Sex ratios in India and the 'Prosperity Effect'

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Analysis of National Sample Survey (NSSO) data

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Abstract: Perceptive scholars have repeatedly drawn policy makers' attention to the pattern of masculine sex ratios in prosperous regions of India. However, direct evidence of the effect of prosperity on sex ratios has not been forthcoming. Such evidence is available nevertheless, through an unlikely source; the quinquennial surveys of household consumer expenditure from the NSSO (National Sample Survey Organisation). These surveys provide data on the family composition by AMPCE (Average Monthly Per Capita Expenditure); a good surrogate for prosperity. Analysis of the data from the 43rd (1987-88), 50th (1993-94) and the 55th (1999-2000) round show a clear trend of masculine sex ratios among the prosperous groups in nearly all the states and an intensification of such trend with time. Why it may be so needs serious consideration.

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Introduction: Concern over the low and steadily declining proportion of women in the Indian Population is now a century old. While all eyes had been fixed on the results of the 2001 population census for data on sex ratios, the 55th round of the NSSO survey on household consumer expenditure has come up with an important and disturbing observation. The recently released report (No. 475: 17) blandly provides the following information based on a survey of over 1.20 lakh households in the country (rural 75% and urban 25%);

Demographic differences between lowest and highest MPCE classes

Population characteristic	Rural			Urban		
	Bottom 5%	**Top 5 %**	**All**	**Bottom 5%**	**Top 5 %**	**All**
Sex Ratio	1005	**858**	941	949	**837**	900
Sex Ratio (Adults)	1067	**873**	966	993	**840**	908
Sex Ratio (Children)	946	**804**	900	903	**819**	883

This information is significant. It shows how masculine the sex ratios are among the prosperous groups both in rural and in urban areas. It also points out towards the trend of more masculine sex ratios in urban households compared to the rural households.

Before the escape hatch of migration is invoked to explain away these findings, it will be useful to remember that the sex ratio among children does not suffer from sex selective migration. Further, the difference of 142 points in rural and 84 points in urban households between the bottom 5% and the top 5% of the households is too large to be explained away by migration. The observed distortion in the sex ratios is clearly man – made.

Before proceeding further, it is pertinent to look at the sex ratio figures by different AMPCE (Average Monthly Per Capita Expenditure) classes. There are 12 such expenditure classes. Table 1a below gives the details of the AMPCE classes, number of households surveyed, mean AMPCE in each class and the sex ratios among these for the total as well as the child (0-14 years) population in rural areas. Table 1b gives corresponding information among the urban households.

A consistent decline in the FMRs (females per 1000 male population) as one moves up the AMPCE range is clearly discernible. This is so for both rural and the urban households and the 0-14 years population as well as the total population.

Table 1a

Sex Ratio by MPCE Class: INDIA (Rural)				NSSO Survey: Round 55	
				July 1999 - June 2000	
PCE CLASS	AMPCE	No of Hhs	LogAMPCE	FMR(0-14)	FMR (All)
0-225	191	2547	2.28	946	1004
225-255	242	2451	2.38	951	990
255-300	279	5147	2.45	950	988
300-340	321	5588	2.51	925	971
340-380	361	5892	2.56	914	946
380-420	400	5895	2.60	948	955
420-470	445	6783	2.65	895	940
470-525	497	6635	2.70	832	904
525-615	567	8253	2.75	853	921
615-775	686	9383	2.84	820	904
775-950	853	5337	2.93	854	908
> 950	1345	7474	3.13	804	858

Table 1a

Sex Ratio by MPCE Class: INDIA (Urban)				NSSO Survey: Round 55	
				July 1999 - June 2000	
PCE CLASS	AMPCE	No.of Hhs	LogAMPCE	FMR(0-14)	FMR (All)
00 - 300	256	1585	2.41	903	949
300 - 350	326	1586	2.51	977	988
350 - 425	389	3290	2.59	948	961
425 - 500	464	3886	2.67	894	941
500 - 575	537	3926	2.73	915	958
575 - 665	619	4374	2.79	885	913
665 - 775	719	4785	2.86	875	896
775 - 915	841	5150	2.92	840	871
915 - 1120	1010	5677	3.00	795	848
1120 - 1500	1286	6651	3.11	798	815
1500 - 1925	1692	3901	3.23	810	847
> 1925	3074	4113	3.49	819	836

Pre–empting some of the arguments that follow in subsequent sections, figure 1a and 1b depict the relationship between prosperity as measured by the variable logAMPCE and the sex ratios for total as well as the 0-14 year age – group population. The two have strong negative correlation. The relationship between the two variables among the rural households can be expressed as;

FMR(All - age) = 1405 – 175.3 x LogAMPCE (Rural) Adj. R. Sq = 0.76
FMR(0-14 yrs.) = 1432 – 204.2 x LogAMPCE (Rural) Adj. R. Sq = 0.92

The constant term and the slopes are significant at 1% level and so is the f – value in both the equations.

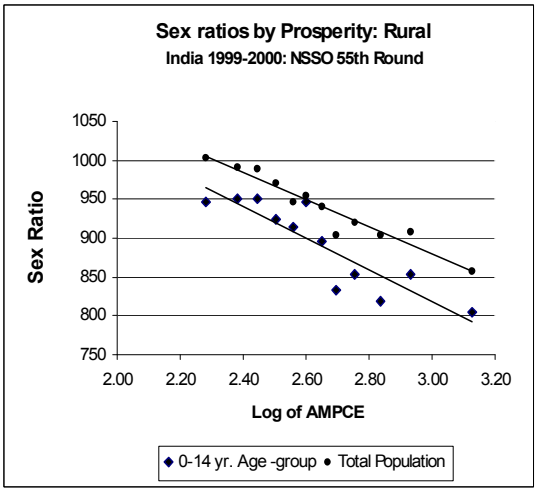

Figure 1a

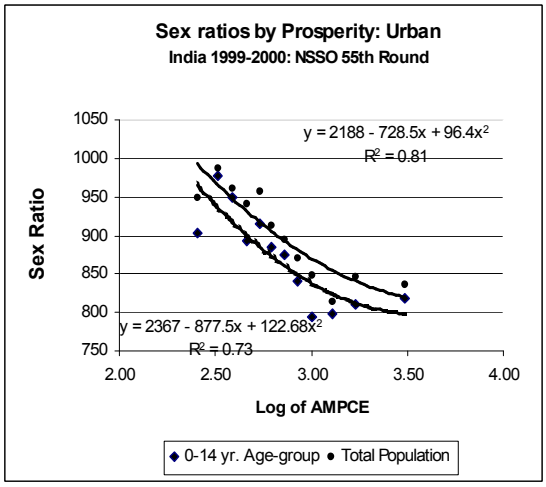

Figure 1b

For urban areas the relationship can be linearly described as,

FMR(All - age) = 1368 – 163.1 x LogAMPCE (Urban) Adj. R. Sq = 0.76
FMR(0-14 yrs.) = 2188 – 728.5 x LogAMPCE (Urban) Adj. R. Sq = 0.65

Once again, the constant term and the slopes are significant at 1% level and so is the f – value in both the equations. However, as figure 1b indicates, the relation can more correctly be described as a quadratic one (the adj. R. Sq. values marginally improve);

FMR(All - age) = 1368 – 728.5 x LogAMPCE + 96.4 x (LogAMPCE)^2
FMR(0-14 yrs.) = 2367 – 877.5 x LogAMPCE + 122.7 x (LogAMPCE)^2

As will be seen in subsequent sections, above pattern is not a 'one off' case. The trend is similar whether for the 43rd round or for the 50th round. It is observed not just at all – India level but in most of the states. What is disturbing is that there is an intensification of the lowering of the female male ratios in most regions across the three rounds.

II

Links between prosperity and sex ratios have found mention in the literature. Bardhan (1974) had pointed out how the relatively poorer regions in the

country e.g. Kerala, appear to treat their daughters better that the relatively more prosperous districts in the north western parts of the country. Within a given region too, Miller (1981) has discussed the differences in sex ratios among the 'propertied classes' and others. Most recently, Premi (2001) stresses the need to examine as to why the largest decline in the child sex ratio (0-6 years age group) has come about in the economically well - developed states.

At a different level, sociological and anthropological literature provides many instances of increased female subordination among the more prosperous groups (e.g. Goody, Papaneck, Berreman). This leads to unequal access to life sustaining resources e.g. food, nutrition, health care, for the female members (Dasgupta, 1987; Miller, 1981). In a harsher manifestation of this inequality, direct denial of life chances through infanticide or sex selective foeticide can take place among these groups.

Concerns over the masculinity of sex ratios in the wake of prosperity at district level is one matter; corroborating this with quantitative data is another. As the mainstream population census data did not provide sex ratio data by prosperity level, this important issue has remained unaddressed in the demographic literature.

One exception to this trend was provided by Krishnaji (1987) through an analysis of the NSSO data on family composition and the prosperity level as represented by the MPCE class. As mentioned earlier, the household consumer expenditure surveys of the NSSO, do provide data on the composition of the household in terms of the adult (15 years and above) and the child (0-14 years) population by 12 different AMPCE classes. As the AMPCE reflects per capita expenditure, the family size does not affect the measure and it can be taken as a good surrogate for prosperity[7].

Krishnajee (ibid) has not analysed the data by the 12 AMPCE classes, but has chosen to club these into four ranges so as to have a larger sample size. This could answer the criticism about the inherent fluctuations in the observed sex ratios in a smaller sample. However, the quinquennial rounds viz. The 43rd, the 50th and the 55th rounds, do survey sufficiently large

[7] Question regarding different saving levels or disposable and non – disposable income for the same MPCE level can be raised here. But by and large, higher per capita expenditure will indicate higher prosperity.

number of households. Moreover, as the analysis of the state level data with 12 AMPCE classes below shows, the trends emerging out of even the state level data are reasonably robust.

It could be plausibly argued that the total population sex ratio data are affected by sex selective migration. However, it needs to be demonstrated that such migration occurs particularly strongly among the lower AMPCE classes resulting in a more feminine sex ratio. The onus of showing this is not taken up in this paper and scope for a debate on this is left open. The sex selective migration effect will, however, be much weaker in the case of 0-14 years age group. Masculine sex ratios in this group among the higher AMPCE classes therefore merit serious attention.

Regarding the quality of enumeration, it can be stated that the quality of enumeration in the NSSO surveys is considered to be quite high (personal discussions with different scholars). The possibility of undercount can as such be ignored.

This analysis is important from one more viewpoint. As against the observed reality of increased female subordination in the wake of prosperity, certain economic literature expresses a 'prosperity optimism'

III

The country level masculinity of sex ratio with rising prosperity needs examination of the variations by rural, urban residence and states, to focus the specific sub regions of India where such disturbing changes are taking place during the last three decades.

Analysis of state level disaggregated data awaited.

III

The analysis above highlights the disturbing decline in the proportion of female children in the Indian Population. Disturbing because the decline is clearly man-made (sic!); arising out of sex selective foeticide or to use Sen's term 'high-tech sexism'(2002). The relevant techniques have made an early appearance in some prosperous parts of the country and the demographic consequences are becoming apparent now.

Above pattern throws up a challenge to the fraternity of medical professionals as well. They should take suo moto note of the role some of

their members may be playing in abetting sex selective elimination of girl children. The fraternity need not wait for the society to establish the case. The onus to set their own house in order is on them and not on the society. The effect these services have on the rural areas also need investigation and efforts stepped up against such trend.

It has often been argued in economic literature that the masculinity of sex ratios is a transitory phenomenon, which will eventually disappear when society moves significantly closer to modernity But India experience does not support such optimism since prosperity, technological innovation, and growing urbanization do not appear to have modernising influence on the society. These in fact appear to adversely affect the life chances of female children. The convergence of urbanisation, prosperity and anti female bias is a matter of worry and raises questions about the pattern of 'development' we are pursuing.

Source: 'Level & Pattern of Consumer Expenditure in India', NSS 43rd, 50th & 55th round

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