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INTER-STATE VARIATIONS IN ENROLMENT IN HIGHER EDUCATION IN INDIA

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ABSTRACT

Higher education is a critical pillar of human development forming the capstone of traditional education system. It provides not only the high-level skills necessary for labour markets, but also the training essential for teachers, doctors, engineers, civil servants, scientists, entrepreneurs and other professionals. There are 19 states and union territories in which GER is lower than the national average (10.84 percent). In this context the research study on **"Inter-State variations in enrolment in higher education in India"** was formulated with the objectives of finding out the gender disparities in higher education, the interstate variations in higher education and identify the factors determining gross enrolment of women in higher education. The study was related to 16 major states of India for 2009-2010 and 2010-11 the required data were compiled from selected educational statistics. 2010, Women statistics in India 2010 and Census 2011. The study estimated gender disparity index, Theil's inequality index and Discriminant analysis. As per the study in the reference period the average gross enrolment rate of women in higher education was lower (41.45) than that of men (58.55). The gender disparity index in enrolment in higher education was found to be the highest in Bihar and lowest in Kerala. The estimated Theil's inequality index in higher education, number of colleges was found to be higher (0.2344). The estimated discriminate function was statistically valid as indicated by Mahalanobis 'D' squared value is 5.727. Enrolment rate in higher education was found to be the highest in Andhra Pradesh and lowest in Bihar. To measure the higher education the cost of higher education is to be minimized and scholarships can be given to motivate into higher education, In higher education job oriented courses can be introduced as a part of the curriculum to make women suitable for employment and establishing an accreditation that ensures quality higher education.

KEYWORDS: Higher Education, Gender disparity, Enrolment, universities, colleges.

Importance of higher education:

Education is a means to realization of a variety of ends: employment opportunities, higher productivity and income, better health, greater social and political participation for creation of a just and equitable social and political order and above all enhancing individual's personal and

social endowments and capabilities for a more intensive, socially enriching and sustained well being. At the same time, it is an end by itself as acquisition of knowledge is intellectually stimulating and culturally satisfying. In sum, education generates a host of positive externalities, which directly or indirectly influences almost all facets of social life, and therefore must be viewed as a nonnegotiable public good and by far the most potent social investment.

Higher education is a critical pillar of human development forming the capstone of traditional education system. It provides not only the high-level skills necessary for labour markets, but also the training essential for teachers, doctors, engineers, civil servants, scientists, entrepreneurs and other professionals. The higher education sector is in sharp focus as acquisition of knowledge and multiple, varied and relevant skills can alone propel the blossoming of man power, which will rejuvenate the State in terms of social and economic growth. Investment in higher education, particularly academic research, has come to be recognized as a potential source that could aid a nation's development through production of knowledge.

Indian higher education system has expanded at a fast pace by adding nearly 20,000 colleges and more than 8 million students in a decade from 2000-01 to 2010-11. As of 2011, India has 42 central universities, 275 state universities, 130 deemed universities, 90 private universities, 5 institutions established and functioning under the State Act, and 33 Institutes of national importance. Other institutions include 33,000 colleges as Government Degree Colleges and Private Degree Colleges, including 1800 exclusive women's colleges, functioning under these universities and institutions as reported by the UGC in 2012. Distance learning and open education is also a feature of the Indian higher education system, and is looked after by the Distance Education Council. Indira Gandhi National Open University is the largest university in the world by number of students, having approximately 3.5 million students across the globe. (UGC Report 2012)

While enrolments in higher education are either growing slowly or are stagnant in most developed economies, emerging economies like China, Brazil, India and Malaysia are showing a rapid rise in enrolments. India's captive student population will reach 486 million (i.e., 34 percent of its total population) by 2025 (CII Edu Summit 2009).

In India while the enrolment rate at aggregate level was about 11% in 2006-07 at overall level, it varies significantly across the States and Districts. As against the 11% of all India average, the GER is lower in states of Arunachal Pradesh, Bihar, M.P., Meghalaya, Mizoram, Rajasthan, Sikkim, Tripura and Jharkhand. In 2011 while the GER for all those in higher education for India as a whole is 12.59, on one hand, Chandigarh's GER is 50.22 followed by Delhi (26.69), Kerala (21.36) whereas the tribal Lakshadweep has GER of only 1.33. (UGC 2011). There are large numbers of districts which have lower GER. The estimate made by S. Sinha (2001) based on the population Census data for 2001 revealed that out of 584 total districts about 373 districts had GER lower than national average. Of the total educationally backward districts about 3% had GER less than 3%. About 21% had GER which vary between 3 % to 6%. Another 38% had GER between 6% to 9% and the remaining 37% had GER between 9 % to 12%.

In India few researchers like Dhumal, (2010) and Raju, (2011) have analysed the trends in enrolment in higher education. But little attempt have been formulated on analysing the Interstate variation in enrolment in higher education. Hence the research study on **'Inter-State variations in enrolment in higher education in India'** was formulated with the following **objectives.**

1. To find out the difference in gross enrolment rate in higher education in various States of India and
2. To identify the factors causing interstate variation in higher education.

Methodology:

The study was related to 16 major states of India- Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Jammu and Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, TamilNadu, Uttarpradesh, and West Bengal. These states were selected since they accounted for 90 percent of total population of India.

The study was related to 2009-10 and 2010-2011. This period was chosen since it was the latest year for which the required data were available. The related information on Statewise number of universities and colleges, number of students enrolled in universities and colleges, number of teachers and literacy rate were compiled from the following sources:

1. Selected educational statistics. 2010
2. Women statistics in India 2010.
3. Census 2011.
4. UGC report-2009-2011.

Hypothesis formulated:

1. There no gender disparity in enrolment in higher education and
2. Literacy rate, number of universities and colleges and number of teachers do not have significant impact on enrolment in higher education

Quantitative tools used:

1. **Gender disparity index:**

The study tries to calculate the gender disparity Index in gross enrolment in higher education by using the following formula.

$$\text{Gender disparity index} = \frac{\text{Male enrolment rate in higher education}}{\text{Female enrolment rate in higher education}} \times 100$$

2. **Theil's inequality index:**

The study tried to find out the inequality index in Statewise number of enrolment, universities, colleges, teachers and literacy rate by using the following formula;

$$\textbf{Theil's inequality index} = \text{Log } N - \sum [\alpha_i (\log 1/x_i)]$$

Xi = xi / ∑ xi and N = Number of observation.

3. Discriminant analysis:

The study tried to apply Discriminant analysis to identify the factors causing Interstate variations in enrolment in higher education. On the basis of average enrolment in higher education, the states were classified into two categories. Group I comprises of the states which have enrolment higher than the national average(5) and group II represents the states having enrolment lower than the national average (11).

$$Y= b1x1+b2x2+b3x3+b4x4$$

Where Y= Enrolment rate in higher education.

X1= Literacy rate

X2=Number universities:

X3= Number of colleges:

X4= Number of teachers

The estimated Discriminant function coefficients were tested for reliability by using Mahalanobis D square statistics. On the basis of the Discriminant function coefficients, potency index was calculated. For estimating Discriminate analysis SPSS 11.6 version was used.

Findings of the study:

A. An analysis of enrolment of males and females in higher education in various States of India.

The growth and expansion of higher education in the country, in post-independence period, has been rapid. Yet it has been uneven between males and females which has given rise to numerous access-related issues. Table-I presents the number of students enrolled in higher education for selected States of India.

Table-V
Estimated Discriminant co-efficient of enrolment rate in higher education as related to the selected variables (Male)

Items	Group-I mean	Group-II mean	Mean difference (xi)	Discriminate co-efficient (bi)	xi X bi	Relative Discriminative power (%)
Literacy Rate	0.56	0.29	0.27	0.722	0.19494	17.09
Number of Universities	0.67	0.14	0.53	0.173	0.09169	8.05
Number of Colleges	0.67	0.14	0.53	0.895	0.47435	41.58
Number of Teachers	0.56	0.29	0.27	1.406	1.1406	33.28

Source: Calculated figures based on data compiled

Table-V estimated that of the selected variables number of colleges accounted for 41.58% of the variations in enrolment rate in higher education followed by number of teachers 33.28% number of literacy rate 17.09% and number of universities 8.05%. The estimated Discriminant function was statistically valid as indicated by Mahalanobis 'D' squared value is 1.344.

The estimated Discriminant co-efficient of enrolment rate in higher education as related to selected variables in Table-VI

Table-VI
Estimated Discriminant co-efficient of enrolment in higher education as related to the selected variables (Female)

Items	Group-I mean	Group-II mean	Mean difference (xi)	Discriminate co-efficient (bi)	xi X b1	Relative Discriminative power (%)
Literacy Rate	0.71	0.44	0.27	0.863	0.23301	20.30
Number of Universities	0.57	0.33	0.24	1.158	0.27792	24.21
Number of Colleges	0.57	0.33	0.24	0.295	0.0708	6.19
Number of Teachers	0.57	0.11	0.46	1.23	0.5658	49.30

Source: Calculated figures based on data compiled

Table-VI implies that as similarly to male enrolment rate, female enrolment rate in higher education was determined to large extend by number of teachers. Since number of teachers accounted for 49.30% of the variations in female enrolment rate in higher education The estimated discriminate function was statistically valid as indicated by Mahalanobis 'D' squared value is 1.140.

Table-VII brings out the estimated Discriminant co-efficient of enrolment rate in higher education as related to the selected variable.

Table-VII
Estimated discriminate co-efficient of enrolment in higher education as related to the selected variables (overall)

Items	Group-I mean	Group-II mean	Mean Difference (xi)	Discriminate co-efficient (bi)	xi X bi	Relative Discriminative power (%)
Literacy Rate	0.6	0.45	0.15	0.193	0.0289	0.70
Number of Universities	1.00	0.18	0.82	1.599	1.31118	31.21
Number of Colleges	1.00	0.18	0.82	1.792	1.46944	34.97
Number of Teachers	1.00	0.27	0.73	1.906	1.39138	33.12

Source: Calculated figures based on data compiled

Table-VII is evident that of the selected variables number of colleges accounted for 34.97%, variations in enrolment rate in higher education while number of teacher accounted for 33.12, number of universities for 31.21 and literacy rate for 0.70 %. The estimated discriminate function was statistically valid as indicated by Mahalanobis 'D' squared value is 5.727.

Conclusion:

1. Enrolment rate in higher education was found to be the highest in Andhra Pradesh and lowest in Bihar.
2. Gender disparity index in enrolment in higher education was found to be the highest in Bihar and lowest in Kerala.
3. Number of colleges, number of teachers are the important factors using interstate variations in enrolment rate in higher education.

Measures:

1. The cost of higher education is to be minimized and scholarships can be given to motivate into higher education.
2. In higher education job oriented courses can be introduced as a part of the curriculum to make women suitable for employment and
3. Establishing an accreditation that ensures quality higher education.

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