paper to support the following opinions, the data are not inconsistent with them and such an exercise may serve the heuristic purpose of stimulating further research.

Specifically, in-migrants may be more innovative and more achievement-oriented than are the urban natives in San Juan, and differences in education and occupation are symptomatic of this more basic differential.³⁶ Migration from rural areas to cities may be an indicator of the readiness for change. Thus, the very act of moving out of a rural social system demonstrates a level of social mobility aspiration that is different from that of comparable nonmovers.

To test such a hypothesis, one would need to compare rural stayers with rural out-migrants (*before* they migrate). Too few studies have been conducted in the developing countries that have made such comparisons with respect to *any* characteristics. One such study reports that migration into Taichung, Taiwan, tends to be selective of men with higher education. Also, over one-half of the in-migrants moved either to obtain a better job or because no work was available at the place of origin (28 per cent).³⁷ This certainly is not inconsistent with the notion that rural-urban migrants desire to succeed.

Thus, rural-urban migration may be selective of highly aspiring persons. By contrast the urban natives should include both aspirers and persons who are less achievement oriented. The latter certainly would not tend to migrate to the rural areas. With respect to Puerto Rico, it seems likely that the highly achievement-oriented native of San Juan would migrate to the United States. Therefore, comparisons of the type performed in this study are in-migrant to metropolitan *stayer*.

The in-migrant may be considerably more oriented toward achievement and innovation than is the stayer.³⁸

It is pertinent to note that, in 1960, Puerto Ricans living in the United States reported fewer children ever born than did Puerto Ricans residing in the San Juan SMSA, in all quinquennial age groups between 15 and 49.³⁹ Return migrants to Puerto Rico also have lower fertility than do the urban non-migrants.⁴⁰

If the migrant aspires to upward social mobility and perceives children as an obstacle to this mobility, his behavior should be such that he will postpone fertility until the prerequisites of mobility have been met. Two such prerequisites are migration to the metropolitan area and consequent access to the metropolitan labor market as well as obtaining steady employment. Moreover, a small family certainly makes geographic mobility easier.

Therefore, it may be useful to consider a social mobility model that relates the greater division of labor attendant upon urbanization to greater rationality and consequent lower fertility. This model sees early marriage, the arrival of children and rural residence as obstacles to upward social mobility. Within this context, migration to a metropolitan center, greater education, later age at first marriage, use of family planning within marriage, high rates of female labor force participation and emphasis on the isolated nuclear family can be viewed as responses to the desire for upward social mobility. All of these tend to bear an inverse relation to fertility.

Although the recent experience of the United States may not fit the model, it still may be relevant for countries in the transitional stage of development, which are experiencing a large influx of migrants from the rural areas. Physical mobility over space may be a useful indicator of the desire for social mobility, especially among the younger segments of the population. These young migrants may be a strategic group to study inasmuch as they were marginal to the rural, more traditional

systems and may therefore become innovators in the urban complex.

This view of certain migrants as innovators is not in agreement with the often-stated description of them as persons who are disorganized and suffering from cultural shock. In-migrants have been thought to exhibit a high incidence of personal and social pathology as a result of their entrance into a new social system for which they are poorly equipped. Another view of the migration process that has been emerging recently challenges the disorganization, cultural shock approach.⁴¹ This view suggests that urbanization can in fact occur with minimal personal and family disorganization and that many of the observed indices reflect functional adjustments to the urban milieu. The authors suggest that in Puerto Rico the rural-urban migrant, because of his greater education and hypothesized willingness to innovate, may be better adjusted to the Western notion of a rational urban milieu than is the metropolitan nonmigrant. Thus, a social mobility model with possible consequences leading to low fertility may be highly appropriate in countries in the transitional stage of their development. Migration may play a much greater role in determining urban fertility levels, depending on the magnitude of the migration stream as well as the level of fertility of the migrants and their offspring, in addition to affecting the rate of social change. Future research could more usefully explore the rural-urban migrant as an innovative agent in the urban milieu.

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² This indeed is an oversimplification. For an empirical study of urbanization and fertility in the United States between 1800 and 1940, see Grabill, W. H., Kiser, C. V. and Whelpton, P. K., *THE FERTILITY OF AMERICAN WOMEN*, New York, John Wiley & Sons, Inc., 1958, pp. 16-19.

³ In this respect one must distinguish between urban growth—an increase in the number of persons living in urban settlements—and urbanization, which refers to an increase in the proportion of the total population concentrated in urban settlements. Davis, K., *The Urbanization of the Human Population*, in *Scientific American* (Editors), *CITIES*, New York, Alfred A. Knopf, Inc., 1966, pp. 3–24. Unless the urban rate of natural increase is higher than the rate of rural increase, urbanization can occur only through rural-urban migration. Urban growth can occur through extension of city boundaries, more inclusive definitions of “urban,” net in-migration and a positive rate of natural increase. Arriaga, *op. cit.*, argues that a high rate of natural increase in the urban areas is the primary cause of urban growth in at least several Latin American countries. However, the authors would like to point out that this natural increase is a weighted sum of the fertility and mortality of migrants and urban natives. Thus, in a recent study of Brazilian data, it is reported that female migrants account for between 45 and 50 per cent of all pregnancies in Guanabara. Martine, G. R., *Internal Migration and Its Consequence: The Case of Guanabara State*, unpublished Ph.D. dissertation in Sociology, Brown University, 1969, p. 200.

⁴ The relation between the fertility of rural-urban migrants and national fertility levels is rather complex. If rural out-migrants have lower fertility than do rural stayers, then, *ceteris paribus*, rural fertility must increase. If rural-urban migrants have higher fertility than do urban nonmigrants, then urban fertility must increase. This is especially the case when fertility is measured as the reported cumulative fertility. But if the cumulative fertility of the movers and stayers remains the same, then national fertility cannot have changed. It is for these reasons that population shifts alone cannot affect national fertility levels. Changes must occur in the fertility of the movers and stayers. Thus, Carleton calculates that—given a crude birth rate in rural areas that is 10 per 1,000 higher than in urban areas—the expansion of the urban population in Latin America from 39 per cent in 1950 to 46 per cent in 1960 would have caused a decline in the overall birth rate of only 0.7 per 1,000. Carleton, R. O., *Fertility Trends and Differentials in Latin America*, *Milbank Memorial Fund Quarterly*, 43, 15–31, October, 1965.

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²² Miller, A. R., Migration Differentials in Labor Force Participation: United States, 1960, *Demography*, 3, 58-67, 1966. For a methodological caveat, see Masnick, G., Employment Status and Retrospective and Prospective Migration in the United States, *Demography*, 5, 79-85, 1968.

²³ Elizaga, *op. cit.*, p. 374. The differential is greater for females than for males.

²⁴ Zachariah, K. D., Bombay Migration Study: A Pilot Analysis of Migration to an Asian Metropolis, *Demography*, 3, 378-392, 1966.

²⁵ Okraku, I., *Regional Variations in Puerto Rican Fertility Levels, 1930-1960*, unpublished M.A. thesis in Sociology, Cornell University, 1965.

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²⁷ Jaffe, A. J., *PEOPLE, JOBS AND ECONOMIC DEVELOPMENT*, New York, Free Press, 1959.

²⁸ Weller, R. H., *Female Work Experience and Fertility in San Juan, Puerto Rico: A Study of Selected Lower and Middle Income Neighborhoods*, unpublished Ph.D. dissertation in Sociology, Cornell University, 1967.

²⁹ Macisco, *op. cit.*, p. 162.

³⁰ The decision to limit the research to legally married, spouse-present women was predicated upon a number of factors. Because the number of children ever born has been shown to vary by type of marital union, it was felt that by limiting another source of variation one could perhaps better measure the relation between migration and fertility. In addition, the category "consensual union" does not seem to deal adequately with the variety of common-law relations found in Puerto Rico. Finally, the legally married, spouse-present women constituted 77.4 per cent of all ever-married women in the San Juan SMSA.

³¹ For an illustration of the temporal variations of age at marriage and child-spacing in Puerto Rico, see Myers, G. C. and Gibson, J. R., Cohort Disaggregation Analysis of Fertility Data From a Sample Survey, *Demography*, 6, 17-26, February, 1969.

³² Duncan, *op. cit.*; and Myers, G. C., Fertility and Mobility in Cross-Cultural Perspective, paper presented at 1966 annual meetings of the American Sociological Association, present evidence that the backgrounds of both spouses are important.

³³ Although both the Myers-Morris study and the present report are based on special tabulations from the 1960 Census for Puerto Rico, it should be noted that four differences exist between the research strategies employed in these two works: (1) In the Myers-Morris report, the migration status is that of women. In the present study the data relate to women married to migrant men. These women could be migrants, but that is not assured. (2) In the Myers-Morris paper three categories of marital status are used (legally married, consensual, and widowed, divorced and separated). The present data refer to only legally married women living with their spouse at the time of enumeration. (3) The 1966 analysis included migrants to San Juan from Ponce and Mayaguez SMSA's; these intermetropolitan migrants are not included in the present analysis. (4) The data used in this report are those of currently legally married women between the ages of 15 and 44, whereas the data used by Myers and Morris refer to all ever-married women age 14 and older.

³⁴ Macisco, J. J., Jr., Fertility of White Migrant Women, United States 1960: A Stream Analysis, *Rural Sociology*, 33, 474-479, December, 1968. This explanation is supported by an analysis of Brazilian data that indicates that the younger the age of arrival in Guanabara, the lower the fertility of in-migrants. Martine, *op. cit.*

³⁵ Weller, R. H., The Employment of Wives, Role Incompatibility and Fertility, *Milbank Memorial Fund Quarterly*, 46, 507-526, October, 1968; and Stycos, J. M., Female Employment and Fertility in Lima, Peru, *Milbank Memorial Fund Quarterly*, 43, 42-54, January, 1965.

³⁶ Luis Ramallo, Director of FLACSO in Santiago, Chile, in an unpublished report, states that migrants to Asunción exhibit a higher need for achievement (as measured by McClelland's method) than a matched group of nonmigrants born in Asunción. To the authors' knowledge, this is the first attempt at testing this type of hypothesis at the individual level. Personal communication from Ramallo to Macisco.

³⁷ Speare, A., Jr., 'The Determinants of Rural-Urban Migration in Taiwan, paper presented at the 1969 annual meetings of the Population Association of America.

³⁸ One must be careful not to generalize from the Puerto Rican case. Residents of few developing countries possess the same degree of access to a metropolitan, economically developed country like the United States. Thus the achievement oriented and innovative persons born in the metropolitan centers of other countries may not be able to emigrate on the same scale. This would have the effect of upgrading the characteristics of the metropolitan natives enumerated at a single point in time and therefore would reduce differentials between rural-metropolitan migrants and the metropolitan nonmigrants.

³⁹ Taeuber, I. B., Migration and Transformation: Spanish Surname Populations and Puerto Ricans, *Population Index*, 32, 3-34, January, 1966.

⁴⁰ Hernández, J., RETURN MIGRATION TO PUERTO RICO, Berkeley, Institute of International Studies, University of California, 1967, p. 54.

⁴¹ For example, see Lewis, O., Urbanization Without Breakdown, *The Scientific Monthly*, 75, 31-41, July, 1952; Abu-Lughod, J., Migrant Adjustment to City Life: The Egyptian Case, *American Journal of Sociology*, 67, 22-32, July, 1961; Turner, J., Dwelling Resources in South America, *Architectural Design*, 8, 369-380, August, 1963; Patch, R. W., La Parada, Lima's Market, Part III, Serrano to Criollo: A Study of Assimilation, *West Coast South American Series*, 8, February, 1967; Goldrich, D., et al., The Political Integration of Lower-Class Urban Settlements in Chile and Peru, *Studies in Comparative International Development*, 3, 1967-1968; Tilly, C. and Brown, H. C., On Uprooting, Kinship and the Auspices of Migration, *International Journal of Comparative Sociology*, 3, 139-164, September, 1967; and Cardona, G. R., Migración, Urbanización y Marginalidad, in Asociación Colombiana de Facultades de Medicina (Editors), URBANIZACION Y MARGINALIDAD, Bogotá, 1968, pp. 63-87.

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