Abstract

Attention has focused on the demographic process underlying the urban transition in the Third World, but disproportionately on the economic costs and opportunities for men. We turn our attention to women. Using data on the 148 major cities of India in 1971 we examine factors which contribute to greater female labor force participation in urban areas and the role which opportunities for labor force participation play in bringing women to the city. Among these factors we include measures of the status women: literacy, infant mortality, fertility, and age at marriage. We find that the share of the labor force in different industries is an important factor: the higher the proportion of the total labor force of a city employed in construction work or household industry, the higher the proportion of women employed in that city. Location in the South of India and higher status of women scores also contribute to higher rates of female employment in the city.

Female labor force participation in turn relates to more balanced sex ratios in urban areas. Women migrate to the city in part in response to their own economic opportunities there. Other factors contributing to more balanced sex ratios include smaller city size, a smaller proportion of migrants in the male population, and location in the South. More balanced sex ratios in the cities may improve the quality of urban life and offer women the benefits of urban advantages in literacy and life expectancy, but whether these hypothetical advantages are realized in practice remains to be seen.

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The Participation of Women in the Urban Labor Force and in Rural-Urban Migration in India[1]

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THE PARTICIPATION OF WOMEN IN THE URBAN LABOR FORCE AND IN RURAL-URBAN MIGRATION IN INDIA[1]

Women in development, the realization of their full potential to contribute to development, and the improvement of the conditions of those doubly oppressed by poverty and by discrimination, are finally receiving attention from researchers as well as development agencies. Much of this attention focuses on rural women, the majority of women in most Third World countries. As urbanization proceeds apace, however, two issues demand investigations: the migration of women to the cities and, relatedly, their role in the urban economy.

Discrimination against women in the urban economy constitutes a pernicious form of inequity. Where it leaves them unemployed or underemployed, it involves high costs for the collectivity as well. As Boserup (1970:206-208) pointed out more than a decade ago, if women were fully integrated into the urban economy, a smaller population would have to be accommodated in urban centers to perform the same economic tasks. Accordingly a lower investment would be required in key elements of infrastructure, such as housing and sanitation systems, which are considerably more expensive than their rural equivalents. There could also be savings in the requirements for services such as the provision of fuel and the distribution of staple foods, which are similarly more costly in the urban setting. In many countries, however, the urban work force is predominantly made up of men, while their wives and daughters, though requiring infrastructure and services, remain severely restricted in the contribution they can make to the economy.

A great deal of attention has focused on the demographic process underlying the urban transition in its Third World context, and migration research is reaching maturity.[2] Nevertheless, much of the data and nearly all analyses focus on the migration of men. Whether the political economy in which migration takes place is explored or the migration decisions of what usually are assumed to be individual decision makers are analyzed, little attention has been paid to the migration of women.

That social science research on closer inspection often turns out to focus on only half of humanity is no longer news. In this case such neglect leaves us ill prepared to offer advice on policies designed to deal with the urban transition. Furthermore, an enquiry into the migration of women promises to make a major theoretical contribution because there is considerable variation in the migration patterns of women across the Third World: in some places women tend to accompany their spouses to the city; elsewhere they are more likely to run the farm while the husbands work in the city; in other places many migrate on their own. Elsewhere we present and analyze a set of data that provide a clear and detailed picture of sex selectivity in rural-urban migration across close to one hundred Third World countries. These data show that sex selectivity in migration varies

according to the position of women as well as by major cultural region (Ferree and Gugler, 1983). Still, the data available for such comparisons are limited, their quality suspect, and their comparability usually problematic. An alternative comparative approach focuses on differences in migration patterns within a country.

Here we present and discuss data bearing on sex differentials in urban labor force participation and on rural-urban migration in India, a country particularly attractive for such analysis. On one hand the high quality of Indian census data is generally accepted. On the other, the sheer size and the striking diversity of the country provides a promising context for comparative analysis.

Methods and Data

The present study uses regression analysis to examine determinants of greater or lesser female participation in the labor force of and migration to the 148 cities of India with a population greater than 100,000 in 1971. There is considerable variation in the size of these cities, up to Calcutta which numbered just over 7 million at that time. Indian cities are also economically diverse, including steel cities built in the 1950s and 1960s as well as long-established administrative and commercial centers such as Delhi. Moreover, they are spread over a subcontinent marked by profound cultural diversity.

Women have a lower life expectancy than men in India. The 1971 census reported 930 women for every 1,000 men.[3] This is the reverse of the pattern observed in the great majority of countries, whether they are rich or poor. The preponderance of men is even more marked in Indian cities, with 873 women for every 1,000 men on average in the 148 major cities in 1971. This cannot be taken to indicate that the mortality experience of women, relative to men, is worse in urban than in rural areas. Quite the contrary, the excess of men over women in Indian cities can primarily be traced to sex differentials in rural-urban migration, a pattern quite common in the Third World, though by no means universal (Ferree and Gugler, 1983). The participation of women in the urban labor force in turn is extremely low in India, with 116 women for every 1,000 men employed on average in the 148 major cities.

The analysis of the participation of women in the urban labor force employs the sex ratio of the labor force in the 148 cities as the dependent variable. Female labor force participation is here viewed not only as an important variable to be explained in its own right, but also as a potential determinant of female migration, as it presents an approximate indication of the economic opportunities available to women in individual cities.[4] In the analysis which follows, therefore, we first look at determinants of female labor force participation and then at how female labor force participation, in conjunction with other factors, affects the participation of women in rural-urban migration.

The analysis of migration employs two different dependent variables, each with its relative strengths and weaknesses. Although the 1971 Census of India reports data on the total migration of women, these figures include substantial migration of women upon marriage to urban men and thus did not seem appropriate for our purposes. One of our dependent variables, the sex ratio among migrant adults, is a construct created to minimize the impact of female marriage migration. The number of migrant women in a city was defined, for this purpose, as the excess of women over native men, on the assumption that the number of women born in the city or coming there upon marriage to native men roughly equals the number of native men. The sex ratio of migrant adults was then taken as the ratio of migrant women so defined over migrant men. But building in such assumptions, however reasonable they may appear, makes the measure itself more questionable. In particular, as we shall see, it probably over-corrects for the role of marriage migration. A further weakness of this variable is that data gaps preclude its construction for eight cities.

Our second measure, the sex ratio of the urban population, does not share these weaknesses, but instead can be criticized as reflecting the sex ratio of births and the mortality experience of males and females. While we may assume that the sex ratio of births does not vary across Indian cities, a similar assumption concerning mortality would not be warranted. We attempt to deal with this in the analysis by controlling for sex differences in urban infant mortality.

The two dependent measures of migration are reasonably highly correlated ($r = .76$). These and all other sex ratios are presented, following Indian usage, as the number of women for every thousand men.

The independent variables fall into several distinct categories. First there are variables that focus on the population of the city. These we term the demographic variables. They include the percentage of men who are migrants, city growth in the decades 1951-61 and 1961-71 (in percent increase over the population at the beginning of the decade), and city size in 1971 (expressed as log of total population). Second are the variables that describe the composition of the labor force by industry. There are six such variables, each representing the percentage of all workers in a city who work in a particular industry. Workers employed in agriculture and in mining constitute the residual category, and the share of the labor force these workers represent ranges from 1 to 55 percent.

A third measure is a dummy variable indicating whether or not a particular city is located in the North of India or not. Many analysts have described the substantial cultural division between North and South and shown that the status of women varies greatly between the two regions.[5] The resulting delineations of regions vary a great deal. We have followed Libbee's (1980, especially figure 8) analysis of endogamous marriage. This leads to a broad definition of a Northern region in which endogamy is rare. It is comprised of the states of Bihar, Gujarat, Haryana, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Uttar Pradesh, and the Chandigarh

and Delhi union territories. This regional dummy variable is an alternative conceptualization of regional differences in the status of women which empirically may or may not provide a useful supplement to the direct measures that are available. Correlations of region with the direct status of women measures are presented in the last column of tables 1 and 2.

Fourth, and finally, there are variables which we take as indicators of the status of women. There are four basic measures: infant mortality, literacy, age at marriage, and fertility. For the first three measures, data are available for both men and women in both urban and rural areas. From these measures we have constructed four sets of indicators of the status of women, two absolute and two relative to rates for men. Fertility, of course, applies only to women, so only absolute measures are used for this variable. We assume that female participation in the urban labor force reflects urban conditions and competition among groups of workers, while the sex differential in rural-urban migration is a function of decisions taken in the rural context. Hence, to explain the sex ratio of the labor force we use (1) the absolute values of infant mortality, literacy, age at marriage, and fertility for women in the urban areas of the state in which the city is located and (2) the disparity/difference between men and women in these urban areas. To explain the sex ratio of the urban population and of adult migrants, we use (3) the absolute values of the four measures for women in the rural areas of the states from which the city's migrants come and (4) the disparity/difference between men and women in these areas.

The absolute values are expressed as deaths before one year of age per 1,000 births, percent literate, median age at marriage, and number of live births to women 35 to 39 years old. Relative measures for infant mortality and literacy are given as disparity indices, which are measures of difference between logged odds ratios (logits). Unlike percentage differences, which are sensitive to the absolute magnitude of the percentages, disparity indices are statistically well-behaved; thus, for example, the disparity in literacy is the negative of the disparity in illiteracy between two groups (Sopher, 1974). Since age at marriage is a continuous variable rather than a percentage or rate, the simple difference in years was used for this measure. For convenience of interpretation, disparities and differences are expressed as the advantage of men to women. Zero-order correlations between all of these status of women variables and the dependent variables are given in the first column of tables 1, 2 and 3.

The high intercorrelations and consequent multicollinearity between the various status of women indicators made inclusion of all the individual variables in a single equation impossible. We adopted two different strategies to deal with this difficulty. To preserve the distinctiveness of the individual measures, we examined the contribution of each of the seven measures taken alone after the inclusion of relevant controls. (See tables 1, 2 and 3 to be discussed in more detail below.) To assess the overall impact of status of women as a common conceptual dimension we constructed two scales. As prior factor analyses showed no sharp differences in loadings between variables, we simply summed standardized values of our

absolute measures into one scale, treating literacy an age at marriage as positive elements and infant mortality and fertility as negative. Standardized scores on the relative measures were summed into a second scale for conceptual reasons, despite the fact that they loaded on the same factor as the absolute measures. Moreover, according to our initial assumption, a large difference in age at marriage between men and women should have been a negative element in the status of women, like the sex differences in infant mortality and literacy. The factor analysis made clear, however, that larger differences in marriage age were positively associated with higher status of women, a finding that we will discuss in more detail later. Because of this finding, we chose to deduct the difference in age at marriage from the infant mortality and literacy indices. Positive values on the absolute status of women scale indicate higher status; positive values on the relative scale indicate greater disadvantage relative to men.

Most of the data in this study derive from the 1971 Census of India, both published reports[6] and unpublished data compiled at the Office of the Census, New Delhi. Three of the measures used to construct indicators of the status of women, infant mortality, age at marriage, and fertility, all for 1972, however, are drawn from the regular sample registration system.[7] The high quality of Indian census data is generally acknowledged. Still, the quality of data on literacy (derived from the census), on age at marriage, and especially on infant mortality and fertility (the last three from the sample registration system) is problematic in any country as poor as India. Concern about the quality of these measures, and other variables derived from them, is called for, especially when they refer to rural areas.[8] Further, these variables are available only by state, and so the considerable variation found within several states is lost. Thus these variables should be seen as expressing subregional variations in the status of women rather than specific characteristics of the individual cities examined here. An additional difficulty arises with the rates for the rural areas of origin as Indian cities attract migrants from a large hinterland. For 101 cities that reported over 100,000 inhabitants in 1961 we could ascertain the state of last residence of male migrants and construct proportionately weighted rates.[9] For the other cities we used the rates for the rural areas of the state in which they are located.[10] Finally, there are some gaps in the data. In particular, infant mortality rates were not available to us for Bihar, Manipur, Meghalaya, Tripura, rural West Bengal, Chandigarh, and Pondicherry, leaving us without rates at origin for 18 cities and without urban rates for sixteen.

Women in the Urban Labor Force

The demographic variables, the measures of the shares of the labor force in different industries, region, and the scales of the status of women measures together explain half of the total variance in the sex ratio of the labor force in individual cities. Introducing the variables hierarchically into the regression equation we find that (1) the demographic variables explain 6 percent of the variance, (2) with the addition of the labor force

variables 23 percent of the variance is explained, (3) the addition of the regional dummy, the North, raises the variance explained to 46 percent, (4) the addition of the scales of the status of women measures increases the variance explained to 51 percent (table 4). Each of these increases in variance explained is statistically significant, except for the demographic variables.

Looking more closely at table 4, we see:

(1) The growth of the urban population over each of the last two census periods has significant effects that vary little once the labor force variables have been introduced. High migration in the 1951-61 period has a positive effect and high migration in the decade 1961-71 a negative effect on the sex ratio of the urban labor force. We will propose an interpretation shortly when considering the sex ratios of the labor force and the city population together.

(2) The shares of the labor force in household industry and in construction have significant effects that again vary little with the addition of controls. Higher proportions of the total labor force engaged in household industry and in construction work predict a larger female share of the labor force. The association of household service with the use of female labor is not unusual, but the high use of female labor in construction industries may surprise. The Indian construction industry is labor-intensive to an extreme degree. Large numbers of both men and women are recruited as unskilled workers, through middlemen, from rural areas on a temporary basis. Women typically perform a large share of the unskilled manual labor. Backbreaking labor, low wages, and miserable living conditions at the construction sites suggest that such employment is not an indicator of women's emancipation. There is some indication that fewer women are found in the labor force in cities where the share of workers in transport and communication is high. Presumably the tendency to hire men is particularly pronounced in the railroads and on the docks.

(3) and (4) The North, our regional dummy, has a significant negative effect on women's labor force participation, as expected. This diminishes with the introduction of the status of women scales, suggesting that they capture much the same pattern of cultural variation as the simple North/South dichotomy. Indeed, when the regional dummy is dropped, the variance explained barely changes (50 percent), the effect of the absolute scale increases somewhat, and the effect of the relative scale more than doubles and becomes highly significant. The regional dichotomy then reflects not so much the absolute position of women, but rather their position relative to men.

In our final equation, and more or less throughout our several steps, three outliers stand out. Women appear greatly overrepresented in Mangalore (Mysore) and Guntur (Andra Pradesh), and underrepresented in Gauhati, the new capital of Assam. We do not know enough about the specific characteristics of these cities to advance any interpretations at this stage.

To assess the effect of our status of women measures on the sex ratio of the labor force, we introduced each individually in turn (1) with the demographic and labor force variables controlled; i.e., after the first two steps, and (2) with region controlled as well; i.e., after the third step (table 1). In most cases the introduction of the regional dummy weakens the effect of individual status measures suggesting that the regional dichotomy captures part of the effect of infant mortality, literacy, fertility, and the disparity in infant mortality. The effect of difference in marriage age, on the other hand, overwhelms that of regional location (the beta for North drops from -.52 to .02 after inclusion of difference in marriage age), suggesting that it is largely through this variable that regional differences are expressed. As expected, infant mortality, fertility, and disparity in infant mortality have a negative effect and literacy a positive effect on the labor force participation of women. The positive effect of the sex difference in age at marrriage, strong and statistically highly significant, comes as a surprise, however. Since the sex difference in age at marriage does not correlate with female age at marriage, we are inclined to hypothesize that where the sex difference is greater, and thus women are married to much older men, women are more likely to be left widowed and spend more years as widows. Widows have to fend for themselves economically and are probably more likely than wives to report their economic activity. Women married to much older men also have fewer children (r between fertility and difference in marriage age is -.68), and so, whether as wives or as widows, may be more likely to enter the labor force in later middle age.

Women in Rural-Urban Migration

The sex ratio of the urban population is a function of sex differentials in births, deaths, and migration. We assume that the sex ratio of births does not vary across Indian cities. We attempt to control for the differential mortality experience of men and women by introducing the sex disparity in urban infant mortality as an independent variable. This would appear an appropriate control since the high infant mortality that characterizes a poor country such as India strongly affects life expectancy.

An alternative control for mortality would be to adjust the sex ratio of the city population by the sex ratio of the state in which the city is located. In a largely rural country such as India, however, the sex ratio of the state is primarily a function of rural rather than urban mortality experience. We should therefore expect it to considerably overcorrect for urban mortality, and the extent of the over-correction would vary inversely with the overall level of urbanization of the state. Second, inter-state migration in India may be sufficiently common to affect the sex ratio of some states. Adjusting by the sex ratio of the state to that extent would mask genuine migration. We found that the effects of the demographic and labor force variables were quite similar whether we adjusted the sex ratio of the city population by the sex ratio of the state or not. Region and status of women variables, however, were more multicollinear when the

adjusted variable was used, making estimates of effect more unstable and unreliable. Consequently, we preferred the unadjusted sex ratio of the urban population as a dependent measure.

The demographic variables, the measures of the shares of the labor force in different industries, the sex ratio of the labor force, region, the sex disparity in urban infant mortality, and the scales of the status of women measures together explain three-quarters of the total variance in the sex ratio of the population in individual cities. Again we present the results in several steps: (1) the demographic variables explain 23 percent of the variance, (2) the variance explained increases to 31 percent with the addition of the labor force variables, (3) to 66 percent with the addition of the sex ratio of the urban labor force, (4) to 68 percentage with the addition of the North as a regional dummy, and 5) to 74 percent with the addition of the sex disparity in urban infant mortality and the status of women scales (table 5). Each of these increases in variance explained is significant.

Our final equation shows significant effects for seven out of our fifteen measures. The effects are quite consistent over the several steps. The effects of two labor force variables more or less gradually strengthen until they become significant at the last step. The sex ratio of the labor force provides a marked contrast: its effect, while remaining significant, diminishes as first the regional dummy, then the status of women scales are introduced. Clearly the sex ratio of the labor force captures a good deal of the variation across regions in the status of women that affects the sex ratio of the population.

Finally, the effect of the regional dummy is greatly diminished and no longer statistically significant when the status of women scales are added, reinforcing our earlier suggestion that these status measures capture much the same pattern of cultural variation as the simple North/South dichotomy.

When we introduced the sex disparity in urban infant mortality earlier in our sequence of steps it showed a strong, highly significant negative effect, suggesting that we were using an effective control for the effect of sex differentials in mortality on the sex ratio of city population. The effect declined sharply and was no longer significant, however, when we added the sex ratio of the labor force to our equation. In subsequent steps the effect of the sex disparity in urban infant mortality is imperceptible. Clearly this variable is a measure of the status of women--we have used it as such when analyzing the sex ratio of the labor force--and its strong effect initially, before other variables relating to the status of women are introduced, is not surprising. Since our supposed control has this dual character we should expect some of its effect to overlap with that of other status of women variables. Its utter eclipse might then be construed to indicate that the mortality experience of male and female infants does not so much directly determine the sex ratio of city populations as it expresses a climate of discrimination better measured by the sex ratio of the labor force; it is this climate of discrimination which affects the sex ratio of

the population directly. We are inclined to suggest that the status of women and their mortality experience, relative to men, are so interwoven that they cannot be separated at this level of aggregation. Factors which limit opportunity and lower quality of life for women also cause parents to prefer sons at birth and decrease women's life expectancy. Quite likely some of the effects we detect are strengthened because they reflect effects of both mortality and migration on the urban sex ratio, a problem with which we deal by turning to a measure of sex ratios among migrants in a later section.

One outlier stands out in our final equation and throughout the several steps. Women appear greatly underrepresented in the population of Gauhati--as they did in its labor force. Again, we prefer not to advance an interpretation at this stage.

To assess the effect of our individual status of women measures, we here again introduced each in turn (1) with the demographic variables, the labor force variables, and the sex ratio of the labor force controlled; i.e., after the first three steps, and (2) with region controlled as well; i.e, after the fourth step (table 2). The introduction of the regional dummy weakens the effect of individual status measures--even more consistently than for the sex ratio of the labor force--reinforcing our suggestion that the regional dichotomy captures part of the effect of these status of women variables. Here also, the direction of the effects are as might be expected for all variables except, again, for the positive effect of the sex difference in age at marriage, which is highly significant until the regional dummy is introduced. Unlike the urban values, the rural values of female age at marriage and sex difference in age are positively correlated ($r = .53$). It would appear that women are more likely to participate in rural-urban migration in areas where husbands marry later. Presumably such men are better established in the urban economy and hence in a better position to support dependents in the city, whether they be wives or children who contribute to a more balanced sex ratio.

Those variables used to predict the sex ratio both of the city and of its labor force are best analyzed by combining their effect on the sex composition of the city when female labor force participation is controlled--their direct effect--with the effect they exert via their effect on the sex ratio of the labor force of these cities--their indirect effect (see figure 1). These data are presented in table 6. The effect of the proportion of migrants among men is direct and so is much of the effect of city size: the sex ratio of cities is lower where the proportion of migrants among men is high or when cities are larger. Obviously the former means that women are less likely to migrate than men; we have here an effective control for the difference in impact of migration that is due to the size of the migration stream as distinct from its composition. The latter relationship may reflect two factors. The cost of living, especially of housing, is usually higher in larger cities, making migrant men more reluctant to have wives and children join them. In addition, larger cities tend to recruit from greater distances, and wives are less likely to

accompany husbands into culturally foreign settings. This is particularly important in a country as large and culturally diverse as India, where many migrants find themselves faced with the barrier of a foreign language.

Cities that grew more rapidly between 1951 and 1961 have more women in the labor force, but the indirect effect of greater economic opportunities is cancelled out by the negative direct effect on the city's population. In contrast, rapid growth in the latest census period had a negative effect on the sex ratio of the labor force in 1971 which consequently indirectly depressed the sex ratio of the population. We are inclined to see a life cycle effect: somewhat older women, whether they came with their husbands in the 1950s or joined them later, are more likely to have made the transition from child bearing to the labor force; on the other hand, wives who have joined recent migrants are likely to stay at home caring for young children.

The proportion of the labor force employed in five of our six industrial categories has a statistically significant effect on the sex ratio of the labor force and/or the sex ratio of the population. We have discussed already the effects on the former. Cities with a high proportion of the labor force employed in transport and communications, in industry, and in trade and commerce tend to have a high proportion of women in their populations but not in their labor forces (tables 5 and 6). There are two general explanations that can be advanced. On the one hand, workers in transport and industry tend to be better off than the mass of urban workers. Enjoying relatively high wages, greater job security, and better fringe benefits, sometimes including housing, male workers are in a better position to support their wives and children in the city. On the other hand, petty traders often rely on the additional labor of family members who are not directly compensated. Such family members, often women, are not officially counted as workers. In this instance it is the actual economic opportunities of women which draw them to cities with relatively important trade sectors, but these opportunities are not accurately reflected in the official figures on the sex ratio of the labor force.

Women in the Urban Population

We finally take a quick look at the effect of our various variables on our alternative dependent variable, the sex ratio among migrant adults (table 7). It will be recalled that we constructed this variable in such a way as to minimize the impact of the migration of women at marriage. When the results for this variable are compared with those for the sex ratio of the total urban population (table 5) two observations may be made. First, the extent of variance our variables explain, while robust, is lower for the sex ratio among migrant adults. This is a function of our demographic variables having substantially lower explanatory function, while the addition of the other variables increases the variance explained in quite similar fashion for both dependent variables. Second, effects on the two dependent variables are nearly always in the same direction and of the same relative magnitude.

Third, the one contrast in the equations for our two independent variables suggests the source of the less impressive performance of our second independent variable. The proportion of male migrants in the urban population had a negative effect on the sex ratio of the city population, but a positive effect on the sex ratio among adult migrants. In other words, we confirm that men predominate among rural-urban migrants in India, but when we constructed a variable to focus on migrants we appear to have overcompensated for marriage migration.

Summary

In our attempt to explain the participation of women in the urban labor force and in rural-urban migration in India we have come to focus on the status of women, which region captures fairly well. Women in the North, a region delineated in terms of the prevalence of exogamy, have lower participation rates in the urban labor force and in rural-urban migration. Where women enjoy higher status, in terms of infant mortality, literacy, age at marriage, and fertility, they are more likely to be found in the urban labor force and among rural-urban migrants.[11] Contrary to our expectations, this is also the case where women are married to husbands who are very much older.

For women to be integrated into the urban labor force, and to realize their full potential contribution to the economy, entails an improvement in their status. As our data clearly indicate, the labor force participation of women both reflects their status and represents an additional major dimension of status. While access to earning opportunities in the city cannot be taken as equivalent to emancipation, an increase in the participation of women in the urban labor force provides a powerful incentive to redress the imbalance between the sexes in rural-urban migration. Women in cities reap the benefits of urban advantages in life expectancy and literacy, and their migration makes long-term family separation a less common problem.

NOTES

1. Authors are listed in alphabetical order. An earlier version of this article constituted part of a paper "Women stay on the farm--sometimes: Sex selectivity in rural-urban migration in the Third World" presented to the Research Committee "Women in Society" at the World Congress of Sociology, Mexico City, August 1982. This study was initiated while the second author held a fellowship of the American Institute of Indian Studies. Special thanks are due to Ashish Bose, K.K. Chakravorty, G. Donald Ferree Jr., Donald F. Heisel, Joan P. Mencher, Barbara D. Miller, Richard D. Lambert, and Philip Oldenburg.

2. For a recent review of research on rural-urban migration in Third World countries, see Gilbert and Gugler (1981: 49-64).

3. The 1981 census reported 935 women for every 1000 men.

4. The sex ratio of the labor force correlates strongly with the sex ratios of the urban population (R^2 = .63) and of adult migrants (R^2 = .55). The relationship between the participation of women in the urban force and their participation in migration can be viewed in opposite ways. High participation in the labor force can be argued to indicate that women have rather good access to urban opportunities and that there is therefore an incentive for the migration of women. Or high female participation in migration may be seen to increase the proportion of urban workers who are women. Given the rather low participation of women in the urban labor force in India, we are inclined toward the first interpretation: labor force participation describes urban opportunities for potential migrants. We have therefore taken the sex ratio of the labor force as an independent variable to contribute to the explanation of female participation in migration.

5. See, for example, Karve ([1953] 1965), Sopher (1980), Miller (1981).

6. We have drawn on Census of India 1971, Series I, India, Part II-A(i), General Population Tables, tables A-I and A-IV; Part II-B(i), General Economic Tables, table B-I; Part II-C(ii), Social and Cultural Tables, table C-III; Part II-D(i), Migration Tables, table D-IV.

7. These data are taken from the Sample Registration Bulletin volume 11 (issue 4, October 1977), table 5(b), volume 10 (issue 1, January 1976), table 3, and volume 10 (issue 2, April 1976), tables 4(a) and 4(b).

8. In addition, the size of the samples for the states of Manipur, Meghalaya, and Tripura--each of which contains only one city--and for the cities of Chandigarh and Pondicherry is characterized as small for age at marriage; for fertility the sample size is characterized as inadequate for Meghalaya, Chandigarh, and Pondicherry.

9. Our data source is Asok Mitra, Shekhar Mukherji, and Ranendranath Bose, Indian Cities: Their Industrial Structure, Immigration and Capital Investment 1961-71, appendix table IX.

10. The 47 cities for which we have no information on the origin of their migrants had a population of less than 100,000 in 1961, and, since smaller towns tend to recruit from shorter distances, we presume that few attracted large numbers from beyond the boundaries of their state. For the union territory of Pondicherry, we took the rural rates for Tamil Nadu, the state that surrounds it. For Chandigarh, we assumed that migrants came in equal numbers from the neighboring states of Haryana, Punjab, Rajasthan, and Uttary Pradesh.

11. The status of women variables may be expected to show a stronger independent effect when they are not aggregated at the state level as our data were.

Figure 1. Decomposition of the effects of location in the South on the sex ratio of the population of large Indian cities, 1971

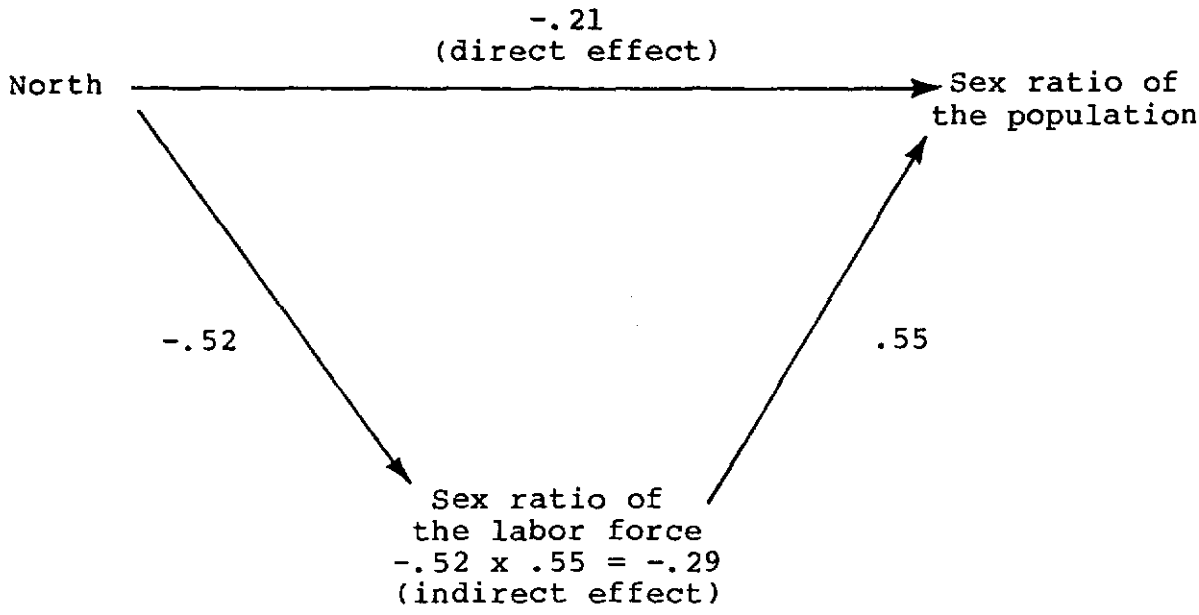

Table 1. Relationships between individual urban status of women variables ratio of the labor force and region of large Indian cities, 1971

	r	beta(1)	beta(2)	$\Delta R^2(1)$	$\Delta R^2(2)$	r with region (North)
Female infant mortality	-.55	-.65	-.47	.288**	.084**	.63
Female literacy	.34	.44	.28	.177**	.056**	-.34
Female age at marriage	.02	-.01	-.06	.000	.003	-.07
Fertility	-.47	-.49	-.23	.179**	.023*	.66
Sex disparity in infant mortality	-.53	-.53	-.24	.203**	.017	.77
Sex disparity in literacy	.09	-.09	.06	.007	.003	.19
Sex difference in age at marriage	.54	.60	.62	.310**	.082**	-.86
North	-.49	-.52		.228**		

Notes: r = zero order correlation.

beta (1) = standardized regression coefficient after demographic and labor force variables have been introduced.

beta (2) = standardized regression coefficient after demographic, labor force, and regional variables have been introduced.

$\Delta R^2(1)$ = increase in variation of the dependent variable explained by the introduction of this variable with demographic and labor force variables controlled.

$\Delta R^2(2)$ = increase in variation of the dependent variable explained by the introduction of this variable with demographic, labor force, and regional variables controlled.

* = effect statistically significant at the five percent level.
** = effect statistically significant at the one percent level.

Table 2. Relationships between individual rural status of women variables, in rural areas of origin, and the sex ratio of the population and region of large Indian cities, 1971

	r	beta(1)	beta(2)	$\Delta R^2(1)$	$\Delta R^2(2)$	r with region (North)
Female infant mortality	-.52	-.36	-.32	.057**	.036**	.59
Female literacy	.49	.19	.15	.021**	.012*	-.46
Female age at marriage	.38	.17	.11	.025**	.008	-.52
Fertility	-.35	-.14	-.07	.012*	.003	.52
Sex disparity in infant mortality	-.50	-.24	-.16	.025**	.009	.62
Sex disparity in literacy	-.51	-.23	-.16	.028**	.011*	.61
Sex difference in age at marriage	.48	.19	.05	.020**	.001	-.83
Cities located in North	-.54	-.21		.026**		

Notes: r = zero order correlation.

beta (1) = standardized regression coefficient after demographic variables, the labor force variables, and the sex ratio of the labor force have been introduced.

beta (2) = standardized regression coefficient after the variables listed under beta (1) as well as region have been introduced.

$\Delta R^2(1)$ = increase in variation of the dependent variable explained by the introduction of this variable with the variables listed under beta(1) controlled.

$\Delta R^2(2)$ = increase in variation of the dependent variable explained by the introduction of this variable with the variables listed under beta(2) controlled.

* = effect statistically significant at the five percent level
** = effect statistically significant at the one percent level

Table 3. Relationships between individual rural status of women variables, in rural areas of origin, and the sex ratio of adult migrants in large Indian cities, 1971

	r	beta(1)	beta(2)	$\Delta R^2(1)$	$\Delta R^2(2)$
Female infant mortality	-.60	-.42	-.40	.075**	.057**
Female literacy	.49	.27	.24	.043**	.032**
Female age at marriage	.39	.26	.25	.057**	.039**
Fertility	-.35	-.16	-.11	.016	.007
Sex disparity in infant mortality	-.47	-.10	-.00	.004	.000
Sex disparity in literacy	-.59	-.32	-.30	.055**	.037**
Sex difference in age at marriage	.48	.14	-.01	.010	.000
Cities located in North	-.44		-.18	.019*	

Notes: r = zero order correlation.

beta (1) = standardized regression coefficient after demographic variables, the labor force variables, and the sex ratio of the labor force have been introduced.

beta (2) = standardized regression coefficient after the variables listed under beta (1) as well as region have been introduced.

$\Delta R^2(1)$ = increase in variation of the dependent variable explained by the introduction of this variable with the variables listed under beta(1) controlled.

$\Delta R^2(2)$ = increase in variation of the dependent variable explained by the introduction of this variable with the variables listed under beta(2) controlled.

* = effect statistically significant at the five percent level.
** = effect statistically significant at the one percent level.

Table 4. Effects of independent variables on the sex ratio of the labor force of large Indian cities, 1971

	Equations (1) beta (b)	(2) beta (b)	(3) beta (b)	(4) beta (b)
Proportion migrants among men	-.12 (-.61)	.01 (.06)	.07 (.36)	.03 (.14)
City growth 1951-61	.26 (.27)*	.34 (.37)**	.34 (.36)**	.35 (.38)**
City growth 1961-71	-.10 (-.15)	-.37 (-.54)*	-.46 (-.67)**	-.45 (-.66)**
City population (log)	-.12 (-24.0)	-.06 (-11.6)	-.08 (-16.7)	-.13 (-24.8)
Proportion of labor force in household industry		.22 (3.12)	.24 (3.49)**	.32 (4.67)**
construction		.26 (6.69)*	.27 (6.97)**	.27 (6.96)**
transport and communications		-.18 (-2.10)	-.21 (-2.49)*	-.12 (-1.49)
industry		-.08 (-.52)	.05 (.35)	.13 (.81)
trade and commerce		-.01 (-.20)	-.11 (-1.85)	-.11 (-1.88)
other services		-.23 (-1.74)	-.02 (-.18)	.11 (.80)
North			-.52 (-75.9)**	-.25 (-36.7)*
Absolute position of women in cities				.27 (26.8)**
Relative position of women in cities				-.16 (-15.7)
Variance explained (R^2)	.06	.23	.46	.51

Note: Effects statistically significant at the 5 percent level are marked *, those significant at the 1 percent level are marked **.

Table 5. Effects of independent variables on the sex ratio of the population of large Indian cities, 1971

	Equations (1) beta (b)	(2) beta (b)	(3) beta (b)	(4) beta (b)	(5) beta (b)
Proportion migrants among men	-.27 (-1.45)**	-.26 (-1.41)*	-.27 (-1.45)**	-.24 (-1.32)**	-.25 (-1.38)**
City growth 1951-61	-.06 (-.05)	.02 (.02)	-.21 (-.23)**	-.17 (-.19)*	-.10 (-.11)
City growth 1961-71	-.16 (-.24)	-.18 (-.27)	.07 (.10)	-.01 (-.02)	-.10 (-.16)
City population (log)	-.24 (-49.8)**	-.24 (-48.3)**	-.20 (-40.2)**	-.21 (-43.7)**	-.25 (-51.5)**
Proportion of labor force in: household industry		.05 (.79)	-.09 (-1.38)	-.06 (-.84)	.07 (1.01)
construction		.06 (1.69)	-.11 (-2.98)	-.08 (-2.03)	-.07 (-1.90)
transport and communications		.02 (.23)	.14 (1.70)	.10 (1.28)	.18 (2.18)*
industry		.08 (.54)	.14 (.91)	.18 (1.21)	.26 (1.73)**
trade and commerce		.21 (3.70)*	-.22 (3.84)**	.18 (3.12)**	.13 (2.27)*
other services		-.17 (-1.33)	-.01 (-.12)	.04 (.32)	.18 (1.42)
Sex ratio of labor force			-.67 (.70)**	.55 (.57)**	.36 (.37)**
North				-.21 (-31.8)**	.05 (8.20)
Sex disparity in urban infant mortality					-.05 (-.45)
Absolute position of women at origin					.35 (32.5)
Relative position of women at origin					-.15 (-12.7)
Variance explained (R^2)	.23	.31	.66	.68	.74

Note: Effects statistically significant at the 5 percent level are marked *, those significant at the 1 percent level are marked **.

Table 6. Decomposition of effects on the sex ratio of the population of large Indian cities, 1971

	Direct effect on SR population	Direct effect on SR labor force	Indirect effect on SR population (1)	Total effect on SR population (2)
Proportion migrants among men	-.24**	.07	-.04	-.20*
City growth 1951-61	-.17*	.34**	.19	.02
City growth 1961-71	-.01	-.46**	-.25	-.27*
City population (log)	-.21**	-.08	-.04	-.26**
Proportion of labor force in household industry	-.06	.24**	.13	.08
construction	-.08	.27**	.15	.07
transport and communications	.10	-.21*	-.12	-.01
industry	.18*	.05	.03	.21
trade and commerce	.18**	-.11	-.06	.12
other services	.04	-.02	-.01	.03
North	-.21**	-.52**	-.29	-.50**

Notes: (1) The indirect effect on the sex ratio of the population is the product of (a) the variable's direct effect on the sex ratio of the labor force (given in column 2) and (b) the effect of the sex ratio of the labor force on the sex ratio of the population (.55).

(2) The total effect on the sex ratio of the population is the sum of the direct and the indirect effects on the sex ratio of the population (columns 1 and 3). Slight differences are due to rounding error.

** and * denote effects statistically significant at the one and the five percent levels, respectively.

Table 7. Effects of independent variables on the sex ratio of adult migrants in large Indian cities, 1971

	Equations (1) beta (b)	(2) beta (b)	(3) beta (b)	(4) beta (b)	(5) beta b)
Proportion migrants among men	.21 (3.27)*	.19 (3.03)	.19 (2.92)**	.21 (3.24)*	.21 (3.33)*
City growth 1951-61	-.08 (-.24)	.01 (.02)	-.21 (-.66)*	-.18 (-.56)	-.07 (-.21)
City growth 1961-71	-.09 (-.38)	-.12 (-.52)	.11 (.47)	.04 (.17)	-.14 (-.60)
City population (log)	-.25 (-149.0)**	-.26 (150.9)**	-.22 (-129.3)**	-.23 (-137.9)**	-.28 (-164.2)**
Proportion of labor force in:					
household industry		-.01 (-.63)	-.15 (-6.42)	-.12 (-5.11)	-.03 (-1.40)
construction		.03 (2.18)	-.13 (-10.2)	-.10 (-7.93)	-.05 (-3.66)
transport and communications		-.01 (-.37)	.10 (3.53)	.07 (2.51)	.14 (4.81)
industry		.07 (1.29)	.12 (2.27)	.16 (2.99)	.22 (4.17)
trade and commerce		.15 (7.50)	.15 (7.86)	.12 (6.13)	.05 (2.65)
other services		-.21 (-4.84)	-.07 (-1.60)	-.02 (-.55)	.06 (1.26)
Sex ratio of labor force			.62 (1.85)**	.52 (1.56)**	.35 (1.03)**
North				-.18 (-76.8)**	.03 (11.9)
Absolute position of women at origin					.53 (141.1)
Relative position of women at origin					.07 (16.5)
Variance explained (R^2)	.09	.17	.47	.48	.57

Note: ** and * denote effects statistically significant at the one and the five percent levels, respectively.

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