Globalization and the Rural-Urban Divide: An Inquiry on the Health, Education and Basic Amenities in India

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Paper prepared for the 35th IARIW General Conference

Copenhagen, Denmark, August 20-25, 2018

Session 6E: Globalization and Inclusive Growth II

Time: Friday, August 24, 2018 [9:00-12:30]

31/07/2018

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Abstract

Rural-urban disparities have long remained as one of the major concerns in the development policymaking. The rural-urban divide in India however did not remain confined only within the income and earning differences, but also persisted in various non-economic dimensions. This paper examines the rural-urban disparity on the health, education and basic amenities dimension by developing an empirical framework for describing inequalities across different states in India. Our results indicate that there is a widening difference between the rural and urban areas in respect of health and basic amenities provision. It appears that the gap between rural and urban India is somewhat narrower in the educational dimension. While policy formulations are aiming at better targeting and delivery mechanisms, wide gaps between the rural and urban seems to have appeared in the provision of social infrastructures in many states of India. (139 words)

JEL: R11, I10, I20, H4, D63.

Keyword: Rural-Urban Divide, Social Infrastructures, Composite Development Index, Regional Variation, India.

Session 6E: Globalization and Inclusive Growth II.
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1. Introduction:

India experienced major policy changes due to its liberalization, privatization and globalization process intended to make the economy globally competitive. The circumstances that led to the historic initiatives leading to the economic reforms in 1991 are now well-documented (Panagariya 2008, Ahluwalia 2016, Patnaik 2016), and the series of reforms undertaken in the respect of industry, trade, financial sector and foreign direct investments are now widely recognized for India's attainment of sustained economic growth rates. It is claimed in the literature that the reforms and adjustment process not only had a major impact on the overall economic growth but also integrated India with the global economy. However, while the growth performances in India remain noteworthy, the country also continues to suffer from widening economic and social disparities on account of high poverty ratios, rising income inequality, widespread unemployment, illiteracy, poor health care services, lack of basic amenities and social exclusion.

It has been observed that while the economic achievements of globalization - such as increase in per capita income or growing foreign direct investments - are often highlighted, the poor performances in non-economic dimensions - such as low scores in the health and educational dimensions of human development are rarely mentioned. It is also claimed that the reason for widening economic and social divide in the country is due to the growth strategy that favored the urban India in relation to rural India. It may be mentioned that with about two-thirds of India's population living in rural areas, there is still a wide gap between rural and urban India in the respect of economic empowerment and living condition. In fact, the growing income inequality in the country is mostly linked to the widening gap between the per capita income levels of rural and urban areas. It may be mentioned in this context that while the concern for rural-urban disparity has been subjected to some critical discussions in the context of China, e.g., Kanbur and Zhang [1998], Sicular et al [2008], the same has received very little attention in the academic or policy-making circles in India. This study is devoted to verify the notion of rural-

urban divide in the progresses made on the access to health services, education and basic amenities in India at the level of individual state economies.

The main objective of this paper is to examine the rural-urban disparity in India on the health, education and basic amenities dimension by developing an empirical framework for describing the inequalities across different states in India. Our analysis proceeds in two steps; we first develop an empirical framework for describing the inequalities across different states in India, and subsequently examine the patterns of rural-urban within every state. To elaborate, we use appropriate indicators to construct composite indices to undertake comparison of achievements in each of the three dimensions for rural and urban areas across different states. The aggregate index on each dimension is constructed for 31 states and union territories by employing the principal component method to determine the set of weights and derive the composite index.[1] We subsequently use these cross-sectional data to measure the parity between the rural and urban areas in each of the three dimensional scores across states of India. The rest of the paper proceeds in the following sequence. We first discuss the analytics of rural-urban divide to understand its significance in the developmental process (section 2). Section 3 provides a general account of rural-urban divide in India. We subsequently construct the multiple indicators based dimensional indices on health, education and basic amenities for different states of India. Thus, section 4 discusses the principal component method that is employed for deriving the composite indices. The description of the indicators and their data base used in the construction of each of the indices are discussed in section 5. The analyses of our results are included in section 6. The final section interprets the findings and infers policy implications.

2. Rural-Urban Divide:

The rural-urban divide has been discussed at length in the areas of development economics, yet there appears to be little progress made over the last decades in reducing the gap. In almost every country in the world, the per capita income, consumption expenditures, poverty levels or average

[1]The 31 states and union territories covered for this part of our analysis are: Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chandigarh, Chhattisgarh, Delhi, Goa, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Odisha, Punjab, Rajasthan, Sikkim, Tamil Nadu, Telengana, Tripura, Uttar Pradesh, Uttarakhand and West Bengal.

living standards in urban areas remain superior to those in rural areas. The urban predominance remains as the norm regardless of the per capita GDP or development level of countries and also tends to persist as countries transform into urbanized economies with higher industrial and service base. These disparities in income distribution, consumption, and quality of life between the rural and urban areas are known as the rural-urban divide, which have been studied adequately in the literature. However, there is also a lack of livelihood opportunities, basic amenities and social infrastructures services necessary for the decent living in rural areas. In fact, there are huge differences in the availability of infrastructures in health, education and basic amenities, which draw a divide between the rural and urban areas. The academic or policy discussions have also periodically expressed exclusive concerns on the widening inter-state disparities or the growing rural-urban divide in many developing countries. However, the link between the rural-urban disparities and country's overall regional disparities - particularly in the high population economies like India - has received little attention in the applied literature. Although, the country experiences have differed on the extent of disparities, the developing countries that experienced reforms, adjustment or opening-up policies have not been observed to undergo significant reductions in the rural-urban inequality. The study by World Bank (2009) argued that the rural-urban living standards diverge as countries develop and become more urbanized, and then bear a tendency to converge after reaching higher levels of development. The studies on economic growth and poverty reduction also found that economic growth mostly helped to reduce urban poverty but brought little or no overall benefit to the rural poor. In certain emerging countries, the rising overall living standards appear to have experienced some distributional impacts in favor of the rural poor in the post-reform period.

3. Rural-Urban Gaps in India:

India's large population is divided into two different areas of residence, viz., rural and urban. Based on the most recent UN data, India's population in 2018 is estimated at 1.35 billion with around 67 per cent of the people still living in rural areas. The recent Socio Economic Caste Census data reveals that out of 245 Million households residing in India, about 73.41 per cent remains to be rural and 26.59 per cent as urban households. The previous research has pointed

out that while poverty rates in India have generally declined, the rural poverty fell at a slower rate than the urban poverty. Thus, about 25.7 per cent of the rural population remained below the poverty line in comparison to 13.7 of the urban below poverty line population during 2011-12. Therefore, India is often categorized as an emerging economy but with the characteristic feature of the largest number of poor, illiterate and unemployed persons in the world.

The rural-urban disparity has long remained as one important concern for India's development, whereby the disparities are seen in both the economic and non-economic dimensions. With about two-third of the total Indians living in rural areas, there is a wide gap between the rural and urban India with respect to the livelihood, living condition and economic empowerment. Many in rural India also lack access to education, nutrition, health care, sanitation, land and other assets and therefore persist in poverty. Further, the rural income per capita in India has remained stagnant over the years due to a combination of government policies and control. Thus, even after accounting for cost-of-living adjustments, the per capita income of urban workers remains far greater than that of their rural counterparts. In recent times, the per capita income in rural areas has been observed to only 40 percent of that in urban areas for a majority of states.

The rural-urban divide is not confined to conventionally measured income. It is apparent also in education, health care and housing. There is a considerable gap between urban and rural provision of, and access to, health services. The rural population is at a disadvantage in both quality and quantity of health care. Moreover, urban services are more subsidized, so that rural people have to pay no less than urban people for health care. India at present has large welfare programmes including price-support for food under the National Food Security Act and the right to work programme, viz. Mahatma Gandhi National Rural Employment Generation Program (MGNREGP) for the rural areas. In the health front, the government launched the National Rural Health Mission (NRHM) in 2005 to provide accessible, affordable and quality health care in rural India. At present, the Government is also implementing several nutrition intervention programs like Anganwadi Services, Scheme for Adolescent Girls and Pradhan Mantri Matru Vandana Yojna (PMMVY) under the Umbrella Integrated Child Development Services Scheme to address the problem of malnutrition in the rural and urban areas. Apart from the existing

schemes, the Government has recently launched the National Nutrition Mission (NNM) targeting the children and pregnant women with the objective to reduce the prevalence of stunting, under-weight and anemia among children and women. The government also plans to unveil a large government-funded health care programme to provide health insurance coverage of Rs 5 lakh per family per annum to 10 Crore poor and vulnerable families in India.

In the dimension of education, while the *Right of Children to Free and Compulsory Education Act, 2009* (RTE) has been found to notably expand the primary enrolment rate across the country, the aspect of quality and learning outcomes remained a challenge in the rural India. The government scheme of Mid-Day Meals was adopted to increase the enrolment rates in schools. The Sarva Shiksha Abhiyan or Rashtriya Madhyamik Shiksha Abhiyan has also led to substantial increases in the primary enrolment ratios, however, the barriers and constraints also led to challenges like drop-outs, out-of-school or never enrolled in schools children and complete the education in rural areas. The learning outcomes in India have been observed to be poor according to various rounds of Annual Status of Education Reports. Thus, improvements in the level of education and trainings remain the key to fulfill the requirements of skilled rural workforce in India. The Pradhan Mantri Kaushal Vikas Yojana programme, launched in 2015, provided a financial reward of Rs. 8000 for the youth taking up training courses.

In recent years, India has taken millions of people out of poverty, but the access to core public services remains incomplete and highly spatially concentrated. India's population coverage for water provision, sanitation and electricity has improved but remains low by BRIICS country standards. Some states do better however, suggesting that there is scope for experimentation and the sharing of good practices across states. Furthermore, while almost 20% of the Indian population has no access to electricity, some states have succeeded in achieving near universal provision, including Gujarat, Karnataka and Maharashtra. The government also laid out schemes to make the amenities available in villages, such as provision of drinking water, construction of dwelling units under PM Awaas Yojana and toilets for each household under the MGNREGP and the Nirmal Bharat Abhiyan. However, many Indians still lack access to core public services, such as electricity and sanitation.

4. Methodology:

This paper builds separate composite development indices for the rural and urban groups in each of the relevant dimensions, viz., health, education and basic amenities using appropriate indicators. A major methodological caveat in respect of composite indices occurs in the respect of choice of indicators and selection of appropriate weights. A variety of statistical techniques can be distinguished in the literature that deals with the determination of suitable weighting scheme in specific cases. The use of weights that are based on the principal component analysis (PCA) has often been considered superior in relation to other methods, specifically in cases where indicator values are correlated. The PCA involves a multivariate statistical technique that helps transform a number of possibly correlated variables into a smaller number of uncorrelated ones, which we call principal components. This paper therefore uses the principal component technique to derive the composite indices under each dimension by aggregating over several indicators according to their respective statistical importance. The PCA-determined weights of the indicators are designed in such a way that the resultant composite index accounts for a maximum variance in the data set.

The construction of dimensional indices using the PCA determined weights requires the application of a series of sequential steps. As our first step, we convert some of the negative indicators from Table 1 into positive indicators. Since our indices are connected to development, the negative (or deprivation) indicators such as, infant mortality, percentage of under-nourished children, maternal mortality, proportion of women and men with below normal body-mass-index, school drop-out rate and non-enrolment in school are made positive by taking the inverse of the respective values. Second, it is also important that each of the individual indicators are normalized and made scale-free, before we perform the PCA. The normalization of data is important since the indicators are measured in different units and display different means as well as standard deviations. It is therefore necessary to convert them in some standard comparable units, such that the initial scale chosen for measuring them do not bias the results. Thus, each of these raw indicators is mapped onto a unit-free scale by subtracting the lowest value of the particular indicator among states from each of the state's value under that indicator, and then dividing by the indicator-range among states, viz., $(x_{np}-x_{npmin}) \div (x_{npmax}-x_{npmin})$. These

normalized values are finally subjected to PCA for the determination of statistical weights, as discussed below.

Our data set can be considered as a ($n \times p$) data matrix ($X_{n,p}$), where n is the number of Indian states plus all India (n = 32) and p is the number of social development dimensions (p = 6). The elements of this matrix are $x_{i,j}$, where $x_{i,j}$is the value of the j-th indicator for the i-th state. The application of PCA needs a significant correlation among individual dimensions, because the weights are set in accordance to the correlation among dimensions. As our preliminary exercise, we have identified some clear relationships among various indicators in each dimension from the correlation matrices. The principle of PCA lies in finding weights to be given to each of the concerned dimensions, where weights maximize the sum of the squares of correlation of the dimension with the composite index. Suppose that y_1 is a principal component of x_1, x_2, x_3, . . .,x_p, such that: $y_1 = a_{11}x_1 + a_{12}x_2 + \ldots + a_{1p}x_p$. Then the variance of $y_1$is maximized given the constraint that the sum of the squared weights of x_1, x_2, x_3, . . .x_p is equal to one. The PCA determines the weight vector (a_{11}, a_{12}, . . . a_{1p}) by selecting higher weights for those series that vary a lot so that they influence the composite index relatively more. Once the weights are chosen, the first principle component would indicate the dominant pattern of variance in the indicators. The second principal component (y_2) similarly finds out a second a weight vector (a_{21}, a_{22}, . . . a_{2p}) such that the variance is maximized subject to the constraints that it is uncorrelated with the first principal component. This signifies that y_2 has the next largest sum of squared correlations with the original variables, and the variances of the subsequent principal components would be smaller. The analysis also produces an estimate of how much variance in the x's is explained by each principal components.

One problem of using PCA in indexing is to decide on how many components to retain. We could use all the components to capture the total system variability of the original variables. But, if the first component accounts for a large proportion of the variability (around 70-80%), it implies that there is one dominant component in the underlying variables. It can be observed from the applied literature that the use of the first principal component has remained the standard practice. We therefore use the first principal component in the present analysis, since it explains about 84% of the data variance in most cases. In PCA, each of the principal

components are described by the pair of *eigen-value* and *eigen-vector*, where each *eigen-value* describe the amount of variance explained by each principal component and the factor-loadings are the coordinates of the *eigen-vector*. The factor-loadings measure the importance of each dimension in accounting for the variability in the particular principal component. The *eigen-vectors* provide the weights to compute the uncorrelated principal components, and the principal component scores are then worked out as linear combinations of normalized original variables with the factor-loadings as weights.

In order to construct our composite indices of health, education and basic amenities, we have consistently used the PCA scores based on the first principal component. The composite index of health for different groups is determined by the first principal component covering seven indicators. The composite index of education is constructed using the first principal component involving eight indicators. Finally, the composite index of basic amenities is computed by the first principal component of comprising five indicators. The use of the first principal component, which is the linear combination of the initial indicators and has the largest variance, appears to be a better suited than the simple average of original variables bearing high-degrees of correlation.

5. Indicators and Data:

The details on various indicators employed that are used in the construction of respective dimensional scores along with the account of their data base are discussed below.

I. Health Indicators:

1). Infant Mortality Rate: This rate is often used as a crucial indicator of the health status in a country and is defined as the number of deaths of infants under one year old in a given year per 1,000 live births in the same year. The estimates of infant mortality rate across states of India are based on the continuous enumeration of births and deaths in sample villages or urban blocks by the field investigations under Sample Registration System (SRS). In this part we have used the SRS-2017 data referring to the year 2016.

2). Percentage of Undernourished Children: Under nutrition puts children at greater risk of dying from common infections, increases the frequency and severity of such infections, and contributes to delayed recovery. Thus, the indicator of children under 5 years, who are underweight (weight-for-age) is used as the accurate measure for child malnutrition. Poor nutrition in the first 1,000 days of a child's life can also lead to stunted growth, which is associated with impaired cognitive ability and reduced school and work performance. The nutritional status of children is calculated according to the anthropometric measure (weight-for-age) in the National Family Health Survey, Round IV, (NFHS-4), 2015-16 survey by International Institute of Population Studies, 2017 (IIPS, 2017).

3). Maternal Mortality Ratio: The maternal mortality Ratio is a key performance indicator for efforts to improve the health and safety of mothers before, during, and after childbirth in a country. It is the ratio of the number of maternal deaths during a given time period per 100,000 live births during the same time-period. The SRS in India provides the largest demographic sample survey in the country that provides direct estimates of maternal mortality through a nationally representative sample. We have used the latest data on different states from the Maternal Mortality Ratio Bulletin 2011-13, GOI [2017d].

4). Proportion of Women with Full Antenatal Care: Full antenatal care for expecting mothers includes having received at least four antenatal care visits, having received at least one tetanus toxoid (TT) injection, and having taken iron and folic acid (IFA) tablets or syrup for 100 or more days. This data for is collected from the NFHS-4, 2015-16 survey results of IIPS [2017].

5). Women with below normal Body Mass Index (BMI): BMI is often used as a screening tool to decide if one is at a healthy weight for his or her height. It is a number based on the weight and height, and a higher value indicates more body fat for a person. The *BMI* is *defined* as weight in kilograms divided by height in meters squared (kg/m^2).The BMI of less than 18.5 is considered underweight. This data for women is collected from the, NFHS-4, 2015-16 survey results of IIPS [2017].

6). Men with below normal BMI: Similar data for men is collected from the, NFHS-4, 2015-16 survey results of IIPS [2017].

7). Number of Government Hospital Beds per Thousand Population: For this indicator, we have used the state-wise data on the number of government hospitals beds in rural and urban areas (including community health centers) that are provided by the Directorate General of State Health Services, and is included in the Health and Family Welfare Statistics in India, 2015 (GOI 2015). The recent census estimate of the rural and urban population has been applied to derive the final indicator.

II. Educational Indicators:

1). Secondary Net Attendance Ratio: The school attendance status refers to whether a person is currently attending any educational institution and excludes persons, who is enrolled but currently not attending the institution. Thus, net attendance ratio is defined as the ratio of the number of persons in the official age-group attending a particular class-group to the total number persons in the age-group. This data as compiled from the results of National Sample Survey (NSS), 71st Round, 2014 by GOI [2016a].

2). Secondary Drop-Out Rate: While India has made significant progress in raising enrollment *rates* for primary education, schools have been less successful in preventing school dropouts due to poverty, availability or accessibility. In India, engagement in economic and domestic activities remain the most common reason for dropping out in the case for males and females, respectively. In general, the drop-out rate is defined as the proportion of pupils from a cohort enrolled in a given grade at a given school year, who are no longer enrolled in the following school year. It is calculated by subtracting the sum of promotion rate and repetition rate from 100. This data is taken from the District Information System for Education (DISE) 2014-15, GOI [2016b].

3). Proportion of Never Enrolled in School: The major reason for never enrolling in school in India came out as ‘not interested in education’ in the rural areas. On the other hand, ‘financial constraints’ has been identified as the dominant reason in the urban areas. This data as provided in the NSS 71st Round 2014 by GOI [2016a] includes children in the age group 5-29, who were never enrolled in any school.

4). Average Number of Teachers per School: This data as provided by the District Information System for Education (DISE) publication: Elementary Education, separately for the rural and urban India in GOI [2016d, 2016e].

5). Mean Years of Schooling: It is defined as the average number of completed years of education of a country's population aged 25 years and older, converted from educational attainment levels using official durations of each level and excluding years spent on repeating individual grades. This information is compiled using data on educational levels of population from the NSS 71st Round, 2014, GOI [2016a].

6). Men Literacy Rate (15+): The lliteracy level and educational attainment remain as vital developmental indicators, as they measure the capability and skill level of people in the society. We have compiled data on the men literacy rate for the population aged 15 years or above from the National Sample Survey, 71st Round, 2014.

7). Women Literacy Rate (15+): The data on women literacy rate for the population aged 15 years or above are also compiled from the National Sample Survey, 71st Round, 2014.

8). Number of Secondary Schools per Thousand Population: For this indicator, we have used the DISE 2015-16 data on the number of schools in rural and urban areas from GOI [2016c] and the Census 2011 data on the rural and urban population.

III. Basic Amenities Indicators:

We have employed five variables to measure access to basic amenities, viz., percentage of households, which live in concrete house (roof and wall); have electricity connection; have access to improved drinking water; having improved sanitation facility; and use clean fuel for cooking. We have used the NFHS-4, 2015-16 data from IIPS [2017] for all the remaining five indicators.

The thirty one states and union territories covered in this part of analysis are: Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chandigarh, Chhattisgarh, Delhi, Goa, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Odisha, Punjab, Rajasthan,

Sikkim, Tamil Nadu, Telengana, Tripura, Uttar Pradesh, Uttarakhand and West Bengal. Table 1 lists all the twenty eight indicators under six dimensions along with their years of reference for each data series.

6. Results:

6.1 State's Ranking: Rural and Urban

We examine the gaps between rural and urban India in terms of the access to health services, educational attainment and basic amenities. The ranking of health scores, which are built over eight indicators, are separately provided for the rural and urban segments of individual states in Figure 1. The states of Sikkim, Goa, Kerala, Mizoram and Manipur belonged to the top five ranks, while Uttar Pradesh, Bihar, Madhya Pradesh, Jharkhand and Rajasthan occupied the lowest five ranks in the rural health ranking. The individual state's urban health scores that are provided in the same figure, indicates that the top and bottom positions remained almost comparable as in rural health ranking. Thus, while the top ranking remains the same, the bottom positions are occupied by Bihar, Uttar Pradesh, Madhya Pradesh, Jharkhand and Rajasthan. It can be seen that a large number of states have done better than the all-India in the health sector, which remained at 25^{th} and 22^{nd} in the rural and urban ranking respectively, out of thirty two entities in our sample. However, with about 20 states remaining above the all-India level and yet a low score for all-India health scores would signify that health benefits have eluded the large population concentrated in the states of Bihar, Uttar Pradesh, Madhya Pradesh, Jharkhand, Rajasthan, Chhattisgarh and Assam. On the contrary, the three relatively smaller states from the north-eastern region, viz., Sikkim, Mizoram and Manipur have remained in the first five ranks ahead of Maharashtra, Punjab, Himachal Pradesh or Delhi.

(Insert Figure 1)

The individual state's educational scores for the rural and urban counterparts are provided in Figures 2, where it is found that the top and bottom positions remained different across the areas of residence. Thus, the top positions in rural educational scores are captured by Kerala, Nagaland, Goa, Delhi, Mizoram, while Bihar, Andhra Pradesh, Rajasthan, Jharkhand and Telengana represented the lowest five ranks. In the case of urban educational scores, the top

positions are occupied by Chandigarh, Kerala, Nagaland, Manipur and Himachal Pradesh, while Bihar, Uttar Pradesh, Rajasthan, Jammu & Kashmir and Jharkhand remained in the lowest five ranks. Here, one may keep in mind the somewhat unclear nature of rural-urban demarcation for both Chandigarh and Delhi in the analysis. The ranking of states according to the basic amenities scores provides a different order for both the rural and urban segments. Thus, the topmost position in rural basic amenities score is now occupied by Chandigarh, followed by the states of Kerala, Goa, Delhi and Punjab, while Jharkhand, Bihar, Madhya Pradesh, Uttar Pradesh and Chhattisgarh represent the bottom five ranks (Figure 3). On the other hand, Chandigarh, Punjab, Delhi, Mizoram and Gujarat remained in the top position in the urban basic amenities score, with Manipur, Bihar, Nagaland, Jharkhand and Odisha representing the lowest five ranks. Overall, the rural deprivation can be found to be have reached at the critical levels in certain states that scored the lowest rankings in all the three dimension of health, education and basic amenities. It can be observed that the states of Uttar Pradesh, Bihar, Madhya Pradesh, Jharkhand, Rajasthan, Chhattisgarh, Odisha and Assam are repeatedly placed in the lowest ranks for the rural areas due to their worst demonstration in majority of the dimensions.

(Insert Figure 2 and 3)

6.2 Ranking of Rural-Urban Disparity:

We subsequently define the parity indices, viz. the ratio of the indicator value for the rural group to that of the urban group in each dimension and multiplied by 100, to examine the extent of rural-urban divide in individual states. In the standard practice, the more disadvantaged group is typically placed on the numerator and the value of exactly 100 is interpreted parity between the groups. In the present case, the parity ratios are defined by keeping the rural indices in the numerator for the rural-urban ratio of indicators value in individual states for each dimension. Thus, while the parity ratio of more than 100 would represent better indicator values for the rural counterpart, the same with values less than 100 would mean poorer indicators in comparison to the urban counterpart. The states are ranked on the basis of their rural-urban disparity indices in three different dimensions, viz., health, education and basic amenities in Figure 4 through Figure

6. The parity indices in the health dimension imply that it is only in the four states of Arunachal Pradesh, Chandigarh, Nagaland and Tripura that the developments in the rural segment remained better than the same in the urban counterpart (Figure 4). On the other hand, the health sector achievements in the urban areas remained better than that of the rural areas in the remaining twenty seven states and also in the all-India. When we look over the ranking of rural-urban parity in the health dimension, we find that the states of Arunachal Pradesh, Nagaland, Tripura, Sikkim and Kerala belonged to the top five ranks with better rural progress. It may be noted that all the four state excepting Tripura have also remained at the top in the individual ranking of rural health scores. On the contrary, Uttar Pradesh, Gujarat, Jharkhand, Madhya Pradesh and Assam represented the highest rural deprivation in the health dimension. The rankings in health scores remained low both for the rural and urban areas in these five states.

(Insert Figure 4)

On the contrary, there are about seventeen out of thirty one states, where the developments in the rural areas progressed better than in the urban areas in the educational dimension (Figure 5). Thus, Jammu & Kashmir, Uttar Pradesh, Bihar, Uttarakhand and Rajasthan remained at the top five ranks with comparatively better rural educational progress. On the other hand, Andhra Pradesh, Telengana, Madhya Pradesh, Arunachal Pradesh and Jharkhand remained at the bottom five ranks representing poorer rural educational performances. It may be mentioned that for all the top-ranking or bottom-ranking states of educational rural-urban disparity, the individual educational scores in the rural or urban areas remained at the lower end. Finally, as concerns the gaps in the rural-urban characteristics of basic amenities, it can be perceived that the urban areas progress ahead of rural areas in twenty nine states and also at the all-India level with high degrees of variability in the parity indicators across states. Conversely, it is just the two states in India, viz. Manipur and Kerala that displayed relatively better basic amenities in the rural areas. Thus, while Manipur, Kerala, Goa, Nagaland and Sikkim remained at the top ranking of performing states in rural basic amenities, the states of Jharkhand, Madhya Pradesh, Uttar Pradesh, Chhattisgarh and Bihar were ranked at the bottom and remained as the worst cases of rural basic services. It is observed that out of the five top performing states of rural-urban parity in basic amenities, the scores of Kerala, Goa and Sikkim revealed better performance for both the rural and urban areas. Figure 7 provides a comparison of the rural-

urban parity indices in all the three dimensions, where it can be observed that the rural areas in a good number of states have individually done better in comparison to the urban areas in the education dimension. On the contrary, the rural population in the majority of states in India remained at a disadvantage in both the health and basic amenities dimension. It appears that the steps taken by the government for the social sectors development in India seems to have benefitted more for the urban sector, while the development of rural areas remained slow due to the improper and inadequate provision of infrastructure and services in comparison to the urban areas.

(Insert Figures 5 to 7)

7. Policy Implications:

It is often recognized that the globalization process in India should remain inclusive of the rural sector in order to have a sustainable development path. But researchers believe that while there have been expansion of social infrastructures in the country, there also exits a widening difference between the rural and urban areas in the respect of health, basic amenities and educational provisions. The report by OECD (2017) has observed that despite efforts aimed at improving public services in rural India, such as the National Health Mission, deprivation in core public services is much higher in rural than urban areas, with a particularly marked rural-urban divide for electricity, sanitation and health. The Three Year Action Agenda of the NITI Aayog (GOI) has also communicated that low literacy levels, inadequate access to health, drinking water and sanitation have remained as major challenges facing the rural areas in the country today (GOI 2017e). There is possibly no developmental index that is available on India at the state-level to focus on the rural-urban disparity in these crucial dimensions. The existing development indices that look into the health and education dimensions focus only on the aggregate economy and leaves out the rural-urban disaggregation. In this background, this paper had the objective to examine the rural-urban disparity on health, education and basic amenities dimension across different states in India. For this we constructed separate composite indices for the rural and urban groups in each of the relevant dimensions employing appropriate indicators. Our multi-indicator indices remain appropriate to evaluate the dimensional deprivations in each state and also allow us to rank the states on the basis of their rural-urban disparities.

Our results indicate that the states of Sikkim, Goa, Kerala, Mizoram and Manipur belonged to the top five ranks, while Uttar Pradesh, Bihar, Madhya Pradesh, Jharkhand and Rajasthan occupied the lowest five ranks in the rural health ranking. The individual state's health scores for urban areas remained almost comparable with the rural health ranking. However, the individual state's ranks in the educational dimension remained different for the rural and urban areas. Thus, the top positions in rural educational scores are captured by Kerala, Nagaland, Goa, Delhi, Mizoram, while Bihar, Andhra Pradesh, Rajasthan, Jharkhand and Telengana represented the lowest five ranks. In the case of urban educational scores, the top positions are occupied by Chandigarh, Kerala, Nagaland, Manipur and Himachal Pradesh, while Bihar, Uttar Pradesh, Rajasthan, Jammu & Kashmir and Jharkhand remained in the lowest five ranks. Finally, the ranking of states according to the basic amenities scores also provided a different order for the rural and urban segments. The top position in rural basic amenities score is achieved by Chandigarh, followed by Kerala, Goa, Delhi and Punjab, while Jharkhand, Bihar, Madhya Pradesh, Uttar Pradesh and Chhattisgarh represented the bottom five ranks. On the other hand, Chandigarh, Punjab, Delhi, Mizoram and Gujarat remained in the top position, with Manipur, Bihar, Nagaland, Jharkhand and Odisha representing the lowest five ranks in the urban basic amenities score. The rural-urban parity indices in the health dimension imply that it is only in the four states of Arunachal Pradesh, Chandigarh, Nagaland and Tripura that the developments in the rural segment remained better than the urban counterpart. On the contrary, there are about seventeen states, where the developments in the rural areas progressed better than the urban areas in the educational dimension. Finally, the urban areas progressed ahead of rural areas in twenty nine states on the basic amenities dimension. It can also be observed that the states of Uttar Pradesh, Bihar, Madhya Pradesh, Jharkhand, Rajasthan, Chhattisgarh, Odisha and Assam are repeatedly placed in the lowest ranks for the rural areas due to their worst demonstration in majority of the dimensions. It therefore appears that the developments in the rural areas of most of the states are progressing at a much slower pace in comparison to that in the corresponding urban areas. It may be mentioned that the present findings are consistent with the existing results and finds support on the convergent trend in the educational dimension for rural India. It has been claimed in the government's policy documents that the gap between rural and urban India in the education dimension has somewhat narrowed down in the previous decade both in terms

of school enrolment and attendance rates. A recent study by Hnatkovska and Lahiri (2013) on rural-urban divide have also found that there has been a sharp and significant convergent trend in the education attainment levels of the rural workforce towards the levels of their urban counterparts.

Since, the present analysis emphasis on the state level inequalities, our results remain very relevant for assessing the progress across states in India. The reduction of poverty is considered as one of the crucial elements of inclusion in India. On that count, the present state-wise results on the deprivation from access to health, education and basic amenities - bifurcated over the rural and urban groups - could provide the important guiding principle for creating the inclusive policy agendas in the country. It is also important to note that the inequality of opportunities between the rural and urban areas in various dimensions should not be perceived as isolated and instances of separate deprivation in the poor states of India. In most likelihood, any of the dimensional inequalities are capable of reinforcing another over time and develop into multiple deprivations. For instance, poor access to health could act as an important constraint for equitable opportunities and impact on the learning capacities. There already exist disparities on account of income, consumption or wage levels between the rural and urban areas in the country. The presence of sharp rural-urban divides in the access to basic services or quality of life could in turn transmit the rural out-migration pressures in India.

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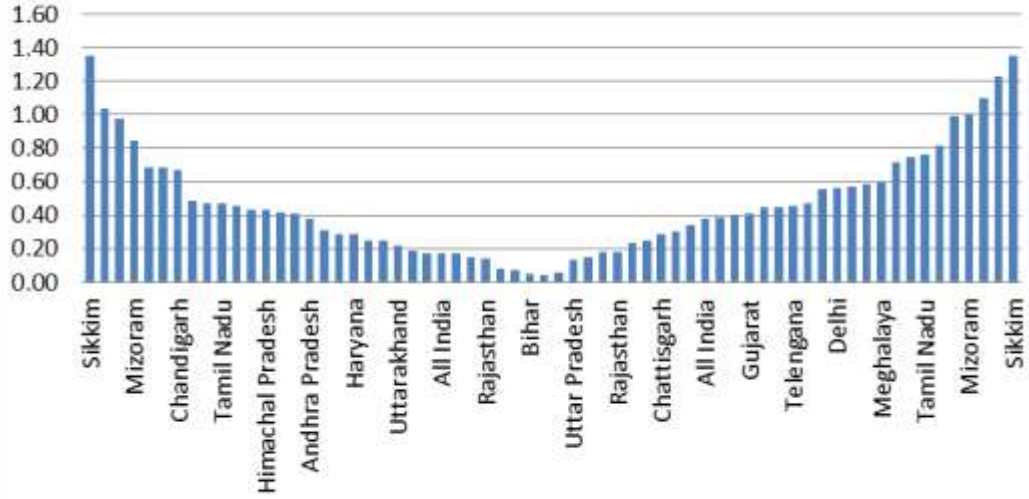
Table 1: Indicators and Data base for Dimensional Indices.

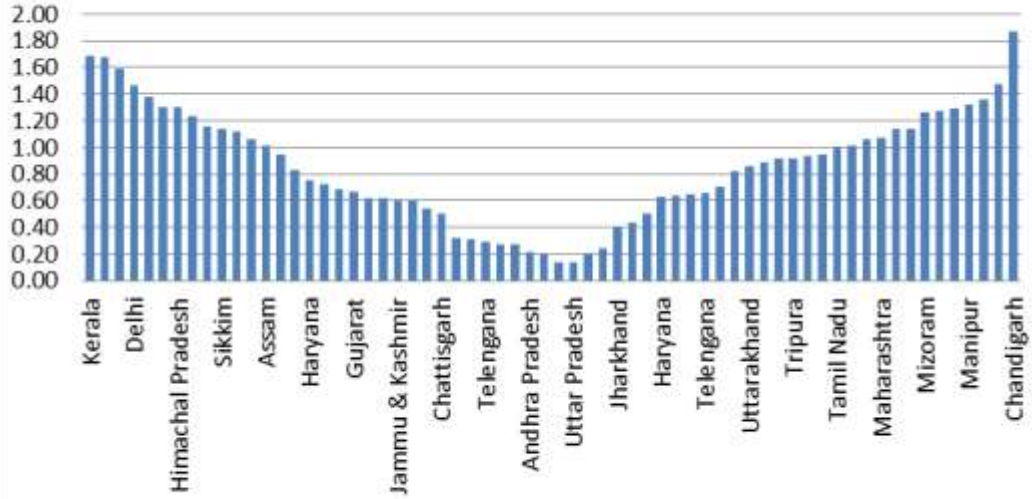
Dimension/Indicator	Data Base
Dimension 1: Health	
1.1 Infant Mortality Rate, 2016	Sample Registration Scheme, GOI (2017a)
1.2 Percentage of Undernourished Children, 2015-16	National Family Health Survey - 4, IIPS (2017)
1.3 Maternal Mortality Ratio, 2011-13	SRS, MMR Bulletin, GOI (2017b)
1.4 Mothers who had Full Antenatal Care	NFHS-4, IIPS (2017)
1.5 Women with below normal Body Mass Index	NFHS-4, IIPS (2017)
1.6 Men with below normal Body mass Index	NFHS-4, IIPS (2017)
1.7 Government Hospital Beds per Thousand Population, 2015	Director General of State Health Services. GOI (2015)
Dimension 2: Education	
2.1 Secondary Net Attendance Ratio, 2014	National Sample Survey, 71st Round, GOI [2016a]
2.2 Secondary Drop-Out Rate, 2014-15	DISE, GOI [2016b]
2.3 Never Enrolled in School	NSS, 71st Round, GOI [2016a]
2.4 Average Number of Teachers per School	DISE, GOI [2016d], [2016e]
2.5 Mean Years of Schooling, 2014	NSS 71st Round, GOI [2016a]
2.6 Women Literacy Rate (15+)	NSS 71st Round, GOI [2016a]
2.7 Men Literacy Rate (15+)	NSS 71st Round, GOI [2016a]
2.8 Number of Secondary Schools per Thousand Population, 2015-16	DISE, GOI [2016b].
Dimension 3: Basic Amenities	
3.1 % of Households Living in a Concrete House	NFHS-4, 2015-16, IIPS (2017)
3.2 % of Households having Electricity Connection	NFHS-4, 2015-16, IIPS (2017)
3.3 % of Households having Improved Drinking Water	NFHS-4, 2015-16, IIPS (2017)
3.4 % of Households having Improved Sanitation Facility	NFHS-4, 2015-16, IIPS (2017)
3.5 % of Households using Clean Fuel for Cooking	NFHS-4, 2015-16, IIPS (2017)

Figure 1: Ranking of Health, Rural & Urban



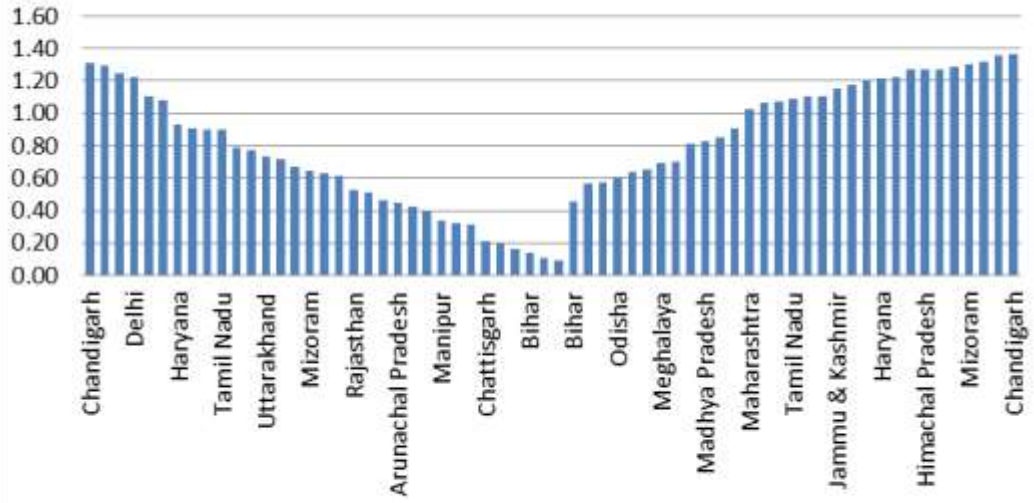
Source: Authors's calculations.
Note: Rural and urban rankings are from left and right origins, respectively.

Figure 2: Ranking of Education, Rural & Urban



Source: Author's calculation.
Note: Rural and urban rankings are from left and right origins, respectively.

Figure 3: Ranking of Basic Amenities, Rural & Urban.



Source: Author's calculation.
Note: Rural and urban rankings are from left and right origins, respectively.

Figure 4: Rural-Urban Parity Index, Health.

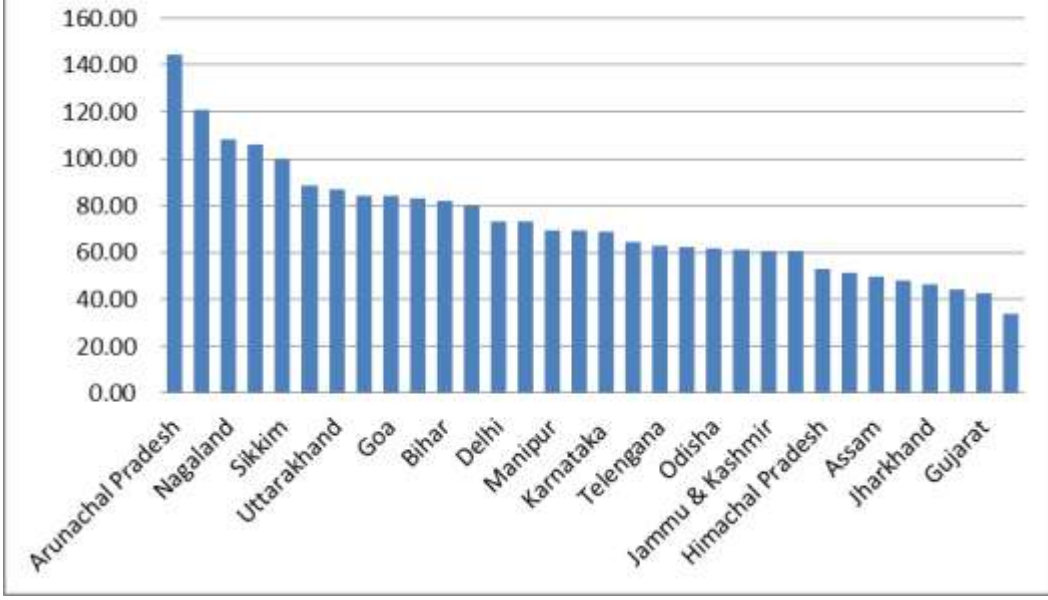


Figure 5: Rural-Urban Parity Index, Education.

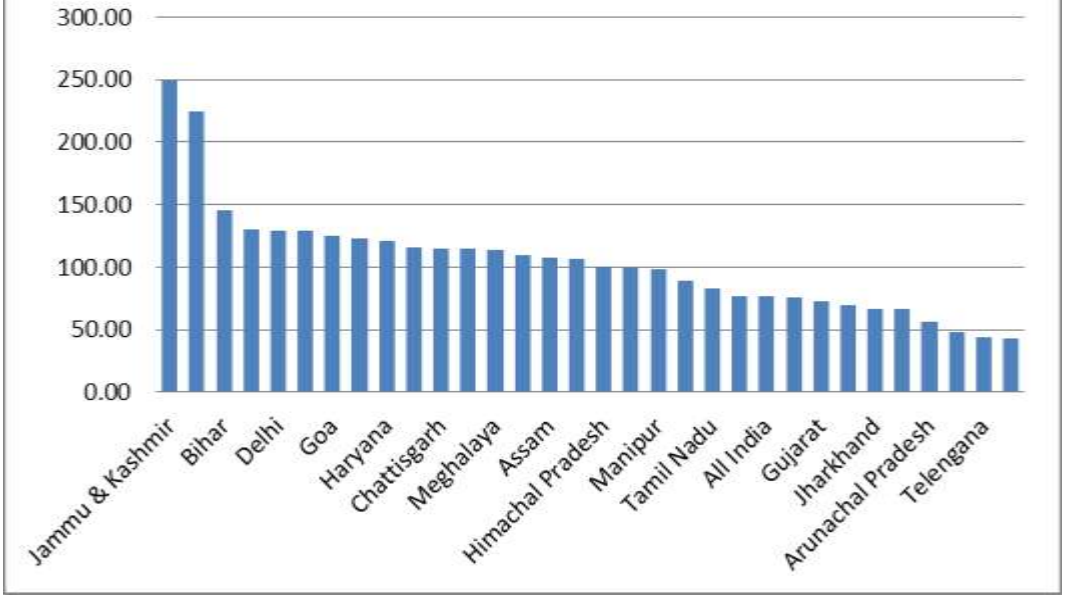
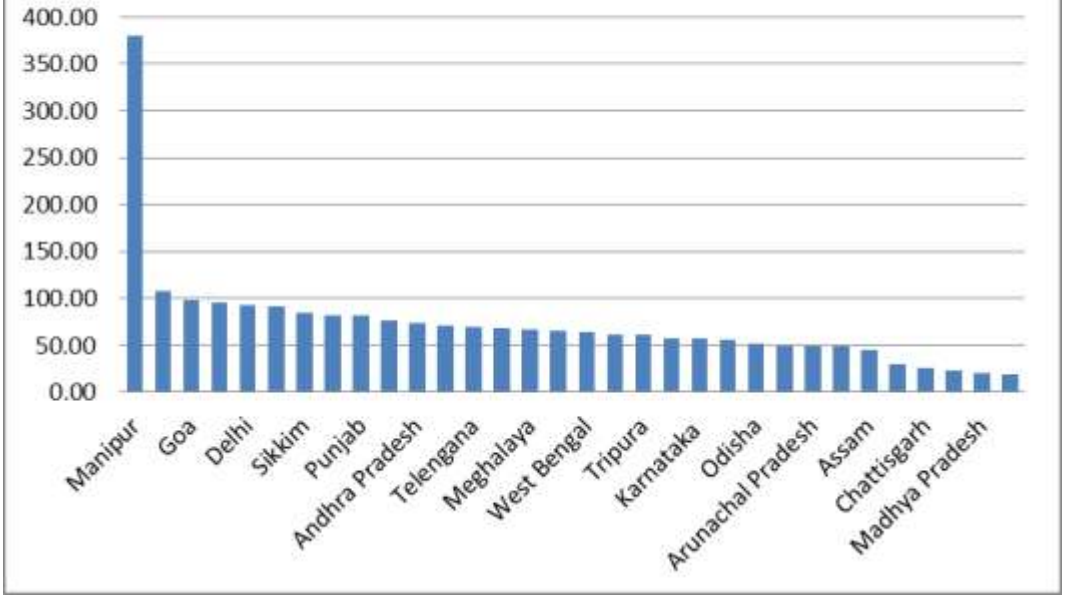


Figure 6: Rural-Urban Parity Index, Basic Amenities.



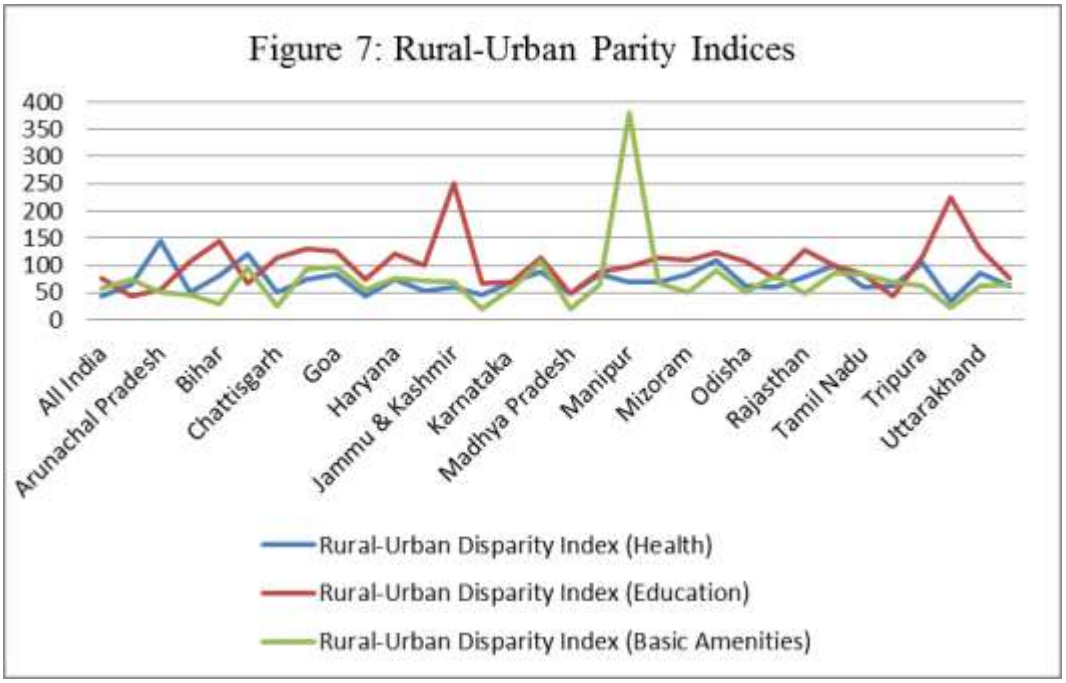


Figure 7: Rural-Urban Parity Indices
400
350
300
250
200
150
100
50
0
All India
Arunachal Pradesh
Bihar
Chattisgarh
Goa
Haryana
Jammu & Kashmir
Karnataka
Madhya Pradesh
Manipur
Mizoram
Odisha
Rajasthan
Tamil Nadu
Tripura
Uttarakhand
Rural-Urban Disparity Index (Health)
Rural-Urban Disparity Index (Education)
Rural-Urban Disparity Index (Basic Amenities)