Primary Education in India: A Spatial View

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Abstract

The research paper attempts to highlight the educational status at primary grade by sex, residence, spatial pattern at district level and intra-regional disparity as revealed in the Census 2011. The study finds that 70.61 million persons (7.56 per cent) in the country aged 11 years and above were below primary educated in 2011. This proportion was high in rural areas. However, when referred to specific age (11 year), nearly 32 per cent persons were below primary educated. 32.78 per cent males and 30.63 per cent females at age 11 year could not complete primary education as per Census 2011. The proportion, likewise, for urban area was 25.88 per cent and for rural 34.03 per cent. The situation had, however, improved since the last decade. A sign of hope is the increased percentage of primary educated persons since last decade. Intra-regional disparity was high in Mizoram, Meghalaya, Nagaland and Bihar while Tamil Nadu, Goa, Kerala, Andaman & Nicobar Islands contained low disparity. Spatial disparity also existed. The male-female gap was insignificant. In fact, a large area of country had high percentage of primary educated females than males. The gap between urban and rural was high. Mostly forward states were situated in south part of country. Only Punjab, Haryana, and Himachal Pradesh in north-west, Mizoram and Nagaland in north-eastern part were also joining this category while the situation was very miserable in Jammu & Kashmir, Bihar, Jharkhand, Odisha, Arunachal Pradesh, Assam and Meghalaya. In union territories; Puducherry, Lakshadweep, Andaman & Nicobar Islands as well as Daman & Diu were forward while rest union territories contained moderate level of backwardness. Households which have no matriculate and above, poverty and illiterates were found important in predicting educational backwardness at primary grade.

Keywords: Intra-regional disparity, spatial pattern, Dimension Index, Regression.

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Introduction

This study attempts to highlight the educational status at primary grade by sex, residence, spatial pattern at district level and intra-regional disparity as revealed in the Census 2011.

A country's progress depends upon the quantity and quality of education received by its people. Primary as well as elementary education of the children forms the bedrock of the educational system. Simply put, the quality of primary education determines the quality of life of nations, strengthens democratic institutions, ensures economic development and modernizes social institutions.

Primary education is defined as education from class I-V and covers children from the age of 6 to 11 years.

Objectives of the Study

- To examine the persons who had completed primary education at age 11.

- To find out intra-regional disparity.

- To represent spatial pattern at district level.

- To identify disparity by sex as well as by residence

- To find out the educational backwardness at primary grade

- To examine the relationship between educational backwardness at primary grade and selected socio-economic indicators.

Data and Methodology

For this study, data had collected from Table C-8, Educational Level by Age and Sex for Population age 7 and above, Social & Cultural Tables, published by Office of the Registrar General & Census Commissioner, India as well as various secondary sources. Education Statistics from the website of DISE (District Information System for Education) published by NUEPA (National University of Educational Planning and Administration).

Absolute figures had converted into percentages as well as ratios and these percentages and ratios had been processed for necessary cartographic representations and interpretation. Requisite maps had been drawn with the help of Arc GIS software. Stepwise method of multiple regression was run with the help SPSS software. Intra-regional disparity was computed as co-efficient of variability.

$$Co-efficient\ of\ Variability\ (C.V.) = \frac{Standard\ Deviation}{Mean} \times 100$$

Sopher's Disparity Index (1980) modified by Kundu and Rao (1986) as given below had been used to compute disparity by sex as well as by residence.

$$Ds = \text{Log}(x_2/x_1) + \text{Log}\,(200\text{-}x_1/200\text{-}x_2)$$

Here,

$$X2 \geq X1$$

The following formula had been used to measure the educational backwardness at primary grade -

$$DimensionIndex = \frac{Actual\ value - Minimum\ value}{Maximum\ value - Minimum\ value}$$

Before dwelling on the aspects of primary education it would be in fitness of things to discuss the status of education at below primary level.

Below Primary Educational Level

7.56 per cent population in the country aged 11 years and above was below primary educated in 2011. It makes 70.61 million persons. This proportion was high in rural areas. However, when referred to specific age (11 year), nearly 32 per cent was below primary level. In other words, one in three children at relevant age was below primary educated. This section of population was concentrated in the states of Uttar Pradesh (21.80 per cent), Bihar (12.70 per cent), Maharashtra (8.49 per cent), Madhya Pradesh (7.66 per cent), Rajasthan (6.85 per cent) and West Bengal (6.63 per cent). These are also the most populated states in our country.

32.78 per cent male population and 30.63 per cent females at age 11 year could not complete primary education as per Census 2011. The proportion, likewise, for urban areas was 25.88 per cent and for rural 34.03 per cent. The situation had, however, improved since the last decade.

Fig. 1

Fig. 2

INDIA
Persons completed primary education at age 11 year
2011

(Data by Districts)

D.N.A.

Kilometers
0   200   400   600

No. of Districts	Per cent
31	88.31 - 92.29
79	73.62 - 88.30
188	58.94 - 73.61
248	44.26 - 58.93
80	29.58 - 44.25
14	23.06 - 29.57

D.N.A. (Data not available)
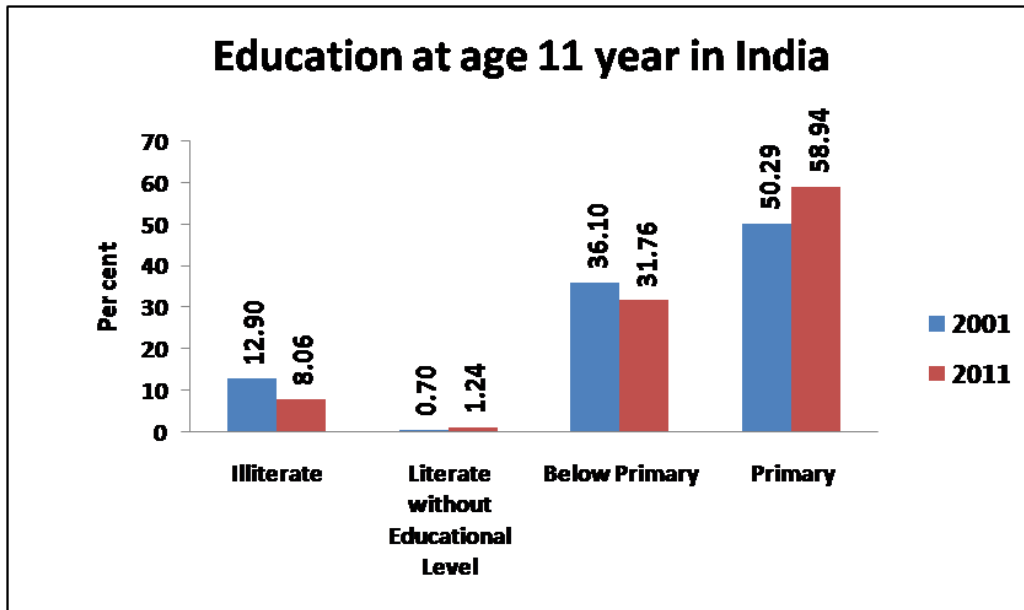
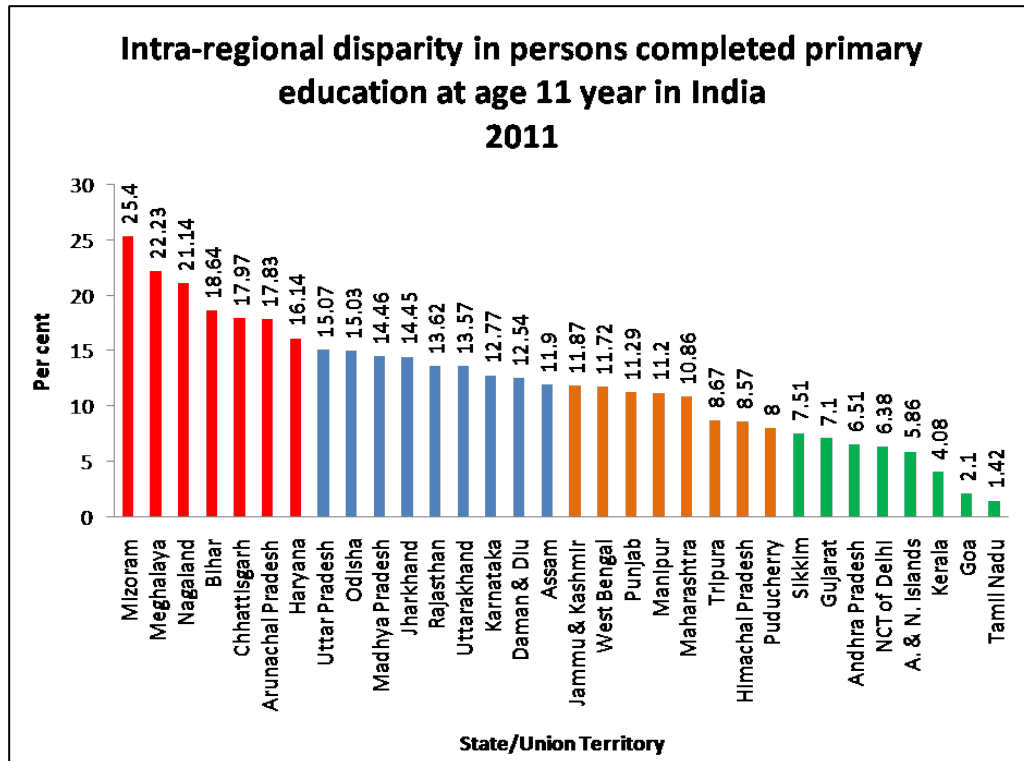National average 58.94 per cent
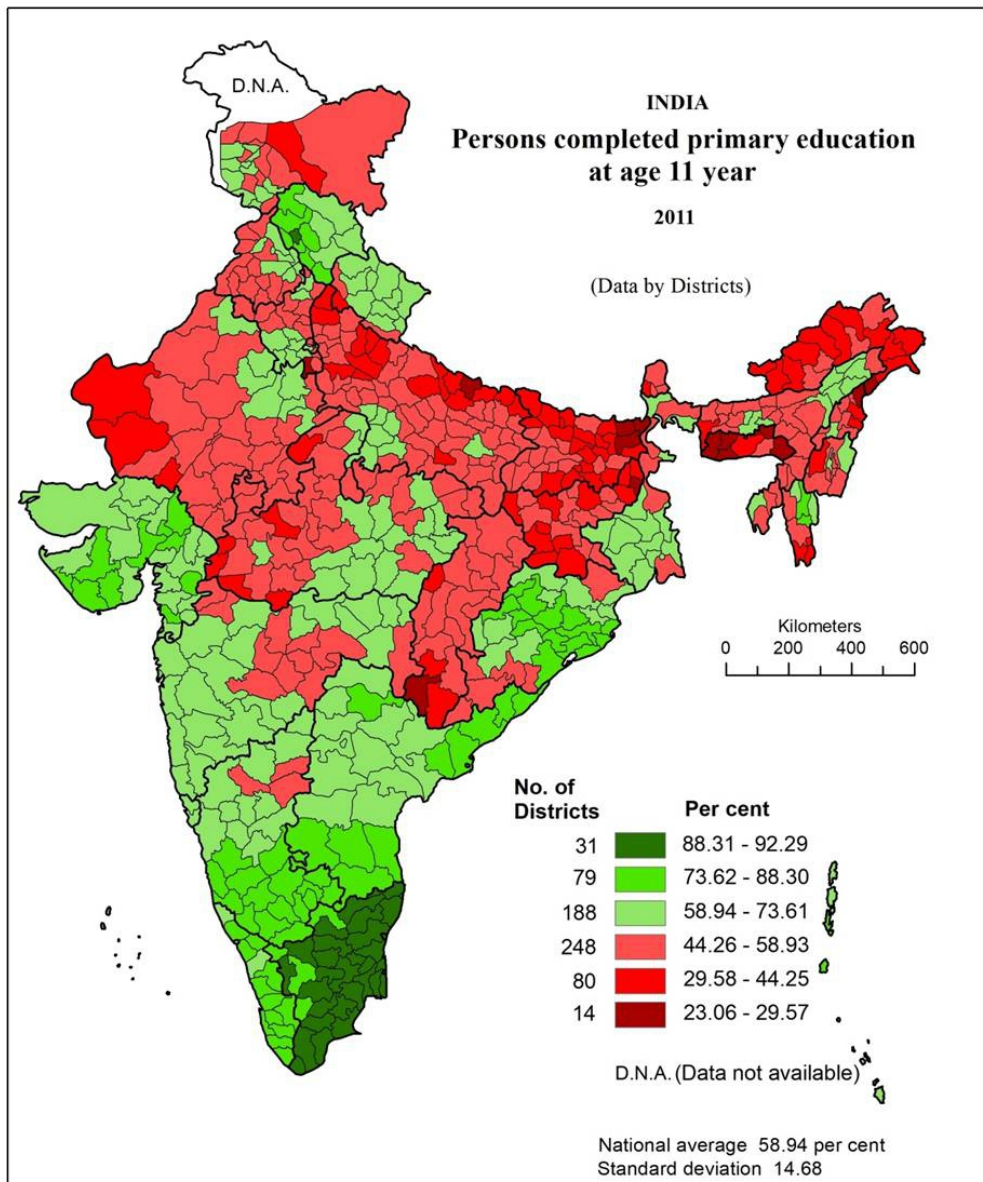Standard deviation 14.68

Fig. 3

Primary Education in Persons: A General View

18.47 per cent population aged 11 years and above in the country was educated up to primary educational level in 2011. However, when referred to specific age, that is 11 years, nearly 60 per cent of the population in India had attained primary level educational status in 2011. Mizoram, Meghalaya, Nagaland and Bihar had high intra-regional disparity as some areas of these states are highly urbanized containing very high percentage of such persons while this disparity was found low in Tamil Nadu, Goa, Kerala, Andaman & Nicobar Islands (Fig. 2).

Spatial disparity also existed. The proportion varied from 23.06 per cent in South Garo Hills district of Meghalaya to 92.29 per cent in Nagapattinam district of Tamil Nadu.

Large parts of Jammu & Kashmir, western and southern districts of Punjab, central Haryana, Uttar Pradesh, Bihar, most parts of north-eastern states, Jharkhand, Chhattisgarh, central districts of Maharashtra, western districts of Madhya Pradesh and south Rajasthan had low percentage of primary educated persons (Fig. 3).

Several parts of Jammu & Kashmir have physically inaccessibility, non-favorable climate, threat of terrorism, low female literacy, low school facilities, etc.

Western and southern districts of Punjab and some area of Haryana have low agriculture productivity, low level of infrastructure facilities, discrimination against female, low level of urbanization and industrialization as well as significant percentage of scheduled caste population which is backward.

Uttar Pradesh and Bihar are suffering with high population growth, patriarchal society, out migration of educated persons, low quality of education, unequal distribution of resources, poverty, low health condition, low level of school facilities etc.

Mostly parts of north-eastern states have upheaval area and low level of infrastructure facilities, widespread poverty as well as low level of urbanization and industrialization.

Area of Jharkhand and Chhattisgarh contains high percentage of scheduled tribe population which is backward as well as high share of population is depending on primary activities. This area is also affected with Naxalite activities.

Southern parts of Rajasthan and western Madhya Pradesh, contain drought areas and low agriculture productivity, high level of poverty, out migration of educated persons, lack of school facilities etc.

Central districts of Maharashtra such as Buldana, Jalna, Bid, Parbhani, Nanded, Hingoli, Washim, Yavatmal have severe handicap in making desirable progress in socio-economic development.

Primary Education by Gender

58.68 per cent males were primary educated at age 11 year in 2011. This percentage had increased from 51.93 in 2001. Meghalaya with 30.59 per cent had the lowest percentage of primary educated males. Besides, Uttar Pradesh, Bihar, Sikkim, Arunachal Pradesh, Nagaland, Jharkhand and Chhattisgarh also had percentages below 50. Union territories, except Chandigarh (55.22 per cent) and NCT of Delhi (59.07 per cent) by and large had higher percentage of males with primary education.

Table 1 India: Population completed primary education at age 11 by sex, 2011

(in per cent)

India/State/U.T./ District	Persons	Males	Females
India	**58.94**	**58.68**	**59.23**
Highest			
State	89.72 (Tamil Nadu)	89.19 (Tamil Nadu)	90.29 (Tamil Nadu)
Union Territory	89.24 (Puducherry)	88.87 (Puducherry)	89.63 (Puducherry)
District in the State/U.T.	92.29 (Nagapattinam, Tamil Nadu)	92.00 (Nagapattinam, Tamil Nadu)	92.63 (Kanniyakumari, Tamil Nadu)
Lowest			
State	33.08 (Meghalaya)	30.59 (Meghalaya)	35.68 (Meghalaya)
Union Territory	55.37 (Chandigarh)	55.22 (Chandigarh)	55.57 (Chandigarh)
District in the State/U.T.	23.06 (South Garo Hills, Meghalaya)	11.78 (Shajapur, Madhya Pradesh)	21.61 (Mewat, Haryana)

Source: Calculated from-
Table C-8, Social & Cultural Tables, Census of India: 2011.

Females with 59.23 per cent had an edge over their male counterpart. This proportion was 48.48 in 2001 recording a sharp increase of 10.75 per cent during the last decade.

Meghalaya with 35.68 per cent had the lowest percentage of primary educated females. The percentage was less than 50 in Uttar Pradesh, Bihar, Sikkim Arunachal Pradesh,
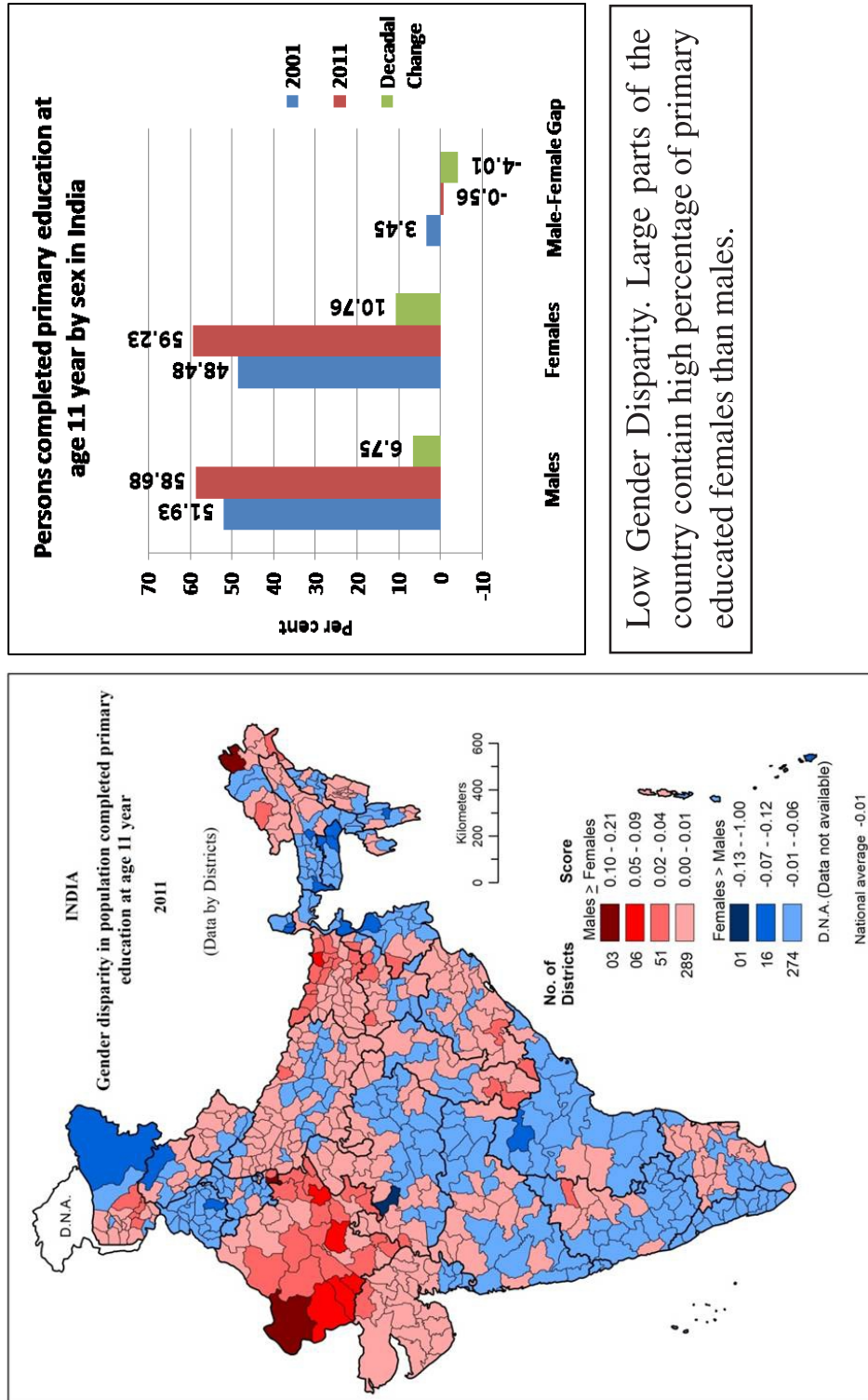
Persons completed primary education at age 11 year by sex in India

Low Gender Disparity. Large parts of the country contain high percentage of primary educated females than males.

INDIA

Gender disparity in population completed primary education at age 11 year

2011

(Data by Districts)

Fig. 4

Persons completed primary education at age 11 year by residence in India

Urban-Rural Disparity

State	District	Score
Meghalaya	Jaintia Hills	0.60
Mizoram	Lawngtlai	0.56
Chhattisgarh	Narayanpur	0.53
Mizoram	Saiha	0.48
Chhattisgarh	D. B. Dantewada	0.46

Rural-Urban Disparity

State	District	Score
Uttar Pradesh	Mau	-0.14
Rajasthan	Sikar	-0.12
Rajasthan	Jhunjhunun	-0.12
Madhya Pradesh	Bhind	-0.12
Punjab	S. B. S. Nagar	-0.10

INDIA

Disparity by residence in population completed primary education at age 11 year

2011

(Data by Districts)

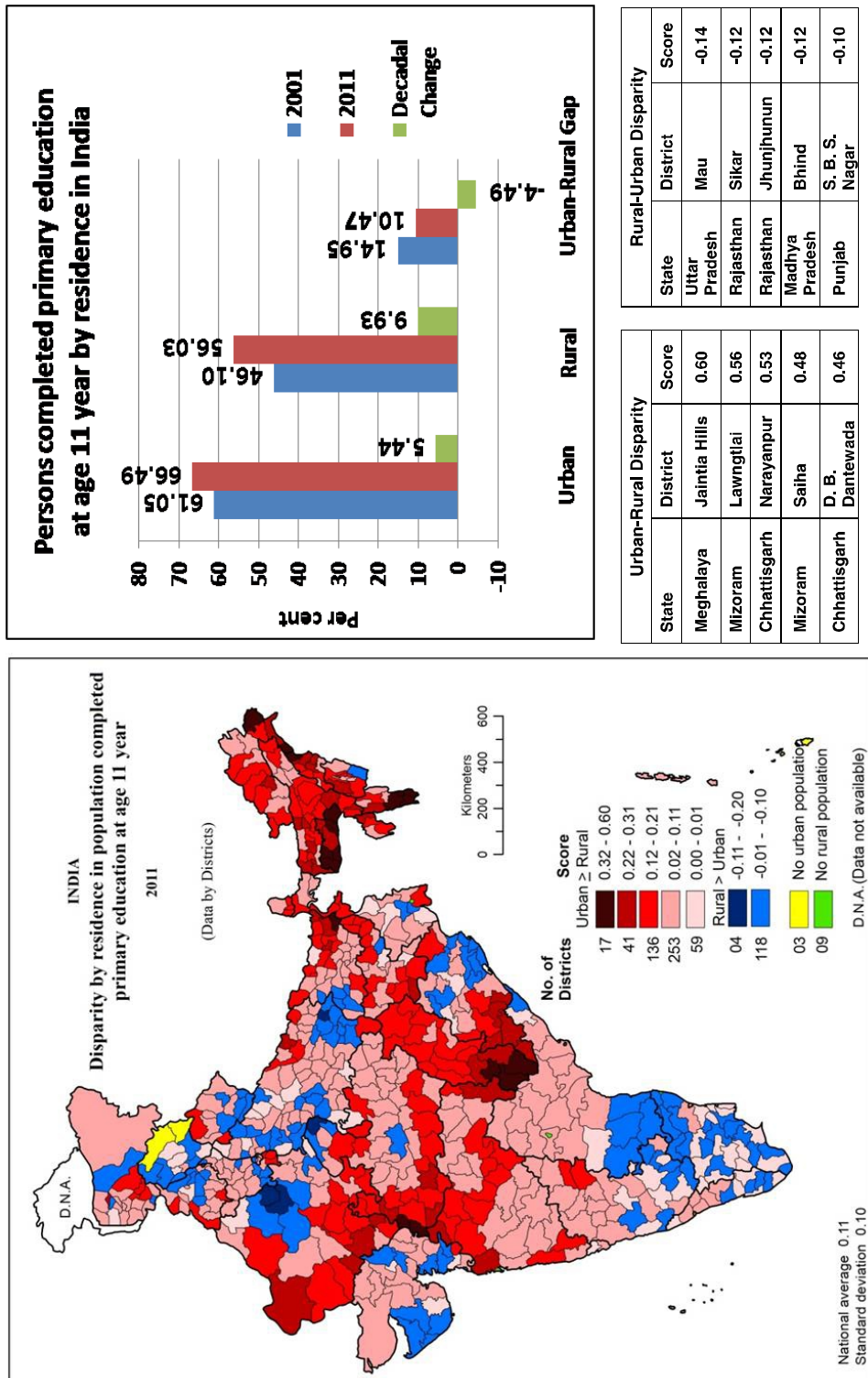| No. of Districts	Score	
	Urban ≥ Rural	
17		0.32 – 0.60
41		0.22 – 0.31
136		0.12 – 0.21
253		0.02 – 0.11
59		0.00 – 0.01
	Rural > Urban	
04		-0.11 – -0.20
118		-0.01 – -0.10
03		No urban population
09		No rural population
	D.N.A.(Data not available)	

National average 0.11
Standard deviation 0.10

Fig. 5

Nagaland and Jharkhand. Among the union territories except Chandigarh (55.57 per cent) and NCT of Delhi (61.19 per cent), remaining union territories had percentages above 67.

For the first time in 2011, females had caught with their male counterparts and improved their percentage in primary education. Resultantly, male-female gap in primary education which was 3.45 per cent in 2001 census had turned in favor of females at national level.

Large area of country had recorded high percentage of primary educated females than males although gender gap was very low (Fig. 4).

Table 2 India: Population completed primary education at age 11 by residence, 2011

(in per cent)

India/ State/ District	Urban	Rural
India	**66.49**	**56.03**
Highest		
State	89.35 (Tamil Nadu)	90.04 (Tamil Nadu)
Union Territory	89.12 (Puducherry)	89.48 (Puducherry)
District in the State/U.T.	91.99 (Kanniyakumari)	92.77 (Kanniyakumari)
Lowest		
State	47.71 (Bihar)	27.69 (Meghalaya)
Union Territory	55.69 (Chandigarh)	45.05 (Chandigarh)
District in the State/U.T.	35.63 (Kargil, Jammu & Kashmir)	20.76 (Tirap, Arunachal Pradesh)

Source: Calculated from-
Table C-8, Social & Cultural Tables, Census of India: 2011.

Primary Education by Residence

66.49 per cent urban population at age 11 year in country had completed primary education in 2011. This had increased from a corresponding figure of 61.05 per cent in 2001.The lowest percentage was recorded in Bihar (47.71 per cent) followed by Uttar Pradesh (50.10 per cent), Arunachal Pradesh (50.80 per cent) and Jharkhand (54.41 per cent). Among the union territories, except Chandigarh (55.69 per cent) and NCT of Delhi (60.06 per cent), remaining union territories had percentages of such urban persons above 70 per cent.

In contrast, in rural area, 56.03 per cent population was primary educated. This was an appreciable increase of 9.93 per cent during last decade. Meghalaya (27.69 per cent) had lowest percentage as well as Uttar Pradesh, Bihar, Sikkim, Arunachal Pradesh, Nagaland, Mizoram, Jharkhand and Chhattisgarh were states where less than 50 per cent

rural persons were primary educated. Among the union territories, except Chandigarh (45.05 per cent) and NCT of Delhi (59.27 per cent), remaining union territories had percentages of such rural persons above 65 per cent.

The Urban-rural gap in primary educated persons was found 10.46 per cent at national level while in 2001 census, it was 14.95 per cent. The gap in order of sequence was: Meghalaya (31.36 per cent), Arunachal Pradesh (28.15 per cent), Bihar (19.26 per cent), Jharkhand (16.11 per cent) and Sikkim (16.11 per cent). In union territories, except Chandigarh (10.64 per cent), remaining union territories contained very low gap.

Some districts had recorded high percentage of primary educated persons in rural area than urban. Fig. 5 portrays districts with high disparity.

Educational Backwardness at Primary Grade and Its Correlates

Following ten indicators employed to measure educational backwardness at primary grade-

1. Persons without primary educated at age 11

2. % schools with SCR > 30

3. % single-teacher schools with 15 and more students

4. % schools without drinking water facility

5. % enrolment in primary schools with PTR > 30

6. Average repetition rate

7. % schools without boys' toilet

8. % schools without girls' toilet

9. % schools without kitchen-shed (government & aided managements)

10. % schools without electricity connection

INDIA
Educational backwarness at primary grade
2011

No. of States/UT	Score
08	0.57 - 0.76
09	0.43 - 0.56
09	0.32 - 0.42
09	0.11 - 0.31

UT- Union Territory
National average 0.48
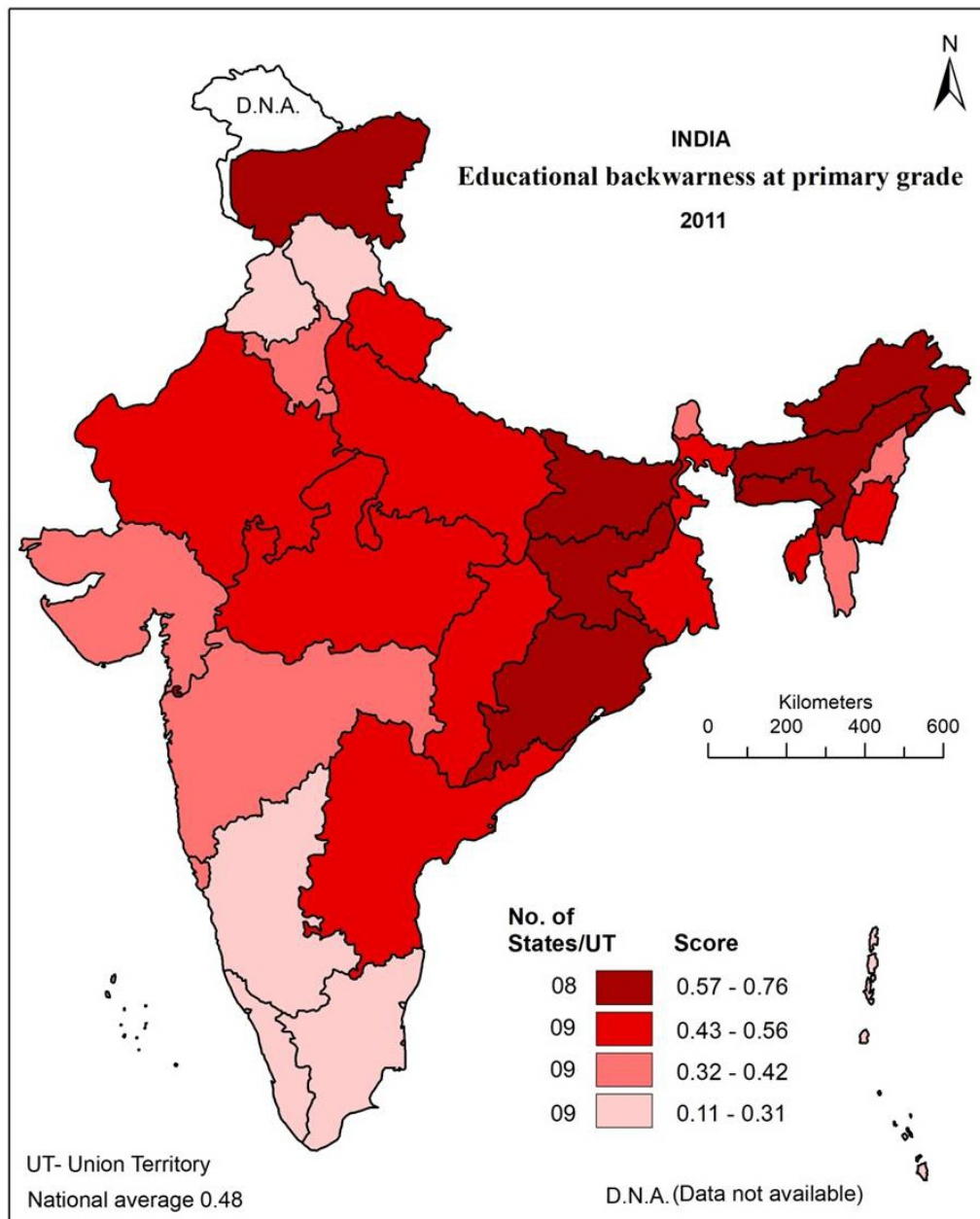
D.N.A. (Data not available)

Fig. 6

Dimension index calculated for each indicator separately and the next step, the average of all dimension indexes of the state had been worked out. The same process applied for all states and union territories. Mostly forward states were situated in south part of country (Fig. 6). Only Punjab, Haryana, and Himachal Pradesh in north-west, Mizoram and Nagaland in north-eastern part were also joining to this category while the situation was very miserable in Jammu & Kashmir, Bihar, Jharkhand, Odisha, Arunachal Pradesh, Assam and Meghalaya. In union territories; Puducherry, Lakshadweep, Andaman & Nicobar Islands as well as Daman & Diu were forward while rest union territories contained moderate level of backwardness.

To determine the best linear combination of various predictors of educational backwardness at primary grade, multiple regression using stepwise method was run. The indicators employed were: illiterates, percentage of households which have no matriculate and above, rural per cent, per cent share of SC, ST and Muslim Population, agriculture worker, per thousand disabled population, worker per thousand population in 5-14 age group (child workers), % persons below poverty line, houseless population per lakh population, per cent married women who married under 18 year, unemployment rate (per 1000) age 15 years & above current daily status approach and % households which have source of lighting without electricity and solar. As stepwise regression considers a relative correlation coefficient of predictors with dependent variable, three predictors viz. Percentage of households which have no matriculate and above, % persons below poverty line and illiterates were found significant at 0.05 significant level with adjusted R squared value 0.700. It means that these three variables were capable enough in explaining 70 per cent of variance in educational backwardness at primary grade.

Table 3 Summary of Multiple Regression Analysis for predicting Educational Backwardness at Primary Grade

Variable	B	SEB	β	t	Sig.
Percentage of households which have no matriculate and above	.005	.001	.439	3.429	0.002
% persons below poverty line	.004	.002	.281	2.318	0.027
Illiterates	.005	.002	.272	2.078	0.046
Constant	.001	.055			

Note: B = Unstandardized Beta Coefficient, SEB= Standard Error of the Unstandardized Beta Coefficient, β = Standardized Beta Coefficient, t = t test, Sig. = Level of Significance

The beta weights suggested that percentage of households which have no matriculate and above was more important in predicting educational backwardness at primary grade (Table 3).

Conclusion

70.61 million persons (7.56 per cent) in the country aged 11 years and above were below primary educated in 2011. This proportion was high in rural areas. However, when referred to specific age (11 year), nearly 32 per cent persons were below primary educated.

32.78 per cent males and 30.63 per cent females at age 11 year could not complete primary education as per Census 2011. The proportion, likewise, for urban area was 25.88 per cent and for rural 34.03 per cent. The situation had, however, improved since the last decade.

A sign of hope is the increased percentage of primary educated persons since last decade. Mizoram, Meghalaya, Nagaland and Bihar had high intra-regional disparity as some areas of these states are highly urbanized containing very high percentage of such persons while this disparity was found low in Tamil Nadu, Goa, Kerala, Andaman & Nicobar Islands

Spatial disparity also existed. Large parts of Jammu & Kashmir, western and southern districts of Punjab, central Haryana, Uttar Pradesh, Bihar, mostly part of north-eastern states, Jharkhand, Chhattisgarh, central districts of Maharashtra, western districts of Madhya Pradesh and south Rajasthan had low percentages of primary educated persons.

The male-female gap was insignificant. In fact, a large area of country had high percentage of primary educated females than males. The gap between urban and rural was high.

Mostly forward states were situated in south part of country. Only Punjab, Haryana, and Himachal Pradesh in north-west, Mizoram and Nagaland in north-eastern part were also joining to this category while the situation was very miserable in Jammu & Kashmir, Bihar, Jharkhand, Odisha, Arunachal Pradesh, Assam and Meghalaya. In union territories; Puducherry, Lakshadweep, Andaman & Nicobar Islands as well as Daman & Diu were forward while rest union territories contained moderate level of backwardness.

There is need to focus on backward areas for socio-economic development. Poverty, illiteracy and low level of education are the main reasons of educational backwardness at primary grade.

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