



CENTRE FOR ECONOMIC REFORM AND TRANSFORMATION
School of Management and Languages, Heriot-Watt University, Edinburgh, EH14 4AS
Tel: 0131 451 4207 Fax: 0131 451 3498 email: ecocert@hw.ac.uk
World-Wide Web: <http://www.sml.hw.ac.uk/cert>

On Adverse Sex Ratios in Some Indian States: A Note

Prabir C. Bhattacharya[‡]

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Abstract

The purpose of this note is to highlight certain facts about the sex ratio (the number of females per thousand males) of the population in some Indian states, especially those in the northeast of the country. The states in the northeast are ethnically, linguistically and culturally very distinct from the other states of India. We note that while female children survive better in the northeastern states than elsewhere in India, in older ages women seem to fare worse than men in these states. The sex ratio of the population in the age group birth to 6 years in the northeastern states is among the highest in the country, but that of the population in the age group 60 years and above is among the lowest. Some explanations are offered for the observed behaviour of the sex ratios in these states.

Keywords: sex ratio, northeast India, elderly women, survival disadvantage

JEL Classification: J11, J13, J14

[‡] Department of Economics, School of Management and Languages, Heriot-Watt University, Edinburgh EH14 4AS, UK.
Email: P.C.Bhattacharya@hw.ac.uk.

Introduction

The purpose of this note is to highlight certain facts about the sex ratio (the number of females per thousand males) of the population, particularly of the very young and elderly, in some Indian states that may not be that well known. There is good evidence that, given equal care and feeding, women tend to live significantly longer than men and the survival advantages are particularly strong during old age and also during the very young age. The concentration of research in India has been on the female disadvantage in child survival. The female disadvantage in child survival has been an important contributor to India's abnormally low sex ratio. In contrast to Europe and North America, where the sex ratio of the population averages around 1005, India has a sex ratio of only around 930. In recent years, sex-selective abortion has also exerted a downward influence on the sex ratio in India.¹

For the elderly population, however, the results of the 2001 Indian population census show that for the first time for the country as a whole, the sex ratio of the population in the age group 60 years and above (hereafter 60 plus sex ratio) exceeded 1000 and was 1029. However, the results also show that this ratio was well below 1000 for a number of Indian states. In Table 1, I present estimates of sex ratios of the population in the age group birth to 6 years (hereafter 0-6 sex ratio), age group 60 years and above, and for all ages (hereafter overall sex ratio) for India and the constituent states for the years 1981, 1991 and 2001.² As can be seen, in 2001 the 60 plus sex ratio was lower than 1000 for all of the northeastern states (with the exception of Tripura where the ratio was 1,064) and for the 'mainland' states of Bihar, Uttar Pradesh, Jammu and Kashmir, Punjab and Haryana. In the Punjab and Haryana, however, the 60 plus sex ratio has been improving over time, though the 0-6 sex ratio has shown a rapid decline in recent years, due mainly to sex-selective abortion. The 0-6 sex ratio has also shown a decline - though not to the same extent - in the other states of India. For the country as a whole, the 0-6 sex ratio

¹ On all of these, see, among others, Agnihotri (2003), Mari Bhat (2002, 2003), and Sudha and Rajan (1999). See also Bhattacharya (2006).

² The data base for these estimates are the Indian population censuses of these years. No census took place in Assam in 1981 and in Jammu and Kashmir in 1991. Three new states, viz, Chattisgarh, Jharkhand and Uttaranchal (since renamed Uttarakhand) were formed in the year 2000 carved out of the existing states of Madhya Pradesh, Bihar and Uttar Pradesh, respectively. Our sex ratio and other figures for Madhya Pradesh, Bihar and Uttar Pradesh up to 1991 relate to these states as they were then (before the formation of the new states), but for 2001 they relate to these states with their new boundaries. Sex ratios for the three new states are presented for 2001.

Table 1. Indian states: sex ratio (number of females per thousand males)

State	1981			1991			2001		
	All ages	Birth to 6 years	60 years and above	All ages	Birth to 6 years	60 years and above	All ages	Birth to 6 years	60 years and above
Andhra Pradesh	975	992	1,026	972	975	1,016	978	961	1,099
Goa				967	964	1,309	961	938	1,260
Gujarat	942	947	1,092	934	928	1,072	920	883	1,149
Himachal Pradesh	973	971	782	976	951	890	968	896	1,022
Karnataka	963	974	1,012	960	960	1,014	965	946	1,112
Kerala	1,032	970	1,131	1,036	958	1,156	1,058	960	1,247
Madhya Pradesh ³	941	977	1,055	931	952	969	919	932	1,047
Maharashtra	937	956	1,038	934	945	1,018	922	913	1,150
Orissa	981	995	1,066	971	967	978	972	953	1,022
Rajasthan	919	954	1,000	910	916	975	921	909	1,083
Tamil Nadu	977	967	944	974	948	923	987	942	1,013
West Bengal	911	981	992	917	967	954	934	960	1,047
Northeastern states									
Bihar ³	934	982	946	911	959	832	919	942	772
Haryana	870	902	726	865	879	933	861	819	992
Jammu & Kashmir ¹	892	964	697				892	937	846
Punjab	879	908	770	882	875	828	876	798	971
Uttar Pradesh ³	885	935	891	879	933	787	898	916	887
New states (formed in 2000)³									
Chattisgarh ³							989	975	1,181
Jharkhand ³							941	965	1,055
Uttaranchal ³							962	908	1,002
India	934	962	960	927	945	933	933	927	1,029

NOTES:¹ No census took place in Jammu and Kashmir in 1991.

² No census took place in Assam in 1981.

³ See footnote 2 of the text.

SOURCE: Indian Population Censuses of 1981, 1991 and 2001.

has declined from 962 in 1981 to 945 in 1991 to 927 in 2001. So while the 60 plus sex ratio has risen, the 0-6 sex ratio has continued to decline.

The northeastern states

The states that comprise the northeast present interesting findings. The total population of the region is 38.8 million, comprising about 3.8 per cent of the population of India. These states (with the possible exception of Tripura where the Bengali language and culture have come to dominate the scene³) are ethnically, linguistically and culturally very distinct from the other states of India. Large parts of the region are hilly and inhabited by different tribal groups. In the pre-independence period, a large portion of the territory was unadministered or hardly administered and kept isolated from contact with the non-tribal people through the imposition of statutory restrictions. Traditionally, tribal people have not socially been divided into castes. These states, therefore, stand apart from the other states in India. It is also unfortunately the case that almost all research on demographic outcomes in India exclude these states from their purview.

In all of the northeastern states, sex ratios for the 0-6 age group are considerably higher than the Indian average of 927 in 2001 and if one excludes Manipur (where the ratio is also relatively high at 957) these ratios, along with those in the new states of Jharkhand and Chattisgarh,⁴ are higher than that in any other state in India (including Kerala at 960). The 0-6 sex ratio in the northeastern states in 1981 and 1991 were also higher than the Indian average of those years and among the highest in the country. And even though the 0-6 sex ratio has declined in these states as in the other states of India, the 0-6 sex ratio in these states in 2001 is still higher than what was the Indian average of 962 in 1981.

However, as already noted, the 60 plus sex ratios in the northeastern states (with the exception of Tripura) are very low indeed and along with those in Bihar, Uttar Pradesh, and Jammu and Kashmir are the lowest in the country.

³ Tripura was ruled by the Manikya dynasty for centuries. The last king who came to the throne in 1870 was greatly influenced by the Bengali culture and made Bengali his court language. This and immigration of a large number of Bengalis since 1900 have meant that Bengali culture and language have become the dominant force in the state. Many of the demographic features of the state are now not very dissimilar to those to be found in the state of West Bengal. Tripura also, unlike most other northeastern states, has a predominantly Hindu population. See also footnote 8 below.

⁴ See footnote 2 above. It may also be noted that both of these states have sizeable tribal populations. However, in terms of their ethnicity and social and political history, there are significant differences between the tribal populations of these two states and those of the northeast.

So while female children survive better in the northeastern states⁵ than elsewhere in India, in older ages women seem to fare worse than men in these states. This raises the question as to whether the elderly women are seriously disadvantaged in terms of survival in some of the northeastern states as also in Bihar, Uttar Pradesh, and Jammu and Kashmir.

Impact of migration

Can migration (in and out migration) explain the low overall and 60 plus sex ratios in some of these states? Inter-state migration has historically been quite low in India.⁶ In both Bihar and Uttar Pradesh, the census data show more female immigrants than male immigrants; also in both of these states, there were more male emigrants than female emigrants. Net migration for both males and females in both the states were negative (i.e., emigration exceeded immigration). So the net effect of migration in these states has been a higher number of females relative to males than would have been the case otherwise. By contrast, in some of the northeastern states, migration does appear to have played an important role in *lowering* the overall sex ratio. I present below (Table 2) calculations (based on the migration tables of the Indian population censuses) of what would have been the overall sex ratio in the states of our interest in the absence of all inter-state and international in and out migration (referred to as the ‘migration adjusted’ overall sex ratio in the presentations in the table). It is clear from comparing the figures in this table with those in Table 1 that in Arunachal Pradesh and Nagaland, in particular, the overall sex ratio would have been much higher and in Bihar quite a bit lower in the absence of migration. (In Arunachal Pradesh, it would have been 932 and 933 instead of 859 and 893 in 1991 and 2001, respectively; in Nagaland 914 and 1004 instead of 886 and 900; while in Bihar it would have been 896 and 899 instead of 911 and 919).

But what about the effects on the 0-6 and 60 plus sex ratios? Sex ratio for the 0-6 age group is unlikely to have been affected much as most migrants tend to be adults. 60 plus sex ratio will, of course, be affected but, again, probably not by as much as one might suspect. This is partly because most single migrants (usually young males. In India women do not generally move independently of men) are likely to get married or will have got married before

⁵ and also in the new states of Jharkhand and Chattisgarh. See footnotes 2 and 4 above.

⁶ On an average 87 per cent of all migration in India is within the same state.

Table 2. Selected Indian states: ‘migration adjusted’ overall sex ratio¹

State	‘Migration adjusted’ overall sex ratio		
	1981	1991	2001
Arunachal Pradesh	964	932	933
Assam		931	950
Manipur	974	966	977
Maghalaya	985	977	984
Mizoram	970	941	955
Nagaland	923	914	1,002
Sikkim	900	1,004	889
Tripura	946	951	947
Bihar	928	896	877
Haryana	872	863	862
Jammu & Kashmir	889		902
Punjab	885	884	891
Uttar Pradesh	868	868	883

NOTE: ¹ Overall sex ratio as this would have been in the absence of in and out migration.

SOURCE: Author’s calculations based on the migration and population tables of the Indian Population Censuses of 1981, 1991 and 2001.

reaching the age of 60, their brides - in line with the Indian norm - usually coming from the states they migrated from, women immigrants then mostly matching previous male immigrants. Fortunately, we do have some direct information on migrants by age groups from the 2001 census. Table D-1 Appendix of the 2001 census provided information on migrants by place of birth by age. On the basis of the data provided in this appendix, I calculated what the 60 plus sex ratio would have been in our particular states in the absence of all in and out migration by those migrants who at the time of the 2001 census were in the age group 60 years and above. The results are presented in Table 3. A comparison of these results with the information on the 60 plus sex ratio provided in the last column of Table 1 shows that, in the absence of migration, the 60 plus sex ratio would have been much higher in some states (Arunachal Pradesh, Nagaland and Bihar), lower in Haryana and would not have changed much in others. More importantly, however, even after the upward adjustments, the 60 plus sex ratios in our states would still have remained well below the national average, in some cases by a very large margin.

So far as the 0-6 sex ratio is concerned, the census table referred to above unfortunately did not have the classification of migrants by the age group birth to 6 years. Instead, we have the classification of migrants by age groups birth to

Table 3. Selected Indian States: ‘migration adjusted’ 60 plus sex ratio, 2001

State	‘Migration adjusted’ 60 plus sex ratio	State	‘Migration adjusted’ 60 plus sex ratio
Arunachal Pradesh	942	Tripura	1,062
Assam	988		
Manipur	990	Bihar	842
Maghalaya	975	Haryana	954
Mizoram	983	Jammu & Kashmir	858
Nagaland	997	Punjab	969
Sikkim	777	Uttar Pradesh	882

SOURCE: Author’s calculations based on the migration and population tables of the Indian Population census 2001.

Table 4. Selected Indian States: sex ratios of the populations in the age groups birth to 4 years and 5 to 9 years and ‘migration adjusted’ sex ratios for these groups, 2001

State	Sex ratio		‘Migration adjusted’ sex ratio	
	Birth to 4 years	5 to 9 years	Birth to 4 years	5 to 9 years
Arunachal Pradesh	975	948	978	948
Assam	971	960	971	961
Manipur	958	959	957	958
Maghalaya	975	975	976	976
Mizoram	973	959	972	960
Nagaland	978	928	981	928
Sikkim	951	990	951	992
Tripura	966	961	966	962
Bihar	957	910	957	908
Haryana	817	835	814	833
Jammu & Kashmir	938	946	939	946
Punjab	794	821	792	821
Uttar Pradesh	929	894	929	893

SOURCE: Author’s calculations based on the migration and population tables of the Indian Population census 2001.

4 years and 5 to 9 years.⁷ I, therefore, first calculated the sex ratios of the populations in these two age groups and then calculated what the sex ratios would have been for these age groups in the absence of in and out migration by

⁷ In the table, the migrants were classified by the following age groups: birth to 4 years, 5 to 9 years, 10 to 14 years, 15 to 24 years, 25 to 34 years, 35 to 59 years, and 60 years and above. For India as a whole among migrants by place of birth from outside the state enumeration, 3.2 per cent were in the age group birth to 4 years, 4.2 per cent in the age group 5 to 9 years, 4.8 per cent in the age group 10 to 14 years, 18.5 per cent in the age group 15 to 24 years, 24.7 per cent in the age group 25 to 34 years, 36.1 per cent in the age group 35 to 59, and 8.4 per cent in the age group 60 years and above.

those migrants who at the time of the 2001 census were in the age groups birth to 4 years and 5 to 9 years, respectively. Results are reported in Table 4. As can be seen, for these age groups, in and out migration played little role in affecting the sex ratios. One would, therefore, be justified in concluding that the 0-6 sex ratio in our states in 2001 is also unlikely to have been affected much by migration.

Survival disadvantage for older women and some possible explanations

In explaining the low sex ratio of the 60 plus age group in our particular states, we, therefore, have to consider the possibility that older women do indeed face more disadvantage in terms of survival in these states than elsewhere in India and that in some of these states women in the age group 60 years and above may also be seriously disadvantaged in terms of survival despite elderly women in general surviving better than elderly men elsewhere.

In relation to the northeastern states (with the exception of Tripura where both the 0-6 sex ratio and 60 plus sex ratio are higher than the Indian average), the important question to ask is why while female children survive better in these states, the elderly women seem to fare worse. While a detailed answer to this question is beyond the scope of this note, requiring as it would to do both careful field work and a detailed cohort analysis (for which, however, sufficiently detailed data do not appear to be available from the published sources for our states), at this stage I offer some tentative explanations, based on personal observations and discussions with a number of people in the region. First, and as already noted, large parts of the region are inhabited by different tribal groups. There are often inter-tribal rivalries. There is also the fear of being overwhelmed by immigrants coming from other, more populous, states in the country. In such a context, communities may perceive their relative strength to lie in the increased population and, as a result, women as bearers and rearers of children might be particularly valued, but not so valued afterwards.

Second, in some of these communities - communities which have religious and cultural beliefs different from those to be found in Hinduism⁸ - the norms of nuclear rather joint family play a relatively more important role and it is possible that more elderly women than men might find themselves

⁸ Mizoram, Nagaland and Meghalaya have predominantly Christian populations, Arunachal Pradesh and Sikkim mainly Buddhists, while Manipur has a mixed population of Hindus, Christians and other local religions.

marginalised in such a context, since, as is often the case, husbands are older than their wives and likely to die before them.

Third, there is the possibility that the work sharing arrangements between men and women in some of these communities are such that they lead to a greater amount of physical overexertion by women, with detrimental consequences for their health and survival, than do work sharing arrangements (however iniquitous they might be for women) in other parts of India. While the social status of women in most of the northeast is generally considered to be high, it is also the case that in many of these communities, it is the women who seem to do most of the back breaking work: it is they who mostly work in the fields and farms in addition to doing household chores.⁹

Finally, one should not discount the possibility that there are certain diseases which affect older women more than older men in some of these communities.¹⁰

Conclusion

The purpose of this note has been to highlight certain facts about sex ratios in some Indian states. The primary focus of attention in the literature has been on the female disadvantage in child survival and more recently on sex-selective abortions. This note reinforces the view that it is also important to look at the survival of women in other ages, particularly of the elderly in the particular states which have been the focus of this note. Clearly, more research is also required on the demography of the northeastern states of India.

⁹ One is almost tempted to suggest that there is an implicit contract in operation here that says that women will have more autonomy, but in return men will do less arduous tasks.

¹⁰ It will be noted that we have ignored the possibility that there might be a systematic undercounting of older women in these states. This possibility, however, seems remote, given the number of states involved. Also, for any likely undercounting to alter our conclusions in the text, we have to assume that while there was the undercounting of older women in the northeastern states, there was no such undercounting in other Indian states or that any such undercounting was lower in other states than in the northeastern states. Nobody has ever suggested that any of these has been the case.

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