CHRONIC ENERGY DEFICIENCY AMONG INDIAN WOMEN BY RESIDENTIAL STATUS

PREMANANDA BHARATI
SUSMITA BHARATI
MANORANJAN PAL
SUMAN CHAKRABORTY
RANJAN GUPTA

Indian Statistical Institute, Kolkata, India

In India, there is a considerable disparity between rural and urban areas with respect to health facilities, education, and infrastructural facilities. The major objectives of the present study are to examine the magnitudes of rural–urban disparity, its variation across states, and reasons for such disparity.

A total of 81,712 ever-married women of reproductive age from 26 states in India constitute the data set. BMI is considered to be a good measure of Chronic Energy Deficiency (CED) and obesity. Some socio-economic variables were also considered that are known to affect nutritional status.

For each state, the place-of-residence-wise classification was done. To determine the relationship between CED of women by rural and urban differences with different socio-economic variables, the percentage of urban CED women was subtracted from that of rural CED women. Thus, a positive sign means rural women are more affected than urban women. Correlation coefficients and Chi-square analyses were performed to establish relationship between dependant (nutritional status) and independent (socio-economic) variables.

Key findings suggest disparity in nutritional status of adult women of reproductive age in 26 states between rural–urban areas in India. It was found that the magnitude of difference varies across the states. A noteworthy finding is that more developed states have less and most of the less developed states have more rural-urban differences. Rural-urban difference of the north-east

Address correspondence to Dr. Premananda Bharati, Biological Anthropology Unit, Indian Statistical Institute, 203 BT Road, Kolkata 700108, India. E-mail: bharati@isical.ac.in; pbharati@gmail.com

states are low due to many factors including factors leading to higher empow-
erment of women compared to other states in India.

INTRODUCTION

One way of looking at intra-state disparity is to find out the rural-urban
differences. After China, India has the second largest population in the
world. There is a wide range of variation in India. Some states such as
Uttar Pradesh, Bihar, West Bengal, and Maharashtra are more populous
than other states. The majority of India's population lives in rural areas,
like in other developing countries. But the urban areas are always ahead
of the rural areas in terms of different aspects of development. There have
been substantial improvement in living conditions in the 90s compared to
the 80s, but the gap between rural and urban areas still remains quite high
(National Human Development Report, 2001). In developing countries
like India, the process of urbanization is taking place continuously with its
varying rates between 3.0 and 8.04 percent per annum (UNICEF, 1988).
In the last five years, village studies from India show marked escalation of
temporary migration from rural areas to urban areas during the agricul-
ture lean season, especially, in regions like, Bihar (Karan, 2003),
Jharkhand (Dayal and Karan, 2003), Ananthapur (Rao, 2001), South
Rajasthan (Khandelwal and Katiyar, 2003), West Bengal (Rogaly et al.,
2001 and Rafique and Rogaly, 2003). This migration has affected the gen-
eral subsistence pattern of the people's life in rural and urban areas.

A large gap exists between health facilities of rural and urban areas.
There is a strong bias in the pattern of health expenditure. Urban areas
have more access to health services, safe drinking water, and sanitation
facilities. The differences in the health facilities are expected to have a
greater impact on the health status on children and general people.

Marked rural–urban differences have been observed in education in
India. In general, urban areas have almost 20 % greater literacy rate than
rural areas (Census, 2001). The gap between male and female literacy is not
uniform. The reported literacy gap is minimal in Kerala, Goa, and Mizoram,
which serves as a proxy indicator of the status of women in education. The
reduction of gap between male and female literacy has been achieved not by
lowering the literacy of men but by enhancing the literacy of women. It was
also found that in those states, the health status of women and their children

is relatively better than other states of India. So the study of women's health status is very important for women as well as for their children.

There are numerous reasons for why the inter- and intra–state variations on health status, especially of women and children exist, among the states in India. But here we will concentrate on the disparity of health status by CED of adult women between rural and urban areas.

The objective of this study is to find only the magnitudes of rural-urban disparity in India and whether it varies over states. An attempt will also be made to see the underlying socio-economic and other reasons behind this difference.

MATERIALS AND METHODS

The data of International Institute for Population Sciences obtained from Second National Family Health Survey (NFHS-2), conducted in 1998–99 is the source of our analysis. 81,712 ever-married, reproductive aged (15–49 years) women of 26 states of India have been taken for our analysis. For the assessment of nutritional status of women, BMI is regarded as the best instrument to measure the degree of CED and obesity (FAO, 1993; Ferro-Luzzi et al. 1992; Roche et al. 1981). The value of BMI is calculated for each subject as follows: BMI=weight (kg.)/height (m)^2. The classification of BMI by WHO (2003) to assess the nutritional status is as follows:

Classification	BMI (kg/m^2)
Underweight	<18.5
Normal	18.5–24.9
Overweight	25.0–29.9
Obese	≥ 30.0

Besides BMI, we have considered some socio-economic variables such as women's formal educational level, facilities of toilet and electricity, religion and caste, husband's formal educational level and standard of living index (SLI). Women's educational status has been grouped into four categories such as, illiterate (those who can neither read nor write), primary (literate up to class IV standard), middle (educated above class IV standard but not above class X standard) and high & above (educated at class XI standard and onwards i.e. Higher Secondary, Graduate or Post-graduate etc). Data on toilet, electricity facilities are of 'Yes – No' type.

To study the importance of caste, community and religion, we have taken five categories such as SC, ST, Hindu, Muslims and 'Others'. SC and ST are special categories scheduled by Government of India which may come from any religion. 'Others' means those religious groups who do not belong to Hindu, Muslims, SC, or ST categories. There are Christians, Parsees, Jains, and Buddhists in this group. Husband's formal educational level is also grouped in a similar fashion as has been done for women's educational level. Standard of living index for each household is constructed from a set of proxy indicators such as house type, type of fuel for cooking, ownership of the house, ownership of agricultural land, possession of consumer durables such as a tractor, scooter, motorcycle, electric fan, radio, TV etc. Each item was assigned a score ranging from 0–4. The total score is put into one of the three categories such as low, medium, and high.

Percentages of CED women for the selected categories of socio-economic variable have been calculated. Then, to determine the relationship between Chronic Energy Deficiency (CED) of women by rural and urban differences and different socio-economic variables, the percentage of urban CED women has been subtracted from that of rural women. Thus, a positive sign means that rural women are more affected than urban women. To establish relationship between dependent and independent variables, we have compared correlation coefficients and carried out chi-square analysis. The statistical package for the social sciences (SPSS, version 11.0) has been used for all the analysis. Levels of significance of $p < .01$; .05 and 0.1 were considered.

RESULTS

Variations of CED among women through BMI according to place of residence are given in Table 1. In India, CED in urban areas is nearly half of that found in the rural areas though there are wide inter-state variations in the rural- urban differences. To compare these differences across states in India, the rural and urban differences of CED are ranked (Table 1)[1]. The differences are small for most of the north-eastern states. In fact the percentages of CED in urban areas happen to be more than

[1]Since we want to see whether the rural sector is lagging behind compared to urban sector, we have ranked in increasing order of the values of the differences and not of their absolute differences.

Table 1. State and zone wise percentages of rural and urban CED and their differences and ranking

	Percentages of Malnourished (BMI <18.50)			
	Rural	Urban	Rural and Urban Difference	Ranking of Differences
North-East	22.5	17.3	5.20	1
Arunachal Pradesh	10.2	12.6	−2.40	2
Assam	28.1	18.4	9.70	10
Manipur	17.6	18.2	−0.60	3
Meghalaya	25.3	18.2	7.10	7.5
Mizoram	27.9	15.6	12.30	15
Nagaland	18.5	13.1	5.40	6
Sikkim	10.6	13.3	−2.70	1
Tripura	36.5	25.1	11.40	13.5
East	43.8	27.2	16.6	4
Bihar	39.0	31.4	7.60	9
Orissa	48.8	32.9	15.90	18
West Bengal	48.9	22.8	26.10	26
Central	38.1	25.5	12.6	2
Madhya Pradesh	38.4	27.0	11.40	13.5
Uttar Pradesh	37.8	23.3	14.50	17
West	44.8	22.5	22.30	6
Goa	29.6	22.5	7.10	7.5
Gujarat	46.7	22.7	24.00	24
Maharashtra	48.2	22.4	25.80	25
North	31.3	15.7	15.60	3
Haryana	30.4	13.4	17.00	21
Himachal Pradesh	30.2	16.7	13.50	16
Jammu	29.5	12.8	16.70	19
New Delhi	13.2	12.1	1.10	4
Punjab	20.3	9.10	11.20	12
Rajasthan	37.6	27.1	10.50	11
South	36.8	18.8	18.00	5
Andhra Pradesh	42.4	19.8	22.60	22
Karnataka	46.1	23.3	22.80	23
Kerala	19.5	14.4	5.10	5
Tamil Nadu	33.7	16.8	16.90	20
India	36.0	20.4	15.6	

those of the rural areas in some states of north-east India, Kerala, and Goa. It is interesting to note that though Bihar is an under-developed state yet the differences of CED between rural and urban sector is

surprisingly small compared to other states. This is because the percentage of malnourished women in urban Bihar is also very high.

It seems from Table 2 that none of the socio-economic variables contribute significantly to the rural urban difference in respect of CED among women, while the level of each variable has significant contribution separately for rural and urban regions on the percentage of CED. Irrespective of the categories of the socio-economic variables, rural

Table 2. Rural and urban percentage of CED among Indian women in respect of different socio-economic variables

Socio-Economic Variables	Urban		Rural	
	N	CED	N	CED
Women's Education				
Illiterate	6689	29.8	33409	40.2
Primary	4132	24.9	10026	34.2
Secondary	9122	17.0	10802	28.0
Higher	5436	10.9	2096	19.2
Toilet Facility				
No	4129	37.6	41551	40.6
Pit, Flush	21250	17.0	14782	23.1
Electricity				
No	1772	41.1	24634	41.3
Yes	23607	18.8	31699	31.9
Religion-Caste				
SC	3595	27.8	10421	42.6
ST	1703	21.7	8337	35.2
Hindu	15023	18.8	29808	35.7
Muslim	3575	22.5	5630	33.6
Others	1483	11.3	2137	18.1
Husband's Education				
Illiterate	3017	32.2	18123	42.4
Primary	3577	28.2	11463	38.0
Secondary	10314	20.9	19896	32.4
Higher	8471	12.3	6851	26.4
Standard of Living Index				
Low	2778	41.1	19963	44.4
Medium	11295	24.7	27980	34.4
High	11306	11.0	390	21.6

women are always found to be more malnourished than urban women. For example, if we consider percentage of CED among the illiterate women of rural and urban areas, it is seen that in urban areas, 29.8 percent illiterate women are malnourished and in rural areas, the malnourished women constitutes 40 percent. The effects of these variables are seen clearly as we move along the categories of each variable.

The percentage of malnourished women in both rural and urban areas decreases as the women's level of education increases. However, the rural-urban difference does not have any trend along with the level of education of women. The same trend of CED for rural and urban areas is seen when compared with the level of the husband's education. The same trend is true for SLI of the households. There are high percentages of CED both in rural and urban places for low SLI households. But the difference has an increasing trend as SLI increases. SC women are mostly affected. But the rural-urban differences are high among the Hindus. Others, which constitute mostly the Christians, have the least rural-urban difference. Percentage of malnourished women are also least among them. Toilet facility and availability of electricity have a positive effect on the percentage of CED in the sense that the women having these facilities also have the low possibility of being malnourished. The same cannot however be told about the rural-urban differences.

Now let us look into the state wise features of CED in respect of socio-economic variables. It is seen that out of twenty socio-economic categories of 26 states of India, most of the states are having more than 13 positive entries i.e. the women of rural areas of these states are mostly affected by CED than urban areas. Exceptions are Manipur (7), Sikkim (7) and New Delhi (8), and Arunachal Pradesh (7). It means that in those states, differences of CED between rural and urban women are not so conspicuous. Otherwise, the rest of the states have large intra-residential disparity (Table 3). Rural- urban difference is very high in many states among the ST population. High values in other places may be due to small size. For example in Mizoram there are negligible numbers of Hindu, Muslim, and Christian population. In Punjab there are only a few villages with no electricity.

It is usually thought that women's education assumes a crucial role in eliminating the malnutrition in the society. Rural women are less educated and thus it is likely that incidence of CED will be higher in rural areas, and rural–urban differences will be high because of this. Surprisingly, we have found the differences to be more among the educated women than

Table 3. Differences between rural & urban (women) CED in relation to its socio-economic variables in different states of India

State	Women's Education				Toilet		Electricity		Religion_Caste					Husband's Education				SLI		
	Illit	Pri	Sec	Higher	No	Pit, Flush	No	Yes	SC	ST	Hindu	Muslim	Others	Illit	Pri	Sec	Higher	Low	Med	High
AP	23.4	15.2	11.1	3.5	13.9	6.1	1.5	21.8	17.8	-7.1	21.5	23.5	34.7	23.1	13.7	14.5	14.2	13.0	18.3	11.4
Assam	13.0	-1.8	3.6	1.8	1.9	8.9	1.5	5.3	12.4	12.9	10.0	6.9	-20.0	9.0	5.2	3.3	7.8	4.4	1.7	8.5
Bihar	2.4	2.8	3.4	4.7	-6.0	2.1	-2.9	4.3	7.8	25.2	6.3	6.6	15.0	-4.8	1.4	6.7	8.8	-1.3	3.3	2.9
Goa	4.9	-1.4	5.5	2.2	4.1	1.0	15.5	5.4	-5.0	33.3	11.5	-5.1	8.6	4.9	7.8	1.8	2.8	-8.1	2.8	4.4
Gujarat	19.5	11.5	21.1	19.0	11.2	8.9	15.5	21.0	21.4	29.9	18.9	14.7	8.9	19.5	22.5	18.7	20.8	12.5	17.2	12.7
Haryana	8.2	14.3	15.0	22.9	5.4	12.4	-9.9	16.3	10.8	50.0	17.5	8.0	8.6	12.8	13.8	11.0	19.2	6.9	6.5	17.0
HP	11.8	5.1	14.1	4.0	-0.1	5.8	-10.0	13.4	7.3	30.0	14.2	18.8	4.1	2.6	1.8	13.6	11.1	4.3	6.8	9.3
Jammu	12.1	27.5	14.6	7.4	9.1	8.1	13.6	16.6	19.7	28.8	20.4	11.3	27.5	16.8	12.3	14.6	15.3	11.5	15.2	10.0
Karnataka	14.3	15.2	19.5	15.3	6.4	12.9	-1.1	23.6	28.8	13.1	21.7	18.5	13.7	10.3	16.9	20.3	18.0	5.8	17.9	21.1
Kerala	12.8	9.6	4.4	-2.0	4.4	3.7	7.0	1.7	1.5	38.1	5.2	8.6	0.9	24.1	6.9	3.2	1.7	1.5	2.2	2.4
MP	6.4	2.7	14.3	5.8	4.5	3.4	4.8	10.8	13.1	1.3	10.2	4.3	0.8	11.0	3.9	3.9	12.5	0.4	6.3	11.9
Maharastr	21.7	18.1	26.1	16.4	7.9	18.1	0.6	23.2	18.7	20.6	27.3	11.2	25.8	20.7	21.6	24.1	25.0	7.5	19.8	19.6
Manipur	1.4	-6.8	-1.6	-0.4	30.9	-0.6	-2.4	-2.3	7.4	0.8	1.6	-26.3	-7.8	8.4	-6.9	-3.9	1.0	-2.9	-3.9	2.4
Meghalay	11.5	4.3	-0.3	11.2	-27.1	11.1	15.3	4.1	-5.6	5.8	23.7	70.8	50.0	7.8	0.7	-1.5	28.6	-0.5	10.0	11.2

(Continued)

Table 3. (*Continued*)

State	Women's Education				Toilet		Electricity		Religion_Caste					Husband's Education				SLI		
	Illit	Pri	Sec	Higher	No	Pit, Flush	No	Yes	SC	ST	Hindu	Muslim	Others	Illit	Pri	Sec	Higher	Low	Med	High
Mizoram	22.1	4.2	9.2	7.1	-3.5	11.0	24.6	9.0	33.3	12.9	0.0	-100.0	-100.0	-0.9	11.7	10.2	2.3	17.0	8.4	9.4
Nagaland	9.5	-3.9	1.3	5.8	24.1	2.2	13.3	-0.8	20.6	6.1	-0.9	7.1	20.0	12.3	0.8	0.9	0.5	9.4	-0.4	6.1
Orissa	0.5	22.0	14.5	11.7	1.3	4.8	-2.9	13.8	2.9	6.0	18.4	9.6	9.2	-2.7	12.5	13.6	16.6	-3.5	13.5	11.2
Punjab	10.6	4.6	7.7	9.9	-0.9	7.6	-65.0	10.5	8.2	50.0	15.7	-5.6	7.2	13.8	5.6	5.4	7.4	40.0	9.2	6.0
Rajastan	4.2	4.6	15.9	13.6	1.2	11.2	-6.6	11.0	14.4	14.7	12.1	-2.6	11.4	-0.6	8.5	7.4	15.3	-2.2	3.6	12.7
Sikkim	-6.6	11.5	-2.5	-10.0	-1.9	-3.1	13.8	-4.0	0.0	1.0	-3.4	33.4	9.3	-6.6	2.6	-5.6	-2.6	-24.2	-0.6	-6.3
Tamil Nadu	17.3	12.0	10.6	10.8	8.0	3.9	11.1	15.5	15.1	40.9	15.9	-1.1	29.1	15.0	10.6	12.8	15.1	9.2	14.9	2.1
WB	17.5	16.4	20.4	20.1	-5.7	14.5	-2.4	16.5	11.4	41.8	26.6	26.1	-7.6	15.6	16.5	19.9	24.6	5.7	18.5	20.3
UP	8.7	13.7	6.1	7.1	1.3	10.8	5.3	10.8	12.0	-3.5	15.5	15.3	17.4	13.3	5.0	12.0	13.5	1.5	8.6	12.6
N. Delhi	-6.2	10.0	-0.4	-4.9	-16.4	2.7	-5.8	1.1	-4.3	-36.8	-0.1	16.6	-3.6	-8.1	4.2	0.5	1.9	-26.4	-1.6	1.4
ArP	-6.0	-10.6	5.1	-4.7	13.7	-4.1	1.3	-4.8	21.7	-1.5	-28.6	-37.5	16.4	-3.1	-14.6	-4.8	3.4	-4.0	-6.7	1.2
Tripura	-18.8	14.7	8.2	10.0	-18.8	12.6	-18.8	11.1	0.1	16.7	17.7	-19.3	0.0	-12.3	0.5	12.1	2.1	-7.3	10.8	10.1
India	10.4	9.3	11.0	8.3	3.0	6.1	0.2	13.1	14.8	13.5	16.9	11.1	6.8	10.2	9.8	11.5	14.1	3.3	9.7	10.6

AP: Andhra Pradesh, HP: Himachal Pradesh, MP: Madhya Pradesh, WB: West Bengal, UP: Uttar Pradesh, Illit: Illiterate, Pri: Primary, Sec: Secondary, SC: Scheduled Caste, ST: Scheduled Tribe, Med: Medium.

among illiterate women in states like Haryana, Orissa, Rajasthan, Bihar, Karnataka, West Bengal, and Tripura. The opposite trend is seen in Andhra Pradesh, Assam, Kerala, Manipur, Maghalaya, Mizoram, Nagaland, Punjab, Tamil Nadu, etc. Most of the north-eastern states are in this category. Thus the all India percentages of CED for women at different levels of education remain more or less same.

Rural-urban difference in the incidence of CED for women has been seen to be more in most of the states for women who have pit flush in their toilets. Does it mean that rural women can use pit flush more efficiently than urban women? So far as electricity facility is concerned, the difference is more for women having electricity connections in their houses. Though there are electricity facilities available in many of the houses in rural sectors, the poor women cannot afford to use it as much as they want because of cost consideration. It should also be noted here that most of the houses in urban sector have pit flush facilities in their toilets and have electricity connections too. So the comparison is made with only few women without having these facilities in cities or towns. The picture is not clear for SC, Hindu and Muslim and 'Other' women for state- level comparison. All India level comparison points out to the fact that the differences are highest for Hindu women and lowest for others which mainly comprises Christians. We get mixed results in regard to Husband's education also. The difference is high for high SLI households for most of the states.

Table 4 shows the correlation between the rural and urban percentages of women in each category of BMI taking state wise figures. Through correlation table it is seen that there is a positive significant correlation between rural and urban BMI. Thus higher percentages in the rural areas in some categories automatically implies higher percentages in the same category in the urban area. One interesting point is to be noted here that the correlation for all the categories combined is much less than each of these categories. It is also not significant; since correlation signifies linear relation, it implies that the linear relation is different

Table 4. Correlation between rural and urban percentages of women in the different categories according to the levels of BMI in India

Malnourished	Normal	Overweight	Obese	Total
0.759**	0.849**	0.679**	0.661**	0.335

**Correlation is significant at the 0.01 level (2-tailed).

for each category. Thus when combined, the degree of linear relation becomes insignificant. Next we try to find out whether the rural-urban differences can be explained through any of the socio-economic variables. None of the correlations except toilet facility and Scheduled Tribes (ST) has significant influence on the differences. This percentage has also positive relations with the percentage of CED in the rural areas. Same is true for those not having proper toilet facility. Thus the differences can be explained in terms of malnutrition among the categories of the rural areas. It is also clear from the overall correlation between the difference of percentages and the percentage in the rural areas, which is highly significant. Thus the difference is high or low because of the variation in the rural percentages only (Table 5). There is highly significant correlation between rural and urban CED for some categories of the socio-economic variables (Table 6). It is seen through Chi-square tests (Table 7) of the contingency tables of number of women in the different grades of malnutrition versus the categories of socio-economic variables. These associations are highly significant for both rural and urban areas.

DISCUSSION

As a result of economic reforms in 1991, there has been a rapid stride of economic development through better access to education, employment, health care, safe drinking water, and sanitation facilities among the people of India. According to National Human Development Report (2001), though poverty plummeted during the 1980s and early 1990s, there still exists a large disparity between rural and urban areas for almost all the categories of the socio-economic groups.

It is seen that there is less CED among the urban women irrespective of all socio-economic variables. It may be due to better infra-structural facilities available and expenditure on health in urban areas. In rural areas the rate of utilization of the facilities available and expenditure on health is still less due to the low health budget. The greater access to health services, safe water and sanitation facilities are the causal factors for the upliftment of the health situation in urban areas.

From our study it is seen that the lowest margin of rural-urban difference is seen in Manipur (0.6), and is followed by New Delhi (1.1), and Arunachal Pradesh (2.40). The highest margins are seen in the states of West Bengal (26.10), Maharastra (25.80), Gujarat (24.00), Karnataka

Table 5. Correlation between percentages of women in the different categories of socio economic and household characteristics with rural and urban percentages of CED according to BMI

CED	Diff. R & U (CED)	Women's Education		No Toilet	No Electricity	SC	ST	Hindu	Muslim	Husband's Illiteracy	Low SLI
		Illiterate	Primary								
Rural	0.873**	0.335	-0.117	0.642**	0.26	-0.359	0.426*	0.466*	0.094	0.358	0.473*
Urban	0.345	0.440*	-0.132	0.589**	0.555**	-0.198	0.246	0.409*	-0.079	0.399*	0.697**
Diff. R & U	1	0.154	-0.07	0.484*	-0.04	-0.368	0.429*	0.365	0.195	0.217	0.159

**Correlation is significant at the 0.01 level (2-tailed).
*Correlation is significant at the 0.05 level (2-tailed).

Table 6. Correlation between percentage of rural and urban CED for some categories of the socio-economic variables in India

CED	Women's Illiteracy	No Toilet	No Electricity	ST	Hindu	Husband's Illiteracy	Low SLI
Rural	0.652**	0.604**	0.320**	0.467**	0.425*	0.723**	0.643**

**Correlation is significant at the 0.01 level (2-tailed).
*Correlation is significant at the 0.05 level (2-tailed).

(22.80), and Andhra Pradesh (22.60). The differences are low for most of the states of north-east India. In Kerala, Goa, and Bihar, the differences are very low. Zone wise ranking shows that the lowest margin of difference is seen in north-east zone (5.2) and highest margin is in west zone (22.3), followed by south zone (18.0). The probable reason for disparity may be seen in the relative percentages of the different socio-economic groups in the rural and urban sectors. In rural areas, most of the women are poor with high incidence of CED. Thus the comparison between rural and urban sectors shows positive differences in the percentages of CED when urban percentages are subtracted from the corresponding rural percentages. This (the differences) may not have anything to do with socio-economic variables. If we compare the incidence of CED between rural and urban poor, then we may not get any significant difference. Thus the comparison should be made with respect to improvement of Human Development Indicator (HDI) i.e. improvement of the per capita income, educational, and health care facilities especially in the rural sector.

Another problem is the unequal distribution of foreign capitals for industrialization in post-reform era. After 1991, market forces and international trade have played a major role in foreign investment in India. It is expected that coastal regions have more advantages than the interior regions, as the coastal regions face much lower transaction costs in participating global trade and investment (Sachs et al. 2002). So Gujarat and Maharastra have got the lion-share of foreign capitals for industrialization. But due to unequal distribution of investment within the state the industrial growth has been concentrated in and around the cities and towns and led to glaring regional disparity, poverty, and unemployment and this may be the major cause of disparity between rural and urban sectors. Foreign Direct Investment (FDI) in the east zone has been very low for the last few decades.

Table 7. Chi-square tests between different grades of women's BMI and socio-economic variables

Socio-Economic	Women's Education		Toilet Facility		'p' Values Electricity		Religion-Caste		Husband's Education		SLI	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Andhra Pradesh	138.798**	26.504**	201.575**	58.136**	43.661**	40.246**	33.627**	34.484**	135.695**	40.363**	191.835**	110.085**
Assam	46.746**	16.941*	6.188	6.297	47.9**	24.792**	33.955**	20.362	46.904**	17.795*	49.826**	50.803**
Bihar	15511**	33.947**	176.32**	46.501**	29.777**	29.343**	62.431**	18.428	127.403**	39.552**	218.892**	38.285**
Goa	56.971**	50.036**	89.695**	43.705**	65.486**	8.737*	29.651**	24.133**	35.168**	31.393**	97.624**	94.216**
Gujarat	51.092**	104.691*	126.215**	114.71**	25.206**	35.654**	103.653**	50.255**	42.677**	70.126**	168.135**	162.206**
Haryana	44.413**	69.699**	52.74**	41.294**	3.742**	16.876**	93.846**	57.421**	26.795**	54.048**	65.342**	76.81**
Himachal Pradesh	20.909*	17.275*	68.443**	36.721**	5.345	1.968	35.867**	42.44**	45.357**	34.415**	77.352**	36.266**
Jammu	39.050**	39.408**	80.367**	21.484**	22.675	0.796	112.159**	40.093**	34.898**	26.198**	74.001**	14.106*
Karnataka	83.580**	94.557**	112.568**	105.025**	80.419**	44.145	42.241**	17.376	69.449**	87.026**	85.06**	173.595**
Kerala	31.747**	4.988	42.419**	11.688**	24.61**	9.062	43.241**	16.858	23.022**	9.207**	111.359**	61.579**
Madhya Pradesh	46.483**	120.377**	147.115**	94.958**	33.957**	11.497**	202.374**	85.225**	57.493**	109.554**	112.793**	143.735**
Maharashtra	61.065**	104.533**	68.964**	91.204**	14.027**	37.813**	36.141**	62.862**	62.804**	95.811**	108.738**	281.986**
Manipur	35.254**	27.451**	2.575	1.508	1.869	2.164	15.706	19.043	24.591**	21.531**	40.006**	26.289**

(Continued)

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Table 7. (Continued)

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Socio-Economic	'p' Values											
	Women's Education		Toilet Facility		Electricity		Religion-Caste		Husband's Education		SLI	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Meghalaya	9.331	6.312	6.115	5.064	6.704	0.936	41.422**	5.425	24.846**	10.036)	9.091	24.784**
Mizoram	20.236**	15.719	12.432**	6.013	20.658**	1.768	3.939	24.779*	30.525**	11.654	15.071*	7.892
Nagaland	26.677**	9.212	13.404**	1.414**	126.993**	3.481	39.034**	16.437	26.472**	4.846	38.438**	5.678
Orissa	90.135**	102.762**	255.978**	110.1**	19.487**	71.388**	48.721**	47.304**	122.898**	111.698**	198.081**	138.799**
Punjab	39.244**	41.353**	44.753**	33.123**	16.15**	10.058*	62.271**	45.507**	58.516**	39.977**	106.741**	45.216**
Rajasthan	22.015**	91.115**	53.649**	57.467**	9.625**	24.84**	72.205**	54.7**	29.058**	88.875**	78.067**	113.891**
Sikkim	12.386	6.857	12.575**	3.007	54.998	1.205	42.237**	13.954	34.314**	7.808	74.46**	10.015
Tamil Nadu	90.439**	60.903**	195.024**	85.064**	92.907**	34.818**	128.208**	42.709**	97.271**	65.991**	246.152**	152.820**
West Bengal	74.386**	138.344**	126.133**	113.97**	45.626**	154.291**	47.32**	61.239**	62.919**	145.482**	134.9**	232.329**
Uttar Pradesh	71.080**	80.238**	62.892**	41.718**	1.759**	28.247**	64.822**	38.244**	64.292	55.973**	145.54**	101.088**
New Delhi	9.211	104.359**	3.607	31.275**	15.223	12.977**	9.246	75.041**	4.129*	92.231**	4.725	158.129**
Arunachal Pradesh	1.338	28.497**	8.596	0.767	11.283	1.256	83.588**	21.625**	14.06*	12.998*	22.899**	8.567
Tripura	17.918**	34.185**	4.458	1.823	43.661*	11.82**	40.573**	9.636	28.101**	17.851*	17.899**	22.623**
d.f.	(9)	(9)	(3)	(3)	(3)	(3)	(12)	(12)	(9)	(9)	(6)	(6)

**significant at 1% level; *significant at 5% level.

On the other hand, disparity is the least in most of the states of north-east zone. There are many reasons behind it in North-East India. Some of the states are matriarchal, so the women's autonomy and consequently decision making power of women is higher than other states. The proportions of working and self employed women are very high compared to other regions in India. Moreover, there are high prevalence of Christianity among the tribals. They are the enlightened groups leading to the increment of more educated women than other states. Also the literacy gap between male and female is the least in Mizoram and Meghalaya. Lastly, the possession of toilet facility is very high in most of the states of North-East India

In Kerala and Goa, literacy gap between male and female is small. Besides, Kerala has achieved very high level of social development, which is evident from highest literacy rate, lowest infant mortality, and high female sex ratio, while Punjab is one of the highest per capita income state in India albeit possessing worst sex ratio.

The demarcation line between rural and urban regions in New Delhi was drawn long back. There has been a huge amount of investments in the infrastructure and other facilities in New Delhi, because it is the capital of India. The adjacent rural places have benefited out of it. The government of India was also forced to upgrade the facilities of the adjacent places to transfer a large portion of the cumulative pressures being imposed in the heart of the city. This led to the rural urban difference being very small in New Delhi.

The present findings also indicate the co-existence of under and over-nutrition (BMI) in rural and urban areas in India. Recent reviews have revealed that although under-nutrition remains a major health problem in many developing countries, over-nutrition is also emerging with the improvement in socio-economic condition and/or increasing urbanization (Popkin, 2002; Khongsdier, 2005). Consequently, the double burden of under and over-nutrition exerts considerable impact on the economy and health system in many developing countries. In general, many countries in Asia are in this situation due to "changing dietary pattern towards energy dense and high fat diets, together with a more sedentary life style arising from increasing urbanization" (Florentino, 2002). The increasing urbanization changes in standard of living, dietary patterns and occupational work patterns are the key factors to the risks of obesity and associated morbidity and mortality.

This unfortunate condition persists even after economic reforms and social change due to globalization. If one delves deeper into the problem, one may discover that the root lies in the Indian life style, religious beliefs, social customs etc., which are not easily amenable to change. The problem is very much different from the western countries where the diversity patterns are not constrained by the above factors.

It has also been seen that the rural-urban difference in the health status of women does not depend much on the level of education, because it applies uniformly to rural and urban areas. For the same level of education the nutritional status of women remains the same in rural and urban areas. One reason why the rural–urban difference is high is because of the high proportion of illiterate or less educated people in rural areas. The rural-urban difference is certainly related with the overall development of a state. The best examples of this are Goa, Kerela, New Delhi, and Punjab. There should be uniform regional growth and development. One way to achieve it is via uplift of the rural sector in India in regards to health care, education, and infrastructural facilities. Development of a state cannot be achieved without uplifting the rural sector of the state, because the rural sector constitutes the bulk of the population.

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