

Gender Disparity, Development, and Fertility Transition in India: An Inter-state Analysis

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ABSTRACT The shift of the concept of Women in Development (WID) to Gender and Development (GAD) during last two decades has opened the scope of research in this direction. Gender disparity in different aspects of human life must have some bearing on social and economic development, female autonomy and fertility in a population or vice versa. This paper attempts to look into the matter through constructing different and combined gender disparity indices and also some development indices as well as indices of fertility transition and female autonomy. Based on mainly NFHS data and Government Publications, this work shows that gender disparity against women exists in health, economic and socio-cultural aspects. In all aspects, the states vary widely. On the combined scale, Rajasthan appears to discriminate against women the most, while disparity against women is the least in Kerala. Goa and Kerala are highly developed in their social structure while social development in other states has just been started. Fertility transition in U.P., Bihar, Haryana and M.P. is far away from the best state Goa. Social development, female autonomy and fertility transition, all three aspects are found to be important correlates of gender disparity while economic development seems to have no say in this respect. This effort, later can be supplemented by much more detailed study, while firstly to incorporate the issue in our developmental plans we need to build up a strong and quality database for studying gender.

Research into women's issues is a recent phenomenon and studies related to the role of Third World women in the development process of their country have only been carried out regularly during the last twenty-five years. The term, "Women in Development" (WID) was coined in the early 1970s by the Women's Committee of the Washington, D.C, chapter of the Society for International Development. Since then, realizing its importance, efforts went on to integrate women in development process to achieve sustainable level of social and economic develop-

ment. More recently, instead of focusing on women in isolation, researchers have drawn attention to the need to look at "Gender and Development" (GAD). This focus on "gender" rather than "women" was influenced by Oakley (1972) and Rubin (1975), who were concerned about the manner in which the problems of women were perceived in terms of their sex - their biological differences from men - rather than in terms of their "gender" - the social relationship between men and women, in which women have been systematically subordinated. Men and women play different roles in society, with their gender differences shaped by ideological, historical, religious, ethnic, economic and cultural determinants (Whitehead, 1979).

The issue - is there a growing equality of opportunity between men and women- has begun to dominate the development debate in the last decade of 20th century (HDR, 1995). Thus, taking the above perspective in view there is a need to consider the gender and development issue in the context of India which ranks 99 in the list of gender related development index (GDI), with a value of 0.40 showing that women in the country suffer the double deprivation of gender disparity and low achievement (UNDP, 1995).

Examining gender inequality and its sources in India is a very complicated task because of presence of other forms of inequality defined by class, caste and religion, political, social and scientific, cultural and even by the policies and developmental plans taken by the government. The sources of gender inequality begin at the family level. It exists even at the level of social institutions, reproductive choices (e.g. son preference), women's and girl's health etc., (Desai, S., 1994). The perennial problem of non-availability of adequate data on every aspect of gender inequality makes it difficult to assess its dynamics.

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In relating gender and socio-economic development the question that first comes to mind is - does higher socio-economic development induce less gender disparity or vice-versa? According to Human Development Report, 1995, there is wide variation in gender disparity in relation to development. It is seen that some highly industrialized countries have higher gender disparity than some developing countries. Thus gender disparity is not a feature of only developing countries, its existence is felt every where in the world irrespective of its economic development. Rather, it is a socio-cultural phenomenon.

Conversely, socio-economic development may affect gender disparity positively or negatively. At the lower level of development, it is not expected that the fruit of development will go equally to all sections of the society. Before development starts, the disparity is possibly lower while after certain stage of development, it starts increasing before declining permanently. Many development parameters show such behavior.

Fertility in a population is very important characteristic to study. Particular causal relationship of gender disparity and fertility transition is difficult to perceive. Gender disparity in favor of males probably gives them dominating power over females even in reproductive behavior, which should be determined jointly by husband and wife. The ideal family size norm probably can be attained by giving females more control over their reproductive behavior. Thus gender disparity has an effect on fertility through reproductive behavior of the people. The relationship in a reverse direction can be seen through son preference. High son preference (may be equivalent to high fertility) itself implies high disparity against women even at the time of birth.

Female autonomy can be understood as an interchangeable variable with gender disparity. Yet then, it is taken as an independent variable here. The reason behind this is, in the present study many of our variables relate to children only. The autonomy of mother can obviously scale the gender disparity among children. That taking female autonomy into consideration can be justified, through it.

The basic intention of this paper is to see

provincial variation of existing gender inequality along with their level of socio-economic development, female autonomy and fertility transition in India. In the way attempt has been made to develop an over all comparable gender inequality index for each of the major states by combining individual indices for different dimensions of gender disparity and to construct social and economic development index, fertility transition index and one female autonomy index for each of those states. Interrelationships between development, gender disparity, fertility transition and female autonomy are examined and discussed with the help of above indices.

The Data Base

The data have been taken mainly from the all India and state level reports of the recently conducted National Family Health Survey, 1992-93, India. Other sources are Census of India, 1991, Centre for Monitoring Indian Economy report, Sample Registration System and other Government publications.

METHODS

1. CHOICE OF VARIABLES USED

The choice and subsequent computation of variables are mainly directed by the relative importance and power of the variables in representing the dimensions for which they are selected. For measuring gender disparity, the indicators chosen relate to health, social, and economic. Social and economic factors and female autonomy are used for computing development index. A detailed description of the variables is given in the appendix.

2. CALCULATING DIFFERENT INDICES

a. Methods Used for Calculating Disparity Indices

Calculating Disparity in Health

1. Nutritional Disparity: Two measures are taken into consideration, viz. weight-for-age (WA) and weight-for-height (WH) for children below 4 years. To find out the level of variation in nutritional status, a Nutritional Disparity Index (NDI) is prepared. It is defined as below.

$$NDI = \frac{1}{2} \left[\frac{WA^m}{WA^f} + \frac{WA^r}{WA^f} \right]$$

where superscript "f" and "m" denote female and male, respectively.

2. Disparity in Mortality :

Mortality under age 5 is taken as a measure here. A Child Mortality Disparity Index (CMDI) is computed as below.

$$CMDI = \frac{\text{Rate of mortality of males below age 5}}{\text{Rate of mortality of females below age 5}}$$

3. Disparity in Health-seeking Behavior :

For all the three variables of health-seeking behavior, the ratio of females to males are taken and the index Health Seeking Behavior Disparity Index (HSBDI) is constructed by taking the average of the three. However, immunization and breastfeeding practice could also be considered in this area.

Calculating Disparity in Social and Cultural Aspects

1. Educational Disparity:

Let,

L^f = Effective literacy rate for females.

L^m = Effective literacy rate for males.

EA^f = Level of educational attainments for females (primary +secondary +tertiary).

EA^m = Level of educational attainments for males (primary +secondary +tertiary).

Adjusted literacy rate,

$AL = 2/3 L^f + 1/3EA^f$ for females

$= 2/3 L^m + 1/3EA^m$ for males

Educational Disparity Index (EDI) is thus calculated by,

$$EDI = \frac{AL^f}{AL^m}$$

2. Son Preference

Index of Son Preference (SPI) is defined by

$$SPI = \frac{\% \text{ CMW with two living children want additional girl}}{\% \text{ CMW with two living children want additional boy}}$$

where, CMW = Currently married women.

There are various other methods of measuring son preference than the present one . But no one of them can be said to be the best. However, one may argue that sex combination of the living children is also very important to consider here . But the basic intention of this index, in the present study is to examine the state level "vari-

ations", not the "extent" of son preference . So if any methodological inconsistency is there, that is true on an average for all the states and will not affect the variability.

Calculating Disparity in Economic Aspects

1. Disparity in Work Participation (Non-agricultural)

Let,

WP^f = Female work participation rate in non-agricultural sectors.

WP^m = Male work participation rate in non-agricultural sectors.

Now, Work Participation Disparity Index (WPDI) can be calculated as,

$$WPDI = \frac{WP^f}{WP^m}$$

2. Disparity in Combined Wages (Agricultural and Non-agricultural)

Let,

AG = Agricultural wage ratio (f/m)

NAG = Non -agricultural wage ratio (f/m)

MAG = Ratio of % of main workers engaged in agricultural activities

MNAG = Ratio of % of main workers engaged in non-agricultural activities

Then, Combined Wage Disparity Index (CWDI) is defined as

$$CWDI = \frac{AG * MAG + NAG * MNAG}{MAG + MNAG}$$

b. Methods Used for Calculating Socio-economic Development and Female Autonomy Index

Calculating Social Development Index (SDI)

Here, first of all three different indices for each state for three different measures used is calculated by the formula

$$\frac{X_j^i - X_{min}^i}{X_{max}^i - X_{min}^i}$$

Where, X_j^i = Value of the i^{th} measure for j^{th} state.

X_{min}^i and X_{max}^i are the minimum and maximum value for the set on i^{th} measure. Then SDI is the average of combined measure of three measures (UNDP, 1993). That is, $SDI = 1/3$ [index for

over all literacy + index for per cent never married females in 15-19 age group + index for per cent non ST/SC population].

Calculating Housing Development Index (HDI)

For each of the three measures taken into consideration here, calculations are done in the same way as for the measure for SDI and HDI is also computed in the similar manner. This index should be used very cautiously because, due to climatic condition, particularly in North - Eastern states, the type and pattern of housing is very different. However, as NFHS classified housing we have used here.

Calculating Female Autonomy Index (FAI)

This index is also constructed in the same way as SDI and HDI using measures "per cent ever married women (13-49) working outside family farm/business" and "per cent currently married women (13-49) reporting discussion about family planning more often than twice during one year before survey".

Calculating Combined Gender Disparity Index (GDI)

Logical Weight System

As many as three parameters (altogether seven variables) are considered to show the presence of gender disparity in every aspects of a society. But, all of them are not of equal importance and some of them may depend upon the level of other parameters. So, in constructing the over all gender disparity index, we have chosen to give some parameters greater weights than others to make the index more meaningful. The procedure solely depends upon logic which are developed from literature review. Gender disparity depends much more on social and cultural set up than its economic achievements. Next to socio-cultural parameters come the health aspects and have priority over economic achievements in reducing gender disparity. Thus, socio-cultural variables have got weight 0.3 each, while health variables and economic variables have got weights 0.1 and 0.05 each respectively.

Thus,

$$GDI = 0.3 (EDI + SPI) + 0.1 (NDI + CMDI + HSBDI) + 0.05 (WPDI + WDI)$$

Calculating Fertility Transition Index (FTI)

There may be many ways to calculate fertility transition index. One simple way may be as below,

$$FTI = \frac{TFR_{obs} - TFR_{min}}{TFR_{max} - TFR_{min}}$$

which is an increasing unit function of observed Total Fertility Rate (TFR), arguably one of the best measures of fertility of a population. The minimum and maximum values are taken from the maximum and minimum TFR in the set of major states considered here. The TFR for which NRR is equal to 1 could be the ideal choice, but then some of the states like Goa and Kerala will show negative index values, which would be difficult to handle.

It is important to note here that, all the indices defined above are ranging from zero to infinity on a continuous scale. An index value zero implies the most disadvantageous situation for women. Index value one and infinity imply no gender disparity and the highest disparity against males respectively. All the indices are unidirectional in sense. For some of the indices the sense of "advantage" or "disadvantage" should be interpreted very carefully.

RESULTS AND ANALYSIS

Disparity in Health

1. Disparity in Nutrition

Nutritional disparity is believed to be existent among children more than among adults. Though very few studies have been done in this area, Harriss's (1986) work is worth noting which found that in this subcontinent, condition of pre-school girls were worse off than boys.

NFHS data gives us scope to compare the nutritional status of boys and girls (below 4 years age) publishing data on "Weight for age" and "Weight for height" for almost all states. On the weight for age and weight for height scales those children whose weight for age and weight for height fall below two standard deviations from reference population (International Reference Population as recommended by WHO) are considered underweight and wasted (too thin) respectively.

Table 1: Disparity in Health

State	Nutritional Disparity Index		Child Mortality Disparity Index		Health-Seeking Behavior Disparity Index	
	Value	Rank	Value	Rank	Value	Rank
A.P.	0.922	4	1.032	12	0.901	7
Assam	1.259	18	1.069	14	0.951	13
Bihar	1.246	17	0.939	6	0.904	8
Gujarat	0.915	3	0.881	5	0.892	5
Goa	1.112	15	1.211	17	1.029	18
Haryana	0.87	2	0.755	1	0.965	14
H.P.	1.037	10	0.965	9	0.928	10
Karnataka	1.032	9	1.001	11	0.989	17
Kerala	1.073	12	1.176	16	0.925	9
M.P.	1.079	13	0.982	10	0.841	2
Maharashtra	0.979	7	1.132	15	0.900	6
Orissa	1.031	8	1.064	13	0.876	3
Punjab	0.961	6	0.952	8	0.986	16
Rajasthan	1.070	11	0.829	3	0.813	1
T.N.	0.867	1	1.272	18	0.935	12
U.P.	1.175	16	0.827	2	0.933	11
W.B.	0.935	5	0.950	7	0.888	4
Delhi	1.093	14	0.868	4	0.976	15
India	1.083	-	0.943	-	0.899	-

Source : PRCs and IIPS, Bombay, NFHS, State level reports, 1994-95

More than half of the children in India are underweight with hardly any gender disparity, while, males are slightly (19 percent) more wasted than females (16 percent). Bihar tops the position for undernourished children while in Kerala nutritional level of children is the best.

Table 1 reveals that the Nutritional Disparity Index (NDI) ranges from 0.87 to 1.259 and shows that in 11 out of 18 major states males are more undernourished than females (NDI value greater than 1). In other states females are in disadvantageous position. In Tamil Nadu, disparity against women is the highest while in Assam it is the lowest. Another interesting finding from this table is that in Bihar, Assam, MP, Rajasthan and UP, females are in considerable nutritional advantageous position, though except Assam, others are demographically backward. Such observations may be explained as below:

1. During survey there is a gross under coverage of the children selected for weighing and measuring heights due to unavoidable circumstances.

2. There are possible age misreporting and digit preferences in those states causing considerable heaping at different ages. This has probably affected the variable "weight - for - age".

Nutritional disparity in any form is the least in Maharashtra and then in Punjab.

2. Disparity in Mortality

Studies of many scholars have shown that discrimination against women leads to higher female mortality than males in many developing countries (Bardhan, 1974; D'Souza and Chen, 1980; World Bank, 1991). Dyson and Moore (1983) observed greater gender differentials in child mortality in Northern than in Southern states. Table 1 shows gender disparity in under five year age mortality.

In India, females are in slightly disadvantageous position than males in the case of under five child mortality. Child Mortality Disparity Index (CMDI) values show that in 10 out of 18 states disparity in child mortality against female (CMDI less than 1) exist with Haryana at the top and Tamil Nadu at the bottom. Unexpectedly, the urban state Delhi is among the states where high disparity against females exists. Situation is slightly in favor of girls in advanced states like Tamil Nadu, Goa, Kerala and Maharashtra. Proper balance of child mortality is found in Karnataka only.

3. Disparity in Health-seeking Behavior

Health-seeking behavior is another aspect

where gender disparity is generally expected. There is wide variation over states in the treatment of ARI, fever or diarrhoea of children. In diarrhoea case, specially, not much sex difference is observed except in Gujrat, Karnataka, Kerala, Tamil Nadu and Madhya Pradesh. Andhra Pradesh, Madhya Pradesh, Rajasthan and West Bengal show wide discrimination against girl child in treatment of fever. In the treatment of ARI, in 10 states discriminations against girl child are found. In few states like Goa, Delhi, and Karnataka higher discrimination against boys than against girls are also found. Punjab shows absolutely no gender disparity in this case.

The Health-Seeking Behavior Disparity Index (HSBDI) in table 1 shows that Rajasthan ranks first in discrimination against girls and in Goa boys get discrimination. Almost 6 states are showing 10 per cent or more discrimination

declared as a fundamental right by the Supreme Court in a judgement.

The adjusted literacy rate, adjusted for level of educational attainments determines quality of education. Kerala tops the list with approximately 82 per cent literacy with negligible gender disparity. Rajasthan and Bihar are at the bottom with high gender inequality in both overall literacy rate and educational attainments. Girls are miles behind the boys there. Uttar Pradesh and Madhya Pradesh follow them very closely. The Educational Disparity Index ranges from as low as 0.41 (in Rajasthan) to as high as 0.92 (in Kerala). The states with lower achievement in educational front have shown higher discrimination against girls (Table 2).

The reason for still such vivid gender disparity in education mostly in underdeveloped states lies in the fact that illiterate or semi-literate

Table 2: Disparity in Social, Cultural and Economic Aspects

State	Educational Disparity Index		Son Preference Index		Work Participation Disparity Index		Wage Disparity Index	
	Value	Rank	Value	Rank	Value	Rank	Value	Rank
A.P.	0.63	7	0.33	13	0.260	14	0.672	4
Assam	0.72	13	0.38	15	0.296	18	0.690	6
Bihar	0.46	2	0.18	5	0.111	5	0.781	9
Gujarat	0.67	8	0.175	4	0.138	7	0.809	13
Goa	0.82	16	0.35	14	0.255	13	-	-
Haryana	0.62	6	0.12	1	0.087	1	0.808	12
H.P.	0.72	12	0.14	2	0.117	6	-	-
Karnataka	0.67	9	0.29	12	0.288	17	0.743	8
Kerala	0.92	17	0.53	17	0.269	16	0.569	1
M.P.	0.52	4	0.26	10	0.175	11	0.831	15
Maharashtra	0.69	10	0.21	8	0.178	12	0.674	5
Orissa	0.59	5	0.20	7	0.157	10	0.788	10
Punjab	0.79	15	0.16	3	0.111	4	0.620	2
Rajasthan	0.41	1	0.24	9	0.100	2	0.812	14
T.N.	0.72	14	0.43	16	0.266	15	0.712	7
U.P.	0.48	3	0.28	11	0.109	3	0.799	11
W.B.	0.71	11	0.19	6	0.154	9	0.661	3
Delhi	0.82	16	0.18	5	0.141	8	-	-
India	0.62	-	0.25	-	-	-	-	-

against girl child in health-seeking behavior in India.

Disparity in Social and Cultural Aspects

1. Educational Disparity

Education is mirror of the society. The Article 45 of the Constitution of India has the directive to give access to education for all. But, that level is yet far to achieve, even after 10 years it is

parents are not in position to visualize the importance of educating their daughters or cannot afford the cost incurred. So, poverty is one of the most important causes. Further, from economic point of view, educating girls is not profitable for them, because the wealth flow from daughters to parents stop after marriage (Mitra, 1979). Lack of proper infrastructure

for education of girls may be another plausible reason.

2. Son Preference

Son preference, mainly a cultural phenomenon, is another indicator of gender disparity towards girls. Trends in son preference over states is shown in table 2 and it is clear from the table that son preference in India is almost universal. In Northern states it is more prevalent than Southern states. The Son Preference Index constructed for the purpose of comparison shows that son preference is mostly prevalent in Haryana, followed by H.P., Punjab, Gujrat, Bihar and West Bengal. In Kerala preferential sex discrimination is the least.

Disparity in Economic Aspects

1. Disparity in Work Participation in Non-Agricultural Sector

Participation in non-agricultural sector reflects the economic advancement of any population. Gender disparity in this sector is widespread. Table 2 shows the situation over major states of India.

The table reveals that out of 18 states, in as many as 12 states males are more than 50 per cent involved in non-agricultural sector than fe-

males with Himachal Pradesh as the worst state in this respect. Delhi tops the list with very little gender disparity, as revealed by the Work Participation Disparity Index (WPDI). The value of WPDI ranges from 0.169 (Himachal Pradesh) to 0.964 (Delhi). Punjab and Kerala closely follow Delhi. The picture in Punjab, though surprising, is not unexpected. In Punjab, males are more engaged in profitable and prestigious agricultural sector, and so, females involve more in non-agricultural sector. Economically backward states like West Bengal, and Assam show not more than about 30 per cent disparity, while in economically advanced states like Goa and Maharashtra wide disparity against women is prevalent.

2. Disparity in Wages

In the economic front females always get less wages than males particularly in unorganized sectors. In non-agricultural sector females are generally more involved in unorganized sectors. Table 2 shows a wide discrimination against women in relation to men in paying wages. The Wage Disparity Index ranges from 0.569 to 0.831. Kerala shows the highest disparity in wages, which implies greater involvement of women in non-agricultural unorganized sectors. M.P.

Table 3: Combined Gender Disparity index and indices for Social and Economic Development Female Autonomy and Fertility Transition

State	Gender Disparity Index		Social Development Index		Housing Development Index		Female Autonomy Index		Fertility Transition Index	
	Value	Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank
A.P.	0.6201	13	0.267	15	0.499	10	0.467	6	0.236	15
Assam	0.7072	16	0.490	9	0.041	18	0.688	2	0.558	6
Bihar	0.5455	3	0.263	16	0.053	17	0.224	15	0.719	2
Gujarat	0.5733	6	0.501	8	0.708	6	0.374	11	0.373	8
Goa	0.7117	17	0.957	1	0.856	2	0.431	9	0.000	18
Haryana	0.5258	2	0.321	14	0.779	4	0.411	10	0.716	3
H.P.	0.5629	4	0.518	7	0.854	3	0.285	12	0.366	9
Karnataka	0.6418	14	0.448	11	0.604	8	0.474	5	0.325	14
Kerala	0.7943	18	0.910	2	0.494	11	0.736	1	0.034	17
M.P.	0.5745	7	0.079	18	0.317	13	0.116	17	0.685	4
Maharashtra	0.6137	12	0.546	5	0.685	7	0.484	4	0.329	13
Orissa	0.5814	8	0.330	13	0.155	16	0.264	13	0.349	11
Punjab	0.6115	11	0.488	10	0.736	5	0.248	14	0.349	11
Rajasthan	0.5118	1	0.134	17	0.448	12	0.144	16	0.592	5
T.N.	0.7013	15	0.566	4	0.580	9	0.510	3	0.199	16
U.P.	0.5669	5	0.344	12	0.232	14	0.085	18	1.000	1
W.B.	0.5881	9	0.535	6	0.213	15	0.439	7	0.349	11
Delhi	0.6008	10	0.838	3	0.991	1	0.434	8	0.384	7
India	-	-	0.391	-	0.398	-	0.333	-	-	-

shows the least disparity (only 17 per cent), followed by Rajasthan, Gujarat, Haryana and U.P. It is very difficult to give an explanation for this from the current data at this stage. It is rather interesting to note that there is wide variation in disparity against women in agricultural and non-agricultural sectors. Disparity is higher in non-agricultural sectors than in agricultural sector.

Combined Gender Disparity Index

Table 3 gives the values of all disparity indices and the combined Gender Disparity Index. It ranges from 0.561 to 0.819, implying that gender disparity is widespread over states and disparity is against women. On the combined scale, Rajasthan shows the highest discrimination against women (about 49%) followed by Haryana (45%), Bihar (44%), H.P. (43%) and Gujarat (42%) respectively. Kerala shows the least discrimination (18%) with Goa (25%) and Assam (28%) in next two positions. Tamil Nadu (29%) precedes Delhi after which comes Karnataka. Other seven states show on an average 35 to 45 per cent discrimination against women.

Social Development

Social development, defined as the development that includes a greater capacity of a social system and structure to utilize resources available in order to change the levels of living. Social development determines the attitude of people towards females affecting in turn gender disparity in a positive way. It is interesting to note that, according to our index SDI (Table 3), Goa preceded Kerala to hold the top position. As many as 10 out of 18 states get index value less than 0.5; i.e. less developed. Goa (0.957), Kerala (0.910), and Delhi (0.838) are more developed (index value from 0.7 to 1). Gujarat, H.P., Mahara-shtra, T.N. are in moderate range. High social development in Goa is attributed to impact of western culture, in Delhi it may be effect of high degree of urbanization, while in case of Kerala very little difference between rural and urban has its own impact. Madhya Pradesh is at the bottom of the list, after Rajasthan and Bihar. Surprisingly, A.P. is placed below even U.P.

Housing Development (Proxy to Economic Development)

In our study, as a proxy to economic development, we have taken housing condition as it can be easily measured from available NFHS data.

The Housing Development Index (HDI) in table 3 shows that Delhi tops the list with value 0.991, followed by Goa (HDI = 0.856) and H.P. (HDI = 0.854). The Eastern states of Assam, Bihar, Orissa and West Bengal are four from the bottom. Kerala (HDI = 0.494) and T.N. are having indices below 0.6, showing moderate economic development. Haryana, Punjab and Gujarat follow Himachal Pradesh.

Female Autonomy

Female autonomy is an important ingredient of social and economic development. Among the two variables taken into consideration for the first one the proportion of women working outside the family farm / business is quite low in the northern part of the country than in south. It varies from 6 per cent in Uttar Pradesh to 38 per cent in Tamil Nadu (Table 3). Kerala is far ahead of others with more than 0.7 value of Female Autonomy Index. The second state on the rank, Tamil Nadu lags far behind Kerala with a value of 0.51. U.P. shows the least female autonomy (0.085) closely followed by M.P. (0.116) and Rajasthan (0.144). Remaining states are having moderate female autonomy.

Fertility Transition

A declining trend in fertility is seen in almost all states. The Fertility Transition Index is prepared (Table 3) so that it measures on a standardized scale, the distance of one population from the population having the least fertility in the set. Goa ranks 1 and Kerala follows Goa closely. U.P. is the worst state in this respect preceded by Bihar, Haryana and M.P.

Correlates of Gender Disparity

Gender Disparity versus Socio-economic Development

Table 4 gives the rank correlations between GDI, SDI, HDI, FAI and FTI. The table clearly shows that there is no significant correlation between GDI and HDI, which implies that gender disparity has not much relationship with economic development. Also, HDI has no significant correlation with SDI, FAI, or FTI implies that in Indian situation at least, economic development has not much correspondence with social development, female autonomy, fertility

Table 4: Rank Correlation Matrix of Different Indices

	NDI	CMDI	HSBDI	EDI	SPI	WPDI	WDI	GDI	SDI	HDI	FAI	FTI
NDI	1.000	-.063	-.044	-.288	.2977	.0607	.0984	-.051	.2797	.715*	.2540	-.494
CMDI		1.000	.0701	.615*	.678*	.8731**	-.522	.8655**	-.547	.1049	-.714*	.7336**
HSBDI			1.000	.4339	.0584	.1565	-.330	.3776	-.249	-.365	-.325	.1229
EDI				1.000	.3239	.5433	-.775**	.8201**	-.848**	-.274	-.742**	.7214*
SPI					1.000	.7657**	-.261	.6970*	-.322	.3468	-.531	.4528
WPDI						1.000	-.419	.8888**	-.462	.1844	-.783**	.6712
WDI							1.000	-.702*	.6321*	.0107	.6192*	-.650*
GDI								1.000	-.675*	-.021	-.822**	.7918**
SDI									1.000	.2032	.7308**	-.644*
HDI										1.000	.1343	-.295
FAI											1.000	-.732**
FTI												1.000

Note : 1 - tailed significance : * - .01 ** - .001

transition and gender disparity. The relation of social development with gender disparity is strong and significant. Probably, gender relations are determined by social norms and activities in India which has a spill over effect on social development again. Particularly, social development shows a very high and significant negative correlation with educational disparity, which is quite expected.

Social Development and Female Autonomy Versus Fertility Transition

Social Development Index and Fertility Transition Index have a high and significant negative inter-correlation between them. This eventually implies that higher the social development,

greater will be the decline of fertility. It is also seen from table 4 that female autonomy and fertility transition have significant negative correlation between them though not much strong. It is thus established that greater female autonomy changes choice of ideal family size and in turn affects fertility positively. Again it is clear from the table that higher the female autonomy, lower is the fertility. Higher female autonomy equips females with more control over their reproductive behavior, which in turn helps declining fertility.

Gender Disparity Versus Fertility Transition

Gender disparity shows a very high and significant positive correlation with fertility transition. It is thus seen that higher gender

disparity exists where the fertility level is higher. More over, table 4 reveals that this relationship is very strong particularly in case of disparity in child mortality and education.

Gender Disparity Versus Female Autonomy

The interrelationship between female autonomy and gender disparity is high, positive and significant at the level of 99 per cent. Particularly, female autonomy has its significant influence in reducing educational disparity and disparity in child mortality as evidenced from table 4.

CONCLUSION

The issue of gender disparity came up recently with high importance in development debates. Development, fertility and female autonomy probably have significant bearing on gender disparity shaped by ideological, historical, religious, ethnic, economic and cultural determinants. The present work is an attempt to see the state level variation in different aspects of gender disparity and examine its interrelationship with other aspects like development etc.

The following conclusions can be made from the study.

1. Gender disparity exists in health aspects - in nutritional development, in child mortality and in health-seeking behavior over the states. There exists high degree of variability in the existence of disparity among sexes as well as over states.
2. Discrimination against women in relation to men is widespread in educational sector. States with lower achievement in this front have shown higher discrimination against women.
3. Son preference is universal in India. Northern states show more son preference than Southern states. Kerala and Haryana are two extremes in the set.
4. As far as work participation in non-agricultural sector is concerned, wide differences over states are observed, while in terms of combined wages some backward states surprisingly show less discrimination against women in comparison to their advanced counterparts.
5. On the combined scale of gender disparity, Rajasthan comes out to be the state with highest disparity against women while

Kerala seems to be the best place for women among the Indian states.

6. On social development measure, Goa appears to be marginally better than Kerala. Most of the states are below index value 0.5, showing poor level of social development in India. The urban state of Delhi tops the list in economic development, while Eastern states lag behind other regions of India in this respect. Fertility situation is the worst in U.P, Bihar, Haryana and M.P and the best in Goa and Kerala.
7. Social development, female autonomy and fertility transition all three aspects are found to be important correlates of gender disparity while economic development seems to have no say in this respect.

This paper may be taken as an effort to highlight the issue of gender inequality in relation to development, fertility and female autonomy. Based on the observations made here, further detailed study can be done giving much more emphasis on each of the aspects separately. A serious attempt can also be made to dig out the proximate determinants of gender disparity and the causal relationship of gender, fertility, and development. But for this and for incorporating gender issue in our developmental plans we need a very strong and quality database which is barely lacking presently. Development in our country is needed to be "engendered", as rightly viewed by Swaminathan Committee on Indian population policy.

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APPENDIX

I. Variables used for Measuring Gender Disparity

Parameter	Variable used	Reason of Selection
1. Health	1. Nutritional status of children (below 4 years). 2. Child mortality (below 5 years). 3. Health seeking behavior. (% of children taken to health facility provider for ARI, fever and diarrhoea).	These three indicators can be taken as the best indicators for showing actual disparity in health sector.
2. Social and Cultural	4. Adjusted literacy rate. 5. Son preference (comparing percent of women with two living children want additional girl with percent of women with two living children want additional boy)	Simple but comprehensive indicator showing educational status of the population. Based on available NFHS data this is one way of understanding son preference and is quite satisfactory.
3. Economic	6. Work participation for non-agricultural sector. 7. Combined (Agr. and non-agri) wages.	Satisfactorily represents the economic status and easy to compute. Data is easily available and is powerful indicator.

II. Variables used for Measuring Socio-Economic Development and Female Autonomy

Parameter	Variable used	Reason of Selection
1. Social	1. Over all literacy rate (for population above age 6 years). 2. percent never married girls in 15-19 age group. 3. percent non SC/ST population.	It has been seen that these three indicators are sufficient to take care of social development.
2. Economic	HOUSING CONDITION. 4. Proportion of households having pucca or semi-pucca houses. 5. Proportion of households having piped water. 6. Proportion of households having electric connection.	Housing condition has a significantly high correlation with economic development index prepared by CMIE, using agricultural productivity. Therefore, housing condition has been used here as a proxy to economic development.
3. Female Autonomy	7. Percent ever married women (13-49 years old) working outside the family farm/ business. 8. Per cent of currently married women (13-49 years old) reporting discussion of family planning with husband more often than twice.	Both the variables are good indicators of different aspects of female autonomy. As for example, the last one indicates the extent of communication between spouses. Female autonomy cannot be there without high communication between the spouses.