

## A Discourse on Child Sex Ratio and Sex Ratio at Birth: Positioning Maharashtra

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### Abstract

*Maharashtra, one of the economically advanced states in India, is known for its skewed child sex ratio (CSR) and sex ratio at birth (SRB). CSR is getting worsened, though SRB in urban Maharashtra is showing some improvement in recent years. CSR was almost normal in the state till the 1980s, but thereafter it started showing gradual signs of decrease. There is a clear indication that the problem with CSR is spreading from western to eastern sides of Maharashtra. Some questions that are highlighted in this paper are: does son preference in Maharashtra cut across society, irrespective of social background? Why does the discrimination spread gradually in this state? Why does census data indicate a negative association of women's empowerment with CSR in rural Maharashtra? The bigger question is whether empowerment of women is synonymous making CSR better. This paper aims to explore CSR and SRB in Maharashtra on the verge of modification of PCPNDT.*

Key words: Child sex ratio, sex ratio at birth, son preference, women's empowerment, Maharashtra

### I. Introduction

The presence of discrimination against girl child in India is well documented. A consistent upward trend towards masculinity in child population in the previous two decades bears ample testimony to this. Child Sex Ratio (CSR) is primarily influenced by Sex Ratio at Birth (SRB) and mortality in the early childhood, besides under enumeration of girl child, age misreporting, etc. The natural SRB usually has higher male births as compared with female births. It ranges between 943 to 954 females per 1000 males. But the higher male birth is neutralized due to higher male mortality in the normal population. CSR in India has fallen steadily, mainly after 1980. This reflects a grim picture of the status of the girl child in the country, particularly in some states. CSR (0-6) continues to decline in the successive censuses. In Census 2011, CSR in 27 States/UTs has declined. Decline is also noted in 461 districts from 2001 to 2011 (RGI, 2011). Alarming trends are discerned in some of the major states like Punjab, Haryana, Himachal Pradesh, Maharashtra, Gujarat, and Delhi. Only Kerala, Pondicherry and Lakshadweep have shown an increasing trend of CSR between 1991 and 2001. In our society, birth of the first daughter is always justified with a positive value loaded expression like *Laxmi* has arrived; so the family will prosper and have peace. Daughter as a first child is considered as a blessing with an underlying connotation that the next birth should be a boy. Nevertheless, no one utters that '*Vishnu* has arrived' after a new born boy's arrival, rather a majority cheers as if they have won the show. So, in our deep consciousness, we defend the arrival of a daughter, indicating a hidden sense of insecurity or inferiority which is not applicable in the case of a boy's birth.

Accepting men and masculinity as better gender is deeply rooted in our mind and it may take a long time to change such ideology or value system. Neither so-called educational degrees nor any

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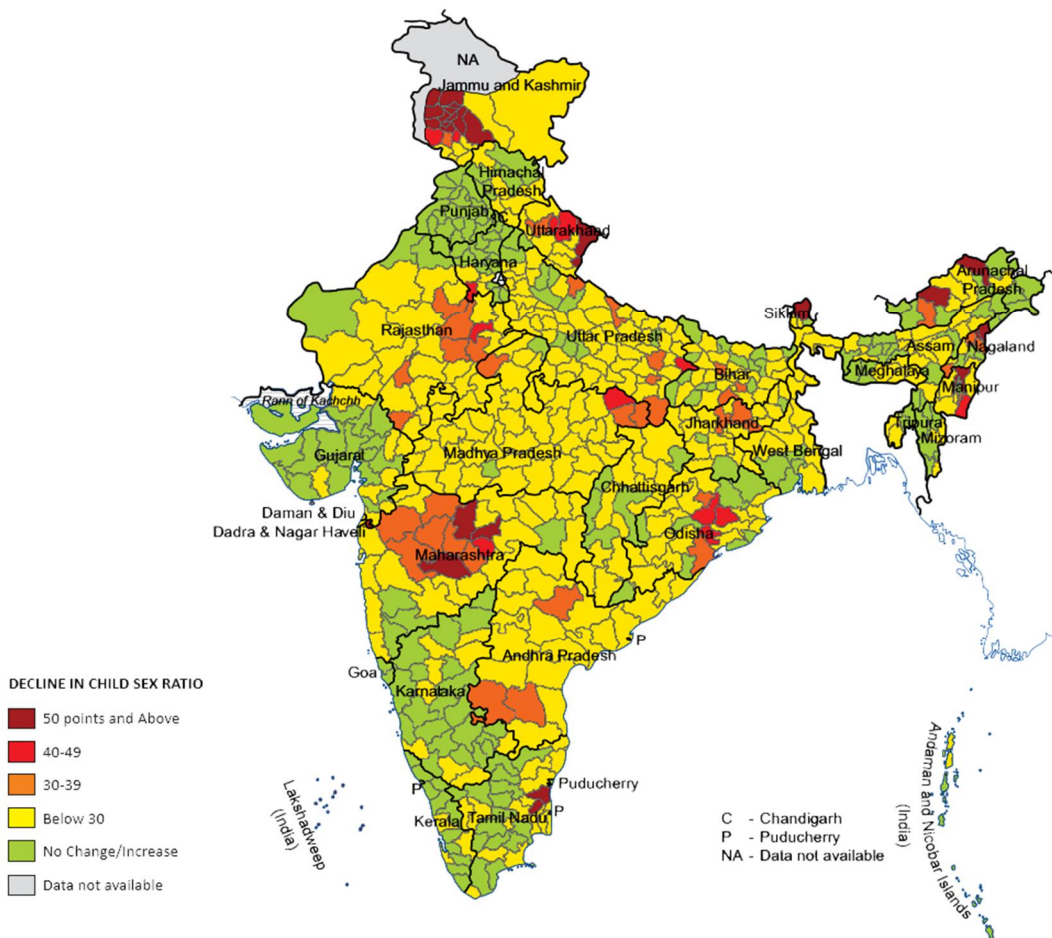
class boundary can curb the unequal fascination for sons compared with daughters. In the current decade, twenty-six districts in India witnessed more than 50-point decline in CSR from 2001-2011 (RGI, 2001 & 2011). It is a worrying trend indeed as these districts represent almost all parts of the country and the problem is no longer concentrated in the northwest region alone. The CSR in parts of states like Jammu & Kashmir, Haryana, Uttarakhand, Madhya Pradesh, Chhattisgarh, Bihar, Maharashtra, Telangana, Tamil Nadu, Odisha and the North-East India has plummeted significantly. Sixteen districts have recorded a decline of about 40-49 points while 36 districts experienced a decline of 30-39 points. In this respect, Central Maharashtra reveals a disheartening picture (Figure 1).

Some pertinent questions always tinker the researchers on issues of declining CSR not only in India as a whole but also in different states and districts. Is the discrimination spreading gradually or is still limited to small areas? Roy and Chattopadhyay (2012) articulate that there are reasons to feel optimistic that the situation might improve and at the same time there are causes for anguish. A reason for hope is that many Asian countries are showing such turnaround. For instance, in South Korea, the SRB reached a plateau at around the level of 114 (males per 100 female births) and then returned to the normal level of 106 in 2007 (Chung & Dasgupta, 2007). South Korea's rapid development had a role in the normalization of its SRB. SRB has also flattened in Taiwan and Singapore (Guilmoto, 2007 & 2009). Comparing the situations in China and India, Das Gupta et al. (2007) expressed confidence that both these countries have additional supporting public policies to increase gender equity. Guilmoto's recent study points out that in India SRB in some of its states, which are known to have the discrimination, have been either reaching a peak or showing a slow decline, (Guilmoto, 2009). Retherford and Roy (2003) report a decline in the preference for having son in the country over the years. While the causes of anguish are that, the laws existing related to gender equality, dowry and pregnancy termination are full of loopholes, all failing to bring a perceptible change in the society.

There is no dearth of news headlines in Maharashtra regarding illegal abortion. Not much is known about the effectiveness of public policies in ameliorating the deep rooted culture of female neglect. Two regulations, one on minimum age at marriage and the other on dowry prohibition did not yield any perceptible change in the behaviour of the population (Guilmoto, 2009). In addition, the medical technology has unfortunately given means for enhanced sex discrimination. Since the attitude of sex preference remained unchanged in the culture, its mechanism has shifted from crude to refined methods. Such a shift is because of three reasons: (i) declining fertility and acceptance of small family advantages; (ii) liberal abortion laws where the reasons for abortion range from foetal defect and maternal health hazard with strong medical ground to contraceptive failure; and, (iii) access to new technologies (ultrasound and amniocentesis) with the contention of improving health, avoiding unwanted pregnancy and empowering women. The substitution hypothesis of decline in postnatal ill-treatment of girl child due to rise in sex selective abortion has not been well researched in India, particularly Maharashtra, though such mechanism is evident in China (Desai, 1996).

Reduction in fertility increases the chance of being sonless. It is, therefore, natural to expect that when family size desires decline, it is likely to come in conflict with the accomplishment of one's desired sex preference norm. This issue of fertility squeeze, as rightly initiated by Guilmoto (2009), assumes that people with no restriction on family size are likely to shun sex selection. After all, sex selection requires a cost. Apart from the economic cost, it also entails the psychological cost of going against the law. The centrally funded "*Beti Bachao, Beti Padhao*" (BBBP: save the girl child, educate the girl child) campaign attempts to reverse the dwindling numbers of girl child. BBBP is a Government of India campaign that aims to generate awareness and improving the efficiency of delivery of welfare services meant for the girl child and women. It is being implemented in the 100 gender critical districts, and Maharashtra has 10 such districts (Figure 1).

Figure 1: Decline of child sex ratio in districts of India (2001-2011)

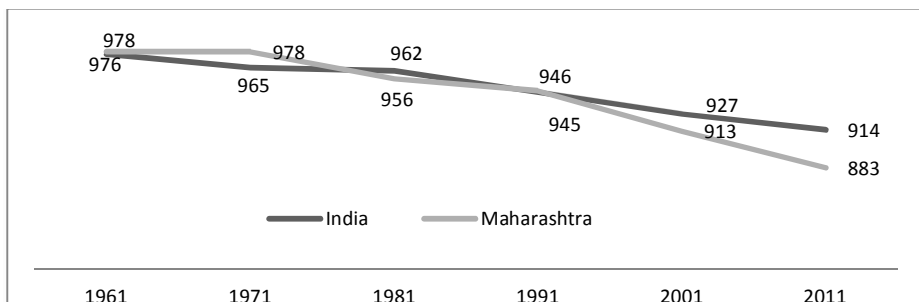


Source: Census of India, 2011

**II. Methods and Materials**

The paper is based on information from multiple sources. Census of India 2001 and 2011 provides the CSR data (RGI, 2001 & 2011). While we added a part of information provided by Registrar General of India (2017) on SRB, published recently, we also used NFHS-1 (1991-92), NFHS-2 (1998-99) and NFHS-3 (2005-06) data for calculating SRB in Maharashtra. Regression analyses are applied on pooled NFHS 1, 2 and 3 data to understand the determinants of SRB over time. Throughout the paper we defined the CSR as number of female children per 1000 male children in the age group 0-6 and SRB as number of female births per 1000 male births.

Figure 2: Trends in CSR: India and Maharashtra, 1961-2011



Source: Census of India, 1961-2011.

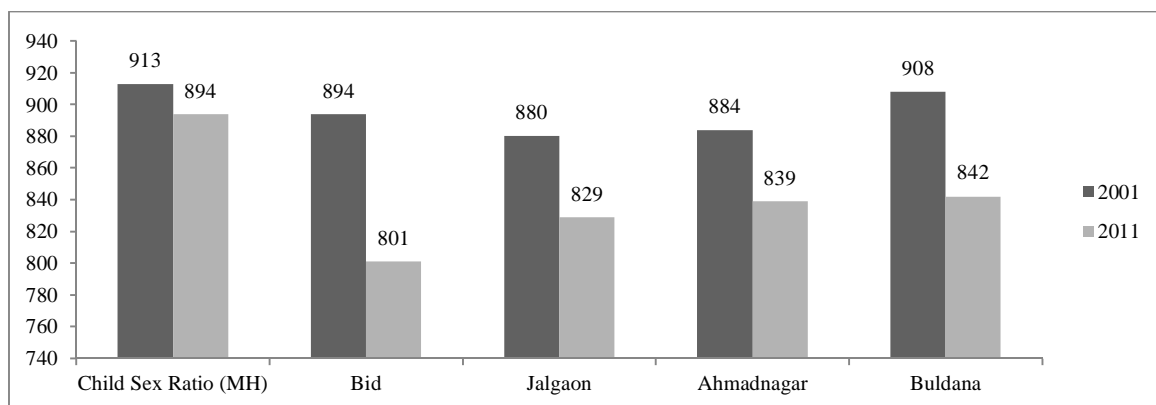
### III. Results

#### a) CSR in Maharashtra

While the total sex ratio (number of females per 1000 males) of the population has increased slightly in Maharashtra, the CSR has decreased at a rate of 3.29 per cent during the last decade. Maharashtra has only 883 girls per 1000 boys (0-6 years) (Figure 2).

There are only 4 out of 35 districts in Maharashtra where the child sex ratio is above 940. Gadchiroli had a ratio of 956 girls per 1000 boys in 2011. In 2001 it was 966. Chandrapur had a ratio of 945 girls per 1000 boys in 2011 and it was 939 in 2001. Other two districts are Gondiya (944 girls per 1000 boys in 2011 and in 2001 it was 958) and Ratnagiri (a ratio of 940 girls per 1000 boys in 2011 and in 2001 it was 952). Bottom five districts in Maharashtra where CSR is below 850 are Bid, Ahmadnagar, Jalgaon, Buldana and Kolhapur (Figure 3).

Figure 3: CSR in bottom four districts of Maharashtra, 2011



Source: Based on Census 2001 & 2011.

#### b) Association of CSR with selected background characteristics in Maharashtra

The Census provides some basic information like literates and illiterates, workers and non-workers, and religion. Within the limited information, the linear regression analysis of Table 3 shows the district level determinants of CSR in Maharashtra for 2011. With an increase in proportion of literate females, there is a significant decrease in CSR. On the contrary, male literacy helps to increase CSR. Higher non-working proportion of females helps to improve CSR. Usually, average years of education for males are higher than females. It could be possible that female literates are mainly having lower levels of education, while a higher proportion of males have secondary and higher education. Elementary education does not have much role in influencing development related indicators. In rural areas, it also reveals that higher male literacy and higher proportion of female non-workers help improving CSR. More is the proportion of Scheduled Castes (SCs) and Scheduled Tribes (STs), better is the CSR, mainly in rural Maharashtra. However, determinants of CSR in urban areas do not show any significant covariate. It could be possible that in an urban set up, there are many more factors influencing CSR, not captured by census. It is also plausible that the bias for son in urban areas cuts across society.

CSR will remain half explored if SRB is not touched upon. Recent report of Civil Registration System says that Maharashtra's SRB dipped by eight points in 2016 as compared with the previous year (RGI, 2017). Data from Civil Registration System show that the SRB in Pune district showed a promising upward trend till 2014. However, it went down to 891 in 2015 and fell sharply by 53 points to 838 in 2016. In fact, among the districts in Maharashtra, Pune and Osmanabad registered the second-highest decline in the sex ratio at 53 points. The worst decline was in Washim district (Isalkar, 2017).

Table 1: Linear regressions showing relationship of CSR with selected background characteristics in Maharashtra, 2011

Determinants	Total	Rural	Urban
	Unstandardized B	Unstandardized B	Unstandardized B
<b>Caste</b>			
Other castes (R)			
Per cent Scheduled Castes	1.306	2.111*	0.820
Per cent Scheduled Tribes	3.508**	3.612**	0.639
<b>Male worker</b>			
Per cent male workers (R)			
Per cent male non-workers	-3.659	-4.354	-1.338
<b>Female Worker</b>			
Per cent female workers (R)			
Per cent female non-workers	3.594**	3.643**	-1.459
<b>Male Illiterate</b>			
Per cent male illiterates (R)			
Per cent male literates	21.891**	21.227**	3.155
<b>Female Illiterate</b>			
Per cent female illiterates (R)			
Per cent female literates	-13.386**	-12.708**	-0.417
R <sup>2</sup>	0.646	0.986	0.307

Source: Based on Census data, 2011; Note: \*\* p<0.01, \*p<0.05; n = 35 districts; R: Reference category.

Table 2: Variations in odds of having a boy at 2nd birth among married women in Maharashtra: Coefficients from logistic regression based on pooled data (1992-2006)

Variables	Coefficients <i>b</i>
<b>Time 0 (before 1981) (R)</b>	
Time1 (1981-1990)	.029 (.046)
Time2 (after 1990)	-.196* (.096)
<b>Residence</b>	
Rural (R)	
Urban	.012 (.050)
<b>Religion</b>	
Hindu (R)	
Other than Hindu	-.022 (.055)
<b>Caste</b>	
Caste other than SC/ST (R)	
Caste SC/ST	-.016 (.057)
<b>Education</b>	
Education below 10 years (R)	
Education (Edu) 10 and above	.011 (.051)
<b>Sex of child</b>	
1 <sup>st</sup> child boy (R)	
1st child Girl (Girl1)	.004 (.046)
<b>Interactions</b>	
Urban * Time2	.010 (.091)
Girl1 * Time2	.192* (.083)
Education * Time2	.045 (.090)
Religion * Time2	.032 (.099)
Caste * Time2	.025 (.100)
Sample Size	11,102
-2 Log likelihood	15346

Note: Women having twins in 1<sup>st</sup> or 2<sup>nd</sup> order births are excluded from the analysis; R: Reference category; \*p<.05. Based on pooled data of NFHS 1991-92, NFHS 1998-99 and NFHS 2005-06. Source: Roy & Chattopadhyay (2012).

### c) SRB in Maharashtra

To facilitate analysis of SRB in Maharashtra from NFHS data, the three NFHS surveys i.e. NFHS 1 (1991-92) NFHS 2 (1998-99) and NFHS 3 (2005-06), have been combined. No significant difference is found in SRB for the first child. As revealed in Table 2, though the odds of having a boy in the 2<sup>nd</sup> birth order has decreased notably in Maharashtra, the odds of a boy in the 2<sup>nd</sup> order when the first is a girl is markedly higher in the recent past (after 1990) in this state. No other variable like residence, religion, caste and even education explains any significant impact on odds of having a boy at 2<sup>nd</sup> birth. So, the chance of having a boy (not having a boy) as second birth is more or less similar among all these sub groups. The Time2 variable and the interaction term of Table 2 clearly reveal that though in Maharashtra, chances of having a boy in second birth has declined after 1990, the probability of having a boy if the first birth is a girl has increased markedly during the same time.

## IV. Discussion

Continuation of pregnancy is an individual choice. Until and unless client and provider both agree, foetus cannot be aborted. Aborting a life is painful definitely for an expectant mother. Thus, she can protest against such an unlawful action in whichever way she can. To do such protest, she needs economic freedom; enough internal/intellectual strength; and legal, moral and ethical support from various institutions.

It is often argued that Hinduism propagates son preference, though our analysis of NFHS data above does not show any statistical difference across religion or class in Maharashtra in terms of sex preference. Basically misinterpretation of religious verses and ideology, and presence of fundamentalists can mould the essence of any religion. Laws could be discriminatory, and interpretation of norms and values can be biased. In Maharashtra, we could not find any religious difference in son preference. Ghosh and Chattopadhyay argued that religious effect on son preference can only be observed when religious binding is stronger as compared with cultural integrity of different religious groups (Ghosh & Chattopadhyay (2017)).

Some important issues based on the above results that need to be highlighted are: Why does census data indicate a negative association of women's empowerment (in education and work participation) with CSR in rural Maharashtra? The bigger question is; does empowerment of women is synonymous with making CSR better? Why in Maharashtra, the situation is worsening in the central part of this state as well as in some of the richest districts like Jalgaon and Kolhapur?

We discussed the above findings based on two arguments: empowerment argument and spatial spread argument:

### *Women's empowerment and son preference in Maharashtra*

Repercussions of gender inequality can get manifested in a variety of ways. For example, it may get apparent in female neglect in control over economic matters, in neglect in provision of education as well as individual career development, market failure in shaping equal opportunity in job market or discouraging in taking part in political activities, etc. Not all the dimensions need to be present in a society having sex preference. Some of the above characteristics are even present in many western countries that do not exhibit any sex imbalance in numbers. Educational difference between two sexes is practically non-existent in Punjab, which is one of the economically most developed states in the country and having one of the lowest female work force participation and most distorted CSR and SRB. Empowerment does not guarantee reduction of son preference until and unless it is embedded on strong ground of quality education, interaction with the enlightened mass who can interpret socio-cultural scriptures in a positive manner, a strong family milieu that teaches equality in every aspect and a gender neutral work environment.

Maharashtra's positive association of child sex ratio with lower female work participation and negative association with female literacy need exploration. Roy and Chattopadhyay (2012) points out that in educated groups of Rajasthan or urban Orissa, SRB is getting significantly distorted over time. Though education may be of prime necessity, it does not automatically lead to sufficiency in nullifying the end product (Dasgupta, 1987, Basu 1993; Sekhar & Hatti 2007). Indicators of census on literacy are statistically promising, yet it does not connote emergence of an educated society. If we assume that the average education of urban women is higher than their rural counterparts, then sex selection must not arise among the educated mass! If literacy does not impart insight, then mere educational degree fails to solve any social problem. In short, literacy per se does not explain anything about quality education and thus can misguide us in explaining empowerment. Fulfilment of educational attainment is one thing when it comes to joining remunerative activities outside the household, but it is a matter of choice. Female work in India is a complex indicator that does not follow clear pathways with son preference. Many homemakers engage themselves in household farm business, yet not reported as working. On other hand, Bhalla and Kaur (2011) opine that if husband is educated and earns sufficiently, wife restricts herself to engaging in jobs, as evident from NSS data. Large majority of working class women who belongs to census defined 'working' category, are mainly poverty stricken, and are engaged in unorganized sectors. As observed by Behrman and Duvisac (2017), women's paid employment in the service and manufacturing sectors is associated with significant reductions in the stated son preference of low-skilled women (i.e., low education and literacy). Paid employment in manufacturing is associated with significantly higher stated son preference among university-educated women. On the otherhand this negative association goes away for women at higher skill levels. However, women's paid employment in agriculture and the professional-technical sectors is not significantly associated with women's stated son preference. Thus (non) working women in India, are a heterogeneous group having multi-dimensioned effect on the outcome (here it is child sex ratio).

#### *Low CSR spreading to central Maharashtra*

Coming to the next question, why central region of Maharashtra is showing a high level of distortion in CSR in 2011 census as compared with 2001? It is true that CSR in urban Maharashtra is also very low and in fact the decline of CSR first started from urban areas and spread to rural areas. The epicentre of low CSR started from prosperous western districts (Satara, Sangli, Kolhapur and Pune) and now has spread to central part. Whatever improvement happened in Satara, Sangli and Kolhapur, it is low. There is a clear indication that the problem with CSR is spreading from western to central areas of Maharashtra and it is a matter of concern.

Central region of Maharashtra is rural, experiencing dry climate post monsoon, with lowest per capita income and a negative annual growth in districts like Bid, Aurangabad and Osmanabad (Mishra, 2008). Wide gender gap in literacy is well observed in some of these districts of central Maharashtra. People, mainly from tribal community (like Banjara), scheduled castes and VJNT, who practice seasonal migration in the lean period and get engaged in temporary economic works in nearby urban centres (Jaleel & Chattopadhyay, 2018). Connell and Messerschmidt (2005) has argued that in communities with a history of female neglect, endorsing idealized beliefs about masculinity, positively relate to psychological well-being of young men. Oldenburg (1992) found a strong relation of violence and son preference (Oldenburg, 1992). He has put forth some explanations for such association: *doab* (area between two rivers) is an area where pastoralists (which is mainly a male dominated occupation) adopted settled agriculture in vulnerable marginal ecology and thus struggled harder for sustainable agrarian production and hence can portray the advantages of being masculine. Central Maharashtra has several such *doabs* of river Godavari and its tributaries. It is also argued that caste and communities that predominate in the northern and western regions of India (Maharashtra belongs to Western region) have the tradition of valorising violence and masculinity, thus supporting the argument of Connell and Messerschmidt (2005). Very aptly, the explanations above fit well with the conclusion of phenomenal work of Gadgil (1982) in Maharashtra. Part of central Maharashtra holds many castes and communities that used to practice pastoral activities since historic past. However, during the British rule and thereafter,

forceful implementation of settled agriculture and dairy farming in the weak ecological zone eventually led them to become landless migrants (Gadgil et al., 1982) who eventually become masculine.

Another argument could be the prevalence of *jat panchayat* regulations in central parts of Maharashtra. Many of the nomadic and semi-nomadic tribes and caste communities of central Maharashtra are living in an environment that is controlled by *jat panchayat* regulations. A *jat panchayat* is a traditional dispute resolution institution which usually decides matrimonial, property or caste-related disputes regarding customs and rituals. Those guilty of violation of rules, traditions or customs or for marrying an outsider are fined heavily, excommunicated, boycotted or expelled. Such ostracism leads to dire steps (Jadavi, 2016; Jayaraman, 2018). Though *khap panchayat* of the north-west is a highlighted issue of concern, *jat panchayat* working on a similar fashion for years is the least discussed policy concern. *Nakusha* practice of western and central Maharashtra and incidences of unsafe abortion often come to the newspaper headlines, which strengthen the deep-rooted cultural beliefs of having sons (Joseph, 2017).

One more explanation could be that the rice productivity per hectare is the lowest in central Maharashtra region (Maharashtra State Statistics Department, 2008-09). In cultivation of rice, women's participation is high (Bardhan, 1974; 1984), thus they have better decision making power. Large parts of this central belt of Maharashtra are devoted for sugarcane and millet cultivation, while coastal and eastern Maharashtra (tribal districts) are engaged in rice cultivation where CSR is also better.

Urbanization in central districts could be another factor for distortion of child sex ratio. Jalgaon and Kolhapur, unlike Jalna, Bid, Buldana, etc., of central region are more urbanised, with higher per capita income and literacy. Commercialisation of agriculture like cultivation of cotton, sugar, banana, pulses and edible oil in recent past and emergence of middle order cities helped overall economic growth, leading to more opportunity to have access to sex selection. Kolhapur has more than 1,000 registered radiologists -- the highest number in the state (Jore, 2010). Prosperity ensures better infrastructure, more ultrasound machines and more doctors to perform the sex selection tests. People have money-power to pay for the technology and of course, as infrastructure improved, people could access the clinics easily. A previous study explains that four districts that support large number of settled scheduled tribes like Bhils, Gond, Pawara and Kokana -- namely, Gadchiroli, Gondiya and Nandurbar are least urbanized with a fewer number of sonography centres (less than 20) and have a healthier CSR (Nagarajan & Mulay, 2008).

## V. Conclusions

Maharashtra would be the first to introduce schemes for a third female child, a move that the public health official described as *õa positive move to bridge the gender divide* (Rana 2011). However, the failure of similar schemes in Delhi and Haryana to significantly adjust the sex ratio raises questions on whether an even weaker incentive programme in Maharashtra will succeed. The activities under the campaign involve citizen's participation. Also, community and religious leaders, women's groups, NGOs and even celebrities should be roped in to help the drive.

The socio-economic rise may enhance the productive role of men more than women due to male centric developmental programmes (Tinker, 2000). Gender inequality widens during socio-economic development despite a rise in developmental indicators unless it is consciously addressed during the planning process (Razvi & Miller, 1995). Interestingly, propensity to go for sex selective abortion is high among women with better economic strata, more than compensating for the lower level of son preference (Retherford & Roy, 2003). Rural Maharashtra demands economic empowerment of women by introducing professional jobs beyond wage labour and labour related to domestic sphere along with promotion of education (Vlasoff, 2013). Laws/rights related to gender equality do have loopholes which need stern revision and amendments. Maharashtra needs land reform, revision of land inheritance laws and family laws, stringent revision and



implementation of PCPNDT, stricter punishment for those involved in sex selection and above all a high-level campaign of government involving celebrity personalities and popular leaders positioning a positive image of girls/women in media.

On development front, we must encourage child's education through incentives and provision of basic infrastructure facilities; redefine the concept of work and make payment to all who are involved in any kind of productive activities. We should also make provision of childcare at affordable cost, impart knowledge about safety and security in school education system, compose school educational books gender neutral, and encourage women's participation in public and private sectors and higher education. De-masculinisation of agriculture, business and other organized sector employment, and defeminisation of household chores and low paid female jobs-are the need of the hour to encourage equality among genders and mutually valuating the existence of men and women.

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