

Women in Higher Education: A Spatial-Temporal Analysis of Higher Education from Gender perspective in India

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Abstract

The paper is based on quantitative work of secondary data extracted from census of India and Directory of Colleges, University Grant Commission. It is an attempt to study the spatial and temporal analysis of the availability and enrollment in higher education for female across the Indian states. Analysis of the paper reveals that there is very high male-female disparity in gross enrollment ratio among the Indian states. Northern states especially, BIMARU states are most backward in higher education for female. There is an increasing trend of inequality between male-female in higher education despite the several governmental efforts for women empowerment.

Keywords: Availability of higher education, gross enrollment ratio, higher education, spatial disparity, women.

Education is the prime factor in the direction of removing gender inequality. In the context of Indian society which is based on hierarchal social order, the parameters of gender, caste, class and religion are crucial in determining the accessibility to get education. Gender is most important factor among them to determining the accessibility to higher education. The female constitute approximately half (48.46%) of the total population in India. However, there is a large gap exists between the male and female population with respect to their enrollment in higher education. Gross enrollment ratio for male and female are 17.13% and 10.16% respectively in 2001. This gap has remained more or less the same over the years, as the total enrollment ratio of women in 1950-51 was 10.9%. Despite some improvement in equity over the decades, higher education is still not accessible to the deprived groups of the population. Inter-regional variations in quality, quantity and equity dimensions of higher education are marked (CABE Report, 2005). Thus, the paper primarily analyzes the availability and

enrollment in higher education in the context of female across the Indian states. In the paper, pattern of availability, accessibility, variation and spatial disparity in higher education have been examined. Secondly, a relationship between female population and availability of female colleges and its impact on gross enrollment ratio for female in higher education has been explained. Finally, the paper identifies the educationally backward regions in terms of higher education for female in India.

Objectives

- To study the availability and accessibility of colleges/institutions of higher education for female.
- To analyse the pattern of male-female disparity and identify the educationally backward region in terms of female's higher education.
- To examine the relationship between enrollment rate in higher education and availability of institutions/colleges for female.

Overview of Literature

The position of women in higher education has become a matter of interest, if not of concern, all over the world (Powar, 1999). Women do not fall in any homogenous category as caste, tribe, class, region and religion divide them. In case of women, the dimensions of caste, class etc. provide cumulative disadvantages and bear a multiple burden of inequality (Chanana, 1993). An important feature of Hindu society is overwhelming presence of joint family, lower age of marriage as well as the gap in the age of marriage and presence of polygamy. He while discussing the disability imposed upon women in traditional societies or 'ancient societies', mentions about the phrase 'Maine' which means confinement in domestic domain (Béteille, 2003). In Indian society, women have been treated as slaves in view of their unfair position to men in a well-known verse in Manusmriti and subordinate attitude toward the women were justified and had their sanctity by the scriptures (The Laws of Manu, 1964). The 19th century reformers, not interested in extending women's roles outside the domestic framework, had seen education as an instrument to make them better mothers and wives, to bridge the widening intellectual gap between husband and wives (Mazumdar, 1975). Sinha through historical documents prove that while female had no access to education during eighteenth century and nineteenth centuries India. The caste class composition varied enormously (Sinha, 2003).

Women education in post-independence India has gone through changes because of the policy changes. The policy saw a gradual change from conservative attitude in form of social purpose of women's education to greater and equal opportunity to women (Radhakrishnan Education Commission 1949, Mazumdar, 1975). Vina Mazumdar highlights the demerits of unisex institutes. These though have made tremendous impact on higher education of women but fail to have professional improvement. Further, private individuals and groups, which start these institutes, are not always committed to women's education (Mazumdar, 1975). Education of women in Indian society is closely related to their social position, and their chances of receiving education are determined by the sanctions imposed by that

status (Chanana, 2001). The push and pull factors that emanate from cultural practices, behavioral pattern and social role expectations and the association of the women with the private domain of the household continue to affect the access to higher education. She finds that gender stereotypes in course content and subject choices, discriminatory attitudes of teachers and administrators, absence of role models for career options and academic leadership at the college and university etc. regarding single sex institution the faculty may reinforce traditional social roles or not encourage women students to emulate the non- traditional role models (Chanana, 2000). The push factors include the rising cost of urban living as well as the aspiration for social mobility with changed social ethos in family. Others factors include the stereotyping of the subject, which leads to selecting particular subjects, meant to be “feminine”. In urban areas, professional subjects are in demand but are limited to certain areas like management, fashion designing etc. Engineering and science subject are meant to be “masculine” or rather tough hence meant for the men’s only. This subject choice is linked to the employment opportunity as soft subject like humanities have less of the market value. They generally join general education courses and denied access to elite/courses and institutions (Chanana, 2007).

A study shows what hampers the growth of women’s enrollment in higher education is perception of women in traditional society negative attitude towards occupation (Khajapeer, 1996). Rath has tried to highlight some real situations which are the yardstick of the development for women in India. Women in India have unsatisfied basic needs in education, employment, health and the Law despite the Constitutional provision of primary and compulsory education till the age of 14 years. The disparity between women and men’s education is attributed to the fact that men are considered to be the bread-earner of the family, while a role of caretaking is ascribed to be the responsibility of men to earn money education is taken as means to attain that end. But in case of women it is something different. Since women are the one who bear the children, she is assigned the job of caring. And the same time care for the family as assumed to be the role responsibility of women. As it is considered by the society that the girl child on maturity is going to manage the household, her education is not given priority (Rath, 2004).

The above discussion points towards the major roadblocks faced by women in their access to higher education. These include diverse factors, and together with their complex interlocking, they are impeding the progress of the women, which lead to impoverishment of their status, education and self-development.

Conceptual Framework

The literature survey and different studies have shown that access to higher education for female depends on various socio-economic factors. These factors influence at the individual level and/or household level. Among demographic factors family size, sex and marital status are important variables. Other variables influence access to higher education directly whereas a few others bear upon it indirectly. These are availability of institutions, accessibility, affordability and knowledge, and repayment of the higher education. Availability of the educational institutions plays a key role in access to higher education. There are many underdeveloped areas, where these facilities are not available. It is the first obligatory variable for enrollment in higher education institutions. Sometimes, if the facilities are presents but the infrastructure is absent or inadequate then the situation become equal to the non- availability of

institutions. The accessibility of higher education can be categorized into various types i.e. socio-cultural, economic, physical, etc. Physical accessibility or physical distance is of great importance to a student who has to commute daily between the residence and the educational institution. For urban students it may not be that important because of the availability of different modes of transportation, but for the rural students, especially for women, location of educational institution has a crucial bearing on its use because socio-cultural, traditional restricts the female students' access to higher education in rural areas.

Research Questions

- What is the level of male-female disparity of enrollment ratio in higher education?
- What is the relationship between availability of institutions/colleges and enrollment ratio?

Data Source

- C-Series Tables of Census of India 1981, 1991, 2001.
- Directory of Colleges, University Grants Commission, 2001-02.

Methodology

The research is based on quantitative works that have been done encompassing all the relevant facts and figures related to higher education. In this study, only post higher secondary level of education (generally graduation) for the age group 18 to 23 years has been considered as higher education. The research techniques that have been used for fulfilling the objectives of the study are as follows.

Availability of the Higher Education (AHE)

Availability of higher education (AHE) has been analysed by taking Availability of College per lakh population is defined as under:

Formula:

$$AHE = \frac{\text{(No. of Educational Institution offering Post-Higher Secondary Degree/Diploma in the X district)}}{\text{(Total Population in 18-23 years in X districts)} \times 100000} \quad (\text{Sinha, 2008})$$

Measures of Access to Higher Education

Accessibility of higher education has been analysed by taking Gross Enrollment Ratio with respect to male-female population. Gross enrollment ratio is defined as the percentage of the enrollment in higher education to the estimated population in the age groups of 18-23 years.

Formula: GER in HE = (All Enrolled in Post-Higher Secondary Classes)/(Total Population in 18-23 age group) × 100 (Sinha, 2008)

Measure of the Disparity by Sopher Index (Modified by Kundu)

Spatial pattern inequality in the accessibility is analysed by using Kundu’s index (modified Sopher’s index) to capture the disparity between male-female state-wise populations in India (Kundu, 1980). This index is used to look into the disparities of various data at state level.

Formula : $SI = \text{Log } X_2/X_1 + \text{Log } (200-X_1)/(200-X_2)$

Where $X_2 > X_1$, The value of the index should always vary from (+1) to (-1), and in ideal case it should be zero. The negative value of index shows no disparity against X_2 .

Co-efficient Variation

Regional (inter-state) Variation in the level of educational development have been measured with the help of simple co-efficient variation (C.V). Co-efficient Variation = (Standard deviation / Mean)*100 (Mahmood, 1999).

Multiple Regressions

Multiple regressions have been used for analysis of relationship between a single metric dependent variable (enrollment) and two or more metric independent variables (socio-economic factors). It depicts the best prediction value of the dependent variable (Y) for a given independent variable (X).

Formula: $Y = a + b_1x_1 + b_2x_2 + \dots + b_kx_k$

Where, Y is a dependent variable and are independent variables and are the parameters/regression coefficient. The coefficient of each independent variable signifies the relation that the variables have with Y1 the dependent variable, when all the other independent variable is constant (Mahmood, 1999).

Cartographic Techniques

Cartographic techniques including bar diagraph, choroplething using GIS map, have been used to show the regional pattern of access the higher education.

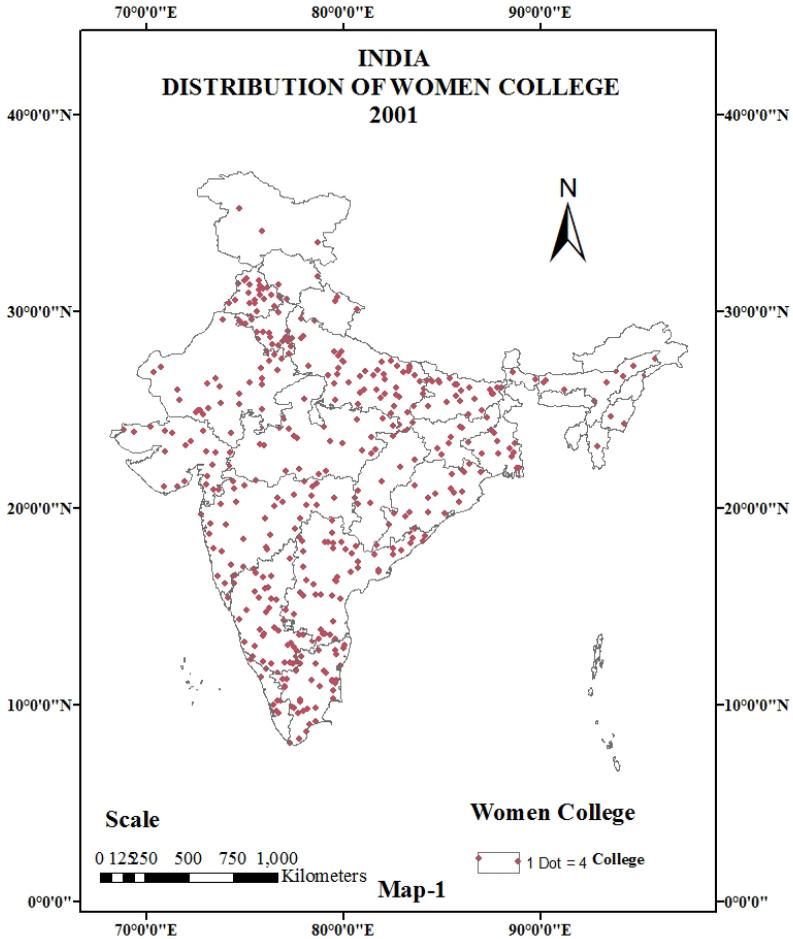
Limitation

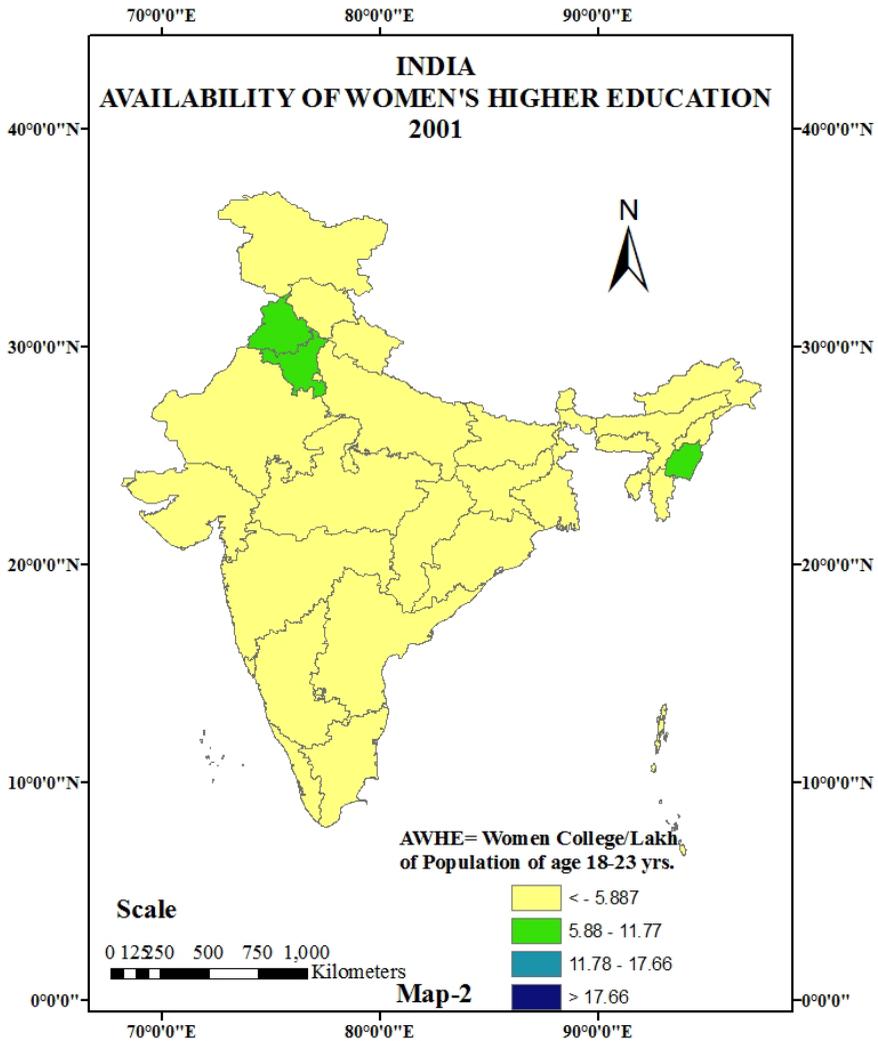
Although Census of India 2011 has been conducted, but data for higher education has not released till date. Therefore data for higher education has been used only census 2001.

Findings and Results

Availability of Women Colleges

There are 15369 colleges in India, of which there are 1721 women colleges with 3.12 colleges per lakh of women. The distribution of Women College is uneven across the states, which has been shown from high coefficient of variation.



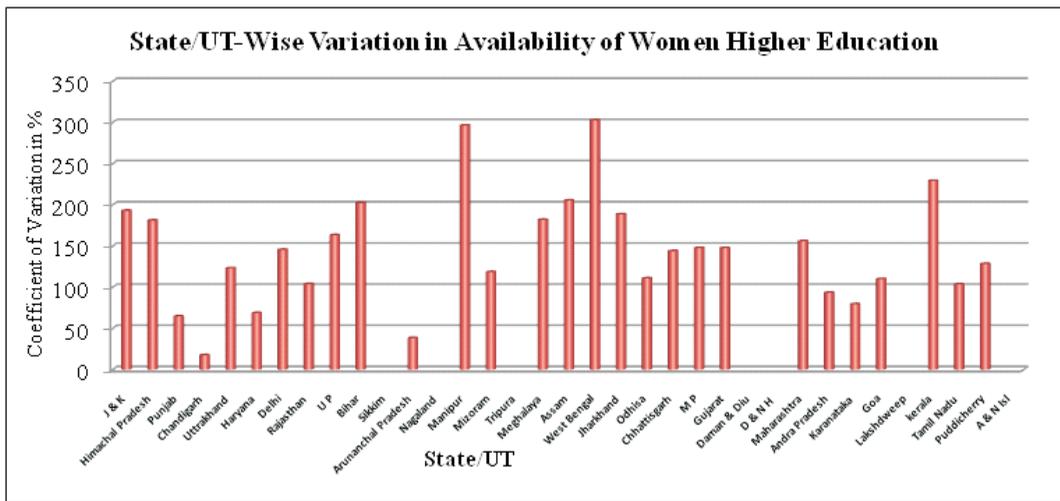


In terms of number, Uttar Pradesh had the highest number of women colleges followed by Andhra Pradesh, Karnataka, Tamil Nadu and Maharashtra. Chandigarh and Manipur has the highest availability of women colleges (Appendix-1). From the Map-1, it is observed that the north Indian states have generally high availability of women colleges while northeast region especially Sikkim, Arunachal Pradesh, Tripura show an absence of women colleges except few. Southern states of Karnataka and

Andhra Pradesh also have the highest availability of women colleges. Union Territory of Daman and Diu, Dadra and Nagar Haveli, Lakshadweep and Andaman and Nicobars Island show an absence of women colleges.

Variation in Availability of Women Higher Education (AWHE)

Inter-State Coefficient of Variation in Availability of Women Colleges is 125.00 % among the states/UTs. Figure-1 show the West Bengal records highest level with 302.92% of variation followed Manipur, Kerala and Bihar. These states show lowest level of availability of female higher education in the same order. On the other hand, Chandigarh records lowest variation with 17.62% preceded by Arunachal Pradesh, Punjab, and Haryana and these are showing highest level of availability of female higher education in the same order (Appendix-1).



Source: C-Series Tables, Census of India, 2001

Figure-1 and Appendix-1 show a pattern of relation between availability of colleges and variability i.e. higher the variability lowers the availability. Thus, some of the states are better positioned in case of availability of women higher education like Uttaranchal, Karnataka, Goa, Andhra Pradesh, Orissa, Gujarat, Rajasthan, Chhattisgarh etc. with relatively lower variability.

Enrollment in Higher Education: All India Pattern

Total gross enrollment ratio of higher education is 13.82% at country level. The gross enrollment ratio for male and female is 17.13% and 10.16% respectively.

Table 1. Gross Enrollment Ratio in Higher Education in India, 2001

India	Person	Male	Female
Total	13.82	17.13	10.16
Urban	24.52	27.11	21.48
Rural	8.99	12.44	5.24

Source: C-Series Tables, Census of India, 2001

Additionally, urban female gross enrollment is quit higher in comparison to rural female GER. Thus, there exists a large gap between the male and female and urban rural population with respect to their enrollment. The gap between male and female has remained more or less the same over the years, as the total enrollment ratio of women in 1950-51 was 10.9 percent (CABE Report, 2005). Thus it has been cleared that rural female population is most backward to access the higher education.

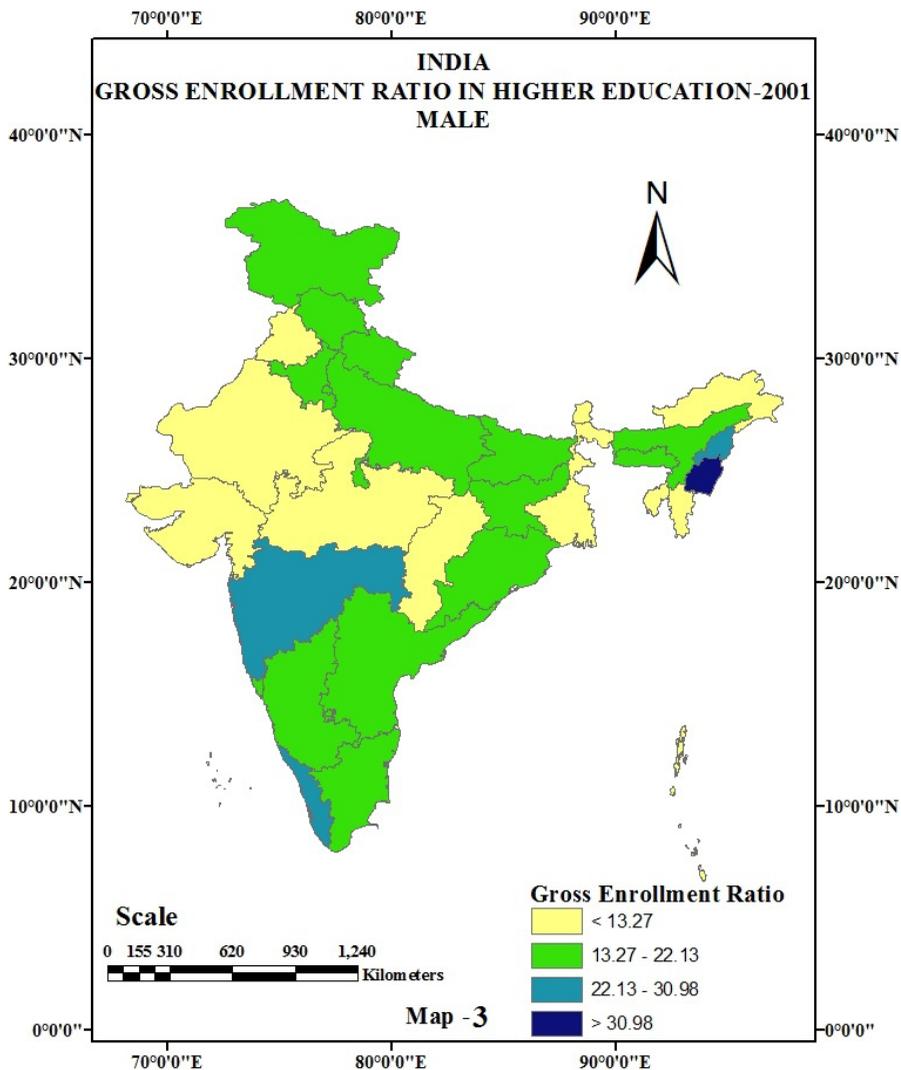
Spatial Pattern of Gross Enrollment Ratio

Inter-State Variation (C.V.) in GER -2001

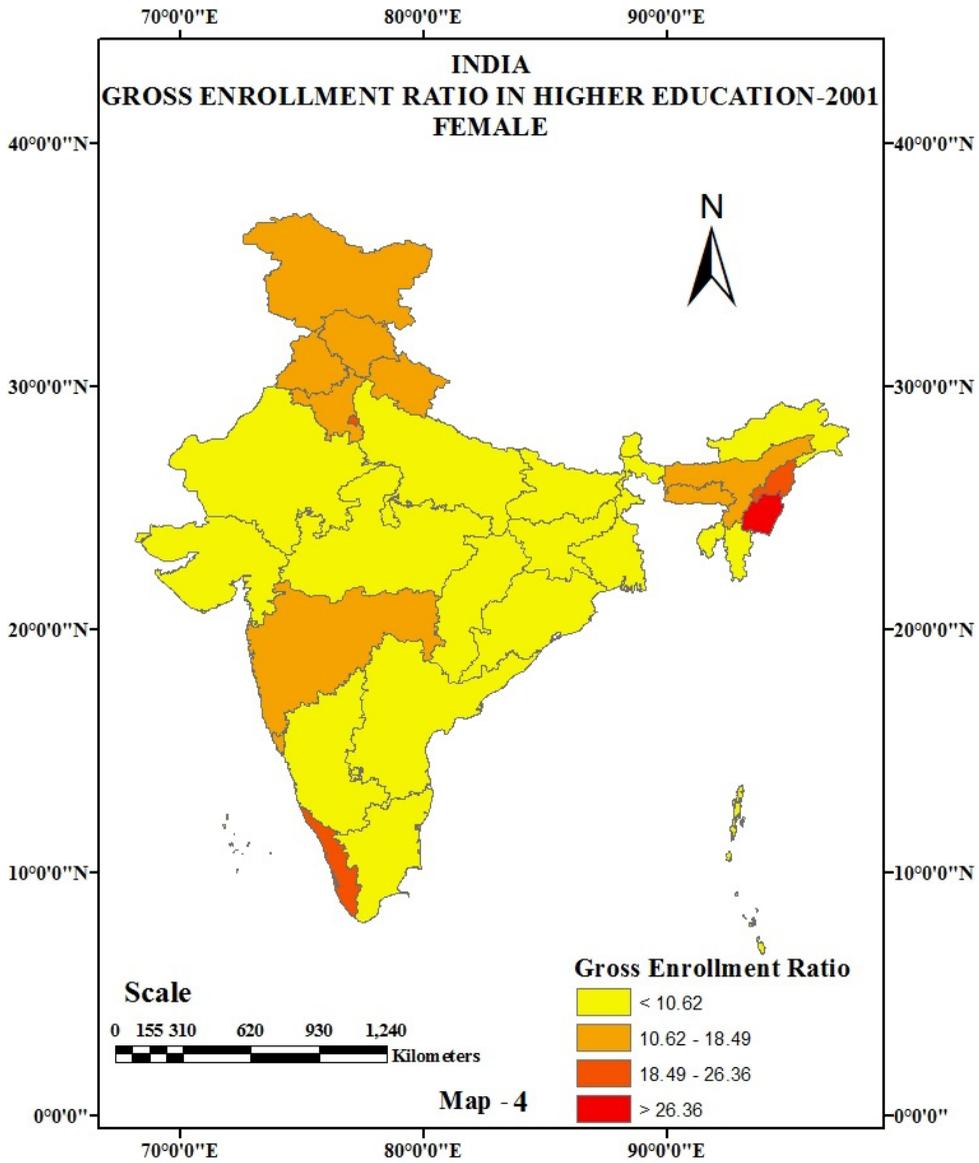
	Person	Male	Female
INDIA	13.82	17.13	10.16
Mean	14.39	16.65	12.02
Standard Deviation	7.09	7.61	7.28
Coefficient Variation	49.25	45.7	60.56

Source: C-Series Tables, Census of India, 2001

There is inter-state variation in gross enrollment ration at national level. It stands for total, male and female 49.25%, 45.7% and 60.56% respectively. The inter-state variations reveals glaring picture with 17 out of 35 states and union territories having gross enrollment ratio higher than national average.



The female gross enrollment ratio is highest in Chandigarh (34.24%) followed by Manipur (30.04%), Kerala (23.37%) and Nagaland (22.05%). On the other hand Lakshadweep (2.75%), Dadra and Nagar Haveli (3.53%) and Tripura (4.95%) have the lowest female gross enrollment ratio.

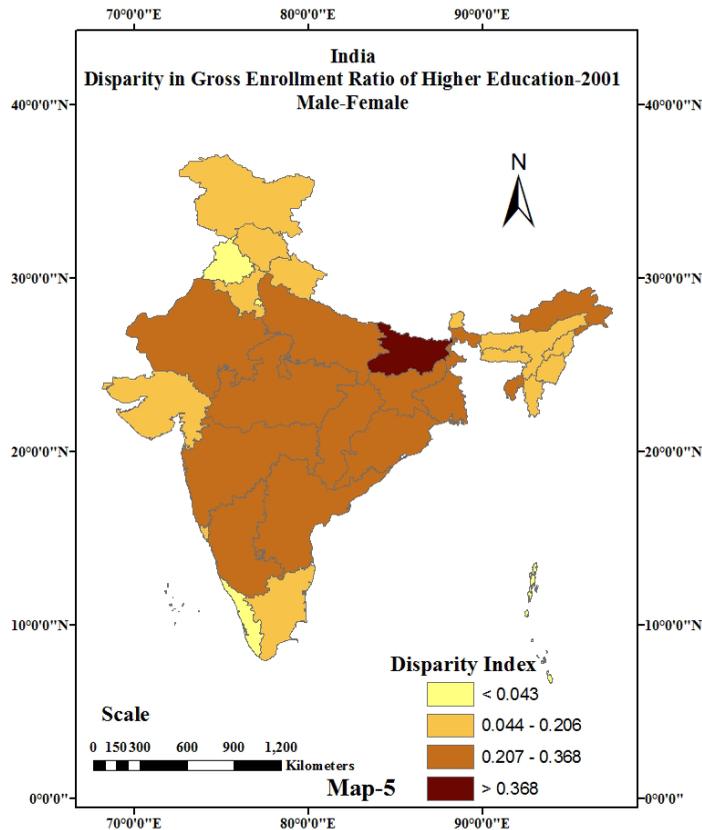


Regional pattern shows that north Indian states have comparatively low-level female enrollment than the southern region. The gap between the male-female gross enrollment ratio is widest in Bihar (12.68%), Jharkhand (11.34%) and Andhra Pradesh (11.32%), whereas Chandigarh (-7.06%), Punjab (-2.01%), and Kerala (0.6%) have lowest gap. This can be associated with strong traditional values associated with these states. Analysis of regional pattern of female GER reveals that among the major states, both

highest and lowest gross enrollment ratio lies in the northeastern states of India. In addition, some states like Mizoram shows at the lower end despite having high literacy rate, which indicates that high literacy may not coincide with higher gross enrollment ratio. Thus it would be the reason behind lesser turn out in higher education is that most of them dropped out higher education for jobs to survival. The gross enrollment ratio in the union territory is much higher (except few) in comparison to the states, it would be attributed to the centralized administration and facilities provided to them.

Male-Female Spatial Disparity

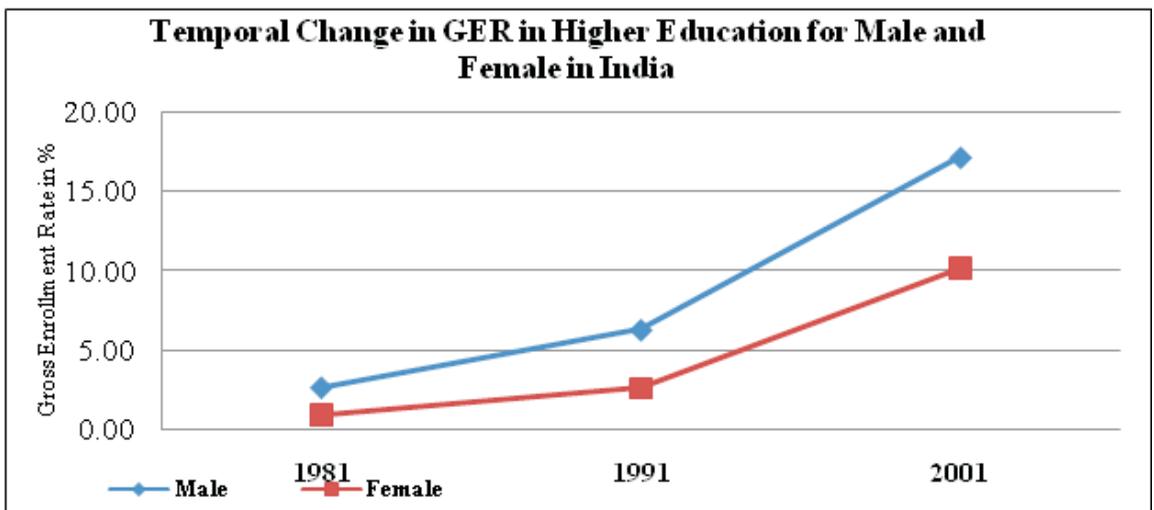
The analysis of spatial disparity in gross enrollment ratio shows that Chandigarh having lowest disparity with -0.11% preceded by Daman and Diu (-0.08%), Punjab (-0.07), Delhi (-0.2%) and Andaman and Nicobar (-0.02).



These state/UTs have the disparity in favor of the female, which shows that they have higher gross enrollment ratio in female compared to male. The highest male-female disparity records in Bihar (0.53%) followed by Jharkhand, Andhra Pradesh, Rajasthan, Orissa, Chhattisgarh and Arunachal Pradesh. This indicates that the BIMARU states have higher male-female disparity in gross enrollment of higher education.

Temporal Change in Gross Enrollment Ratio

The enrollment in higher education swelled from less than half a million in 1950-51 to about one crore in 2003 (CABE Report, 2005). Female GER in Higher education in India is only 10.16 percent youth in 18-23 age groups are enrolled in higher education in 2001.



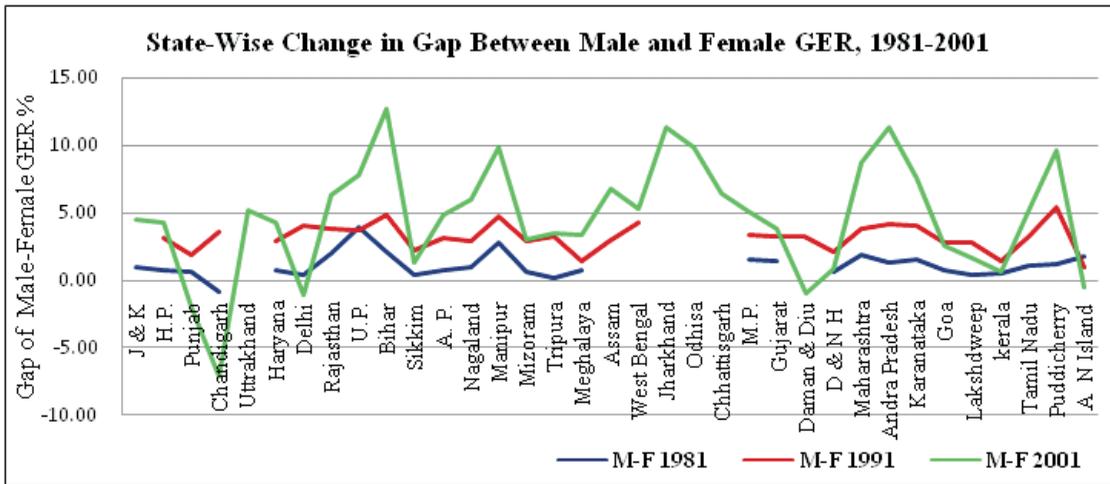
Source: C-Series Tables, Census of India 1981, 1991, 2001

Figure 1

Figure 1 is showing that during all three period GER for female is lower than male with increasing gap. Largest gap between male and female in GER has recorded in 2001.

Regional Pattern of change in Gross Enrollment Ratio

Figure 2 shows that the major states (15 states) which share more than 70% of country's population have lower female GER than male during all the three reference period.



Source: C-Series Tables, Census of India 1981, 1991, 2001

Figure 2

The state like Punjab, Delhi, NE states, Kerala, Goa, Maharashtra, and Chandigarh are showing relatively lower GER gap between male and female during the same periods. The states/UTs Bihar, Manipur, Jharkhand, Andhra Pradesh and Puddicherry show highest increasing male-female GER gap in 2001. There are five states namely, Chandigarh, Delhi, Daman and Diu and Andaman and Nicobar Island showing GER in favor of female in 2001 only.

Regression Analysis

The regression analysis shows that if the other variables are constant there will be a **0.331** unit of change in the female gross enrolment ratio if there is 1 unit change in all the independent variables. The result is significant at 1 percent level of significance. The beta coefficient shows that availability of higher education and availability of female higher education are significantly associated with the female gross enrolment ratio. The average change in female gross enrolment ratio (Y) caused by a unit change availability of higher education and availability of female higher education is **0.468** and **0.230** respectively (Appendix- 4&5).

Discussion

Northern Indian states have high availability women colleges which may be outcome of social prejudice towards the co-education colleges because due to socio-economic reasons, society prefers to send their girls in women colleges (Chanana, 2000). In North-Eastern states, there exists absence of social prejudice due these states are predominated by tribal society which is much more open society in comparison to

northern states. Among the few North-Eastern states like Manipur, Mizoram and Nagaland the degree colleges are women colleges and most of them are located in the state's capital. In case of southern states of Karnataka and Andhra Pradesh, the highest availability of women colleges are related to they have a large number of medical colleges and are specialized colleges in laboratory and nursing colleges, which are often women colleges (CABE, 2005). Additionally, there are large numbers of general degree colleges especially for women in these states.

The higher disparity in northern states is associated with socio-cultural values and restriction on the female mobility. Most of the northern states are dominated by traditional society and some of the socio-cultural tradition imposes several restrictions on female education. Additionally, economic condition and demographic character of the family restricts female education. Consequently, male-female disparity exists is very high in these states.

Over all temporal change in male-female GER are increasing in the reference period of the study. Major states/UTs are showing increasing male-female GER gap with few exception, which indicates that incase of female higher education Indian society is still conservative and somehow socio-cultural values are much stronger than the modern progressive value. Thus, besides, availability of women higher education, there may be certain other factors, which strongly determine the access to higher education for female like social restrictions, prejudice and economic constraints.

Conclusion

Analysis of the facts and figures reveals that there is very high male-female disparity in gross enrollment ratio among the Indian states. Northern states especially BIMARU states have high level of disparity than the others i.e. these states are most backward in higher education for female. The state of Chandigarh, Punjab and Delhi, Daman and Diu and Andaman and Nicobar are in favor of female's higher education. Temporal analysis suggests that GER gap between male-female in higher education is continuously increasing during the reference period of the study and it has reached its highest point in 2001. Statistical findings tell that there is a relation exists between availability of colleges and variability i.e. higher the variability lowers the availability. Furthermore, the availability of women higher education has positive impact on the female gross enrollment ratio. Thus, it may say that higher education for female is unfavorable in India due to uneven distribution of women colleges and socio-economic and cultural constraints.

Appendix-1, State wise GER, AWHE, No. of WC, CV and DI -2001

SL	State/UT	GER-P	GER-M	GER-F	AHE	No. WCs	AWHE	CV in AWHE	DI
1	Jammu and Kashmir	13.81	15.93	11.43	11.38	12	2.15	193.02	0.155
2	Himachal Pradesh	17.62	19.71	15.41	15.27	8	2.29	181.22	0.117
3	Punjab	12.43	11.52	13.53	10.59	87	6.41	64.74	-0.075
4	Chandigarh	30.05	27.18	34.24	31.1	12	23.55	17.62	-0.118
5	Uttarakhand	19.23	21.73	16.58	19.63	16	3.37	123.15	0.130
6	Haryana	14.5	16.41	12.07	13.21	66	6.03	68.82	0.144
7	Delhi	20.67	20.21	21.3	8.55	21	2.85	145.61	-0.025
8	Rajasthan	8.85	11.79	5.49	8.22	115	3.99	104.01	0.346
9	UP	13.29	16.85	9	9.92	204	2.54	163.39	0.291
10	Bihar	12.49	18.52	5.84	7.98	82	2.05	202.44	0.531
11	Sikkim	7.47	8.07	6.78	12.72	0	0	-	0.079
12	Arunachal Pradesh	7.71	10.05	5.19	8.66	6	10.78	38.5	0.298
13	Nagaland	25.19	28.01	22.05	14.65	0	0	-	0.119
14	Manipur	34.9	39.84	30.04	24.67	2	1.4	296.43	0.148
15	Mizoram	9.69	11.15	8.16	26.39	2	3.5	118.57	0.142
16	Tripura	6.67	8.4	4.95	6.13	0	0	-	0.237
17	Meghalaya	15.48	17.19	13.81	19.61	3	2.28	182.02	0.103
18	Assam	15.83	19.16	12.43	11.97	30	2.02	205.45	0.204
19	West Bengal	9.63	12.23	6.91	5.69	60	1.37	302.92	0.260
20	Jharkhand	15.59	21.06	9.72	6.59	30	2.2	188.64	0.362
21	Odisha	14.79	19.66	9.84	17.34	77	3.74	110.96	0.324
22	Chhattisgarh	9.62	12.82	6.34	15.15	30	2.88	144.1	0.321
23	Madhya Pradesh	9.54	11.89	6.82	14.39	86	2.81	147.69	0.253
24	Gujarat	10.09	11.87	8.08	12.07	81	2.81	147.69	0.176
25	Daman and Diu	4.98	4.7	5.65	6.73	0	0	-	-0.082
26	D and N H	4.08	4.42	3.53	0	0	0	-	0.100
27	Maharashtra	19.51	23.44	14.78	19.54	137	2.66	156.02	0.221
28	Andhra Pradesh	15.72	21.33	10.01	20.51	202	4.44	93.47	0.355
29	Karnataka	14.32	17.95	10.38	25.62	161	5.21	79.65	0.256
30	Goa	18.9	20.11	17.51	25.76	3	3.77	110.08	0.066
31	Lakshadweep	3.58	4.42	2.75	14.27	0	0	-	0.210

32	Kerala	23.66	23.97	23.37	11.41	34	1.81	229.28	0.012
33	Tamil Nadu	12.1	14.69	9.52	11.84	152	4	103.75	0.200
34	Puddicherry	22.58	27.44	17.83	23.71	2	3.23	128.48	0.211
35	A and N Island	9.14	8.91	9.41	8.37	0	0	-	-0.025

Source: Calculated from, C-series Tables of Census of India 2001 and Directory of Colleges, UGC 2001-02.

Appendix 2. State wise GER of Male and Female for 1981, 1991 and 2001

SL	State/UT	GER-M 1981	GER-F 1981	GER-M 1991	GER-F 1991	GER-M 2001	GER-F 2001
1	J and K	2.03	1.11	N.A.	N.A.	15.93	11.43
2	Himachal Pradesh	1.18	0.52	5.2	2.1	19.71	15.41
3	Punjab	1.88	1.29	6	4.1	11.52	13.53
4	Chandigarh	7.30	8.19	26.4	22.8	27.18	34.24
5	Uttrakhand	N.A.	N.A.	N.A.	N.A.	21.73	16.58
6	Haryana	1.57	0.86	5.8	2.9	16.41	12.07
7	Delhi	4.40	4.03	21.3	17.3	20.21	21.3
8	Rajasthan	2.64	0.67	5.5	1.7	11.79	5.49
9	UP	5.04	1.14	5.8	2.1	16.85	9
10	Bihar	2.43	0.37	5.9	1.1	18.52	5.84
11	Sikkim	0.60	0.24	4.1	1.9	8.07	6.78
12	Arunachal Pradesh	3.35	2.65	4.7	1.6	10.05	5.19
13	Nagaland	1.32	0.41	4.6	1.7	28.01	22.05
14	Manipur	5.14	2.39	9.6	4.9	39.84	30.04
15	Mizoram	0.73	0.16	4.6	1.7	11.15	8.16
16	Tripura	0.53	0.35	5.8	2.6	8.4	4.95
17	Meghalaya	1.63	0.91	4.1	2.6	17.19	13.81
18	Assam	N.A.	N.A.	4.5	1.6	19.16	12.43
19	West Bengal	2.63	1.31	7.5	3.2	12.23	6.91
20	Jharkhand	N.A.	N.A.	N.A.	N.A.	21.06	9.72
21	Odhisia	1.96	0.46	4.8	1.3	19.66	9.84
22	Chhattisgarh	N.A.	N.A.	N.A.	N.A.	12.82	6.34
23	Madhya Pradesh	2.24	0.76	5.6	2.2	11.89	6.82
24	Gujarat	2.20	0.77	6.1	2.8	11.87	8.08

25	Daman and Diu	N.A.	N.A.	5.2	1.9	4.7	5.65
26	Dadra and Nagar Haveli	0.70	0.12	3.5	1.4	4.42	3.53
27	Maharashtra	2.92	1.10	7.4	3.6	23.44	14.78
28	Andhra Pradesh	1.83	0.52	6	1.8	21.33	10.01
29	Karnataka	2.14	0.59	6.5	2.5	17.95	10.38
30	Goa	1.69	1.03	7.9	5.1	20.11	17.51
31	Lakshadweep	0.34	0.00	3.6	0.8	4.42	2.75
32	Kerala	1.81	1.35	5.2	3.8	23.97	23.37
33	Tamil Nadu	1.65	0.62	5.9	2.6	14.69	9.52
34	Puddicherry	1.64	0.48	9.2	3.8	27.44	17.83
35	Andaman and Nicobar	16.41	14.68	5.1	4.1	8.91	9.41
36	INDIA	2.69	0.90	6.3	2.6	17.13	10.16

Source: Calculated from C-series Tables of Census of India 1981, 1991 and 2001

Appendix-3, INDIA - GER, AWHE, No. of WC, CV and DI -2001

	GER-P	GER-M	GER-F	AHE	No. WCs	AWHE	CV in AWHE	DI
INDIA	13.82	17.13	10.16	13.2	1721	3.12	124.99	0.243
Mean	14.39	16.65	12.02	14.27	-	3.32	-	-
Standard Deviation	7.09	7.61	7.28	7.13	-	4.15	-	-
CV	49.25	45.7	60.56	49.92	-	124.99	-	-

Source: Calculated from, C-series Tables of Census of India 2001 and Directory of Colleges, UGC 2001-02.

Appendix 4. Multiple Regression Result: Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df ₁	df ₂	Sig. F Change	
1	0.608 ^a	0.370	0.331	5.95522	0.370	9.407	2	32	0.001	2.084
a. Predictors: (Constant), AWHE, AHE										
b. Dependent Variable: GER-F										

Appendix 5. Multiple Regression Result : Coefficients^a

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	3.857	2.284		1.689	0.101	-0.795	8.509
AHE	0.478	0.161	0.468	2.968	0.006	0.150	0.806
AWHE	0.404	0.277	0.230	1.460	0.154	-0.160	0.968

a. Dependent Variable: GER-F

GER- Gross Enrollment Ratio, AHE-Availability of Higher Education, AWHE-Availability of Women Higher Education, WC- Women College, CV-Coefficient Variation, DI-Disparity Index.

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