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RACE AND ETHNICITY IN THE UNITED STATES

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Abstract: In the United States, race, ethnicity and immigration are intertwined in the mosaic of society. The vigor with which President Trump's immigration policy is being implemented, it is leading to the increased expression of racial and ethnic prejudices in certain sections of the society. The paper attempts to analyze racial and ethnic diversity in the U.S. along with highlighting the policies that bond the nation together to function in unison. Data have been picked up from the three main sources including the census of the United States, the surveys conducted by the non-profit civic organizations, such as the Pew Foundation and the Immigration Laws of the United States.

The Immigration and Nationality Act of 1965, abolishing the national origin Quota System, was the most liberal landmark immigration legislation enacted in allowing the immigration of Non-Europeans in the United States. In the first two decades of the 21st century, there has been an upsurge in legal and illegal immigration first from Mexico and currently from the Central American countries. Declining share of the White population over the time coupled with disappearance of jobs employing less educated Whites are shaping into political rhetoric to become more strident in the near future. However, the United States is racially diverse with a rich heritage of many ancestries. There are economic, political and social factors that foster unity and coherence in the nation.

Keywords: Ethnicity, Immigration laws, Quota System, Free market economy, Racial diversity

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Introduction

In the United States, race, ethnicity and immigration are intertwined in the mosaic of society. With a policy of the Muslim ban from select countries and restrictive immigration policies at the Mexican border, the Trump Administration has brought these issues to the forefront of policy discussion and implementation. The vigor with which President Trump's policy is being implemented, it is leading to the increased expression of racial and ethnic prejudices in certain sections of the society. The main objectives of this paper are to analyze the racial and ethnic diversity in the U.S., and to highlight the policies that bond the nation together to function in unison.

There are the three sources of data, employed to analyze and develop a deeper understanding of race and ethnicity. The census of the United Stated is the most valuable source of information. The surveys regularly conducted by non-profit civic organizations, such as the *Pew Foundation* are vital for ethnic understanding. The Immigration Laws that determine the number of foreign residents, allowing the entry to the U.S., are highly important for this analysis.

The role of the census

The census of the United States had its origin in the Constitution of the United States. The constitution provides for two legislative bodies, the Senate and the House of Representatives. Every state has the two senators irrespective of their population size. For the House of Representatives, the seats are apportioned according to the share of the national population in each state. Beginning with the first census in 1790, the census has to be taken every 10 years. The first census counted white citizens and black slaves. The black slaves were included in the total population for the apportionment of the number of seats in the House of Representatives or the Congressmen for the state. A black slave was counted as three-fifths of a person for this enumeration. For a century, the census organization was a temporary agency. Only in 1902 did the census become a permanent federal agency for the enumeration of population and other demographic and housing characteristics. The census questionnaire has changed over time. New questions can only be added with a prior approval from the Office of Management and Budget – an Executive Branch agency.

Since 2000, the census has collected data on six race categories, including (i) White, (ii) Black or African American, (iii) American Indian or Alaskan Native, (iv)Asians, (v) Native Hawaiian or other Pacific Islander, and (vi) Some other race- For mixed race parentage, individuals can select one or more races.

The census emphasizes that the racial categories are social definitions of race and not an attempt to define race, biologically, anthropologically or genetically. The census categorized the population of Hispanic, Latino or Spanish origin not as a racial group but as an ethnic group. Individuals can select any racial group such as Hispanic White, Hispanic Black of Hispanic Asian.

For the 2020 census, The Census Bureau has been researching to merge the race and ethnicity question into one category. The proposal outlined will create two new categories, one of Hispanic origin and the other will identify the people of Middle East/North African origin. The rationale emphasized that adding these two categories to the six race categories will provide a high quality statistics showing the diversity of the Nation. In January 2018, the Census Bureau declared that more research is needed. In this anti-immigration

Table 1**: Changing population share (%) by race and hispanic origin in USA, 1970-2020**

Type	**1970**	**2000**	**2010**	**2020***
White	87.30	81.10	78.40	76.30
Black and African American	11.00	12.70	13.00	13.30
American Indian and Alaskan Native	0.40	0.95	1.20	1.30
Asian	0.70	3.80	4.90	5.90
Native Hawaiian or other Pacific Islanders	0.00	0.02	0.20	0.24
Two or more races	0.00	1.40	2.30	2.90
Total (in Per cent)	99.40	99.97	100.00	99.94
Hispanics of all races (per cent)	4.40	12.50	16.30	19.00
Non-Hispanic White (per cent)	83.50	69.10	63.70	59.70
Total U.S. Population (in millions)	204.0	281.4	308.8	334.5

Source: Statistical Abstract of the United States, 2017, Tables 7 to 13, Bernan.
**Projected figures*

environment, categorizing the two additional groups is politically unfeasible.

In the Table 1, presenting the composition of the U.S. Population by race and Hispanic origin, the statistics point out the two major trends since 1970: (i) continuous decline in percentage share of the dominant White group, and (ii) rapid increase in the share of population of Hispanic origin. The share of the Hispanic origin population has surpassed the Black or African Americans, the principal minority group bearing the brunt of slavery, segregation and discrimination.

Yet another emerging trend is the rapidly increasing share of the Asian population from 0.7 percent in 1970 to 5.9 percent, projected in 2020. The share of the claiming two or more races is small but increasing.

The decline in the share of Non-Hispanic White population is more pronounced. The share is projected to decline to about 60.0 per cent by 2020 from about 84.0 per cent in 1970. Two factors are contributing to this trend: (i) the declining birth rate, and (ii) the decrease in the life expectancy of the Whites due to opioid addiction, suicide and economic anxiety (Deaton and Case 2015; 2017). The technological changes taking place with unprecedented speed and the rise of global trade to some degree have resulted in the disappearance of jobs which employed the less educated whites (Moretti, 2013 and Stiglitz, 2018). As a result of these developments, the transition in composition is accelerating and the political rhetoric will become even more strident in the near future (Tavernise, 2018).

How does the population of Hispanic origin associate with the racial categories of the Census? The Census data for 2016 estimates 57 million persons of Hispanic origin, making 18.0 per cent in total US population. Of the total 57 million persons of Hispanic population, 37 million or 65.0 percent reported the white as their racial category. The other dominant category was some other race with 16 million or 28.0 per cent. The category two or more races was third with only 3 million persons or 5.0 percent (Wagner, 2018).

The share of the White population gets inflated because the Hispanic population has the option to choose their racial identity. The census proposal to add a new category of the people of Hispanic origin to the racial categories would have clarified the racial and ethnic diversity within the nation. However, the census provides currently data only on Non-Hispanic White.

Ethnicity in the cultural context

The origin of human civilization is the result of the domestication of plants and animals that happened 10,000-11,000 years ago in the Near East. Within a very short span thereafter this new way of supporting human population spread to all corners of the habitable world, and human groups transformed from hunter-gatherers to farmer and herders. Further, the ancestors of all humanity, the Homo sapiens, spilled out of Africa to the Near East between 40,000-100,000 years ago. From the Near East, the Homo sapiens spread to Europe, Asia and the Americas (Reich 2018).

As the result of the domestication of plants and animals, villages, towns and cities evolved. Systems of administrative governments appeared. Religions, languages, and cultural norms evolved. Technology and Science developed. The human population grew many-folds from 4-5 million at the advent of this far reaching major breakthrough event in the human history.

The human groups living in one area over a long period of time developed religious, social, cultural, economic, political and family institutions and traditions in accordance with their needs and aspirations; thus appeared the dominant ethnic group which became the foundation of the Nation States of today. The dominant ethnic group claims the country as their ancestral land and the "authentic" descendants. The minority ethnic groups are suspected as unpatriotic, anti-national, disrupters and infringers.

Table 2: Classification of White population in USA, 1790

Sl.No.	Stock	Percent in Total Population
1.	English	60.10
2.	Scotch, including Ulster	8.10
3.	Irish Free State	3.60
4.	German	8.60
5.	Dutch	3.10
6.	French	2.30
7.	Swedish	0.70
8.	Spanish	0.80
9.	Unassigned	6.80

Source:Brown (1948), p. 51

Table 3: Self-identified ancestry groups in USA, 2000 and 2015

		Population (in Million)	
Rank in 2015	**Ancestry Groups**	**2000**	**2015**
1.	German	42.80	46.30
2.	Black/African American	24.90	38.80
3.	Mexican of any Race	18.40	34.6
4.	Irish	30.50	33.50
5.	English	24.50	24.80
6.	Americans	20.20	22.70
7.	Italian	15.60	17.30
8.	Polish	9.0	9.40
9.	French	8.30	8.30
10.	Scottish	4.90	5.40
11.	Puerto Rican	2.70	5.20
12.	Norweigan	4.50	4.40
13.	Dutch	4.50	4.30
14.	Swedish	4.00	3.90
15.	Chinese	Not identified	3.90
16.	Asian Indian	Not identified	3.30
17.	Scotch-Irish	4.30	3.00
18.	Russian	2.60	2.80
19.	West Indians(Non-hispanics)	Not identified	2.80
20.	Filipino	Not identified	2.70

Source: U.S.Census Bureau, Ancestry 2000 and 2015 American Community
http://www.infoplease.com/us/race-population/ancestry-us-population-rank.
***Note**: In 2000, self-identified groups of American Indians (7.8 million), White (38.8 million) and Hispanics (2.5 million) claimed different identities in 2015.*

Unlike the old world, the United States was established on the principles which are enshrined in the Constitution. Freedom to worship religion of your choice is such a fundamental principle. Ethnicity is a fluid not a constant identification. A person carries multiple ethnic identifies. A person may present himself or herself as an Italian, Jewish, Polish or Irish. At other occasions identify as a Catholic, Baptist, Episcopalian or Quaker. Some other times, he/she may associate with the working class or middle class.

Table 2 presents the classification of the White population in 1790 in the United States. It is equivalent to the ethnic structure of the United States at that period. English is the most dominant ethnic group, making three-fifths in the total population of four million. The other interesting fact coming out of the table is that only Northwestern Europeans were considered to be White. Black or Negro population, not shown in this table, made 19.3 percent in 1790. The Native American was not counted in the Census.

Since 1970, racial groups identified in the Census and the females were used for Affirmative Action to measure equal opportunity in employment and education. There were no strict quotas. Data were used to measure compliance with the goals of diversity.

Since the census of 2000, a person can self-identify with ancestry which may reflect their place of birth or the place of birth of their parents or ancestors. Table 3 shows the ancestry groups for the year 2000 and 2015. Twenty ethnic groups identify themselves in 2015. These groups reflect the rich cultural diversity and heritage in the United States.

Immigration laws and ethnicity

Immigration leads to the increase in ethnic diversity. At the same time, a surge in immigration results in fear of the outsiders in terms of competition for jobs and stagnant wages; decrease in political control, influence and dominance. US immigration history suggests that the people of British ancestry or "Anglo-Saxon race" were the founding group for the nation. All other ethnic groups who immigrated were initially despised as lazy, alcoholic, immoral criminals and sub-human. Immigration laws were enacted to restrict immigration and disenfranchise Asians. In 1965, a sweeping law was enacted that opened the door to immigrants from all over the world.

In the following, only the major immigration laws relating to ethnic structure and having the far reaching impact on the society have been are discussed.

The Naturalization Act of 1790 was the first law of the United States that explained the rules for citizenship. Only a White person with a good moral character was allowed to become a citizen. The other requirement was the residency requirement of two years. With passage of time, this residency requirement has kept changing. This law provided the rationale for the Chinese Exclusion Law of 1882 which stopped immigration of Chinese ancestry and stopped citizenship from not only Chinese but Asians as a whole. The Japanese government agreed to stop immigration to the United States to avoid exclusion like China. The Chinese exclusion act was revoked during the World War II in the year 1943.

In another instance, Bhagat Singh Thind, a high caste Indian man claimed that he is a "Caucasian" like any White person and should be classified as White. The Supreme Court of the United States in its decision in 1923 rejected his claim on the ground that in the common understanding "white" meant something narrower.

Up to 1880 immigration to the United States was mostly from North Western Europe. In the 1840s, there was an upsurge in immigration from Ireland and Germany. In Ireland, it was the blight of the potato crop that lead to the death of a million Irish and immigration of 1.5 million Irish to the United States. In Germany, it was the political and economic turmoil that was the push factor forcing people to leave the country. They were treated with

a high level of prejudice especially the Irish.

After 1880, there was an unprecedented surge in immigration from Italy, Russia, Poland and the Balkans. They were utterly despised. Ellis Island Immigration Museum has the two quotes from prominent intellectuals that expressed anti-immigrant attitudes.

"The melting pot is destructive to our race. ---We must either build up from our own resources and conserve our race power, or else we must admit only such immigrants as shall strengthen and not weaken our race, or both. The danger the "melting pot" brings to the nation is the breeding out of the higher division of the white race and the breeding in of the lower divisions".[1]

"The new immigration… contained a large and increasing number of the weak, the broken and the mentally crippled of all races drawn from the lowest stratum of the Mediterranean Basin and the Balkans, together with the hordes of the wretched, submerged population of the Polish ghettos. Our jails, insane asylums and almshouses are filled with human flotsam and the whole tone of life, social, moral and political has been lowered and vulgarized by them".[2]

Highly restrictive immigration laws were enacted in the 1920s. In 1921, very low numeric limits and temporary annual quotas were set for immigrants. In 1929, the low quotas were made permanent.

The Immigration and Nationality Act of 1965 was the most liberal landmark immigration legislation enacted. The act allowed the immigration of Non-Europeans. It abolished the national origin Quota System. The law put a limit of up to 20 thousand immigrants per country. Family unification was part of the law. It allowed an immigrant to sponsor family members and lead to chain immigration. The law allowed skilled based immigration. Before this law, Latin American people were freely allowed to enter the United States. This law put a limit of 120 thousand persons from Central and South America and the Caribbean.

In the first two decades of the 21st century, there has been an upsurge in legal and illegal immigration first from Mexico and currently from the Central American countries of Honduras, El Salvador and Guatemala. From these countries, the people were pushed out because of ever rising violence and economic chaos. Families, in larger numbers, arrived at the US-Mexico border to seek asylum in the United States. The US Administration's strict policy on asylum seekers has spurred the current national debate.

What Binds The Nation?

The United States is racially diverse with a rich heritage of many ancestries. There are economic, political and social factors that foster unity and coherence in the nation.

Freedom and equality, enshrined in the Constitution of the United States, inspires national identity. Citizenship is granted to a person who is born or naturalized. Immigrant children born in the United States feel equal to their age cohort and have equal rights. Along with equal rights comes the equal responsibility to serve the nation.

Free high school education transforms ethnic identity into one larger American identity. Along with education come the shared history, the shared culture and English as the language. In this manner, education promotes the shared values and unity in personal identity.

The Military draft was another way to serve the nation and opportunity to know different people from all across America. The draft promoted unity as a nation. The Congress abolished the draft in 1970 because of the unpopularity of the Vietnam War.

The United States territorially expanded from Thirteen Colonies along the East Coast to the Pacific Ocean in a short span of a half century. At the signing of the Peace Treaty of Paris in 1783, after the Revolutionary War, the United Stated doubled its area by acquiring the Ohio territory and extending its boundary to Mississippi River. In 1803, the U.S. doubled its size again by purchasing

the French land claim west of the Mississippi River to the Rocky Mountains known as the Louisiana Purchase. The Western United States was conquered from Mexico in 1848. The British ceded Oregon Territory to the United States in 1846 to have a recognized boundary with Canada. This expansion gave rise to the faith in "Manifest Destiny". This means we the people of the United States are special. This expansion provided new resources and land to move westward. The territorial expansion promoted national unity.

The Marriage System is another unifying factor that leads to the blending of ethnicities. The Industrial Revolution in the 19th Century resulted in rapid migration to cities. Railroads allowed the people to move far away from their birth place to seek new opportunities. After 1875, the couples start marrying less and less from the related group (Yin, 2018). Intermarrying lead to the blending of the ethnic groups, urbanization and rapid economic development in the second half of the 20th century has accelerated the rate of inter-marriages.

The Concentric Zone Theory of urban structure explains very clearly the merging of different ethnic groups. On arrival most immigrants lived in segregated ethnic neighborhoods in cities. As their economic conditions improved they and their descendants moved out of ethnic neighborhoods in inner cities to the suburbs. They lived side by side with other ethnic groups of similar economic status. This is a melting pot in a positive way that fosters unity.

The free market economy provides opportunities to improve one's economic condition. This type of economy brings you in close contact with diverse groups of people. You meet descent, respectable, honest, trustworthy people of all ethnic groups. Such experiences foster unity and national coherence.

Notes

1. Dr. George B. Cutten, President Colgate University, 1923, Quoted in Henry A. Wise Wood, Who Shall Inherit the Land of Our Fathers? American Defense Society, 1923
2. Madison Grant, The Passing of the Great Race, C. Scribner's Sons, 1916

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SOCIOECONOMIC IMPLICATIONS OF COMMERCIAL AQUACULTURE IN KOLLERU LAKE, EAST COAST OF INDIA (A micro level analysis)

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Abstract: The paper examines socio-economic and demographic characteristics of population living in 67 villages around the Kolleru Lake – the largest freshwater wetland on the east coast of India. Population comprising mainly of traditional fishing community has registered an overall decline during the recent census decade (2001-11). Land encroachment for commercial aquaculture has been main factor behind this. However, there have been wide differences in population growth across social groups. While the scheduled population (castes and tribes) recorded an increase, both in absolute and proportional terms, the reverse was true for non-scheduled population during this period.

Demolition of fishponds under 'Operation Kolleru', initiated by the state government during 2005–2006 and/or amalgamation of small landholdings into large-scale commercial aquaculture landholdings have led to out-migration of non-scheduled category of population from the area. At the same time, labour-intensive aquaculture activity in large-size fishponds run by the corporate bodies (who could defy the ban on culture fishery) attracted workforce from outside the region. Such workers mainly belonged to scheduled castes and tribes. A comparative analysis revealed that in villages, where aquaculture proliferated, there has been a rapid growth of scheduled castes population. Further, an analysis based on sampled households, selected from three representative villages, revealed that there has been a remarkable deterioration in economic, health, and living conditions in the study area due to land degradation, and water and air pollution, induced in post-aquaculture commercialization phase. Of course, there has been the differential impact on economic and health conditions across social groups.

Keywords: Operation Kolleru, Fishing community, Commercial aquaculture, Land degradation

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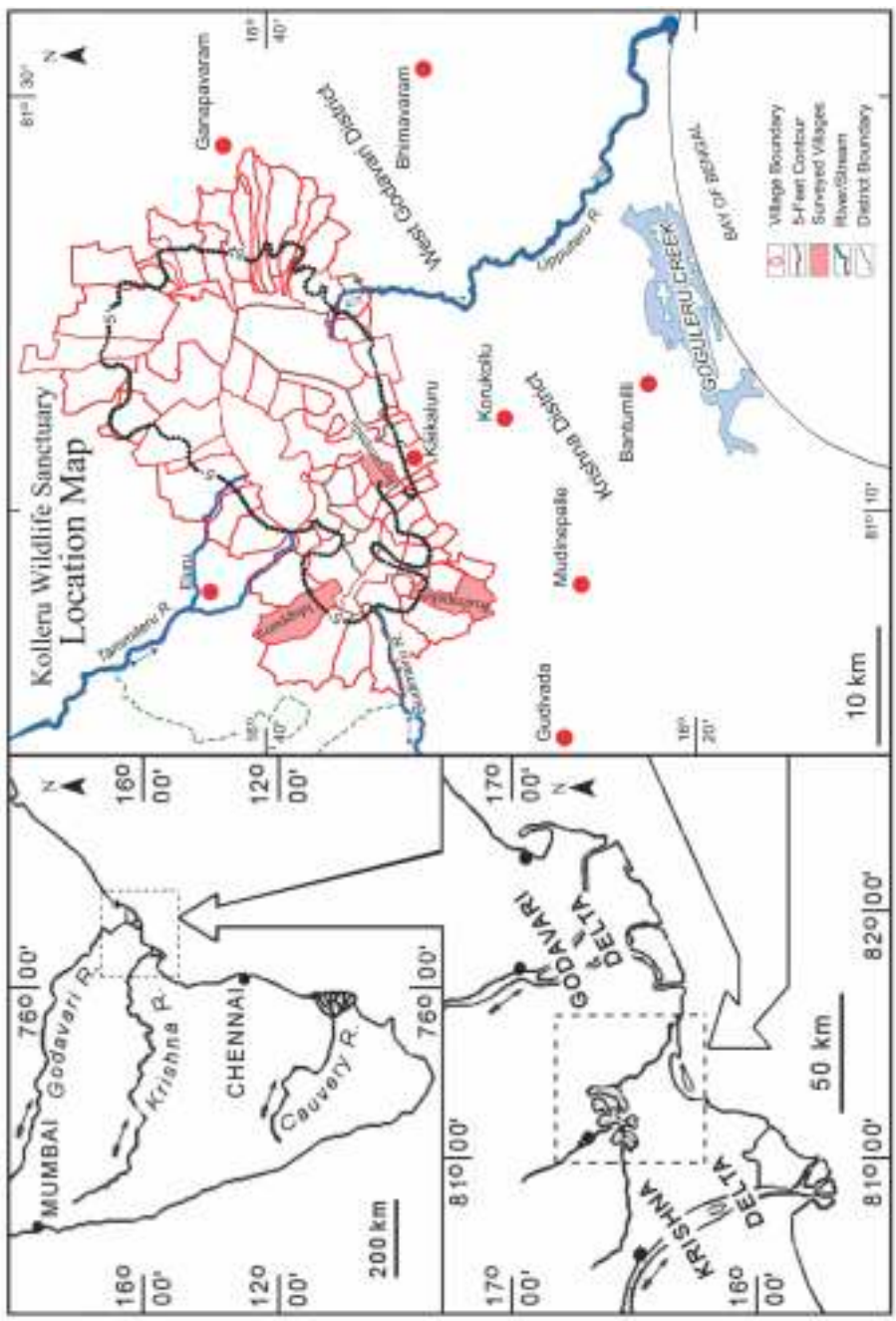
Introduction

Wetlands such as lakes, lagoons, estuaries, mangrove forests and salt marshes are important nature-based solutions for a variety of environmental challenges having wide social and economic implications (Thorslund *et al.*, 2017).

Fig. 1



Note: Kolleru Lake Region is a part of Krishna-Godavari Plain on the east coast of India. Thick black dotted line represents the 5-feet contour demarcating the Kolleru Wildlife Sanctuary around 70 villages, located in the Area

For their rich biodiversity, wetlands are among the most productive ecosystems in the world (Hu *et al.*, 2018), serving as carbon sinks (Villa and Bernal, 2018), flood-balancing reservoirs (Leon *et al.*, 2018), home for many types of flora and fauna, and a livelihood option for large populations of fishing and farming communities. However, the fragile wetlands are rapidly declining and degrading owing to their neglect due to misconceptions pertaining to the ecological significance of these multifunctional aquatic lands (Mengesha, 2017), and injudicious encroachments for human activities (Anule and Ujoh, 2017; Sievers *et al.*, 2018). Encroachments of wetlands for human land use leads to loss of biodiversity and the pristine character of wetlands, homogenization of biota (Lougheed *et al.*, 2008; Price *et al.*, 2018) and environmental degradation (Li *et al.*, 2018).

Taking a cue from the above statements, the present paper attempts to examine wetland loss and environmental degradation along with its socioeconomic implications by picking up Kolleru Lake region, as a case study. This lake happens to be the largest freshwater wetland in the east coast of India and a Ramsar site, covering an area of 910 km^2 in Andhra Pradesh. Here, the main question is: how the large-scale commercial aquaculture has degraded the wetlands in the Lake region besides impacting upon the socio-economic conditions of the local population mainly composed of traditional fishing community.

The study area

Kolleru Lake, the largest freshwater body in Andhra Pradesh (AP) on the eastern seaboard of India, is located about 30 km inland from the sea in the low-lying coastal plain between the Krishna and Godavari deltas (Fig. 1). Fed by several ephemeral streams, the lake swells seasonally to over 300 km^2 during monsoon floods, its depth increasing to more than three meters. In summers, it dries to several discrete pools of water (Nageswara Rao, 1985; Nageswara Rao *et al.*, 2004). Kolleru Lake harbours a variety of aquatic plants and animals, serves as a flood-buffer zone, and a haven for many species of migratory and local birds. Keeping in view its ecological significance, Andhra Pradesh government in 1999 designated the Kolleru Lake as a protected wildlife sanctuary up to 5-foot (~1.5 m) contour covering an area of about 493 km^2 to be called as Kolleru Wildlife Sanctuary (KWS). Subsequently, Kolleru Lake was recognized as an internationally important wetland and a Ramsar site, covering an area of 910 km^2 encompassing 70 revenue villages (one of these being uninhabited and other the two submerged into the lake water). The lake area sustains a large population of about 2.6 lakh persons in 2011, engaged in economic activities like fish-catching, duck and cattle rearing, and subsistence agriculture (mainly paddy cultivation).

However, the advent of commercial aquaculture during the past three decades has compartmentalized the lake completely by a maze of 2–3 m high earthen embankments raised around hundreds of fishponds, thereby obstructing the floodwaters from entering into the lake area, destroying the biodiversity, and degrading the aquatic environment by chemical pollution with the residues of fish-feed, pesticides and other liquid wastes (Chandrasekhar *et al.*, 2004; Nageswara Rao *et al.*, 2004, 2010; Naga Kumar *et al.*, 2016).

Kolleru Lake Region: The Study Area

It is well known that commercial aquaculture benefits only a few individuals at the cost of the local community. This was clearly evident from the study of population dynamics in Kolleru Lake (see Nageswara Rao *et al.*, 2017). The study revealed that population in the area has declined recently especially during 2001-11. This is attributed to 'Operation Kolleru', initiated by the AP government during 2005–2006. It was aimed at the demolition of fishponds in the Sanctuary for environmental restoration (see Nageswara Rao *et al.*, 2010, 2017). This has resulted in widely differing rates of population growth among different social groups in the area. While the total

population of scheduled castes and scheduled tribes (SC&ST) has registered an increase, the combined population of non-scheduled social groups or other categories (henceforth OCs) has registered a decline. Increased demand for agricultural labourers in commercial aquaculture areas attracting the SC and ST workers, moving in from outside the region, has been responsible for increase in SC and ST population. However, commercial aquaculture, which promoted the large corporate-scale fishponds, led to the outward movement of the small farmers (mainly from OCs) following the loss of their small landholdings to corporate farmers (Nageswara Rao *et al.*, 2017). Hence, it would be interesting to study the village-level trends in growth of aquaculture and to compare these with demographic characteristics of population living in the entire 910 km^2 stretch of Kolleru Lake. In addition to a general treatment, based on data available from the Census of India, the study will attempt to present the results arrived at from the analysis of data/information collected through the field survey of sampled households in three representative villages. The main objective is to examine socioeconomic implications of aquaculture at the micro-scale. For the purpose, the data were collected from the sampled households distributed in three villages located in the study area.

Data sources and methodology

For conducting the present study, various data sources have been tapped. Village-wise area under aquaculture in 2004, 2006 and 2012 was estimated from the satellite imagery: Indian Remote Sensing Satellite (IRS) LISS III (2004); IRS AWiFS (2006) and IRS LISS IV (2012). Further, village-wise population data pertaining to 2001 and 2011 Census decades, the nearest corresponding years to match with the aquaculture data of 2004 and 2012 for making a comparison, have been obtained from the Office of the Registrar General and Census Commissioner of India, New Delhi. For collecting the field data from sampled villages, field work was undertaken during 2017-18 with the help of a well-structured questionnaire. The surveyed households belonged to three villages, namely Dayyampadu, Rudrapaka and Mupparru of the study area (Fig. 1). A total of 105 households were surveyed, distributed in the following manner: 26 from Dayyampadu, 47 from Rudrapaka and 32 from Mupparru village. Data representing various socioeconomic parameters of the 105 households, distributed in the three villages, were extracted from the individual survey records.

Standard image processing procedure (for details see Nageswara Rao *et al.*, 2017) has been adopted for a comparative analysis of spatio-temporal changes taking place in aquaculture and population during the pre- and post-Operation Kolleru period. The geo-referenced maps showing the village boundaries were overlaid on the satellite images and the data on aquaculture extent in each village area were computed from the three images belonging to the three different periods.

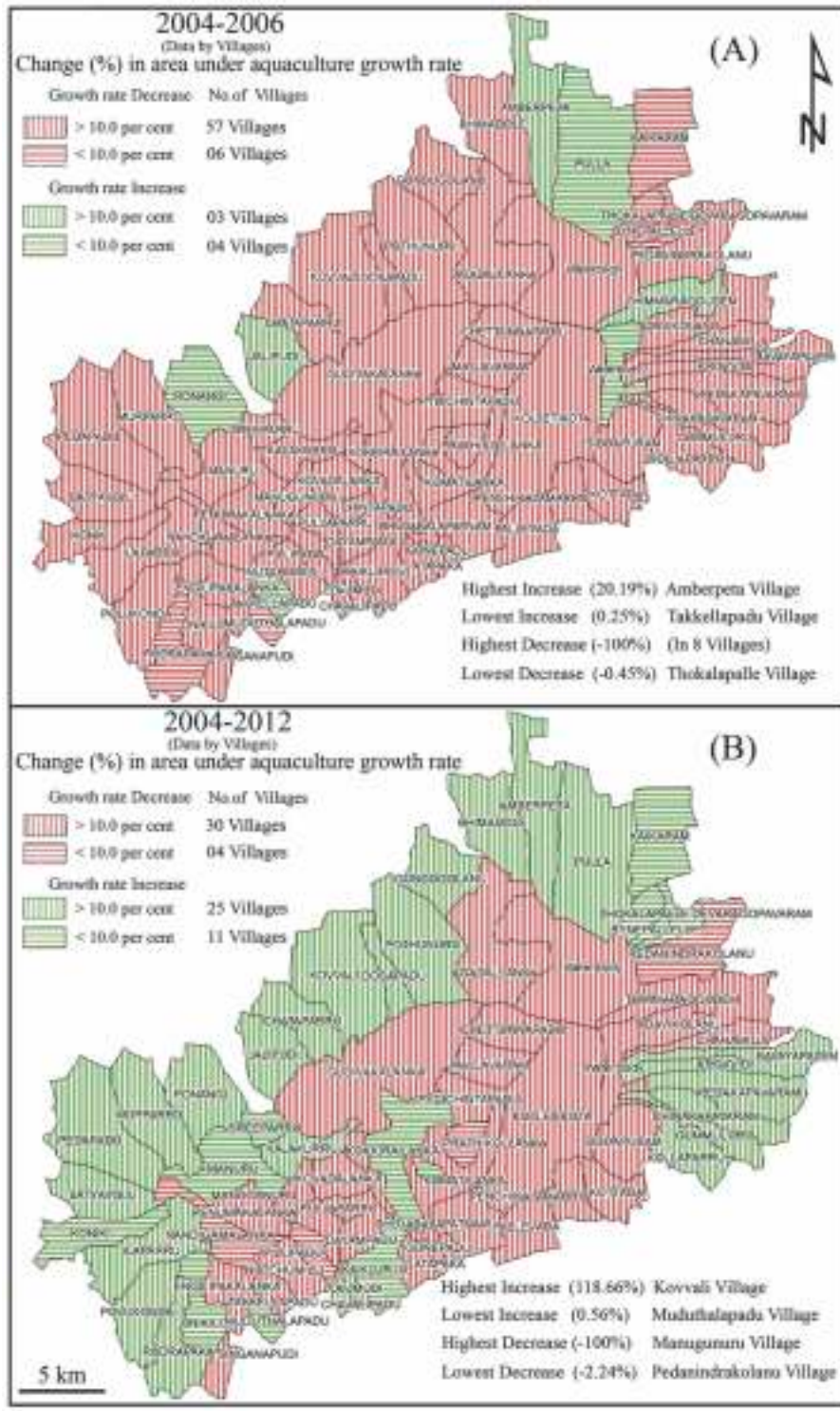
Results and discussion

Trends in aquaculture at village level

The mapping of data on aquaculture, extracted from the satellite images of 2004, 2006 and 2012, displayed a distinct pattern. The reason behind the selection of this period is that it was a turbulent period in the Kolleru Lake region. The *'Operation Kolleru'* was initiated during 2005–2006, registering a remarkable change in area under the aquaculture. The aquaculture, occupying about 424 km^2, or nearly one-half of the total 910 km^2 in 2004, declined to 257.2 km^2, or less than one-third by 2006. However, the area under aquaculture increased to 360.2 km^2, or 40.0 per cent of the total area by 2012, regaining about 85.0 per cent of its 2004 position.

At village level, the changes in aquaculture during 2004, 2006 and 2012 have shown a distinct spatial pattern. Spatially, the decline in aquaculture area during 2004-06 occurred mainly in the central part of the lake area. In fact, the aquaculture

Fig. 2


2004-2006
(Data by Villages)
Change (%) in area under aquaculture growth rate
(A)
Growth rate Decrease No.of Villages
> 10.0 per cent 57 Villages
< 10.0 per cent 06 Villages
Growth rate Increase
> 10.0 per cent 03 Villages
< 10.0 per cent 04 Villages
Highest Increase (20.19%) Amberpeta Village
Lowest Increase (0.25%) Takkellapadu Village
Highest Decrease (-100%) (In 8 Villages)
Lowest Decrease (-0.45%) Thokalapalle Village
2004-2012
(Data by Villages)
Change (%) in area under aquaculture growth rate
(B)
Growth rate Decrease No.of Villages
> 10.0 per cent 30 Villages
< 10.0 per cent 04 Villages
Growth rate Increase
> 10.0 per cent 25 Villages
< 10.0 per cent 11 Villages
Highest Increase (118.66%) Kovvali Village
Lowest Increase (0.56%) Muduthalapadu Village
Highest Decrease (-100%) Manugunuru Village
Lowest Decrease (-2.24%) Pedanindrakolanu Village
5 km

activity declined in 63 of the total 70 villages located in the Kolleru area (including the three uninhabited villages). Of these, 57, or 90.0 per cent of the villages witnessed a decline of one-tenth or more in their aquaculture area. It may be noted that the aquaculture was wiped out to the extent of 75.0 per cent or more in 21 of 57 villages. This included the eight villages where the fishponds were wiped out completely. All the 21 villages were located in the central part of the lake area (Fig.2A).

As stated above, the area under aquaculture has increased again during 2006–2012: from 257.2 km^2 to 360.2 km^2, reaching to 85.0 per cent of its 2004 level. Again, there has been an interesting pattern at the micro-level. The aquaculture showed a mixed trend during this period, some villages witnessed an increase in its area while it declined in others. In fact, the aquaculture increased in 34 villages: 11 recording an increase of 50.0 per cent or more, and remaining 23 of only 10.0 per cent or more. Most of this increase occurred in the villages along the peripheral part of the Kolleru region (Fig. 2B), whereas the aquaculture distinctly declined in 36 villages during this period a majority of which are from the central part of the Lake (Fig.2B).

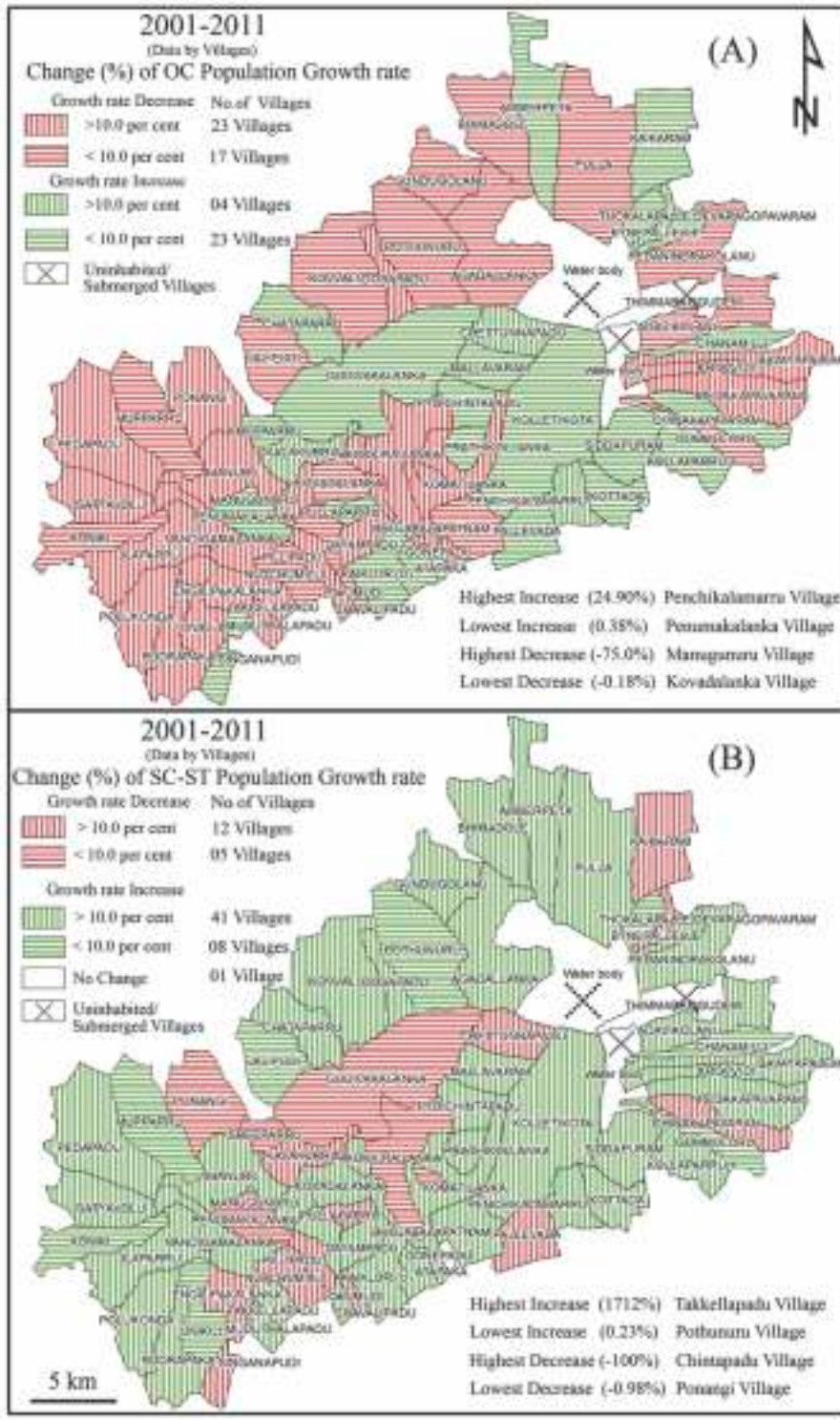
Population change at village level

In order to examine the impact of demolition of fishponds on population growth in the region, a study of change in population at the village level during 2001–2011 has been done. This happens to be the nearest corresponding period to the available data on aquaculture i.e. 2004 and 2012. Overall, the decline in total population of the study region was 58 persons (0.02 per cent) during 2001–2011. However, the situation was quite different at the village level. As many as 32 (or 48.0 per cent) of the total 67 inhabited villages in the study area experienced a decline in population during 2001-11. The rate of decrease was more than 10.0 per cent in ten villages, and less than 10.0 per cent in remaining 22 villages. On the other hand, the remaining 35 villages, which recorded an increase in their population, were categorized in the following manner: seven villages recording an increase of 10.0 per cent or more and the 28 villages of less than 10.0 per cent.

Notably, notwithstanding the overall decline in population of Kolleru Lake area and the little change in population at the level of individual villages, there has been a remarkable increase in SC&ST population, increased by 32.1 per cent during 2001-11. Against this, the population of the other categories (OCs) recorded a decline in its percentage share. At the village level, OC category population declined in as many as 40 of the total 67 villages: more than 10.0 per cent in 23 villages and less than 10.0 per cent in 17 villages. Even in the remaining 27 villages where OC population registered an increase during 2001–2011, it was only a marginal increase: less than 10.0 per cent in 23 and more than 10.0 per cent only in the four villages (Fig. 3A). Most of the villages where the OC population recorded a marginal increase are located in the central parts of the study area. Against this, the villages registering a decline of more than 10.0 per cent in OC population have the peripheral location (Fig. 3A). Since the increase in OC population was less than 10.0 per cent in most of the villages, it may be construed as a natural growth. On the other hand, where the OC population has declined, it could be due to outmigration of OCs, especially from the peripheral villages. The villages, where the commercial aquaculture recorded an increase during the corresponding period. Therefore, the decrease in OC population is directly associated with increase of aquaculture activity in the region.

However, SC&ST population at the village level registered a completely different trend during this period. As many as 49 of total 67 inhabited villages recorded increase in SC&ST population: 41 village recording more than 10 per cent and the eight villages less than 10 per cent. Of the remaining 18 villages, 17 registered a decline and only one recorded no change (Fig. 3B). In 19 villages of the area, the increase in SC&ST population ranged from more than double to more than seventeen times during 2001–2011. In 17

Fig. 3


2001-2011
(Data by Villages)
Change (%) of OC Population Growth rate
(A)
Growth rate Decrease
No.of Villages
>10.0 per cent
23 Villages
< 10.0 per cent
17 Villages
Growth rate Increase
>10.0 per cent
04 Villages
< 10.0 per cent
23 Villages
Uninhabited/ Submerged Villages
Water body
Highest Increase (24.90%) Penchikalamarru Village
Lowest Increase (0.38%) Penumakalanka Village
Highest Decrease (-75.0%) Mamagunru Village
Lowest Decrease (-0.18%) Kovadalanka Village
2001-2011
(Data by Villages)
Change (%) of SC-ST Population Growth rate
(B)
Growth rate Decrease
No of Villages
> 10.0 per cent
12 Villages
< 10.0 per cent
05 Villages
Growth rate Increase
> 10.0 per cent
41 Villages
< 10.0 per cent
08 Villages
No Change
01 Village
Uninhabited/ Submerged Villages
Water body
Highest Increase (1712%) Takkellapadu Village
Lowest Increase (0.23%) Pothunuru Village
Highest Decrease (-100%) Chintapadu Village
Lowest Decrease (-0.98%) Ponangi Village
5 km

villages, where the SC&ST population has declined, it was quite low in proportional terms. This clearly suggests that SC&ST population witnessed a significant in-migration here from other parts of the state. In a way, there has been an increase of SC&ST population in all parts of the region, except in a few villages located in the central part, where the aquaculture has either declined or recorded a low growth rate (Fig. 3B). Therefore, the increase of SC&ST population was linked with an increase in aquaculture activity. In contrast, the OC population declined with the increase of aquaculture. Thus, the relatively high rate of increase of SC&ST population (shown in red colour in Fig. 3B) in the peripheral area was in accordance with an increase of aquaculture there (shown in red colour in Fig. 2B).

On the whole, a comparison between growth of aquaculture (2004–2012) and population (2001–2011) in the region indicates to an interesting trend. The OC category population has declined both in absolute (2.23 lakh in 2001 to 2.11 lakh in 2011) as well as in proportional terms (85.8 per cent in 2001 to 80.0 per cent in 2011). In contrast, the SC&ST population has registered an increase: absolute increase of 12 thousand persons, from 38.0 thousand in 2001 to 50.1 thousand in 2011; in percentage terms (14.5 per cent in 2001 to 19.2 per cent in 2011).

Interestingly, there has been a decline in the total population of the region during 2001–2011, a trend contradictory to the general population growth. For instance, at the district level, the combined population of the districts falling in Krishna–Godavari delta (of which the study area is a part) has increased by about 5.8 per cent, of Andhra Pradesh state by 11.1 per cent and that of India by 17.64 per cent during the same period.

As mentioned earlier, this was the turbulent period in the Kolleru region. The removal of fishponds by the state government under *'Operation Kolleru'* during 2005–2006 led to a sharp decline in aquaculture activity by 2006 (from its 2004 level), but subsequently picked a momentum. As a result, by 2012, it regained almost 85.0 per cent of its 2004 area coverage. However, the decrease in the share of the OC population, mostly comprising of small and marginal farmers, and even a decline in their absolute number during 2001–2011 was perhaps due to the demolition of their fishponds in 2005–2006 and/or the ongoing process of amalgamation of small landholdings into the big corporate fish farms in the region. In such a situation, the small farmers belonging to the OCs were rendered jobless, forcing their out-migration. At the same time, the labour-intensive aquaculture activity in large-size fishponds (each extending over 50–100 ha) run by the corporate bodies attracted the labour class, mainly SC&ST population into the region leading to a substantial increase in the share of their population.

Village level scenario based on household survey

The results of the survey, conducted at the household level in three randomly selected villages, are highly revealing. It shows a distinct decadal variations in population dynamics of different social groups (Table 1). In Dayyampadu village, the SC&ST and OC population recorded a highly contrasting picture of change during 2001-11. The SC&ST population in the village increased from 37 persons in 2001 to 270 persons in 2011, registering an increase of more than seven times. Against this, the number of OC population came down to 745 persons in 2011 from 1082 in 2001, recording a decline of 340 persons, or 31.15 per cent.

Similarly, the combined SC-ST population in Rudrapaka village rose from 215 to 1049, and that of OCs declined from 2531 to 1426 during 2001–2011. The former segment of population registered an increase of about 290.0 per cent, the latter showed a decrease of about 44.0 per cent. In the third village of Mupparru, SC&ST population registered an absolute increase of 122 persons and that of OC a decline of 234 persons during this period.

On the whole, the total population in these three villages declined during 2001–2011: from 1119 to

Table 1
Trends in Aquaculture (2004–2012) and population (2001–2011) in the three selected villages in Kolleru Region

Village Name	Aquaculture			Population								
	Area %		Growth rate %	2001			2011			Growth Rate 2001-2011 (%)		
	2004	2012	2004-12	SC&ST	OC	Total	SC&ST	OC	Total	SC&ST	OC	Total
Dayyampadu	97.8	65.7	-32.9	37	1082	1119	270	745	1015	629.7	-31.2	-9.3
Rudrapaka	82.9	91.7	10.6	215	2531	2746	1049	1426	2475	387.9	-43.7	-9.9
Mupparru	30.7	51.4	67.3	1598	2576	4174	1720	2342	4062	7.6	-9.1	-2.7
Total	59.3	67.9	14.5	1850	6189	8039	3039	4513	7552	64.3	-27.1	-6.1

1015 persons in Dayyampadu, from 2746 to 2475 persons in Rudrapaka, and from 4174 to 4062 persons in Mupparru. This was mainly because of the decline in OC population (Table 1).

On other side of the scale, area under aquaculture in these villages also registered a change during 2004-12. The aquaculture, which occupied 97.81 per cent of the total area of Dayyampadu village in 2004, declined to 65.66 per cent by 2012. Against this, the area under aquaculture increased in the other two villages during the same period. It went up to 91.74 per cent from 82.95 per cent in Rudrapaka, and to 51.39 per cent from 30.72 per cent in Mupparru. On the whole, area under the aquaculture in the three villages increased during 2004–2012. In proportional terms, the aquaculture that occupied about 59.30 per cent of the total area of these three villages in 2004 has increased to 67.88 per cent area by 2012 showing a net growth of 14.46 per cent. The trends in both aquaculture and population in the three villages were similar to that of the entire study area. There has been an overall decline of population in the three villages by 6.06 per cent. This is mainly attributed due to outmigration of OCs, which recorded a negative growth rate of –27.08 per cent, in spite of an increase in the growth of SC&ST population by 64.27 per cent during 2001–2011. There has been a positive association between the increase in aquaculture and the increase in SC&ST population in the case of Rudrapaka and Mupparru villages. However, increase in aquaculture was negatively correlated with the OC population. OC population declined with increase in area under the aquaculture.

The increase in SC&ST population in spite of decrease in aquaculture in Dayyampadu was linked with the location of this village along the main arterial road in the region and construction of houses by the Government for this segment of population under housing for the poor scheme. Therefore, the SC&ST category of population, settled in Dayyampadu, was working on the aquaculture farms in other villages and commuting on a daily basis. There are a few more villages, where the similar trend was noticed in case of SC&ST population vis-à-vis the aquaculture growth. For instance, the aquaculture in Takkellapadu village recorded the lowest rate of increase (0.25 per cent) during 2004–2006 (Fig. 2A) and more than 10.0 per cent decrease during 2004–2012 (Fig. 2B). However, the village has recorded the highest decadal increase of 1712% SC&ST population during 2001–2011 (Fig. 3A), probably reflecting better housing facilities for this category of population in Takkellapadu similar to that in Dayyampadu village.

Socio-economic characteristics of population in surveyed villages

The results of the household surveys conducted in Dayyampadu, Rudrapaka and Mupparru villages are presented in Table 2. The average family size of SC&ST (4.87 persons) was consistently larger than that of OC population (4.19 persons) in all the three villages. The literacy rate up to the school level was 100 per cent in all the three villages. However, college level education was only about 45.0 per cent among SC&STs and about 56 per cent among OCs

population. Although OC category people live in relatively higher number of RCC type of houses (60 per cent) against 50 per cent of SC&STs, the latter have higher percentage of owned houses than the former. This could be due to the fact that the government program of providing RCC made dwelling units to the SC&ST category of population under welfare schemes.

Economic activity index showed that the primary activity in the area was working as aquaculture labour. However, a sizable share of OC population (21.43 per cent) was also engaged in aquaculture farming, working on their own fields against only 0.68 per cent of SC&ST population. The relatively higher size of landholdings among OCs (1.52 acres against 0.33 acres for SC&STs) perhaps reflected the relatively higher number of farmers among OCs than in SC&STs.

Notably, neither of these two categories was engaged in own farming in two (Dayyampadu and Mupparru) of the three surveyed villages, in spite of owning some lands. This indicates that the large corporate groups have acquired their fields on lease and they are kept as the farm labourers. Only in Rudrapaka village about 2.03 per cent of SC&STs and 64.29 per cent of OCs were engaged in aquaculture farming on their own lands. Therefore, it can be deduced that economically OCs in the area were relatively better-off than the SC&STs. This was evident from the variation of average annual income between the two groups of households. While the average income of SC&ST households was Rs. 65,957, it was three times higher for the OC households (Rs. 1,76,371). The maximum variation in the income levels of the two groups was noticed in Rudrapaka village with OCs having more than five-fold higher income (Rs.2,78,428) than that of SC&STs (Rs.53,848). This was mainly attributed to the fact that 64.29 per cent of the OCs population own land against only 2.03 per cent in case of SC&STs. Obviously, income from farmland either through self-cultivation or by the lease of land was higher than what a farm labour could earn. Interestingly, even though both categories of people were aquaculture labourers in Dayyampadu and Rudrapaka, there has been variation in income levels between the two groups. OC household were having higher income than that of SC&STs, apparently because OCs getting income from their own lands. The average landholding among OCs was 1.1 acres against only 0.45 acre among SC&STs. The comparatively better economic status of OCs over that of SC&STs was also reflected in the average cost of the dwelling units of these groups: Rs.3.4 lakhs and Rs.2.2 lakhs, respectively. Further, the variations in their economic status were also reflected in the ownership of certain household amenities such as TVs, fridges, bicycles, motorbikes and cars which the OCs possessed consistently in higher numbers than the SC&STs (Table 2). Interestingly, however, most of the households own TVs rather than toilets in the three villages pointing to the skewed priorities of the people. But, it must also be noted that more than 71.0 per cent of SC&STs and 91.0 per cent of OCs have toilets in their houses, which was probably a welcome sign and reflecting the success of the government's efforts under the Swaach Bharat Abhiyan.

One of the major negative impacts of the aquaculture growth in the region was the emergence of health issues, on a large-scale. As the data revealed, mainly the weaker sections of the society, SC&STs, were suffering from ailments such as kidney diseases (15.71 per cent), heart diseases (12.85 per cent) and liver diseases (2.85 per cent) probably owing to the poor sanitation conditions and drinking of untreated water, contaminated by aquaculture wastes. Notably, almost a half (43.75 per cent) of the SC&ST population in Dayyampadu village, in the central part of the Kolleru Lake region, was suffering from kidney problem.

Conclusions

The study revealed that the fluctuations in growth of commercial aquaculture have impacted the population as well as its socioeconomic

Table 2
Kolleru Lake region: Socio-economic conditions of SC-ST and Other Castes households in the three surveyed villages, 2016-17

S.No	Socioeconomic indicator	Dayyampadu		Rudhrapaka		Mupparru		Averages	
		SC&ST	OC	SC&ST	OC	SC&ST	OC	SC&ST	OC
1	Average Family size	4.87	4.80	5.06	3.77	4.57	4.27	4.87	4.19
2	**Literacy Rate (in %)**								
	School level	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	College level	48.1	60. 0	39.6	54.5	55.6	56.3	45.8	56.9
2	**Dwelling Type (in %)**								
	RCC	50 .0	60 .0	51.5	78.6	47.6	36.4	50.0	60 .0
	Tiled	50.0	30 .0	27.3	14.3	42.9	63.6	38.6	34.3
	Thatched	0.0	10 .0	21.2	7.1	9.5	0.0	11.4	5.7
3	**House Ownership (in %)**								
	Own house	100.0	100.0	97.0	100.0	71.4	63.6	90 .0	88.6
	Rented house	0.0	0.0	3.0	0.0	28.6	36.4	10.0	11.4
4	**Water source (share in %)**								
	Tap	18.8	70 .0	3.0	7.1	61.9	18.2	24 .3	28.6
	Pond	0.0	0.0	3.1	14.3	14.3	36.4	5.7	17 .1
	Treated Water	81.3	30 .0	93.9	78.6	23.8	45.5	70.0	54 .3
5	Toilet	87.5	90 .0	69.7	92.9	61.9	90.9	71.4	91.4
6	Average Cost of The House (Rs)	227187	315000	208709	473333	232857	218636	220514	340454
7	**Current Economic activity (in %)**								
	Aquaculture Labour	100.0	100.0	98.0	35.7	85.7	100.0	94.6	78.6
	Agriculture Labour	0.0	0.0	0.0	0.0	14.3	0.0	4.8	0.0
	Aquaculture Farmer	0.0	0.0	2.0	64.3	0.0	0.0	0.6	21.4
8	Annual Income (Rs)	74625	136000	53848	278428	78380	83181	65957	176371
9	**Amenities (%)**								
	Own Land (in acres)	0.45	1.1	0.09	2.28	0.60	0.95	0.33	1.52
	TV	93.8	100.0	84.8	92.9	85.7	100.0	87.1	97.1
	Fridge	37.5	30 .0	15.2	71.4	19.0	45.4	21.4	51.4
	AC	0.0	20.0	0.0	50 .0	9.5	9.1	2.8	28.6
	Bicycle	87.5	90 .0	48.5	64.3	42.9	81.8	55.7	77.1
	Motorbike	81.3	60 .0	36.4	64.3	52.4	63.6	51.4	62.9
	Car	0.0	10.0	0.0	7.1	0.0	0.0	0.0	5.7
10	**Health Issues (in %)**								
	Kidney Disease	43.8	10 .0	9.1	0.0	4.8	9.1	15.7	5.7
	Heart Disease	12.5	0.0	21.2	14.3	0.0	0.0	12.8	5.7
	Liver Disease	0.0	10.0	6.1	7.1	0.0	0.0	2.9	2.9
	Knee Pains	0.0	30 .0	0.0	7.1	0 .0	9.1	0..0	14.3

Source: Based on field survey conducted during 2017-18

wellbeing of the population living in the Kolleru Lake region. The total population in the region has declined during 2001–2011 contrary to the general trend in population growth in the surrounding regions and the state as a whole. The region, as a whole, recorded a decrease in its population during 2001-11, but there have been wide variations in population growth among different social groups in the region. While, there has been a phenomenal increase in SC&ST population, the reverse was true of OCs. The impact of large-scale commercialization of aquaculture has engulfed the small and marginal farmers either by alienating their lands or taken them on lease thereby forcing them to out-migrate. However, SC&STs, who work mainly as labourers in aquaculture, were attracted into the area.

Further, the preliminary analysis of data collected

through the household surveys in three sampled villages of the region revealed wide variations in the economic status between the SC&ST (mostly aquaculture labourers) and OC (mostly small and marginal farmers) category of population in the region. Health conditions of the people have also been affected probably owing to the increased pollution level by the aquaculture industry. Higher incidences of kidney problem, and heart and liver diseases, especially among the weaker and vulnerable SC-ST communities in the region have been reported in post aquaculture intensification and commercialization period.

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CHILD NUTRITION AND ANTHROPOMETRIC FAILURES AMONG CHILDREN IN SLUMS AND REHABILITATION AREAS OF MUMBAI

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Abstract: The present paper, based on primary survey of 510 children of low income households in Mumbai, attempts to examine the level and factors for child undernutrition. It explores, whether micro environmental conditions of slum makes any difference in child nutrition.

It has been hypothesized that in the same neighborhood area, the children of slum rehabilitation housings are better in nutritional indices, as compared to slums. Result shows that all three undernutrition indicators (stunting, wasting and underweight) are worst in non-notified slums followed by notified slums and lowest in the rehabilitation areas. Better nutritional status among children in rehabilitation areas as compared to that of the slum areas is a welcome step for a slum-free Mumbai. However, along with better micro environment in terms of better housing, other factors such as mother's education, income generation and mother's nutrition have significant importance to address the child under nutrition.

Keywords: Undernutrition, Slum, Rehabilitation area, Anthropometric failure

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Background

Achieving environmental sustainability is one of the global agendas after the declaration of the Millennium development goals (MDGs). The targets of MDG particularly aims at to achieve a significant improvement in the lives of at least 100 million slum dwellers by 2020 (UNMDG, 2008). According to 2011 Census data, 65.4 million people are living in slum areas, whereas over a-third (38per cent) of India's slum population lived in 46 Million plus cities. Share of slum population is quite high in the four metropolitan cities of Greater Mumbai (41.3 per cent), Kolkata (29.3 per cent), Chennai (28 per cent) and national capital of Delhi (15.0 per cent) (Census of India, 2011).

According to NSSO 69th round (2012) slum population constitute 17.4 per cent of the total urban population in India. Slums are mainly located in open spaces or parks (30.0 per cent), along the *nallahs* or drains (23.0 per cent), along

railway line (9.0 per cent), and else-where (27.0 per cent).

Children, especially in resource poor setting, represent a vulnerable group of population in health studies. According to available information, the state of Maharashtra indicates a steady improvement in child nutrition. As per the National Family Health Survey-4 (2015-16), 34.0 per cent children (under five years age) are stunted- 12.0 per cent point improvement as compared to 2005-06 (NFHS-3). Similarly, wasting among children has improved (16.5 per cent in 2015-16 to 25.6 per cent in 2005-06). However, there is hardly any reduction in underweight among children (about 37.0 per cent in NFHS- 3 and 4).

People living in slums are a different subset and no survey throws enough light on nutrition of children living in slums, due to its restricted sampling frame. The nutritional status of slum children is worst amongst all urban groups and is even poorer than the rural average (Ghosh and Shah, 2004). Most common causes of under nutrition include faulty feeding practices, prevalence of infections and parasites, poor environmental conditions and lack of proper child care practices. With accelerating urban migration in the coming years (see Ghosh and Shah, 2004), the problem of malnutrition in urban slums will also acquire increasing dimension unless special efforts are initiated to mitigate the health and nutrition problems of the urban poor. In Mumbai, since the mid-1980s, the state government of Maharashtra has been implementing strategy of housing improvements in the city's slums, through slum redevelopment schemes, involving the demolition of existing slums and their subsequent redevelopment at a higher density.

The nexus between environment and health is an established fact. According to UN-Habitat (2010), children living in the slums are vulnerable to infectious diseases for their deplorable living and environmental condition, characterized by inadequate water supply, squalid condition of environmental sanitation, breakdown or non-existence of waste disposal arrangement, overcrowded and dilapidated habitation, hazardous location, insecurity of tenure, and vulnerability to serious health risks. It is also found that high morbidity among infants is due to infections from the introduction of weaning foods, stored or prepared under unhygienic condition. Similarly in the slum setting, children are more vulnerable because this is the time when children are close to the environment. The existing literature reveals that poverty is the major factor in child morbidity and health seeking behaviour of slum communities. However, the poor environmental and housing condition is the source of heavy disease burden on locality, particularly on children for their vulnerability to infectious diseases (Ndugwa and Zulu 2008).

Mumbai is known for its skyscrapers and squatters. In 1995, Maharashtra state government replaced slum redevelopment scheme with slum rehabilitation authority (SRA). One of the main aims of SRA is to provide a clean living environment with provision of basic minimum requirement of shelter, water and toilet, an improvement in the hygiene and health. According to SRA norms, the slum dwellers whose names appear in the voter list as on 01.01.1995 and who is the actual occupant of the hutment is eligible for rehabilitation. Each family is/will be allotted a self-contained housing unit of 269 sq.ft (earlier 225 sq. ft) carpet area, free of cost (SRA). To improve the living environment of slum dwellers, the Ministry of Housing and Urban Poverty Alleviation, Government of India is also implementing various policies and programmes such as Rajiv Awas Yojna, and Jawaharlal Nehru Urban Renewal Mission (JNNURHM) that aimed to provide the basic amenities and affordable housing and improve the health and standard of life (Slum Committee Report 2001). Population in large numbers live in slums where living environment is very poor. The poor sanitation and

environmental conditions in the slums make their health vulnerable. In view of this, the Slum Rehabilitation Authority (SRA) rehabilitates slum dwellers to better places, where they can live in an improved environment. The question is whether difference exists in health and nutritional status of children living in rehabilitated areas and slums (notified and non-notified)? Slum clusters of Mumbai often hit headlines in media. The Mankhurd slum of Mumbai is one among those four, where sixteen children died of severe malnutrition within a span of nine months (*Times of India*, 6th July 2011). In October 2012, report compiled by the Maharashtra government revealed that Shivaji Nagar of Mankhurd had as many as nine percent cases of severe malnutrition (*Deccan Herald*, Dec 18, 2012). The Human Development Report, 2009 of Greater Mumbai showed that the M-East ward of Mumbai, where Mankhurd slum is located, had the highest rate of infant mortality (66.47 per 1,000 live births). It is twice of the average rate for the state of Maharashtra.

It is being said that cleanliness in the household is crucial for healthy living. So, rehabilitated areas are expected to have a better environment than slums. The present study captures varying measures of under nutrition of this underprivileged class, by calculating anthropometric failure given by WHO (conventional method) and alternate measures of nutrition i.e. composite index of anthropometric failure (CIAF). We compared indices of child under nutrition of three distinct localities in a slum of eastern Mumbai, i.e. non-notified slums, notified slums and rehabilitation areas (where government provides housing to slum dwellers if fulfilling certain conditions) of M-East ward with the following research questions: (a) how far the nutrition status of children in rehabilitation areas are different in comparison to the other two localities notified and non-notified slums? (b) whether WHO based measures, and anthropometric failure of CIAF measures provide similar measures? (c) how far economic and social conditions matter with under nutrition? (d) Does mother's health play major role on child nutrition even when other important factors are controlled, like place of stay and socio-economic co-variates?

Data sources and methodology

Undernutrition of a child is measured in three anthropometric failures, as defined by the WHO. Each of the three nutritional status indicators is expressed in standard deviation units (Z-scores) from the median of the reference population. Each index provides different information about growth and body composition, used to assess nutritional status. Children whose height for age Z-score (HAZ) is below minus two standard deviation (-2 SD) from the median of the reference population are considered short for age (stunted) and chronically malnourished. Children below minus three standard deviation (-3 SD) from the median of the reference population are considered to be severely stunted. Stunted children may have normal body proportions but look younger than their actual age. Stunting develops over a long period of time as a result of inadequate nutrition or repeated infections, or both. The presence of stunting does not necessarily mean that current dietary intake or health is inadequate–the growth failure may have occurred sometime in the past. Wasted children are extremely thin for their height. It is the result of recent rapid weight loss or a failure to gain weight due to acute infection and/or inadequate dietary intake. Wasting is readily reversible once conditions improve. Underweight children are too light for their age and it is due to either wasting or stunting or a combination of both. It is measured by the weight for age index.

In 2006, the WHO published new child growth standards for attained weight and height to replace the previously recommended (in 1977) NCHS/WHO child growth reference. The new WHO growth standards confirm earlier observations that the effect of ethnic differences on

the growth of infants and young children in populations is small compared with the effects of the environment (WHO and UNICEF, 2006; Svedberg, 2000; Nandy et. al., 2005) introduced another measure, named Composite Index of Anthropometric Failure (CIFA), prior to the publication of revised measurement of WHO/UNICEF (2006). They argued that this measure can sufficiently estimate overall prevalence of under nutrition. Das Gupta et al. (2014) stated that CIAF provides better under nutrition status than currently used weight-for-age Z score measurement. While estimate the nutritional status of preschool children in West Bengal, Mandal and Bose (2009) also used this to argue that CIAF measure the seriousness and severity of under nutrition among children. Anjum et al. (2012) attempted to compare the Z score value for the undernutrition through CIAF measurement and recommended that CIAF provide multiple anthropometric failures, good for the implementation of policy and program. Some other scholars (see Acharya et al., 2013; Sen, Dey and Mondal, 2012) also estimated burden of under nutrition among children to conclude that this index provide better and complete picture of undernutrition. In WHO estimates, underweight is a product of stunting and wasting and not a sum of the two (Nandi, et al. 2005) and thus, it misses some children who are undernourished by some other estimates, leading to underestimation of under nutrition.

Though the WHO/UNICEF has revised the methodology of estimating under nutrition in 2006, yet a comparison of estimates arrived at with revised methodology of WHO and CIFA reveal that the under nutrition measures of the two indices differ. Using CIFA method, Svedberg (2000) classified children in six groups: no failure; wasting only; wasting and underweight; wasting, stunting and underweight; stunting only; and underweight only. While WHO (2006) defines undernourished children as stunted (low height for age), wasted (low weight for height) and underweight (low weight for age). In the present paper both the measures have been used to understand the differences in estimates of under nutrition among slum children below 5 years of age. Primary data were collected from a slum pocket of eastern Mumbai suburban area. In all, there were 20 notified slum pockets and four rehabilitation compounds on October, 2012. Of these, (SRA, M ward) Lallubhai compound having 7973 households and PMGP colony with 1162 households were selected. The former was the largest and the latter the smallest rehabilitated areas of M-East ward. Adjacent notified slums of Lallubhai compound i.e. Annabhau Sathenagar (4207 households) and non-notified slum Chikulwadi (with 3200 households) were identified for the study.

Sample size was determined on the basis of the proportion of children stunted in Mumbai slum (47.4 per cent) as per NFHS-3, (2006-07). The following formula given by multiple indicator cluster survey-3 (MICS) is used to determine the required sample size (n)

$$n = (Z\alpha)2*p*q*deff*m/(d*p)\,2$$

Where n= the estimated sample size; Z_α = the z value at 95.0 per cent confidence level, (here, z_α=1.96); p= Prevalence of stunting; q = 1-p; deff=Design effect (here, deff=1.5); m=Non-response rate adjustment assumed to be 10.0 per cent of the households (1.1); d=Absolute margin of error is 12.0 per cent, thus represent the relative sampling error of p.

Allocation of sample for three areas i.e. rehabilitation, notified slum, and non-notified slum is based on the proportion of households. Mapping and house listing were done to have complete list of households in SRA buildings. For data collection in slums, fragmentation is made on the basis of geographical directions (North, south, east and west). Thereafter, in each of the selected fragments, the house listing was done. By using systematic random sampling method households were identified for the interview. Total sample size

Table 1
M (East) ward Mumbai: Percentage distribution of main background characteristics of sampled households by type of locality, 2014

Background Characteristics	Rehabilitation Area	Notified Slum	Non-Notified Slum	Total
Mother's age				
18-24	39.4	45.8	35.5	40.3
25-29	43.3	31.7	36.4	37.3
30+	17.3	22.5	28.2	22.4
Mean age	25.8	25.7	26.4	25.9
Mother's schooling				
No- Schooling	12.6	25.8	47.3	27.7
<5 Years	3.9	10.8	7.3	7.3
5-9 Years	44.9	41.7	33.6	40.3
10+ Years	38.6	21.7	11.8	24.7
Mean years of schooling	7.8	5.5	3.7	5.8
Household member				
<4	34.7	27.5	40.0	33.9
5-6	33.0	41.7	35.4	36.7
7+	32.3	30.8	24.6	29.4
Mean Household Size	6.0	5.8	5.4	5.8
Type of family				
Joint Family	70.1	55.0	29.1	52.4
Nuclear	29.9	45.0	70.9	47.6
Religion				
Hindu	66.2	62.5	23.6	51.8
Muslim	29.1	32.5	74.6	44.3
Other	4.7	5.0	1.8	3.9
Caste				
General	38.6	20.0	48.2	35.3
OBC	23.6	31.7	19.1	24.9
SC/ST	29.9	37.5	22.7	30.3
Don't Know	7.9	10.8	10.0	9.5
Wealth Index				
Poor	6.6	27.3	66.1	121
Middle	33.9	44.9	21.2	118
Rich	67.0	28.8	4.2	118
Average monthly income (Rs.)	10188.6	9397.6	7622.5	9073.5
Total	**127**	**120**	**110**	**357**

collected from the study area was comprised of 496 children falling in the age-group of below five years. We collected information on 510 children from 357 households (168 children from the rehabilitation areas, 174 children from the notified slum areas and 168 children from the non-notified slum areas). Data were collected between December, 2013 and April, 2014. In order to assess the living standard of the studied population, we collected information on ownership of 16 different types of durable goods; and applied principal component analysis to generate low, medium and high standard of living. The paper applied both WHO/UNICEF revised methods of anthropometric failure using WHO Anthro version 3.2.2, stata-13.0. Kernel density estimates are applied to describe and compare the area-wise differences of nutritional status.

Results

Table 1 displays household characteristics

Figure1: Kernel density score of Z score for under nutrition

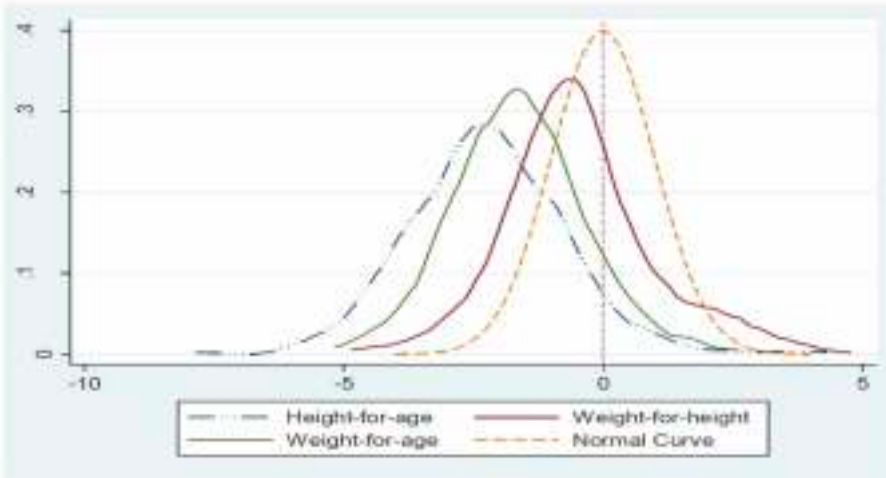

Table 2
M (East) ward Mumbai: Prevalence of undernutrition and CIAF[1] among children by type of locality, 2014

	Rehabilitation Areas	Notified Slum Area	Non-notified Slum	Total
Stunting	44.0	61.5	70.2	58.6
Wasting	10.1	8.6	14.3	11.0
Underweight	30.4	40.8	52.4	41.2
CIAF[1]	52.4	67.8	76.8	65.7
N	168	174	168	510

1- CIAF-Composite index of anthropometric failure define as children not in anthropometric and counts all children who have single or multiple anthropometric failure (stunting, wasting or underweight).

Fig:2 Stunting, Wasting, Under Weight and CIFA of Children by Place of Stay in Eastern Suburb

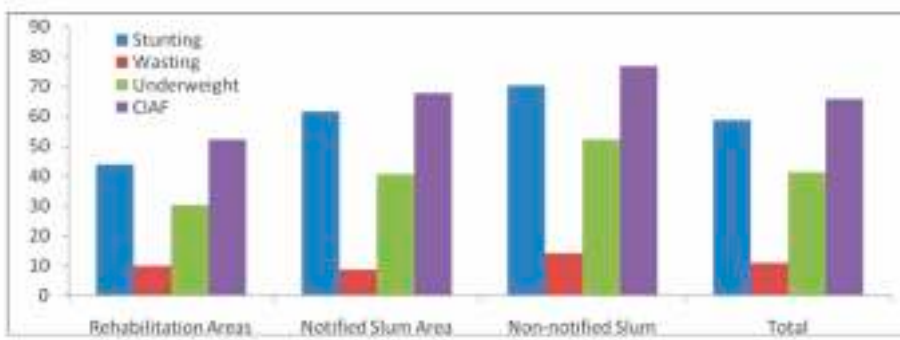

Table 3
M (East) ward Mumbai: Binary logistic regression showing factors for undernutrition among children by background characteristics, 2014

		Stunting	Wasting	Underweight
Localities	Rehabilitation			
	Notified Slum	1.838**	0.757	1.381
	Non-notified	2.342***	1.293	1.812**
Wealth Status	Poor			
	Middle	0.958	1.560	0.778
	Rich	0.853	0.971*	0.532**
Number of children	One			
	Two	1.162	1.172	1.026
	Three +	1.033	0.710	1.394
Years of schooling	< 5 Years			
	6-8	1.317	1.123	1.467
	9+ Years	0.658	1.198	0.801
Mother's BMI	BMI <18.5			
	BMI 18.5-24.9	0.805	0.733	0.638**
Birth Weight	<2.5 Kg			
	2.5+ Kg	0.672	0.567*	0.556**

*P-value ***< 0.01, **<0.05, *<0.10; ® Reference.Caste, Religion, type of family, Mothers age, Household size are controlled.*

by residence type. No significant difference was found in the three areas under study by mother's age distribution. The average household size in the three areas is: 6 in rehabilitation, 5.8 in notified slum and 5.4 in non-notified slum. Nuclear families are higher in slum areas in comparison to rehabilitation areas. Households with relatively better wealth quintile are higher in rehabilitation areas than in slum areas. Figure 1 depicts the height for age (stunting), weight for height (wasting) and weight for age (underweight) values observed against WHO standard estimates. Maximum deviation (left side shift) is observed for values of stunting followed by underweight. It indicates to the worst condition of slum children in terms of stunting. All houses of non-notified areas are *kaccha* and congested. Crowding is one of the major issues. Majority of households in the non-notified areas have no separate kitchen, and the window for ventilation. Tap water facility is available inside the house in Rehabilitation areas, whereas in the notified slum areas public taps are available. Water schedule is fixed and regular. The study found that water treatment method (boiling or filtering) is used more in rehabilitation and notified areas. More than a half of the non-notified slum households and all children of this locality use open defecation.

Table 2 estimates the prevalence of under-nutritional status of children below the age of five years. Out of a total of 510 children, 58.6 per cent are stunted, 41.2 per cent underweight and 10.9 per cent wasted. The composite index of anthropometric failure (CIAF) shows that 65.7 per cent children are having anthropometric failure. Prevalence of anthropometric failure (CIAF) is higher in non-notified areas (78.0 per cent) followed by notified areas (68.0 per cent) and (52.0 per cent) rehabilitation areas (Fig. 2).

Binary logistic regression shows varying background factors, determining the undernutrition among children in resource poor setting (Table 3). Result indicates that micro-environment (i.e. place of stay) is significantly associated with stunting and underweight among children. Children living in the notified and the non-notified areas are likely to be 1.8 and 2.3 times more stunted than children of rehabilitation areas. However, the difference is insignificant when it comes wasting among children. With increased wealth, children are significantly less likely to be

wasted and underweight. However, stunting cuts across the wealth index. Children, who are from rich wealth quintile, are likely to be less wasted (OR-0.971) and underweight (OR- 0.532). Mother's poor BMI is considerably associated with undernutrition among children. Children of mothers with BMI more than 18.5 are likely to be the less underweight (OR-0.638) than those with BMI less than the normal. Birth weight of children with more than 2.5 kg is much less likely to be wasted and underweight (OR- 0.567 & 0.556).

Discussion and Conclusions

We measured the nutritional status of children of below 5 years living in slums of eastern Mumbai. By applying two distinct measures[1] of undernutrition, we found that CIAF provides higher estimates of undernutrition, since it reveals the overall estimate of prevalence of undernutrition. Whereas, the WHO indicators show prevalence of the three distinct type of growth failures. We can disaggregate a variety of undernutrition combinations using CIAF and for program as per the requirement. WHO measures have the advantage from the program perspective as the cause of the three distinct types of undernutrition (stunting, wasting and underweight) are quite specific, helping in to target the specific groups. Children living in non-notified slums need urgent attention as three out of four children experience some kind of failure. Poverty has clear-cut association with undernutrition. The prevalence of undernutrition is higher in slum areas compared to rehabilitation areas.

The study recommends the following areas to be strengthen to address the undernutrition issues of the poor:

1. **Sanitation and hygiene practices:** Almost all children in non-notified slum areas and about three-fifths in the notified areas, defecating in open, need to be made more awareness of health hazards involved in open defecation and thus to arrange for sanitation facilities.
2. **Fresh air and sun light:** In structuring Slum Rehabilitation buildings, the policy-planners must bear in mind the ventilation and inflow of natural light at the level of dwelling units.
3. **Cleanliness:** Cleanliness is the major issues noticed in rehabilitation and slum areas. For achieving this, involvement of community in behavioral and health education, with strict policy and awareness, would be the important step.
4. **Knowledge of child care practices:** To improve the child nutrition, the basic education of the family members is of vital importance. Schooling among parents, media exposure, and proactive role of health personnel are the major sources to create awareness.
5. **Health services:** Medical facility, especially the nutritional supplement and the care are needed for severely undernourished children.

There is a need for multidimensional approach for solving the problem of undernutrition among children. Besides, for better living place, we need to strengthen mothers' nutrition. Of course, the efforts made by the government for improvement of living conditions of a large proportion of urban population living in the slums are evident through SRA schemes in Mumbai. However, interventions are necessary to address the widespread undernutrition among young girls and mothers in order to improve child health, which will result in a shift in the curves closer to the reference standard. Addressing child and adolescent health, improving household and neighborhood environment, steady

1 The two measures are the WHO measures of stunting-wasting and underweight; and the Composite Index of Anthropometric Failure (CIAF).

income are three crucial factors if our country commits to address child under nutrition, especially in the resource poor settings. Involvement of community groups to monitor different services in slums, disseminating knowledge on healthy leaving and eating habits can improve the living conditions along with addressing the health issues. Interventions can target the needs of vulnerable groups, i.e. children whose mothers have low BMI, less educated and are poor.

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RURAL-URBAN DISPARITY IN ACCESS TO HOUSEHOLD LEVEL BASIC AMENITIES: A CASE OF WEST BENGAL

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Abstract: Equal distribution of resources is a highly desirable feature of the resource allocation in any democratic country, but when this condition is not met it poses a challenge for the nation. Democratic country like India, promising each and every citizen the equal right to access the basic services like drinking water, sanitation, electricity etc. irrespective of their socio-economic and cultural characteristics, has failed to provide in reality.

Generally, people in rural areas face discrimination in access to basic services. The organization of physical space in rural areas and the lack of communication facilities aggravates the discrimination process for specific social groups. With this background, the present paper examines disparity in access to basic household amenities in rural and urban areas of West Bengal, with focus on scheduled population (castes and tribes). The study reveals that the access to household amenities is unequal not only between rural area and urban area, but also between the scheduled and non-scheduled population in all areas.

Keywords: Resources, Space, Social discrimination, Regional disparities

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Introduction

In the 21st century when the country has gone far ahead to transform itself into digital India, with the emergence of smart cities and several other developmental projects it is heading a step forward towards the developed nations. However, there are some dark spots in the development story of India. Wide urban-rural gap in access to basic household amenities is one among such major concerns. In the social security framework there are three kind of securities: Protective, Promotive and Preventive (see Sen and Dreze, 1999). The provision of basic amenities such as housing, sanitation, education and health fall in the category of promotive securities. Making the provision for the basic amenities was among the foremost objectives of the Millennium Development Goals (MDGs-2015). But most developing nations are facing obstacles in meeting the United Nation's Sustainable Development Goals (SDG: 2015-2030) for WaSH (Water-Sanitation-Hygiene) parameters. Rural-urban inequality in infrastructural facilities for WaSH parameters has been responsible for wide spatial inequalities in

livelihood (Chaudhuri and Roy, 2017). In developing countries access to better housing facilities is associated with higher economic and social status (Huang and Jiang, 2009 and Ahmad, 2012). Like other developing countries, India is also experiencing inequality in housing and basic amenities (Kundu *et al.*, 1999; Srinivasan and Mohanty, 2004; Edelman and Mitra, 2006; Motkuri and Joe, 2005; Pal, Aneja and Nagpal, 2015; Kumar 2015). From the equity point of view every citizen of a country, irrespective of his/her location, caste, gender, religion, occupation etc. has equal right to live a decent life, (Venkatanarayana, 2008). But in reality, inequality is a common feature in everyday life of people especially those living in rural India. In India, where about 70.0 per cent of population lives in villages, rural-urban inequality in basic amenities and facilities throws a serious challenge before the concerned authorities in making provision for improved water and sanitation conditions for all. The standards of living of people in rural area are quite low in comparison to those living in urban area. Population in rural areas, for their widely disperse geographical distribution, is much deprived. In rural area, socio-economic status of people also play a vital role in access to basic amenities. For their low socio-economic status, a large proportion of households, belonging to scheduled castes and tribes, get deprived in access to basic amenities and adequate housing (Srinivasan and Mohanty, 2004; Mohanan and Chakrabortty, 2008; Dreze and Sen, 2013; Kumar, 2014a; Kumar, 2014b; Kumar, 2014c). Of course, the economic and living conditions of scheduled caste and scheduled tribe households have experienced changes during the phase of accelerated economic growth in the last decade between 2001 and 2011. In fact, there has been considerable progress in the well-being of SCs and STs during the last census decade (2001-2011), nonetheless the gap between SCs and STs and of both these groups with the rest of the population has widened (Bhagat, 2013). Over the decades, the government launched several programs and schemes to improve and ensure access to basic household amenities in rural areas with a special focus on the poor, excluded and marginalised groups. Urban bias in policy-making and allocation of resources is stated to be the reason behind this (Lipton, 1968 and 1977). The state-led strategy is a better alternative in the provision of basic facilities. In context of the welfare state too, it is essential to keep access to basic amenities to all the citizens of any society (Sen and Dreze, 1999).

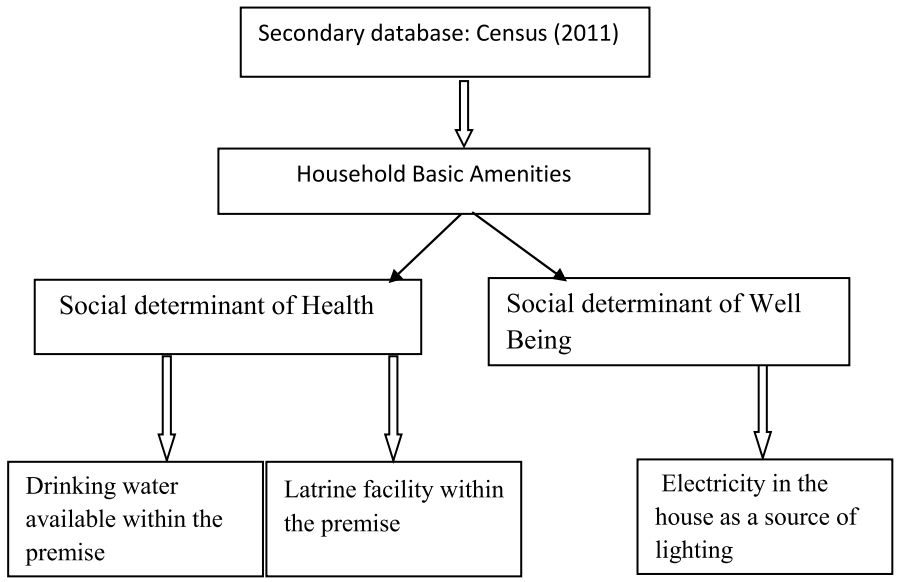
Research objective

The paper analyses the spatial distribution of basic household amenities like water, latrine, and electricity in rural and urban areas of West Bengal. Secondly, it evaluates the degree of relative disadvantage the rural population has in comparison to urban areas on this count. Also, the paper examines the living conditions of the SCs and STs in terms of their access to basic household amenities.

Database and Methodology

In the existing literature, there are several studies on rural–urban disparity in India as well as West Bengal. Important among such attempts included by Roy and Mondal, 2015; Shafiquallah, 2011; Narayanamoorthy and Hanjra, 2010. However, the issue of access to basic household amenities in rural and urban areas of West Bengal failed to attract the attention from the scholars. The present study intends to analyse the access to basic amenities available at the household level in West Bengal with a special emphasis on sub-regional level pattern and inter-social group differentials. Data have been taken from the Census of India available in *Primary Census Abstract-House-listing and Housing Census 2011, West Bengal*.

The present has taken into account the three basic household amenities to determine the level of development by making district as the unit of study. There are 19 districts in the state of West Bengal. The following diagram presents the methodological steps in sequential order.



Notably, drinking water and latrine facility within the premise is not only an important measure of the socio-economic status of the household but also fundamental to the health of its members. Unsafe water, poor sanitation and unhygienic conditions claim around 0.5 million children before the age of 5 due to diarrhea in India annually (Kumar and Das, 2014). Further, the easy access to electricity indicates to the economic condition of the families that can afford the monthly bill of electricity. Also, it highlights the development condition of the area under reference. That makes the reason behind the selection of these three indicators for conducting the present study.

The following tools and techniques have been pressed into service to conduct the present study: *Location Quotient (LQ)*: LQ number is very important for different analyses, such as it helps to identify the deficit areas where the need to create more opportunities to maintain the balance for any spatial purpose to the region. For this study, LQ Method is used to compare the concentration of basic amenities between district and state.

$$L.Q. = (ei / p) / (Ei / P)$$

Where,

ei = Number of household of particular facility 'i' in a given district, p = total household of the concerned district,

Ei = Number of household of particular facility 'I' in West Bengal, P = Total household of West Bengal.

If L.Q >1, this indicate Concentration of facilities is high in the district compare to the state as a whole.

L.Q <1, indicates lack of facilities in the district compare to the state as a whole. And

L.Q=1 indicates concentration of facilities is same in both district and state

Gini Coefficient - used to measuring inequality to access the basic amenities at rural, urban level to the state level as a whole. The Gini Coefficient is found by taking the ratio of the area between the line of perfect equality and the Lorenz Curve to the area under the line of perfect equality.

Arithmetic Difference - computed by subtracting percentage of household of SC as well as ST from the total percentage of households accessing different basic amenities at state level as well as district level also. When is computed at the time of rural and urban the same method has been used.

Total = percentage of Total household- percentage

of Total household of SC/ST

Rural= percentage of Rural households-percentage of Rural household of SC/ST

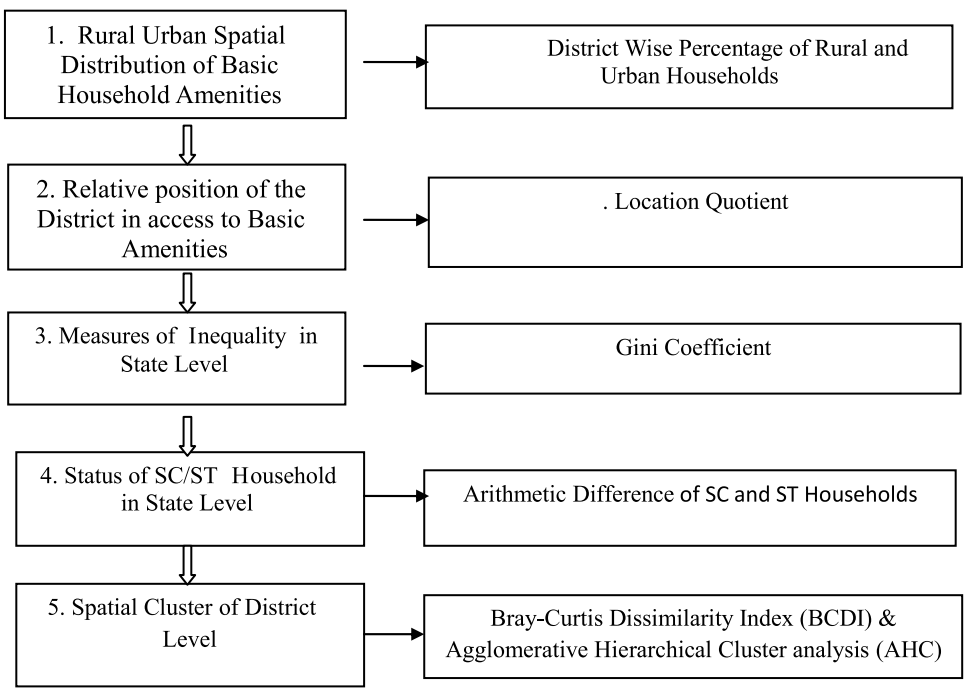
Urban = percentage of Urban households-percentage of Urban household of SC/ST

Bray-Curtis Dissimilarity Index (BCDI) & Agglomerative Hierarchical Cluster analysis (AHC): The main purpose of the index was to calculate one composite value which showing the inter district rural urban disparity in selected indicators. The BCDI is a non-metric (non-Euclidean) index which gives authentic results for a wide range of applications which is very reliable (Bray and Curtis, 1957). It is used to express relationships/diversity in ecology/environmental sciences (Storkey et al., 2015). BCDI is modified where the summed differences between the variables are standardized by the summed variables of the objects. (Chaudhuri and Roy, 2017). The BCDI values ranges from zero to one, with the latter indicating cent per cent difference between the parameters compared (district-wise rural and urban household percentages). District-wise BCDI values were used to perform Agglomerative Hierarchical Cluster analysis (AHC). Resultant clusters were shown in dendrogram to identify district-wise zonal patterns in rural-urban dissimilarity across the state. The study used Bray-Curtis Dissimilarity Index (BCDI) to compute one composite score of every district in showing the intra-district rural-urban inequality in selected amenities and on the basis of BCDI value districts are clustered in group. Resultant clusters were showing district-wise zonal patterns in rural-urban dissimilarity across the state.

The BCDI values were computed for each district individually, following the equation:

$$BCDI = \frac{\sum | Yrural \_ Yurban |}{\sum | Yrural + Yurban |}$$

Where Y, denote district-wise percentage of households having particular parameter value.



Note: Flow chart representation of overall layout of analytical methods followed in the Study

Summary and findings

Rural-urban distribution of basic household amenities

A cursory look at the district data on rural and urban household amenities like drinking water, electricity, and latrine facility revels that such facilities are still quite low in rural areas. In West Bengal, only 30.0 per cent of rural households have drinking water facilities within the premises. The shares of such rural households are 40.0 per cent and 46.0 per cent in terms of the access to electricity and latrine facilities, respectively. On the other side of the scale, more than 85 per cent of urban household have access to electricity and latrine facilities, and 56 per cent of urban households to drinking water within the premises. It is evidently clear that there is a wide gap between rural and urban area of West Bengal. (Table No: 1). Households in rural areas are more deprived on all indicators as compared to households in urban areas. Further, SC and ST population is more deprived in rural and urban areas both.

Within the state, rural-urban and inter-district gaps are still wide. More than 60 per cent of rural household of Darjiling, Hugli and Haora have access to electricity. Against this, less than 30 per cent of rural household in Koch Bihar, Uttar Dinajpur, Murshidabad and Puruliya have access to electricity.

In urban areas, more than 90 per cent urban households in North Twenty Four Parganas, Hugli, Darjilling have access to electricity. The share of such households is less than 60 per cent in Murshidabad district. The gap between rural and urban area still exist in household with respect to access to electricity. The gap between rural and urban is the highest in Koch Bihar and the lowest in Darjilling district (Table 2).

More than 60 per cent of rural households in Koch Bihar and Nadia districts have drinking water facility within the premises, whereas the share of such rural households is less than 10 per cent in Puruliya, Haora, South Twenty Four Parganas and Purba Mednipur. Dakshin In case of urban households, Dinajpur is at the top with more than 80 per cent household and Purba Mednipur district at the bottom with 27 per cent household. The urban-rural gap is the highest in Dakshin Dinajpur district (Table 2)

Similarly access to latrine facility remains the low in rural areas. Purulia district has the lowest availability of latrine facilities, only 6 per cent households having this facility within the premises. Against this, Nadia, North Twenty Four Parganas, Haora and Hugli districts have this facility in more than 60 per cent households. There are only four districts including Murshidabad, Birbhum, Bankura and Puruliya, where the percentage of urban household having toilet facilities inside the premises was less than 65 (Table 2). Urban-rural gap in availability of electricity was the maximum in Koch Bihar district and the lowest in Darjiling districts, and in drinking water this gap was the maximum in maximum in Dakshin Dinajpur and the minimum in Jalpaiguri. Notably, Koch Bihar makes a case where drinking facility was available to more rural households than the urban households. In the case of latrine facility, urban-rural gap was the maximum in case of Dakshin Dinajpur and the least in North 24 Parganas districts. However, this

Table 1
West Bengal: Percentage of households with select basic amenities in rural and urban Areas (SC, ST and Total), 2011

	TOTAL			RURAL			URBAN		
	Total	SC	ST	Total	SC	ST	Total	SC	ST
Electricity	54.49	41.49	31.66	40.31	31.79	25.74	85.12	74.29	73.69
Drinking water	38.64	32.98	18.59	30.54	29.92	15.20	56.15	43.35	42.67
Latrine	58.85	48.12	24.40	46.73	40.13	18.32	85.01	75.11	67.65

Source: Census of India (2011) Tables on house, household's amenities and assets, H series tables, Registrar General and Census Commissioner, New Delhi.

Table 2

West Bengal: Percentage shares and urban-rural gap in basic household amenities by districts, 2011

(Figures in percentage)

District	Electricity			Drinking water			Latrine facility		
	Rural	Urban	Gap	Rural	Urban	Gap	Rural	Urban	Gap
Darjiling	70	91	21	29	52	23	52	87	35
Jalpaiguri	33	74	41	54	60	6	37	82	45
Koch Bihar	21	82	61	82	71	-11	68	88	20
Uttar Dinajpur	28	75	47	55	79	24	21	81	60
Dakshin Dinajpur	36	81	45	30	83	53	28	92	64
Maldah	30	73	43	32	63	31	25	74	49
Murshidabad	29	59	30	39	54	15	35	62	27
Birbhum	37	72	35	15	36	21	19	62	43
Barddhaman	49	83	34	31	43	12	46	72	26
Nadia	39	80	41	65	75	10	71	93	22
North 24 Parganas	44	91	47	37	69	32	79	94	15
Hugli	67	91	24	25	58	33	60	89	29
Bankura	41	78	37	17	44	27	17	60	43
Puruliya	28	67	39	7	29	22	6	51	45
Haora	62	87	25	7	36	29	60	84	24
South 24 Parganas	35	81	46	7	28	21	55	83	28
Paschim Medinipur	49	79	30	21	44	23	42	77	35
Purba Medinipur	45	76	31	8	27	19	86	83	-3

Source: Calculated From Tables on Houses, Household Amenities and Assets, House Listing and Housing Data, Census of India, 2011.

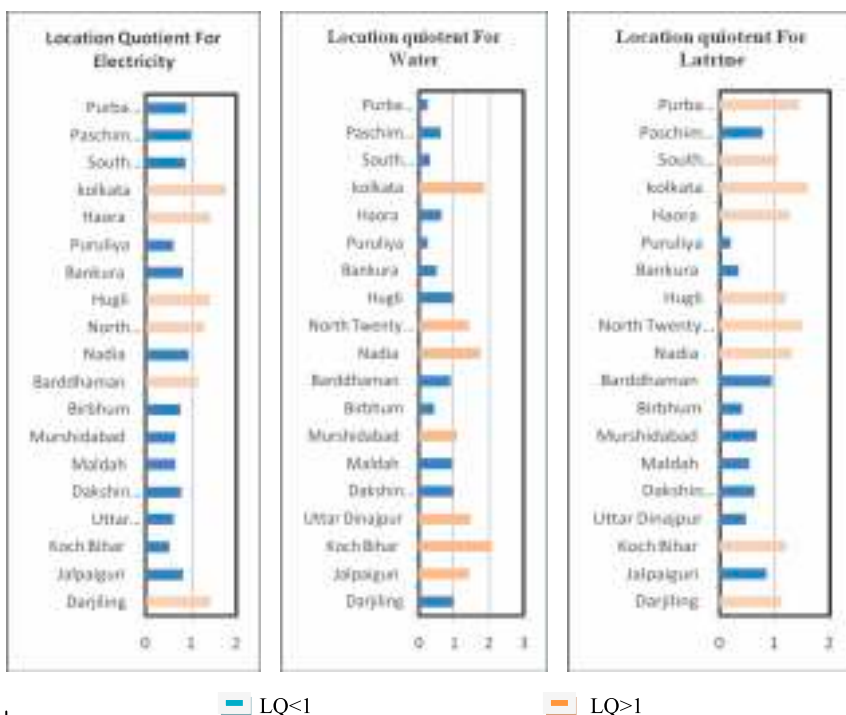


Fig 2, 3 and 4: Location Quotient (LQ) Showing the Relative Position of Different Districts of West Bengal in Access to Electricity, Water and Latrine Facilities

facility was available to higher percentage of households in rural than urban areas of Medinipur district. Evidently, there are wide sub-regional differentials in urban-rural distribution of basic facilities in West Bengal state.

Inter-district variations in Access to Basic Amenities (based on concentration index)

The relative position of the districts to the state in the availability of household facility can also be gauged from Fig. 2, 3 and 4, prepared with the help of Location Quotient values. In terms of electricity LQ index value ranges from a minimum of 0.52 (Koch Bihar) to a maximum of 1.78 (Kolkata). See also Appendix-I. The Fig. 2 shows that six districts have LQ value of more than 1 in the case of electricity. It means that these districts performed better than the state average on this count. In Fig.3 the same is true of seven districts, having more than 1 LQ index value in water facilities within the premises. In case of this facility, the LQ value ranges from a low of 0.25 in Puruliya to a high of 2.09 in Koch Bihar district. Coming to toilet facilities, where LQ index value ranges from 0.20 in Puruliya to 1.61 in Kolkata district; the nine districts preformed above the state average (Fig. 4).

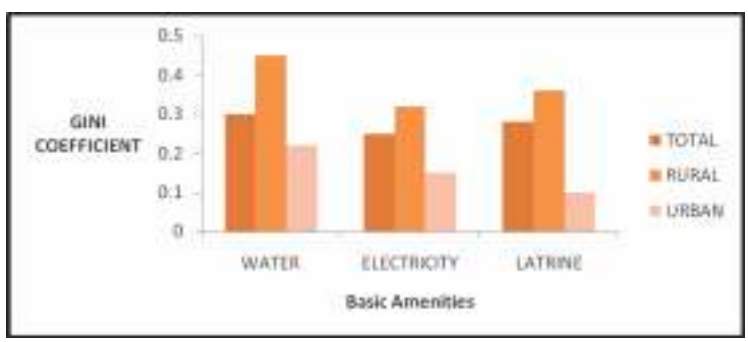
Measures of Inequality at State Level

The Gini coefficient is calculated at the state level to show spatial inequalities as a whole between rural and urban areas. With respect to access to basic amenities, it is quite clear that the matter of serious in case of rural areas in the state. It can be seen from the Fig. 5 that Gini coefficient is high in rural areas for all indictors included in the analysis. Gini coefficient is high mainly in access to drinking water, indicating that the inequality is very high in the case of water sources in both rural as well as urban areas. Evidently, inequalities in distribution of basic facilities are highly pronounced in case of areas. Obviously, from the angle of policy planning, there is an urgent need to not only minimize urban-rural gap but also the gap between rural areas itself. Inter-rural disparity in the state requires the immediate attention of the planners and policy-makers in the state.

Status of Scheduled Caste and Scheduled Tribe Households

Over the periods, the government in India has undertaken several programmes and schemes for the poor and marginalized groups. Undoubtedly, programmes initiated by of the government from time to time for the welfare of SCs and STs have helped them to move forward, yet there is still a wide gap between these poor and marginalized group households and that of general population (see Figs 6, 7 and Appendix-II)

Analysis reveals that the fruits of development reached or caverned more by the general category of population than those in SC and ST categories. This is further supported in the district level analysis. Three districts of Birbhum, Puruliya, and Bankura, having relatively higher concentration of SC and ST population recorded very low level on all three basic services discussed here



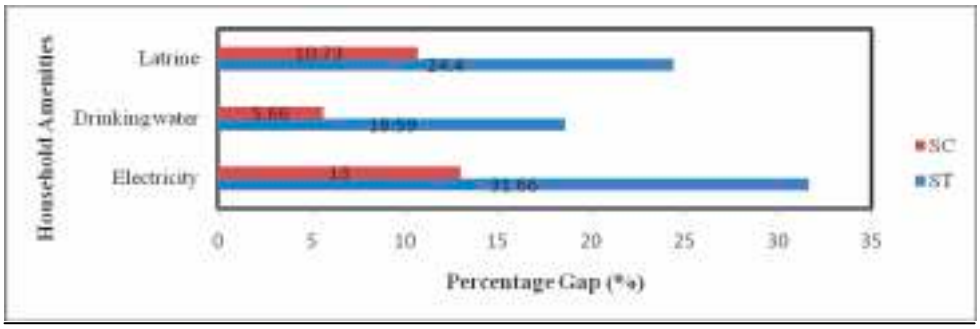


Fig 6: Gap (in %) between SC and ST Total households in access to basic household amenities

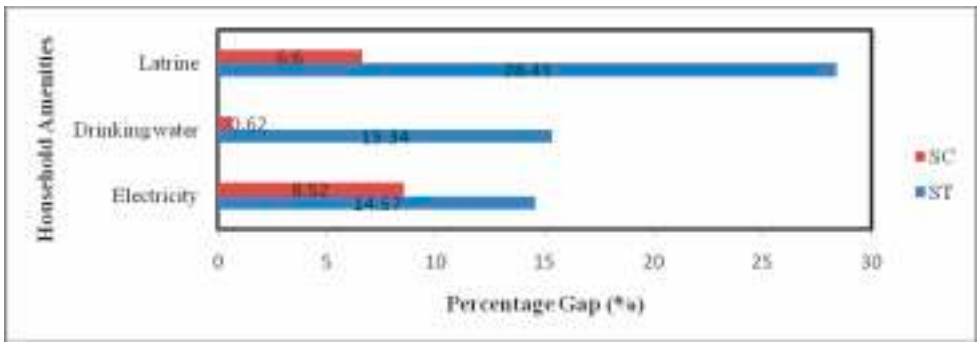


Fig 7: Gap (in %) between SC and ST rural household in access to basic household amenities

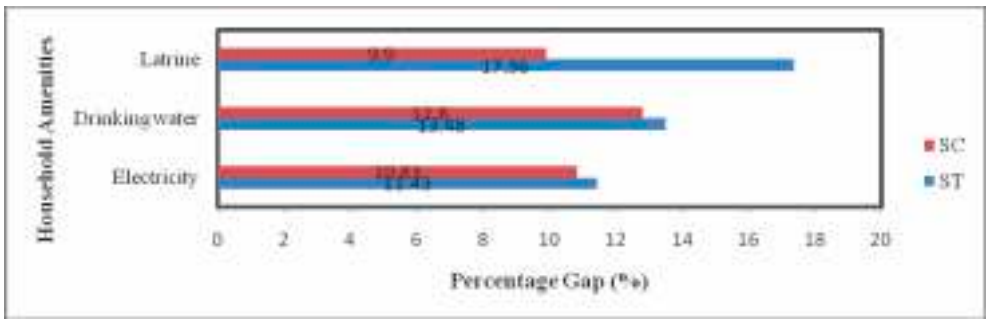


Fig 8: Gap (%) in access to amenities between SC and ST urban households

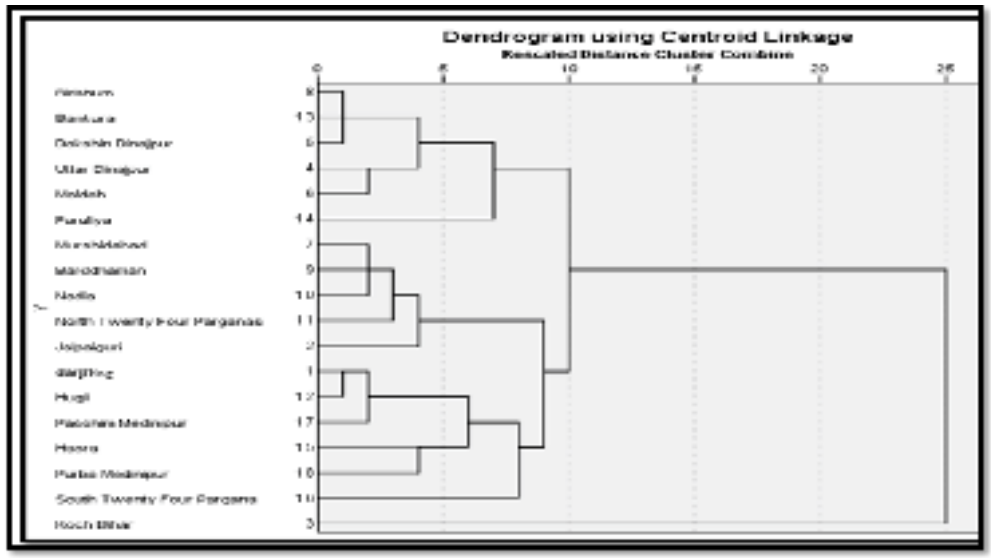


Fig: 9. Dendrogram showing districts clustering in case of urban-rural disparity on select parameters

Spatial cluster of districts

The study attempted to identify the cluster of districts having very high/low urban-rural disparity on each of the selected parameters. From the dendrogram, it can be deduced that, on the basis of BCDI value, there is three clusters. It is very clear that cluster 1 consists of Bankura, Birbhum, Puruliya, Dinajpur, Maldah districts, where BCDI value is very high- indicating high urban-rural inequality on all parameters (Fig. 9). Interestingly, the districts falling in cluster 1 have low level of urbanization in comparison to other districts. Whereas, the cluster 2 consisting of Nadia, Barddhaman, Jailpaiguri. Murshidabad and North Twenty Four Parganas districts, having relative higher position in household access to basic household amenities in rural area, has higher degree of urbanization. We have excluded Kolkata and Koch Bihar districts from cluster analysis, since the former is an entirely urban district and in the latter district rural households are better placed than urban household in access to drinking water.

Conclusions

The study reveals that there are not only wide urban-rural disparities in access to basic household amenities within the state of West Bengal, but also there are phenomenal rural-rural disparities at the district level in access to basic household amenities. Further, in spite of various welfare government initiated programs for the upliftment of SC and ST population in the state, these formerly neglected sections of Indian society still suffer on account of available facilities and amenities. In West Bengal, SC and ST rural households are much deprived on this count. Deprivation is directly linked with the socio economic backgrounds of the household in both rural and urban India. The policy-makers and the planners in the state need to place a determined focus not only on reducing urban-rural gaps in basic facilities but also between rural and rural areas as well as scheduled and non-scheduled population living in the state.

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Appendix-I

1.1 Gap (in %) in Electricity among SCs & STs Compared to Total, Rural and Urban Households, 2011

District	Total		Rural		Urban	
	SC	ST	SC	ST	SC	ST
Darjilling	7	8	6	5	5	-2
Jalpaiguri	13	1	10	-9	15	15
Koch Bihar	8	0	4	-2	10	-2
Uttar Dinajpur	2	20	1	17	11	25
Dakshin Dinajpur	8	27	6	22	15	31
Maldah	5	20	4	17	5	3
Murshidabad	2	14	2	12	0	-5
Birbhum	12	26	11	23	18	29
Barddhaman	18	28	15	24	14	21
Nadia	3	29	0	24	10	25
North 24 Parganas	11	30	5	30	7	6
Hugli	21	39	20	36	10	11
Bankura	19	26	18	23	27	10
Puruliya	7	15	5	11	21	14
Haora	16	3	14	20	12	5
South 24 Pargana	5	24	2	22	6	0
Paschim Medinipur	12	25	10	22	21	29
Purba Medinipur	13	11	13	14	13	4

Source: Calculated from Tables on Houses, Household Amenities and Assets, House Listing and Housing Data, Census of India, 2011.

1.2 Percentage Gap in Drinking Water among SC s & STs Compared to the Total Household, Rural and Urban Household, 2011

District	Total		Rural		Urban	
	SC	ST	SC	ST	SC	ST
Darjilling	-13	18	-24	13	4	19
Jalpaiguri	-7	24	-10	23	2	9
Koch Bihar	0	12	1	13	4	2
Uttar Dinajpur	-5	15	-6	12	7	22
Dakshin Dinajpur	5	21	1	15	15	29
Maldah	6	15	4	12	8	4
Murshidabad	9	20	11	22	1	-12
Birbhum	10	13	8	11	19	19
Barddhaman	16	23	13	21	19	23
Nadia	0	24	-2	23	6	19
North 24 Parganas	10	22	1	20	11	8
Hugli	23	27	16	19	23	17
Bankura	10	15	8	13	27	11
Puruliya	3	6	2	4	15	7
Haora	14	-6	2	1	17	-1
South 24 Pargana	4	4	1	3	5	-6
Paschim Medinipur	9	13	8	11	17	12
Purba Medinipur	4	-1	3	1	11	-6

Source: Calculated From Tables on Houses, Household Amenities and Assets, House Listing and Housing Data, Census of India, 2011

1.3 Percentage Gap in Latrine Facility among SCs & STs Compared to the Total Household, Rural and Urban Household, 2011

District	Total		Rural		Urban	
	SC	ST	SC	ST	SC	ST
Darjilling	6	15	3	9	5	6
Jalpaiguri	5	25	0	15	11	20
Koch Bihar	17	16	15	16	3	-3
Uttar Dinajpur	-1	17	-3	12	8	26
Dakshin Dinajpur	8	25	4	17	10	27
Maldah	3	19	0	15	1	2
Murshidabad	5	18	7	18	-4	-11
Birbhum	13	19	11	14	24	33
Barddhaman	22	35	17	30	26	39
Nadia	-2	30	-4	30	3	17
North Twenty Four Parganas	2	21	-1	25	2	5
Hugli	25	44	24	40	10	17
Bankura	13	17	10	13	36	6
Puruliya	5	9	2	4	27	16
Haora	21	0	20	20	16	1
South Twenty Four Pargana	4	12	3	11	0	-2
Paschim Medinipur	18	30	16	27	26	30
Purba Medinipur	5	21	4	24	10	6

*Source: Calculated From Tables on Houses, Household Amenities and Assets, House Listing and Housing Data, Census of India, 2011.******

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HOUSELESS POPULATION IN INDIA: TRENDS, PATTERNS AND CHARACTERISTICS

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Abstract: India is home to about two million houseless population, nearly equal to total population of Botswana, a country in Sub-Saharan Africa. The present study analyses the trends, patterns and characteristics of this segment of our population. Also, an attempt has been made to pinpoint the factors contributing to this phenomenon. Using 2011 data, available from the Census of India, the study concludes that the ratio between houseless and total population in the country has been declining consistently during 1971-2011: 15 in 2011 against 36 per ten thousand persons in 1971.

The share of houseless population is higher in urban than rural areas. While, the economic factors playing the most important role behind the problem of houselessness, the role of social factor can hardly be overlooked. Notwithstanding that several housing schemes operating in the country, there is hardly any significant dent on the problem of houselessness, especially in urban areas. Finally, the paper recommends a comprehensive program in order to get rid of the problem in the near future.

Keywords: Houseless population, Trends, Characteristics, Urban India

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Background

The housing issue forms an integral part of the measurement used to calculate wealth index, determining the status of household economy. While the definitions are fraught with technical complexities, the Census of India indeed has its own definition to collect data/information on houseless population. What constitutes a house could be a persistent problem since the house literally could include the widely distributed shack in rural areas, which can exist for a period of one to two years only. In addition, the unbounded tents of the urban poor, seen along the railway lines in urban areas, could also be designated as a house for the poor, having built homes of poor quality and temporary structures. Under the situation, a strong definition is always laced with defects and criticism. In this paper, data on houseless population collection by the Census of India have been pressed into service. According to Census of India definition, the homeless households are those that do not live in buildings or census houses but live in the open on roadside, pavements, in Hume pipes, under flyovers and staircases, or in places of worship, man daps,

railway platforms, etc. A decent place for living is one of three basic needs of human-beings, after food and clothing. As a part of the construction industry, accounting for more than a half of the development outlays, housing has emerged as a major sector of Indian economy, having backward and forward linkages with almost all other sectors (Sinha and Biswas, 2008).

Government of India adopted a National Housing and Habitat Policy in July 1998 to create an enabling environment for the vulnerable and weaker sections of the society. A Centrally-sponsored scheme, Valmiki Ambedkar Awas Yojana (VAMBAY), was launched with a view to ameliorate the conditions of urban slum dwellers, living below the poverty line and having inadequate shelter. The primary objective of the scheme has been to facilitate the construction and up-gradation of the dwelling units in the slum areas and to provide health and enabling urban environment through community toilets under the Nirmal Bharat Abhiyan (NBA). The 'two million housing program', basically for the State sector housing schemes, is monitored by the Union Ministry of Urban Development and Poverty Alleviation, also monitoring the implementation of the National Housing and Habitat Policy to ensure a roof for each household by 2010. The Ministry has been implementing the various housing schemes, including Jawaharlal Nehru National Urban Renewal Mission (JNNURM) with its two sub-missions viz., Basic Services to the Urban Poor (BSUP) and Integrated Housing and Slum Development Program (IHSDP); Rajiv Awas Yojana (RAY); Interest Subsidy Scheme for Housing the Urban Poor (ISHUP); and Affordable Housing in Partnership (AHP). With these schemes in operation, the scenario of homeless population in India is changing gradually.

Ku et al. (2010) reported an increase of 12.0 per cent in homelessness between 2007 and 2008 in Cities of the United States, in spite of the national, state, and local efforts in the Annual Homeless Assessment by Congress. The U.S. Department of Housing and Urban Development (HUD) estimated that 759 thousand persons were homeless on a single night of 2006. Braga and Corno (2011) have worked on homeless population in Italy. According to their study, the common wisdom that home-less people are not active in the labor market, does not hold true in the case of Milan city. They have found that a higher proportion of homeless people is in the labor force, compared to the general population: 74.4 per cent among homeless against 63.5 per cent in general population (ISTAT, 2010). In Milan, the labor force participation rate is almost the double for immigrants. Venkateswarlu (1992) found that the homeless population in India has declined during 1971-81. His analysis showed that the homeless situation was severe in Gujarat, followed by Maharashtra and Madhya Pradesh, whereas in Kerala, Bihar, and Uttar Pradesh, the problem was less serious. In general, urban areas were found having more homeless population than their rural counterparts. Moreover, there is a sharp decline in number of homeless people in rural India, against an increase in towns and cities. Chandigarh and Delhi record a high proportion of homeless in their total population, 0.4 per cent and 0.3 per cent, respectively (Times of India, 2013). In several cases, the houseless population gets invisible, rendering it difficult for them to organize into a pressure group, although many may have lived several years, sometimes even a generation or two on the streets, to get noticed by the government officials. They lack a formal address, and also are rendered anonymous because they usually lack even the elementary markers of citizenship of poor people in India, like ration cards and voters' identity cards. Many homeless people keep their possessions with them because they have no access to storage. They use laundry facilities, their hygiene and toilets at public places, which upsurge a band of diseases in urban areas (Atkinson, 1993). Homeless people freely enjoy toilet of public and religious places such as temples/mosque/churches for washing and bathing. The homeless population grows larger and increasingly congregated. As a result, many churches close their doors when services are not being held and most places hire private security guards. Many public toilets are closed; this banishes the homeless population to sidewalk, parks, under bridges flyovers and so on (Dessalegn and Aklilu, 2003). The study on the homeless population in the context of India is important, as it is a home of 1.77 million population

living without any roof cover. In the light of above statements, the present study examines the trends and patterns of houseless population in India along with their demographic characteristics.

Data sources and Methodology

Data for the present study have been picked up from the Census of India, that collects information on houseless population to publish in General Population Tables. The period covered is five decades, 1971 to 2011. For 2001 and 2011, the information has been extracted from Table HH-2 Houseless Households by Household Size and Primary Census Abstract for Total population and Houseless Population. To examine the relationship between houseless population and related factors, multiple regression analysis has been carried out by taking percent of households who owned their house, percent of population residing in urban areas and annual exponential growth rate of the population.

Findings

Trends and patterns of Houseless Population in India

The study on homeless population is important, since houselessness has a direct bearing on the health aspect of the population. Urban slums are not categorized under houseless population, but pragmatically they can be the same as they do live in a shabby condition with no proper sanitation, electricity and drinking water facilities. Happily, the number houseless population/10,000 populations has declined in India. The ratio has been declining consistently since 1971. While, there were 36 houseless per ten thousand persons in 1971, it got reduced to 15 persons in 2011 (Table 1). However, the situation widely differ between urban and rural areas, the ratio is much higher in urban areas as compared to rural areas (Fig.1).

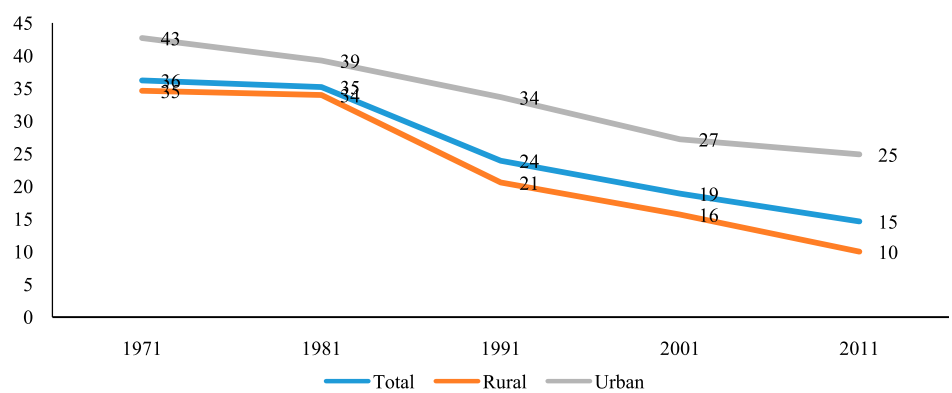
A comparison between the census figures of 2001 and 2011 reveal that there has been a worth noting decline in ratio of houseless population (Table 2). However, there are wide inter-state differentials on this count. With the exception of Union Territories

Table 1
Houseless population/10,000 persons in India by Residence, 1971-2011

Years	Total	Rural	Urban
1971	36	35	43
1981	35	34	39
1991	24	21	34
2001	19	16	27
2011	15	10	25

Source: For 1971-1991: Computed from Census of India, General Population Tables, Part II-A(I), for 1971, 1981, 1991; Computed from Census of India, HH -2 Houseless Households by Household Size, for 2001 and 2011.

Fig. 1: India: Houseless population (per 10,000) by Residence, 1971-2011



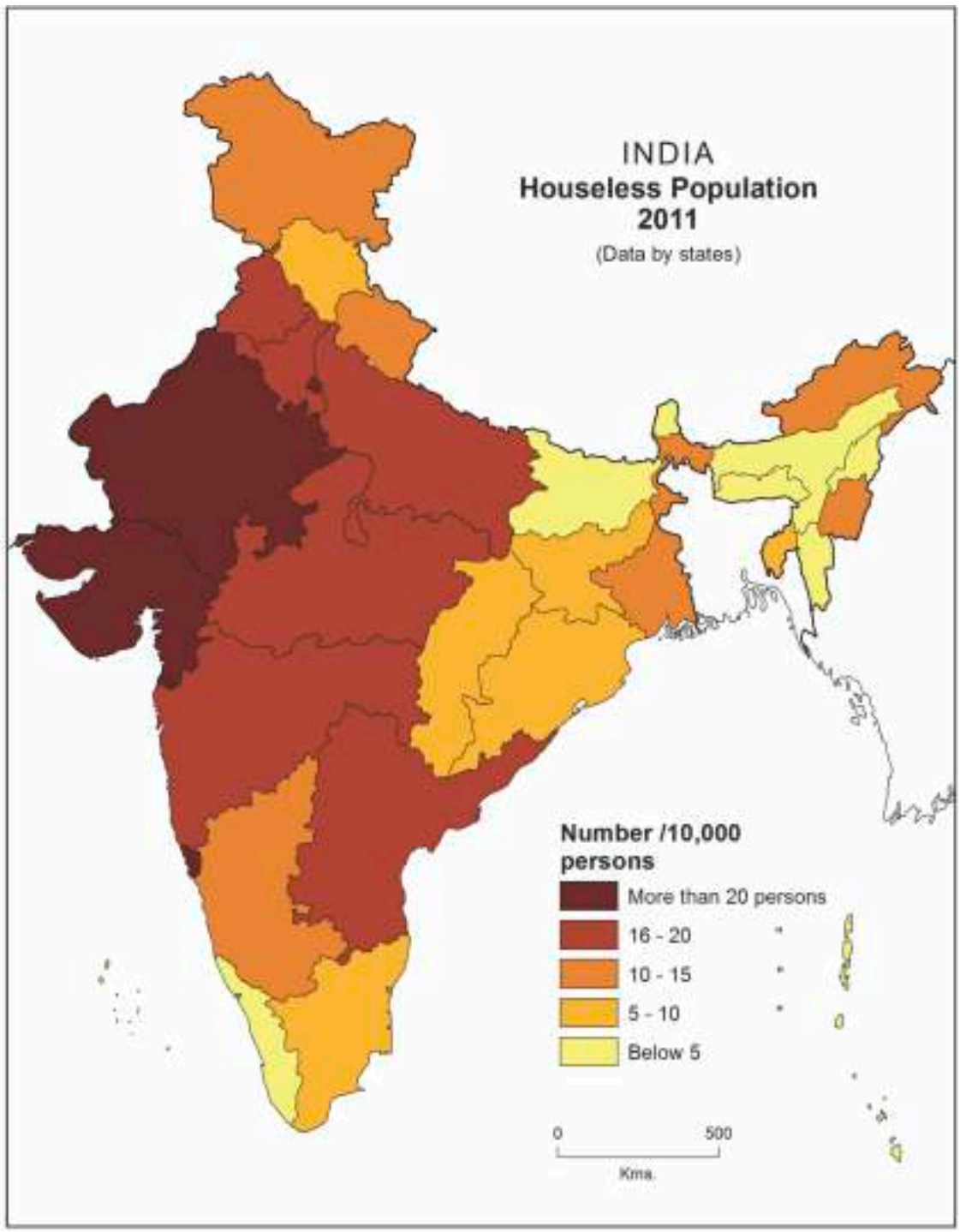
(UTs), where a high proportion of houseless population is reported, states such as Gujarat, Madhya Pradesh, Chandigarh and Maharashtra reported above 30 persons/10,000 populations in 2001. However, most of the UTs recorded a significant declined in 2011, Daman and Diu, and Dadra and Nagar Haveli reported a figure approaching 70 persons/ ten thousand population, registering a drastic decline of 30 persons within a decade (Map 1).

Although this is not very satisfying, since there is still a high ratio of homeless population in Dadra and Nagar Haveli, but the decline is a positive aspect of human development. Chandigarh and NCT of Delhi, on the other hand, recorded a higher ratio in 2011 as compared with the preceding census. A minimum of 10 persons was added in 2011 suggesting the high urbanization and migration rate in Chandigarh and NCT of Delhi. The recent situation in the metropolis is selective

Table 2
Houseless population/10,000 persons in India by States and Residence, 2001-11

States/UTs	2001			2011		
	Total	Rural	Urban	Total	Rural	Urban
India	**19**	**16**	**27**	**15**	**10**	**25**
Jammu and Kashmir	13	13	10	15	9	32
Himachal Pradesh	14	13	22	6	5	13
Punjab	19	15	28	17	16	18
Chandigarh	30	4	33	39	2	40
Uttarakhand	17	17	18	12	9	18
Haryana	28	24	39	20	17	27
NCT of Delhi	18	11	19	28	8	29
Rajasthan	25	20	42	26	21	43
Uttar Pradesh	12	8	28	16	10	41
Bihar	5	4	15	4	4	11
Sikkim	5	5	10	5	5	2
Arunachal Pradesh	4	4	4	11	12	10
Nagaland	10	8	22	4	4	6
Manipur	12	14	6	11	9	16
Mizoram	4	2	6	1	1	2
Tripura	3	3	3	9	7	14
Meghalaya	8	9	4	4	4	3
Assam	5	5	7	4	4	6
West Bengal	14	3	40	15	5	36
Jharkhand	4	3	6	7	7	9
Odisha	12	10	21	8	6	20
Chhattisgarh	14	14	15	9	9	11
Madhya Pradesh	38	38	39	20	15	33
Gujarat	44	47	38	24	17	33
Daman and Diu	68	65	72	30	24	32
Dadra and Nagar Haveli	67	74	42	29	39	17
Maharashtra	35	42	25	19	16	22
Andhra Pradesh	22	18	32	17	12	27
Karnataka	19	18	22	13	11	15
Goa	39	44	34	21	25	19
Lakshadweep	0	0	0	0	0	0
Kerala	5	4	9	4	2	5
Tamil Nadu	14	8	21	7	4	11
Puducherry	17	6	23	13	2	18
Andaman and Nicobar Islands	7	3	14	2	1	5

Source: Computed from Census of India, HH -2 Houseless Households by Household Size, for 2001 and 2011, Office of the Registrar General and Census Commissioner, Government of India, New Delhi.


INDIA
Houseless Population
2011
(Data by states)
Number /10,000
persons
More than 20 persons
16 - 20
10 - 15
5 - 10
Below 5
0
500
Kms.

Map 1

migration, which means only the skilled population is welcome, therefore the unskilled population remain homeless.

According to 2011 census, there were 10 persons/10000 population homeless in rural areas, in comparison to 25 persons in urban areas. States reporting higher ratio in rural areas included Sikkim (05), Meghalaya (04), and Dadra-Nagar Haveli (39). Apart from the UTs, Rajasthan reported the highest ratio of homeless population, especially in urban areas. This is followed by Gujarat with 24 persons, and in urban areas 33 persons. Indeed, Rajasthan and Uttar Pradesh reported a ratio of 43 and 41/10,000 populations in urban areas, respectively; closely followed by West Bengal (36). Madhya Pradesh and Gujarat also reported above 30 persons in urban areas.

According to Census of India, the largest share of total population is reported in UP, sharing 16.2 percent in 2001, slightly increasing to 16.5 percent in 2011 (Table 3). This is closely followed by Maharashtra and Bihar. On the contrary, the lowest share is reported from the Northeastern states of Sikkim and Arunachal Pradesh. The analysis therefore posed a question of whether the share of homeless population and the size of population are interrelated. Indeed, UP, the state having the largest share of population also reported the largest share of homeless population (18.6 percent in 2011). The state also registered a significant reduction between 2001 and 2011 census decades. Maharashtra, MP, Gujarat and Andhra Pradesh (AP) reporting a large base of population in India, also reported a very large number of homeless population in 2011. However, they were able to reduce the size of houseless population in 2011. However, Andhra Pradesh registered only a marginal decline: from 8.4 percent in 2001 to 8.2 percent out of total homeless in 2011. Only a small proportion of total homeless population was reported in the Northeastern states, UTs, Himachal Pradesh and Kerala. Interestingly these states and UTs are well known for their low shares in total population of India.

Factors affecting houseless population

Economy is the potential determinant for poor and homeless populations. To determine how ownership of the house, urbanization, and growth rate of population are related to variations in houseless population at the state level, a multiple linear regression analysis has been carried out (see Table 4). The explanatory variables, considered here, are percent of households having own houses, percent of population living in urban areas and annual exponential growth rate of population. Based on the R square value, the explanatory variables collectively explain 40.0 percent of the variation in houseless population. The standardized coefficient for percent of households having own houses suggests that in the presence of other variables in the analysis, its relation with houseless population is negative. Further, the percentage of urban population has the highest standardized coefficient and its direct correlation with houseless, is significant. Annual exponential growth rate of population has a significant positive impact on houseless population.

Characteristics of houseless population

In addition to analyzing the houseless population, we also computed the number of houseless households according to household size (ranging from 1 to 7 plus). The number of houseless households with single living is highest in both the census decades, which is, of course, substantially high in urban areas (Table 5). These points to the hypothetical fact that the unskilled head of the household from rural areas migrate to metropolis in search of jobs only to end up unwelcomed by the cities eventually leading to vagrancy. This is followed by houseless household with the size of four persons reporting 15.3 percent in 2001 with a slight reduction to 14.5 percent in 2011. Here, we observed a peculiar picture after classifying in rural and urban areas. In 2001, with the exception of single living and 7+ household sizes reporting more in urban areas, every other category reported more in rural areas. However, in 2011 census only the single size reported a high value of 33.8 per cent in urban areas and the rest are more in rural areas.

Table 6 deals with the social structure of houseless population, important from the angle of providing the baseline data for implementing inclusive

Table 3
India: shares (%) of total and houseless population by states, 2001-11

States/UTs	% in total Population*		% in houseless population+	
	2001	2011	2001	2011
India	**100.0**	**100.0**	**100.0**	**100.0**
Jammu and Kashmir	1.0	1.0	0.7	1.1
Himachal Pradesh	0.6	0.6	0.4	0.2
Punjab	2.4	2.3	2.4	2.6
Chandigarh	0.1	0.1	0.1	0.2
Uttarakhand	0.8	0.8	0.8	0.7
Haryana	2.1	2.1	3.1	2.9
NCT of Delhi	1.3	1.4	1.3	2.7
Rajasthan	5.5	5.7	7.4	10.2
Uttar Pradesh	16.2	16.5	10.3	18.6
Bihar	8.1	8.6	2.2	2.6
Sikkim	0.1	0.1	0.0	0.0
Arunachal Pradesh	0.1	0.1	0.0	0.1
Nagaland	0.2	0.2	0.1	0.0
Manipur	0.2	0.2	0.1	0.2
Mizoram	0.1	0.1	0.0	0.0
Tripura	0.3	0.3	0.0	0.2
Meghalaya	0.2	0.2	0.1	0.1
Assam	2.6	2.6	0.7	0.7
West Bengal	7.8	7.5	5.7	7.6
Jharkhand	2.6	2.7	0.6	1.3
Odisha	3.6	3.5	2.2	1.9
Chhattisgarh	2.0	2.1	1.5	1.4
Madhya Pradesh	5.9	6.0	11.9	8.3
Gujarat	4.9	5.0	11.4	8.1
Daman and Diu	0.0	0.0	0.1	0.0
Dadra and Nagar Haveli	0.0	0.0	0.1	0.1
Maharashtra	9.4	9.3	17.5	11.9
Andhra Pradesh	7.4	7.0	8.4	8.2
Karnataka	5.1	5.0	5.3	4.3
Goa	0.1	0.1	0.3	0.2
Lakshadweep	0.0	0.0	0.0	0.0
Kerala	3.1	2.8	0.9	0.7
Tamil Nadu	6.1	6.0	4.4	2.9
Puducherry	0.1	0.1	0.1	0.1
Andaman and Nicobar Islands	0.0	0.0	0.0	0.0

*Source: *Computed from Census of India, General Population Tables, 2001 and 2011; +Computed from Census of India, HH -2 Houseless Households by Household Size, for 2001 and 2011, Office of the Registrar General and Census Commissioner, Government of India, New Delhi.*

Table 4
India: Results of regression analysis of houseless population on key indicators: State Level Analysis

Variables	**Coefficients**	**Std. Coefficients**	**t**	**Sig.**
Constant	0.724	0.000	0.073	0.942
Percent of households owned their house	-0.020	-0.042	-0.223	0.825
Percent Urban	0.191	0.446	2.502	0.018
Annual exponential growth rate of the population	3.888	0.367	2.488	0.018

Dependent Variable: No. of houseless population (per 10,000 population), No. of Cases: 35, R: 0.630, R Square: 0.398.

Table 5
India: Percentage of houseless households and mean households size by residence, 2001-11

Number/Percent distribution/Mean	2001			2011		
	Total	Rural	Urban	Total	Rural	Urban
No. of houseless Population	1943476	1164877	778599	1773040	834692	938348
No. of houseless Households	447552	259742	187810	449787	192891	256896
1	18.1	10.0	29.3	24.6	12.5	33.8
2	12.2	13.5	10.5	11.1	12.5	10.1
3	13.8	15.9	10.9	11.9	14.4	10.1
4	15.3	17.8	11.8	14.5	17.4	12.3
5	12.8	14.7	10.2	12.3	14.9	10.3
6	9.1	10.3	7.6	9.0	10.8	7.7
7+	18.6	17.9	19.5	16.5	17.5	15.7
Mean Household size	4.3	4.5	4.1	3.9	4.3	3.7

Source: Computed from Census of India, HH -2 Houseless Households by Household Size, for 2001 and 2011, Office of the Registrar General and Census Commissioner, Government of India, New Delhi.

Table 6
India: Characteristics of Houseless population, 2001-11

Indicators	2001			2011		
	Total	Rural	Urban	Total	Rural	Urban
Sex Ratio						
Sex Ratio (Total population)	933	946	900	943	949	929
Child sex ratio (0-6 age)	927	934	907	919	923	905
Sex Ratio (Houseless population)	710	837	550	694	878	558
Sex Ratio (Houseless child population)	947	953	934	932	941	920
Literacy Rate (in %)						
Literacy rate (Total population)	64.8	58.7	79.9	73	67.8	84.1
Literacy rate (Houseless population)	27.5	24.9	31	39.2	37.1	40.8
Male Literacy (Total population)	75.3	70.7	86.3	80.9	77.2	88.8
Male Literacy (Houseless population)	34.4	33.4	35.5	44.6	44.6	44.6
Female Literacy (Total females)	53.7	46.1	72.9	64.6	57.9	79.1
Female Literacy (Houseless population)	17.1	14.5	22	30.9	38.5	33.5
Work Participation Rate (WPR) in %						
WPR (Total population)	39.1	41.7	32.3	39.8	41.8	35.3
WPR (Houseless population)	55.6	57.2	53.2	51.9	50.9	52.8
WPR (Male population)	51.7	52.1	50.6	53.3	53	53.8
WPR (Male houseless population)	62.9	62	64.1	61.3	57.6	64.1
WPR (Female population)	25.6	30.8	11.9	25.5	30	15.4
WPR (Female houseless population)	45.3	51.4	33.5	38.2	43.2	32.4
Main workers (Total population)	77.8	73.9	90.8	75.2	70.5	87.6
Main workers (Houseless population)	77.1	73.6	82.8	71.2	65.1	76.5
Marginal workers (Total population)	22.2	26.1	9.2	24.8	29.5	12.4
Marginal workers (Houseless population)	22.9	26.4	17.2	28.8	34.9	23.5
Cultivators (Total population)	31.7	40.2	3.0	24.6	33.0	2.8
Cultivator (Houseless population)	2.6	3.9	0.5	3.9	7.3	0.9
Agricultural Labourer (Total population)	26.5	33.1	4.7	30.0	39.3	5.5
Agricultural Labourer (Houseless population)	24.5	37.7	3.4	17.7	33.7	4.0
Household Industry Workers (Total population)	4.2	3.9	5.2	3.8	3.4	4.8
Household Industry Workers (Houseless population)	4.9	5.5	4.0	5.6	7.4	4.1
Other Workers (Total population)	37.6	22.8	87.1	41.6	24.3	86.9
Other Workers (Houseless population)	67.9	52.9	92.0	72.8	51.6	90.9

Source: Census of India, Primary Census Abstract for Total population and Houseless Population, for 2001 and 2011, Office of the Registrar General and Census Commissioner, Government of India, New Delhi.

policies and programs. In 2001, the sex ratio was 710 females/1000 males, dipping to 694 females/1000 males in 2011. Also according to residence i.e. rural and urban areas, we see that sex ratio is more reassuring in rural areas as compared to urban areas. Indeed, rural and urban areas have a share of 878/1000 males and 558/1000 males according to Census of India 2011. The sex ratio of houseless child population in 2001 is 947/1000 males but it further dipped to 932/1000 males in 2011. As mentioned earlier, the rural areas reported a higher figure than urban areas.

In India, literacy rate was 64.8 percent in 2001, increased to 73 percent in 2011. The rate is, however, very low among the houseless population as only 27.5 percent was literate in 2001. Rural and urban areas registered a small difference in 2011, where urban areas reported a higher literacy rate among houseless population. Male literacy rate is much higher than the female in both rural and urban areas.

The work participation rate (WPR) of houseless population is 55.6 percent with a slightly higher percentage in rural areas in 2001. However, WPR dipped to 52 percent in 2011 and with higher proportion in urban areas. With regard to male and female houseless population, males reported a higher WPR of 63 percent in 2001 compared to 45.3 percent for female houseless population. The trend remains the same for males in 2011 with higher proportion in urban areas in both the census. However, the case for female houseless population reported a declining WPR in 2011 with a higher proportion in rural areas in both the census periods.

The share of 'main workers' for total population in India is 78 percent with higher value in urban areas in 2001 census. This however slightly reduced to 75.2 percent in 2011 census. With regard to houseless population, the proportion of main workers is closely similar to the national rate with higher proportion in urban areas. The picture for marginal workers of houseless population is 23.0 percent in 2001, rising to 29 percent in 2011. Unlike the proportion of main workers, higher in urban areas, the situation is reverse with more marginal workers in rural areas. Seemingly the proportion for cultivators and agricultural labourers of houseless population is though low yet much higher in rural areas.

Discussions and Conclusions

Whereas economic consideration is the most important factor for houseless population, we also deduced the social factors leading to houseless population. Social factors such as ostracizing a family from the village due to wrong doings can end up in urban areas with no employment and shelter. In India, there were 15 houseless persons for every 10,000 population, and higher in urban areas, according to 2011 census. This means that 1.77 million or 0.15 percent of the country's total population is houseless (Jha, 2016). Promising employment opportunities in metropolis was thought of to be comforting and therefore families with no employment but to work for the landowner in rural areas compelled them to migrate to urban areas. However, the urbanization process in recent years is unwelcoming for unskilled population, resultantly staying without proper shelter and food.

As mentioned before, all the Union Territories in India reported a high ratio of houseless population. Although, there has been a significant reduction during 2001-2011, but still the trend continues. Among states, Rajasthan reported 26 houseless persons/10,000 population. This can probably be explained by the desertification process leaving them with no agricultural land. Therefore, the various urban areas in Rajasthan attract the population only to end up in such misery. Madhya Pradesh, which reported 38/10,000 population in 2001, was able to drastically reduce to 20/10,000 population in 2011. States of Gujarat and Maharashtra phenomenally reduced the proportion of houseless population from 2001 to 2011 census. The trend, if continues, will indeed wipe out the houseless population in future. Out of the total population in India, Uttar Pradesh recorded the largest population followed by Maharashtra. They are also states with large houseless population according to 2011 census. While most of the states in India reported houseless population to some extent, states such as Nagaland, Mizoram, Lakshadweep and Andaman and Nicobar Islands recorded nil in 2011 census. In contrast, with the

economic factor as the most determining variable, the Northeastern states however displayed a different picture. It is a popular perception that higher economic scale follows lower houseless population. But the Northeastern states dominated by scheduled tribes are defined with poor economy and backwardness. Therefore, if we follow the relationship, Northeast India should have the highest houseless population. But this is not so as we see a very low percent of houseless population. Urban areas such as Guwahati and Dimapur are noted with few slums along railway lines indicating the relationship between railway networks and slum population. However, the low percent of houseless population in the Northeast can be interpreted because of the low share of population in India. Notably the Northeast societal structure is egalitarian in nature and with few rail networks they are devoid of houseless population and slums. The issue of houseless population in India is rather complicated as they are closely associated with health variable, nutrition and economy. Homelessness is not simply a housing problem. It also has profound health implications (Victor, 1992). According to Ku. et al. (2010) homelessness is associated with significant morbidity and mortality and homeless patients are likely to have multiple acute and chronic health issues. According a study by Hibbs et al. (1994) age-adjusted mortality was 3.5 times higher for homeless as compared with non-homeless individuals. Homeless people often have mental illness and substance abuse issues in addition to being subjected to trauma (Heslin et al., 2007). Homeless people are often uninsured and face significant barriers to accessing health care (Kushel et al, 2001). Although various housing schemes are introduced in the country, but failed to addressed the issue especially in urban areas. Therefore, this call for inclusive policies and programs in order to completely wipe out the houseless population from the map the country in the near future.

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SPATIAL PATTERN OF SOCIO-ECONOMIC WELL-BEING IN CHHATTISGARH

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Abstract: The study examines the spatial pattern of socio-economic well-being in Chhattisgarh by using data from economic survey of Chhattisgarh (2013-14). Nine indicators including drinking water, electric light, latrine facilities, bath room, drainage connectivity for waste water, availability of separate kitchen, cooking fuel, banking services and household having each of the specified assets have been used to measure well-being in Chhattisgarh at the district level. Wellbeing index using Knox's method has been calculated for each indicators by selecting district as a study unit.

The spatial pattern of wellbeing differ widely across districts, minimum index value (8.4) for Durg district was more than 11 times less than the maximum (92) for Bijapur district. As per Knox's wellbeing index higher the index value lower the level of well-being. Five districts of Durg, Raipur, Rajnandgaon, Dhamtari and Mahasamund, well-being index value being below 30, have high level of wellbeing. On the contrary, the well-being is quite low in Gariyaband, Balrampur, Jashpur, Mungeli, Narayanpur, Sukma and Bijapur districts, having index value above 70. The social well-being in the state is greatly controlled by physical and economic factors including the relief, net sown area, and transport network.

Keywords: Well-being, Alternative spatial arrangements, Welfare approach, Human development

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Introduction

Welfare approach involves judgments among alternative structure of society. In geography, the judgments are between alternative spatial arrangements. Quality of human life concerns with efficiency in the use of resources and equity or fairness in distribution of the benefits and penalties of life. Useful knowledge promotes the creation of a just society in which the satisfaction of human needs has the top-most priority. The State in the modern world is a matter of extreme concern-particularly to the geographer

who understand something both of human frailty and of the delicacy of man's earthly environment. Increasingly, human geographers and other social scientists are reluctant to leave the fate of mankind to politicians and planners, far less to hidden hands. Now, they seek an active role in the promotion of human welfare. The welfare theme helps to clarify five basic tasks, namely description, explanation, evaluation, prescription and implementation, defining the scope of human geography.

According to Mishan (1964) theoretical welfare geography is that branch of study where a statement is made and ranks of alternative geographical states are assigned for the society on the basis of good or bad. Welfare is that branch of geography which studies the probable effects of various geographical principles in terms of wellbeing of the society (Nath, 1973). Henderson and Quandt (1958) propounded that the main objectives of welfare geography is to evaluate the social desirability of alternative geographical states. Human geography studies human wellbeing (Smith, 1977).

The subject matter of human geography is gradually changing reflecting the problems of human community. Physical health was very important in medical geography in 1962. Relevance revolution in human geography was also focused on real human problems. Level of living index has been adopted for regionalization and ranks are assigned for deriving wellbeing index which develop the study area of human geography (Gould, 1969). Both normative and positive approaches are used in the study of welfare geography.

The synonym of welfare is social welfare, standard of living, wellbeing, level of living, quality of life are drawn for presenting the demographic conditions (Coates et.al., 1977). Drewnowski (1974) revealed the difference between level of living and wellbeing. Drewnowski (1970) mentioned nine indicators, directly related to geographical differences and also classified the wellbeing index into four groups e.g. physical, nutritional level, educational level and social. These groups are further divided into several sub-groups.

Factor analysis method has been adopted by Fakhruddin (1991) to study the quality of life in Lucknow city. Adelman and Morris (1965) had picked up 25 indicators to study the political and economic development of 24 less developed countries. King (1974) used 15 indexes for evaluating the social development. Smith (1973) considered seven indicators e.g. income, health, education, entertainment , environment of living place, social level, social participation to study the social wellbeing in the United States. To study the quality of life, Koelle (1974) considered four determinants e.g. materials, physical health, mental health, and religious faith.

United Nations (1970) identified various indicators in respect of area for evaluating the levels of development and social wellbeing in different parts of the world. The degree of social wellbeing reflects the level of living, depending on other characteristics e.g. number, types, availability of qualitative and organizational facilities also. Gosal and Krishan (1984) identified the regional variations in socio-economic development of Punjab. Dube (1982) found the variations in social wellbeing among the 45 districts of Madhya Pradesh. Dube considered 11 components e.g. per capita income, availability of food, house density, doctor-population ratio, birth rate, death rate, literacy, crime, population-police ratio, bus-population ratio and voter for evaluating social wellbeing.

Data sources and methodology

This paper is based on data/information available from *Economic Survey of Chhattisgarh, 2013-14*. Nine indicators have been used for measuring the spatial pattern of social wellbeing in Chhattisgarh. Knox's (1975) method has been used for measuring socio-economic wellbeing at the district level in Chhattisgarh. Ranking method has been used for ranking 27 districts in the state on

each of the nine components. First rank is given to the highest percent and last rank is assigned to the lowest percent. Thereafter, ranks of all components are added to divide by total numbers of components for each districts. Then, the result is calculated in percentage to infer the wellbeing of a particular district. It should be mentioned that the low index value indicates to high level wellbeing and the vice versa. Socio-economic wellbeing of each district has been measured as follows-

$Ij = (\sum Rj/NC)\ 100$

Where, **Ij** = socio-economic wellbeing index, $\sum$**Rj** = sum of nine components' rank in each district, **N** = number of components, and **C** = number of districts.

The weightage is assigned to above mentioned variables in relation to the standards or averages of respective variables by using social well-being index devised by Knox. The method enabled us to identify inter-district differences in levels of social well-being. The weightage thus assigned to the individual variable is added up to arrive at the composite index value of social well-being.

The study area

Chhattisgarh, formed as the 26th state of the Indian Union November 1, 2000, holds 11th and 17th positions in area and population, respectively. It has a geographical area of 135,194 sq.km2 and population 25.54 million, giving a population density of 189 persons/sq. km. Chhattisgarh state experienced 22.6 percent decadal growth during 2001-11. It is a less urbanized state, where more than three-fourths (76.8 percent) of total population resides in rural area. Roughly one-third (30.6 per cent) of its population belongs to scheduled tribes and another more than one-tenth (12.8 percent) to scheduled castes. In other words, more than two-fifths of its population belongs to deprived sections of Indian society. In 2011, effective literacy rate was 74.04 percent (7 years and above), and the sex ratio of 991 females per 1000 males.

Objectives of the study

The objectives of the present study are to: –

1. Study inter-district differentials in socio-economic in Chhattisgarh, and
2. Identify the factors responsible for spatial variations in socio-economic wellbeing at the district level.

Components of socio-economic well-being

For a very long time, economists have been using the income as the principal indicator for measuring the social well-being. Such a perception changed significantly following the Human Development Report of 1990, published the United Nations Development Programme (UNDP). The report highlighted the importance of healthy and long life, access to knowledge and education, and resources required to enjoy a reasonable standard of living. In this context, longevity of life, education, and material well-being became important dimensions, and the debate shifted from material well-being to human development.

In this light, the present study has taken the following nine components indicative of household level facilities to measure the socio-economic well-being at the district level in Chhattisgarh state. These included:-

1. Main source of drinking water.
2. Main source of lighting.
3. Availability of latrine facility.
4. Availability of bathing Facility.
5. Drainage connectivity type for wastewater outlet
6. Availability of separate kitchen.
7. Types of fuel used for cooking.
8. Availability of banking services.
9. Households having each of the specified assets.

(i) Drinking water sources

In Chhattisgarh, the majority of households (58.7 per cent) use hand pump for drinking water. Tap water is used by only about one–fifth (20.7 per

cent) of the households, another one-tenth or 11.4 per cent households using well and remaining 7.2 per cent tube-well, as the source of drinking water. Further, drinking water facility is available to only 19.0 per cent households within the premises, hence the majority households (54.5 per cent) using it from nearby. Remaining more than one-fourth (26.5 per cent) households have to travel to some distant to avail drinking water. Only in urban areas of Raipur and Durg districts more than two-fifths of households have tap water supply facility: Raipur (40.4 per cent), and Durg (48.8 per cent).

(ii) Lighting sources

In three-fourths (75.3 per cent) households of Chhattisgarh, electricity is the main source of light. However, its use varied from a high of 93.9 per cent households in Raipur to only 24.8 per cent in Bijapur district. Nearly one-fourth (23.2 per cent) households in the state use kerosene for lighting. However, the share of such households is 67.9 per cent in Balrampur, 62.9 per cent in Sukma, and 66.2 per cent in Bijapur districts. Against this, the share of such households is only 6.6 per cent Durg and 5.5 per cent in Raipur district.

(iii) Availability of latrine facility

One-fourth households (24.6 per cent) in Chhattisgarh have latrine facility within the premises. Remaining three-fourth households (75.4 per cent) defecate in open or use public latrines.

(iv) Availability of bathing facility

Only about one-seventh households (14.8 per cent) have the bathing facility in Chhattisgarh. Of these, one-third households have the bathrooms without roof. However, there are wide inter-district disparity on this count. While 44.2 per cent households in Durg district have bathroom facility, such households were less than 10.0 per cent in Balrampur, Mungeli, Gariyaband, Kondagaon, Bemetara and Jashpur districts.

(v) Drainage connectivity type for waste water outlet

On average, less than one-fourth (24.2 per cent) households in Chhattisgarh have the drainage facility for waste water outlet. Only a small share (5.3 per cent) of such households have covered drainage connectivity for waste water outlet, and other 18.9 per cent having the open drainage facility. There are, however, wide inter-district disparity in this context. The covered drainage facility share ranged from a high of 20.4 per cent in Durg district to only about 1.0 per cent in Raipur district.

(vi) Availability of separate kitchen

The majority of household (56.0 per cent) in Chhattisgarh have a separate kitchen to cook food. Another two-fifths or 40.7 per cent households cook food within the living room. Kondagaon district in the state has the maximum percentage of households (81.8 per cent) separate kitchen facility.

(vii) Type of cooking fuel

The wood is the most common fuel used for cooking food in Chhattisgarh state. More than eight of each ten households (80.8 per cent) use this source in the state. However, there are wide disparities within the state on this count. More than nine of each ten households depend on fuel wood in Balrampur, Bijapur, Gariyaband, Jashpur, Kondagaon, Narayanpur, Sukma and Kanker districts. In all such districts, dense forests are available, facilitating the use of wood as cooking fuel with ease. However, the cost is degradation of forest cover and environment pollution. However, its use as cooking fuel is as low as only 37.1 per cent in Durg district.

Use of LPG gas for cooking is limited to only 11.2 per cent households in Chhattisgarh. In districts such as Durg and Raipur, more than 30.0 per cent households use LPG gas for cooking. However, 19.0 per cent households in Durg district use coal (lignite) for cooking. This is highest share in any district of the state. Korba is another district, where 10.4 per cent households use lignite coal.

(viii) Availability of banking services

Nearly 49.0 households in Chhattisgarh use banking services. In Koriya district, the share of such households is as high as 70.2 per cent.

Rajnandgaon, Balod, Kabirdham and Surajpur are other districts, where more than 60.0 per cent households use banking facility. On the other side of the scale, less than 30.0 per cent households in Sukma, Bijapur, Naryanpur and Janjgir Champa districts use this facility.

(ix) Households having each of the Specified assets

In Chhattisgarh, about one-third (31.3 per cent) households have the television, 30.3 per cent households communicate through either mobile or land phone or both, and only 4.6 per cent households have computer/laptop facility. Of course, there are wide inter-district differentials on these counts. While more than three-fifths households in Durg and Raipur districts have television, the share of such households was less than one-tenth in Balrampur, Sukma, and Bijapur districts. Similarly, the majority of households in Raipur and Durg districts use mobile or land line phones, against this only one-tenth households have this facility Bijapur district. 12.0 per cent households of Durg district use computer/laptop against only 6.0 per cent in Bilaspur district.

In Chhattisgarh, more than 61.0 per cent households use cycle for transportation, and 15.6 per cent scooter/motor cycle. The percentage of households having scooter/motor cycle is 35.3 per cent in Durg and 31.1 per cent in Raipur district. Against this, less than 5.0 per cent households have this facility in Sukma district.

Levels of socio-economic well-being at district level

In the following, an attempt has been made to present the composite picture of socio-economic well-being in Chhattisgarh on the basis of the nine indicators briefly discussed earlier. The value of composite index of socio-economic well-being varies widely among the districts of Chhattisgarh. Among 27 districts in the state, the index value ranged from a high of 92 for Bijapur district to a low of only 8.4 for Durg district. As already stated in the methodology part, higher the index value means lower level of socio-economic well-being. In other words, in relative terms, Durg district has the highest level of socio-economic well-being the state, while the reverse is true for Bijapur district. Based on the composite index value of socio-economic well-being, the 27 districts in the state have been classified into the following four categories:

1. Areas of high well-being (Index value < 30).
2. Areas of medium well-being (Index value between 30 and 50).
3. Areas of low well-being (Index value between 50 and 70).
4. Areas of very low well-being (Index value > 70).

Areas of high well-being

In Chhattisgarh, five districts, having index value of less than 30, fall in the category of high well-being. These districts included Durg (8.4), Raipur (13.6), Rajnandgaon (24.7), Damtari (25.7) and Bilaspur (28.2). Locationally, these are in the central part of the state, known as Chhattisgarh plain. It is characterized by fertile soils and good transport connectivity. This part is densely populated, having population density of more than 260 persons/km2. Literacy rate is also high. The level of household income is also high here, giving a boost to purchasing power of the households in this region.

Areas of moderate well-being

Another seven districts in the state, well-being index value ranging between 30 and 49.9, fall in moderate category of socio-economic well-being. These included Balod (31.1), Koriya (31.5), Korba (33.5), Surguja (43.6), Surajpur (44.9), Bastar (47.1) and Kanker (46.9) districts. Locationally, such districts are located either in northern or south-central parts of the state. In general, the size of landholdings is large, but the terrain is rough, hence agricultural productivity is low in comparison to central part. In a way, 12 or more than two-fifths of the districts in the state have high or moderate level of socio-economic well-being.

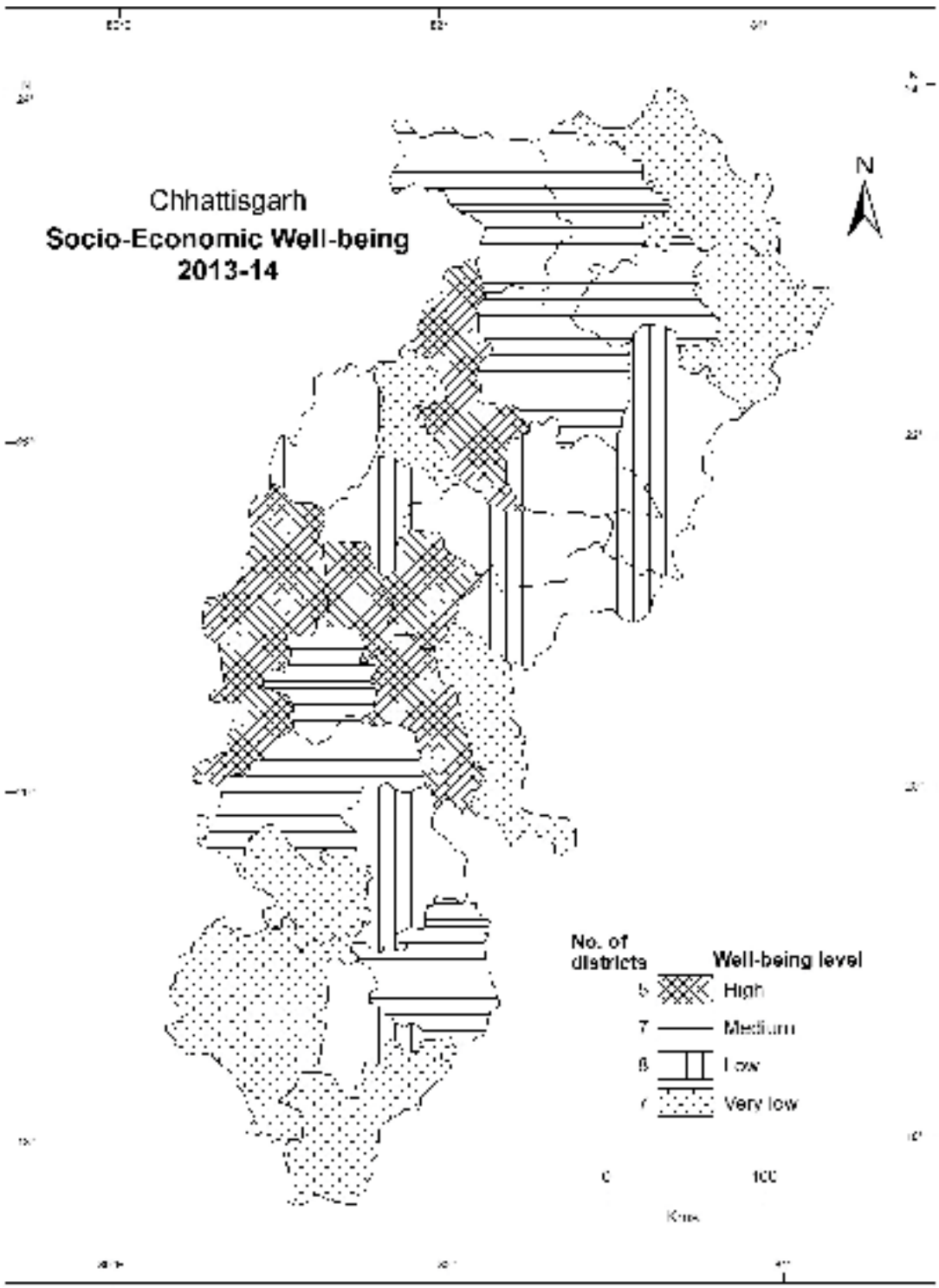
Chhattisgarh
Socio-Economic Well-being
2013-14
N
No. of districts
Well-being level
5 High
7 Medium
8 Low
Very low
100

Fig. 1

Areas of low well-being

In eight districts, index value between 50 and 69.9, socio-economic well-being is low. These districts are Dantewada (50.0), Raigarh (51.0), Mahasamund (55.1), Janjgir-Champa (59.3), Kabirdham (61.3), Balodabazar, Bemetara (63.4) and Kondagaon (66.0). Most of these districts are located in the central part adjoining to the districts having high level of socio-economic well-being. The two of such districts were located in southern part of the state, adjoining to the districts falling under low level of socio-economic well-being.

Areas of very low well-being

The remaining seven districts, having index value of more than 70, are categorized as the areas of very low socio-economic wellbeing. Such districts included Gariyaband, Balrampur, Jashpur, Mungeli, Narayanpur, Sukma and Bijapur. A majority of such districts have peripheral location in northern and southern parts of the state. These districts are characterized forested area, tribal population, undulating terrain, and low density of population.

Conclusions

In the newly organized state of Chhattisgarh, formed in 2000 on the basis of economic backwardness and tribal identity, pattern of socio-economic well-being differ widely at the sub-regional level. In the central part of the state, known as Chhattisgarh plain, the level of socio-economic well-being is high. This area is surrounded by the areas of low level of socio-economic well-being, giving a contrasting picture.

Areas having very low level of socio-economic well-being have peripheral location either in the northern or southern parts of the state. Such areas are characterized by undulating topography, dense forests, tribal population and low density of population. On the whole, a large majority of districts (15 of 27 districts in the state), have low to very low level of socio-economic well-being. In contrast, less than one-fifth or five districts have high level of socio-economic well-being. The biggest challenge before the planners and the policy-makers in the state is not only to reduce the existing wide gap in level of socio-economic well-being at the sub-regional level but also to fasten the growth of socio-economic well-being in the state as a whole.

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IMPACT OF MONETARY REFORM ON PUBLIC SERVICES AND POPULATION IN HUNGARY

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Abstract: In today's globalised world the intensification of the territorial differences requires an ever bigger intervention on behalf of the nation states. In this connection, regarding practice and growing demands, the provision of a single service-like public services and public administration at an adequate level (education, health care, communal, travel, etc.) required an increased governmental engagement.

The paper undertake an examination of the district level supply of public services in Hungary, in terms of the impact of it on competitiveness based on cross-section data series, with indicators chosen from public services.

Keywords: Public services, Territorial competiveness, Economic backwardness, Settlement system, Dependency ratio

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Theoretical framework

Nowadays the capital exposure of a national economy may have a strongly negative effect not only on the corporate sector, but also on the other sectors and the citizens. The frequency of social and economic threats stemming from economic exposure is growing fast now as a result of repeatedly unfolding crises, acceleration of money market transactions and the decline in the market actors' reaction time. On the other side of the scale, the prospects of long term expansion and the conditions of economic stability are getting narrower. The lack of stability and predictability results in a setback to investments in the economic sector, while decreasing the consumption propensity of the population. It pushes back economic growth and decreases competitiveness. When measuring the competitiveness of national economies it is important to keep in mind that it is widely measured by Gross Domestic Product (GDP). However, this is to be understood that GDP calculation include neither the flow-like variables, nor the enterprises employing less than 10 workers (Van den Bergh, 2009). This punishes heavily the national economies dominated by the small rural settlements in the settlement structure.

Moreover, when we rank the regions' competitiveness, it is worth examining the

available resources with a country from different angles. Considering that the notion has a multi-level interpretation, therefore when interpreting competitiveness of different countries individually the following factors must be examined: (i) indicators showing the efforts made to improve the society and world economic position; and (ii) the goods and services produced, along with the dynamics occurring at the market of production factors.

At the international level, we find an asymmetric dependency, based on the geographical factors, goods and value structure of international trade and the division of labour. Inequality stemming from these factors is shadowed further by the volume of investment capital, the state of national currency, innovativeness and the multitude of factors related to property rights and transfer issues. In order to let the national economic aspects prevail more efficiently, disciplines' functions of the state's social engagement, exerting its effect via social sciences, must root in the common ground of the fiscal (budgetary) and the monetary regulatory activity (Lentner, 2015).

Lentner points out in his model that political science, interpreted as part of fiscal[1] and monetary policy[2], is being shaped within the framework of jurisprudence and economics. The elaboration of the applied public finance procedures and the legal environment regulating the national budget is based on the aforementioned framework. The model groups the state budget into monetary policy, while local government structure into fiscal policy, depending on their operational and legal frameworks. Depending on its objectives, a government can adjust the extent of decentralisation via the lower pillars of the model. According to this, the aims of fiscal policy are realised through the local governmental structure while monetary policy effects via the central bank, moving by way of the financial management of the budgetary bodies.

The high level of government debt interest rates hampers the financing capability of the public sector, generating social disadvantage via the quality of public services, since it restricts the reproduction of resident population reflected in healthcare and the training level of labour force via education. Considering that government securities market has an impact on entrepreneur credit market (Lentner, 2004), in case of an unfavourable scenario in the international tendencies, the interest rate hits the investments negatively, as direct effect of the development of the mainly knowledge-intensive industries.

Link between the social and the territorial competitiveness

In the post-socialist countries the industrial structure altered with the change in regimes; and the losers of the economic transition, measured in social terms, formed the stigmatic foci in such countries. These foci distort the economic and (thus) social structure of the different areas, creating serious foci of inequality. It can be said that the economic and social rehabilitation of the bastions of socialist industrialisation poses a serious challenge for the former bloc members. These bastions within these countries–as foci of inequality–blunt the economic performance of other regions and reproduce underdog status among the resident population (Lengyel, 2016). Considering the infrastructural and demographic situation of the concerned regions it is visible that the problem cannot be resolved by seeking solutions that are merely economic in nature. In these regions the State intervention is more justifiable in order to prevent emigration from the younger layers of the resident population (Horňak,

1 Fiscal policy, a component of State's economic policy, consists of tax policies, the management of public expenditures and government debt. The basic aim of fiscal policy is to restrict the cyclical effects of economic life. Furthermore, it aims to keep unemployment on an appropriate level, to generate extra demand during crises to fill the gaps in general demand.

2 Monetary policy, a branch of economic policy, tries to influence economic processes by controlling the amount of money within the economy. Monetary policies are carried out by national banks.

Pšenka and Križan, 2013). The leaders of the settlements can achieve this through the programs aiming at the activation of endogenous resources.

Considering a close association between regional competitiveness and innovations, (Varga, 2005) and the fact that the underdeveloped regions can exploit the soft factors of the regional capital potential[3] for their own advantage, greater focus must be placed on programs aimed at the activation of the resident population. The financial economist also draws attention to the importance of the balance of internal resources, and mentions the quality criteria of human resources and education as the basic factor of competitiveness (Lentner, 2016). According to the author, the guarantee of competitiveness lies in the convergence aims guaranteeing stability, and in the improvement of the actual state of skilled workforce.

One of the most fundamental competitiveness factors is public education (Kovács, 2007; Lentner, 2004) which together with medium and high level education shapes the value set, thus launching a catalyst in social processes that creates the motivation to cooperate. These become the foundations of awareness forms in a society, with palpable manifestations in both institutional and individual levels. Changes in the reproduction of social processes that increase efficiency occur along five types of consciousness categories (Kovács, 2007).

- With value-conscious and single-minded operation, the proper priorities are assigned to the goals;
- Method-consciousness divides the aims, assigning proper instruments and programs to them, and supervises the operative areas connected to the organizations, paralleling the extent of financing;
- Ability-consciousness activates aims appropriate to the them, and incorporates these aims into the tasks awaiting realization;
- Resource-consciousness synchronises capital requirement with the available resource, helping thrifty management to prevail on a higher level; and
- While environmental consciousness utilizes the environmental assets of the contributing partners and of the sites of implementation, and as such, it is able to unite all the techniques, abilities and resources of activity as the basis of efficient activity.

Considering the above mentioned consciousness categories, it is visible that the government's supreme task is to rebound competitiveness in regions with different determinations within each nation state, by ensuring the efficient and complex system of conditions of the human and real infrastructure.

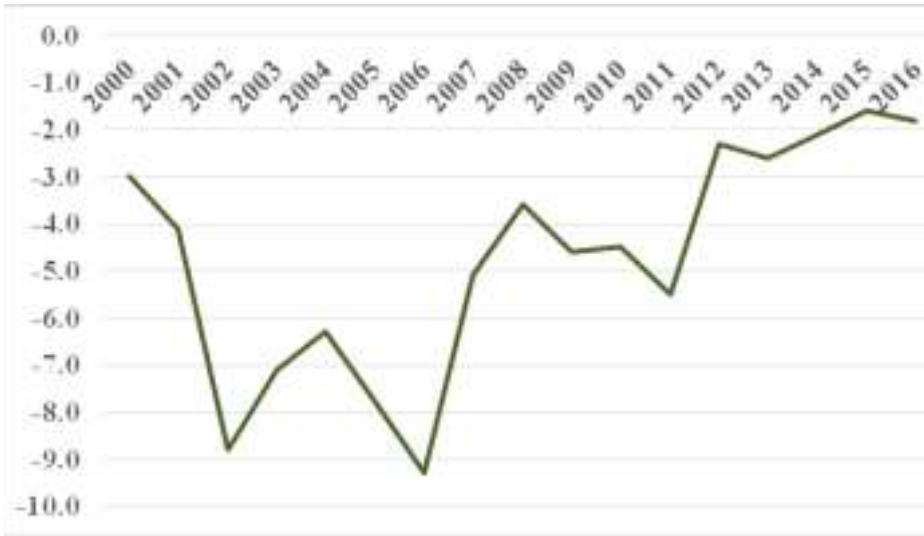
In this procedure, it is important to note that the responsibility of the State is not merely an economic regulative or an ownership aspect, but to act as the actor that strengthens social cohesion to guarantee sustainable social growth with the help of its institutional structure. Thus the state contributes to the increase of the potential of inner resources. The views of macroeconomists and spatial economists on competitiveness point in the same direction. The different elements of the competitiveness interpreted and measured on a national level are created by the aggregation of micro-level results. Its bases are created on the local economic level.

Labour market determinants are emphatic factors from the viewpoint of competitiveness and economic potential. These are directly and indirectly influenced by the State (Palotai, 2016). According to him, the quality and quantity of human capital stock are important factors of economic competitiveness and convergence. Health care[4] and education, serving the resident

3 Territorial capital potential means the capital attracting ability, which has soft factors, like fiscal and material instruments, and hard factors, like geographical and social determinations.

4 Directly by establishing GP service or preventively (for example establishing sporting opportunities)

Fig.1: Balance of the government budget compared to the GDP (%)



Source: Hungarian Central Statistical Office, 2018

population via state subsidy, are organically related to this; and are also important obligations to be fulfilled.

In the post-crisis era, Hungary not only met the criterion of 3.0 per cent deficit-to-GDP ratio, but also created the budget balance in a sustainable way, establishing the basis of structural reforms.

As a result, the following tendency was brought about in the economy (see Fig. 1), generated by the reduction of tax burdens on labour and the increase in the volume of investments.

Solvent demand appearing in consumption gave another boost to the economy. This was the basis of an economic policy vision that put the focus of the Hungarian economic policy on growth induced by expanding employment.

The reform of the banking system played a crucial role in creating stability. As a result, the practice of the previously applied loose monetary policy came to an end, and the altered legal environment limiting the greed of the banks. The financial market gap was filled and the volume of investments was maintained by preferential loans with the State guarantee.

The connection between public services and territorial competitiveness

Researches focusing on public goods describe their specific themes investigation on the basis of a neo-classical economic concept, categorizing the goods by the right of use (Samuelson-Nordhaus, 2012; Gyuris 2014). Accordingly, there are rivalling and non-rivalling categories of public goods. The chances of gaining a share for a public good are not restricted by an upper limit. However, this category has also a part, mainly related to infrastructure, to be preserved properly by the State.

In case of the rivalling public goods, consumption has a limit that excludes the chance of equal access. For example, in the case of health care or public education systems several scientific studies also point out that this directly influences the competitiveness of the resident population (Horváth, Palotai, Lentner; 2016). The other group of rivalling public goods is the category of club goods, imposing certain conditions on the opportunity to consume. These are the types of goods mainly related to facilities with high maintenance costs, their consumption being

somehow rewarded. The precondition of their use is the payment of a service fee. About the working of the latter two categories let us conclude that, keeping in view the regional differentiation in distribution of population residing in different areas within a country, the chances of an access to supply are influenced by geographical factors, as well. It is important, therefore, while redistributing and maintaining public goods there is a need to keep in mind the fact that the residents of different regions do not access public goods equally, because their environments and financial resources determine their consumption opportunities. For example, one who does not have a car, cannot use public roads in the same volume as those, who own cars.

The system of public services in the concept system of government budget and state finances is a category, considered to be a special actor of the economy. As such, a publicly funded organization operates[5] according to strict legal prescriptions, and its economic importance is high as well, since it centralises and redistributes a significant share of the goods produced by the actors of economy. Considering its public power status, the regulation, the control, the income withdrawal and its service function, it is able to influence economy. Thanks to these attributes, it affects competitiveness and the well-being of the resident population.

The role of State's commitment (public services) is important in reducing territorial differences as well, because territorial competitiveness at certain levels of territorial integration is interpretable when we match the territorial potentials' existence with the so called endogenous resources. Territorial competition "is a process that takes place between territorial units with the aim of increasing the well-being of those living in the region and in the cities by fostering the development of regional and local economy. Certain groups try to influence this development via local policies, explicitly or implicitly, when competing with other groups" (Lengyel, 2003).

The definition and above discussed relations show that the extent of state engagement decisively influences (via public services) the competitiveness of a resident population living in the territories of the same nation state.

After the latest global economic crisis, deepening of the interdependency between economic actors and the resident population has made amply clear the crisis neoliberalism created in the domestic environment. Since domestic economy was extremely exposed to foreign working capital, the local economy collapsed, and economic demand declined, followed by the decrease of household demand, while in parallel the unemployment indicators were on the rise. The reality of the nation states and their actually existing ability to foster the development of national economies in certain circumstances have intensified the progressive researchers' opinions opposing pure neoliberal market solutions. Both the two main trends of critical remarks (Polányi and Keynes) assumed that the most of main aims of economic development can be considered as given. Growth and stability are basically brought forth by the satisfaction of infrastructural, cultural and welfare needs, the reduction of illness and poverty, and environmental sustainability. Neoliberalism cannot achieve these goals in practice because of its false theory on the functioning of markets. In the post-World-War-II period, the Keynesian development policy seemed established, but when it faced with the low-key growth of the 60s and 70s leading to the renewed international competition and the rebellion of marginalised masses, it failed to provide the right answers. This affirms the necessity and the raison d'etre of an economic policy based on the national economies' internal

5 *2011. évi CXCV. törvény az államháztartásról (Act of Public Finances)*
2011. évi CXCIV. törvény Magyarország gazdasági stabilitásáról (Act on the Economic Stability of Hungary)
2011. évi CLXXXIX. törvény Magyarország helyi önkormányzatairól (Act on Local Government in Hungary)
2011. évi LXVI. törvény az Állami Számvevőszékről (Act on the State Audit Official)
2013. évi CXXXIX. törvény a Magyar Nemzeti Bankról (The National Bank of Hungary Act)

resources.

Looking at the economic growth we see that the growth itself and the ability of productivity is fundamentally influenced by availability of the real assets (natural resources, accessibility of infrastructure), the amount and quality of accessible human capital, the applied technologies and management principles, and the social capital and institutional structure in the regions under reference. In view of all this, we can say that the determination of the economic life is the trap of social capital (Cséfalvay et. al., 2009). According to Cséfalvay et. al. social capital lays down the foundations of knowledge, technology and management ability, influencing the quantity and quality of real and human capital. This results in the ability of income production examined in a given region. The interacting factors exert their strong and weak effects synergistically on the life of the population living in a region. Thus, the low level of social capital creates weak communities, which in turn brings the opportunity of individual lobbying to the fore. As a result the resident population feels the society unjust. This attitude weakens the social capital further. One of the finest example of this is the accessibility to the territorial public services (public transport, health care, schools).

The spatial concentrates theory stems from a novel economic view stating that technological and economic external impacts occur not merely on international or national level, but also on agglomeration level through local processes. In short, they concentrate the potentials, geographically.

The decline in investments can also be observed in the modes of action of consolidation efforts made during previous periods. This is equivalent with the failure of adjusting attempts (Matolcsy, 2015). In order to reduce the general government deficit, a significant amount of state investments was cancelled, partially resulting in a tendency of decline in households' investment volume. The lack of investments and the decline in consumption caused the loss of income, resulting in decline in employment opportunities and deterioration of productivity in the labour market.

Impact of socio-economic indicators, State aid and institutional system on territorial differentiation

The space determined by geo-economic and socio-economic features is affected by local and global economic, demographic and other social tendencies, different governmental and EU programmes[6], along with laws and measures. Assessment of the complex impact all these is not possible in this paper, since its examination requires more qualitative and quantitative analysis using different methodologies.

The method of main components and factor analysis chosen by us is justified by the fact that it concentrates the meaning of the district-level indicators available in a sufficiently large number, thus making it interpretable, and organizes the district population into quality groups (clusters), along with mapping, to make it informative and transparent. In our case (see Szabó-Kovács, 2018) it is also an advantage because in an earlier study, we used the similar method on settlement-level data. The findings of that very study have been incorporated in this analysis also. As a result, we are able to make a comparison between the spatial development features of the two territorial levels. This applies to the 2015 cross-sectional analysis.

However, the disadvantage of the method used here lies in difficulty to study the temporal change, mainly because of the fact that the variables used in studies conducted in 2007 and 2015, are similar but not identical. Furthermore, through the cluster with rather abstract meaning, belonging to the "factors" compacting the variables with concentrated meaning, only the change in the

6 Programs realized from the EU development funds

relative positions of districts can be defined, concerning the two periods, but does not interpret the "natural" change in the unit of indicators.

Cross-sectional examination of 2015 district-level data

As mentioned in the preceding paragraph, we conducted a district level for 2015 on the similar pattern as we did earlier for 2007, with the main objective of comparing the position of Hungarian settlements with each other at two points of time. It had an advantage of starting out from the availability of public services at the given settlement, and to depict the settlements' "socio-economic microclimate", highlighting the significant differences that might have occurred in living standards even at the level of the small territories. Moreover, the neighbourhood in a narrow sense, may generate conspicuous differences via its assets among the different sub-parts of a given settlement, and may also exercise real influence on the lives of local residents. With this methodology, however, we have ignored the inter-settlement and regional contacts and their potentials. Unfortunately, only a few indicators were available to represent the dimensions of accessibility and availability.

However, in case of organizing public services there is always a need to expediently assign the different functions to the appropriate territorial levels. It should be considered what additional costs the people have to pay if they desire to avail a service located at a higher order of settlement hierarchy. Organizing public services in a broader sense locally – with the inclusion of local organizations – may activate the resources of the population (Reisz, 2005). On the other hand, when assigning the service to a lower order settlement, the factors such as maintenance cost, additional costs brought forth due to the lack of economies of scale, or the different service qualities as well (Balázs, 2005). As a result, certain functions may be worth organizing on district or regional level with ensuring appropriate coordination and availability; keeping in view the notion of networks between settlements (Faragó, 2005).

Several local governments consider as an acceptable norm that the local government, as the maintainer of an institution, covers the difference between the actual purchase cost of operating an institution and the state subsidies, and, in parallel, the local authority, that is the beneficiary in terms of the service is not obliged to pay contribution after its own beneficiaries. Obviously it is impossible to build solid supply systems on this platform.

Considering the lives and prospects of more mobile individuals and families with better opportunities, not necessarily in the given settlement, but provided by a settlement in the close vicinity are taken into account after they decide to live a place, especially in a broader region. For example, some individuals or families live and work in two different but nearby settlements. Such a situation plays a vitally important role to determine their living standards and opportunities. Based on our experiences from previously done settlement-level cluster analysis, we expected methodological advantages from the district-level examination: certain dummy variables become high-level ones after aggregating them at the district level, suitable to incorporate in the analysis. Indicator such as percentage of settlements connected with railway stations is an example of such kind (Sajtos-Mitev, 2007). On this territorial level, public services calculated in terms of per one hundred or thousand persons to use as an indicator no longer distort the picture, as they did in the case of settlements with the extremely low population, and in general, every kind of unique, outstanding value becomes less misleading through the use of average district-level data.

Data sources and methodology

While choosing and formulating measures that reflects Hungarian socio-economic features and the accessibility to public services, as correctly as possible, we started out from a database that includes 475 indicators, published by the

Table 1
Variables incorporated in the main component analysis, 2015

Main component	Indicator
I. Poverty	Total migration margin (in, 000 person)
	No. of abortions per year/1000 persons
	No. of disadvantaged primary school pupils/1000 persons
	No. of disadvantaged children in kindergartens/1000 persons
	Housing subsidies/100 persons
	Beneficiaries of active employment policy subsidies/100 persons
	No. of the unemployed receiving benefits/100 persons
	No. of persons receiving subsidy replacing employment/100 persons
	No. of persons receiving kindergarten subsidy/100 persons
	No. of persons receiving regular child protection subsidy/100 persons
	No. of cumulatively disadvantageous children/1000 persons
	No. of registered jobseekers/100 persons
	No. of job seekers for more than 180 days/100 persons
	No. of unemployed with at least primary education/100 persons
	No. of unemployed with at least secondary education/100 persons
	No. of unemployed blue collar workers/100 persons
	No. of entrant unemployed/100 persons
	No. of internet subscriptions/100 persons
	Percentage of flats connected to the sewage system
	Number of cars/100 persons
	Income stemming from employment relationship per capita (HUF)
	Amount of PIT per capita (HUF)
	Gross added value per capita (thousand HUF)
	No. of registered enterprises employing at least 10 persons/1000 persons
	No. of operating joint ventures/1000 persons
	No. of registered enterprises employing at least 500 persons/1000 persons
II. Rate of minors and their education	Natural reproduction/demographic loss (in, 000)
	Percentage of 0-14 years old in total population
	Percentage of 65+ years old in total population
	Kindergarten capacity/1000 persons
	No. of pupils in primary education/1000 population
	Dwelling stock/ 100 persons (pieces)
	Percentage of pensioners
	Retirement homes capacity/1000 persons
III. Secondary and tertiary education and other intermediate and high level functions	No. of vocational school students/1000 persons
	No. of secondary vocational school students/1000 persons
	No. of high school students/100 persons
	No. of tertiary education students/1000 persons
	No. of secondary school students living in dormitory/1000 persons
	No. of commuting secondary school students/1000 persons
	No. of commuting vocational school students/1000 persons
	No. of retail and vehicle shops/1000 persons
IV. Human and physical infrastructure	No. of commuting primary school students/1000 persons
	Percentage of settlements provided with mobile postal service
	No. of telephone trunk lines/1000 persons
	Percentage of settlements having railway station
	No. of municipal libraries/1000 persons
	No. of community houses/1000 persons
	No. of general practitioners/1000 persons
V. elderly and their provision	Recipients of social catering (in, 000)
	Recipients of home assistance (in, 000)
	Capacity of daytime institutions for elderly/1000 persons
	Elderly recipients of daytime care/1000 persons
	No. of employed in social primary care/1000 persons

Source: Authors

Hungarian Central Statistical Office (KSH) and by the *National Spatial Development and Planning Information System* (TEIR), has been used to calculate district-level ratios. During this process, mostly we used projected figures for population numbers, but in case of some specific population groups, size of territory and availability of institutions, number of settlements constituting a district were pressed into service. Based on preliminary knowledge and on the deviation of the data series we did not examine several variables (since the significantly less item goes only with significantly lesser number of indicators in the factor and main component analysis), but we considered it important to keep the most vital indicators within the main categories (e.g. demography; education; social care/situation; unemployment; infrastructure/transport; economy/enterprises; culture, health care; care for the elderly: see Table 1) referring to public services and the state of the economy and the society. Thus, initially the dimension reducing main component analysis was run with 92 indicators in the SPSS software.

The reason behind the selection of district as a study unit was that several public services cannot be provided at the level of each and every settlements, and in practice more neighbouring settlements often constitute a single spatial unit in case several services. Thus, many phenomena or data are not interpretable on the micro-level settlements. Though districts did not exist in 2007, but were there the sub-regions constituted LAU-1 level according to the NUTS system. But the KSH data are available to be queried retrospectively in the present settlement system, or with the list of district settlements we can place older data in the present administrative structure. In 2007, the term "district" refers to this.

Budapest district, the national capital city located it, was excluded from the district level analysis for the outstanding values in different indicators. Thus, the examination included the data of 174 countryside districts (or in 2007 the union of settlements, equivalent to a district). The reason behind the selection of 2007 and 2015 for data analysis in the present study is that the latter is the latest year having published KSH data, and 2007 is a sufficiently, but not too distant a period for comparative analysis, because it preceded the new act on local governments, the New Széchenyi Plan – Új Széchenyi Terv, Kálmán Széll Plan – Széll Kálmán Terv and Zoltán Magyary Programme – Magyary Zoltán Program.

After run of the main component analysis, we got 5 factors (main components) instead of the previously defined 8 categories (see Table 2: (i) Poverty– 26 indicators; (ii) Rate of minors and their education – 8 indicators; (iii) Secondary and tertiary education and other intermediate and high level functions–8 indicators; (iv) Human and physical infrastructure–7 indicators; (v) elderly and their provision–5 indicators), also providing an easily interpretable structure (Figs 2 & 3). Having the improperly fitting variables assorted (Lukovics – Kovács, 2008), and the indicators that cannot be clearly defined in terms of the main component they belong to (Székelyi – Barna,

Table 2
The control of the 2015 cluster analysis by one-way analysis of variance

Main component	Cluster		Error		F value	Significance
	Variance	Degree of freedom	Variance	Degree of freedom		
I. Poverty	26.94	3	0.54	170	49.68	0
II. Percentage of minors and their education	13.37	3	0.78	170	17.10	0
III. Secondary and tertiary education and other intermediate and high level functions	8.05	3	0.88	170	9.19	0
IV. Human and physical infrastructure	32.22	3	0.45	170	71.76	0
V. Elderly and their provision	30.24	3	0.48	170	62.47	0

Source: Authors own edit with SPSS

2002), altogether 54 relevant indicators constitute the newly formed factors.

While grouping the newly created main components (Table 1) with the help of K-Means cluster analysis (Obádovics, 2009) we get four clearly distinct groups. During this process, clusters are separated from each other the most at the factor of human and physical infrastructure, but care for the elderly and the main component (Table 2) termed as "poverty" also have a very important distinguishing effect (high F value). The latter includes several social aid and other types of indicators (with negative sign) referring to the strength of the economy and the most important indicators of unemployment.

The Results

In a slight simplified way, the established clusters can be interpreted as four groups organized by their economic power and development. In addition, the age structure of the population has also a strong impact.

Based on the comparison of the five-dimension cluster centres defined by the main components compressing the indicators (Table 3), it is visible that in case of cluster 1, can simply be termed as "Rich districts in favourable position", the "Poverty" factor representing high unemployment, significant level of State aid and weak economy has the lowest value (Table 4). The "Elderly and their provision" main component, on one hand connected with providing state aid, on the other hand with age structure, shows the second lowest value, referring to a favourable age structure, income position and living standard. Accordingly, the "percentage of minors and their education" factor also has the highest value, the two data referring to a healthy age structure. The "Human and physical infrastructure" dimension also shows the second most favourable value at this cluster. However, values reached along with

Table 3
Four clusters in the five-dimension space – final cluster centres (2015)

Main components	Cluster N°			
	1	2	3	4
I. Poverty	-1.02	0.38	0.40	0.63
II. Percentage of minors and their education	0.54	-0.55	-0.02	0.33
III. Secondary and tertiary education and other intermediate and high level functions	-0.21	0.43	-0.59	-0.19
IV. Human and physical infrastructure	-0.06	-0.31	1.91	-0.58
V. Elderly and their provision	-0.27	-0.43	-0.12	1.57

Source: own edit with SPSS

Table 4
Summary of the cluster analysis (2015)

Cluster	No. of districts	Public services, infrastructure	Social and economic features
1. Rich districts in favourable position	53	Well provided with human and physical infrastructure	Strong economy, lowest level of unemployment and state aid, favourable age structure
2. Relatively wealthy districts	69	Presence of relatively many (sub)central functions	Moderately strong economy, few youngsters in average, extent of state aid is not high
3. Rather poor, village-like districts	22	Few institutions performing (sub)central tasks, but proper infrastructure	Rather poor economy; relatively higher rate of both younger and older generation
4. Poor, peripherally located districts	30	Relatively few institutions performing (sub) central tasks, poor infrastructure	Poor economy, high unemployment, social disadvantages, elderly & children overrepresented

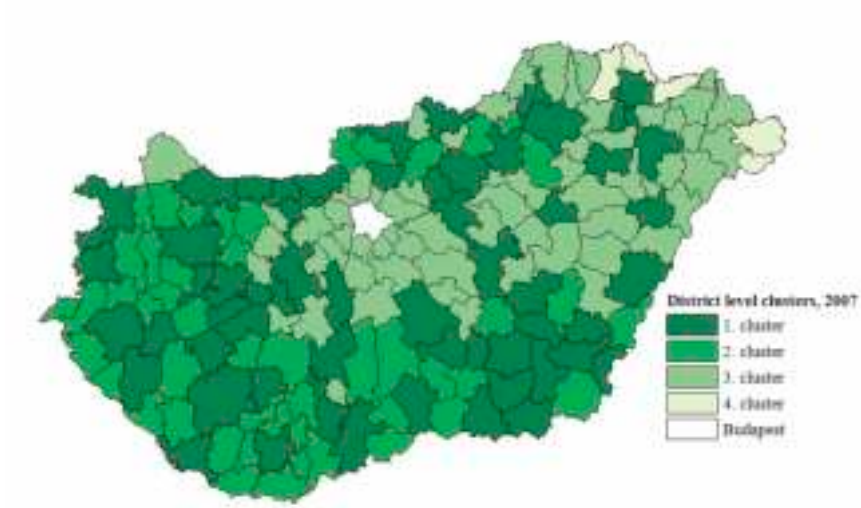
Source: Authors calculation

the factor related to secondary and tertiary education and other intermediate and high level functions are not outstanding considering the related districts. 53 districts, making about one-third (30.5 per cent) of all the districts with 3.05 million population, were incorporated into the cluster. These included Győr, Szombathely, Székesfehérvár, almost the entire Győr-Budapest axis, Gödöllő, and districts containing the Budapest agglomeration, Kecskemét, Tiszkécske and Nagykáta districts, which developed fast in recent times. These form almost one big interconnected territorial unit in the north-western part of the country, except for the five districts (see Fig. 2). The settlement structure of the territory is varied. Some of the districts are located in the vicinity of a city or a town, others are agglomeration districts and still others have tiny villages. Csorna district is the example of the last.

Territorial units falling in cluster, relatively wealthy districts, are mainly located in southeast of the territories including in the cluster 1. These included Pécs, Kaposvár, Kiskőrös, Szentes, Karcag, Miskolc, and Hatvan districts. The majority of districts located in Bács-Kiskun and Jász-Nagykun-Szolnok counties, which are the relatively developed, fall in this group. In all, 69 districts with a total population of 3.67 million persons fall in this. Their common feature is that component 1, referring to the strength of economy and the extent of social provision, shows a moderate value on the national level. However, the underrepresentation of the young generations is unfavourable; not coinciding with the relative overrepresentation of the elderly. On the contrary, the shares of secondary education centres along with that of lower and medium level task performing centres are quite high in these districts, confirming the role of small and medium sized towns in service provision.

In socio-economic terms, 22 districts with their 0.4 million residents included in cluster 3 ("Rather poor, village-like districts") are significantly lagging behind those mentioned above. All are having (e.g. Sellye, Bóly, Encs, Edelény Letenye districts) either peripheral location (in northern, southern, and western Vas county border area), or fall in the inner periphery (e.g. Marcali, Tab districts). Although the variables included in the main component and cluster analysis did not

Fig. 1: The cluster structure of the Hungarian districts (2007)



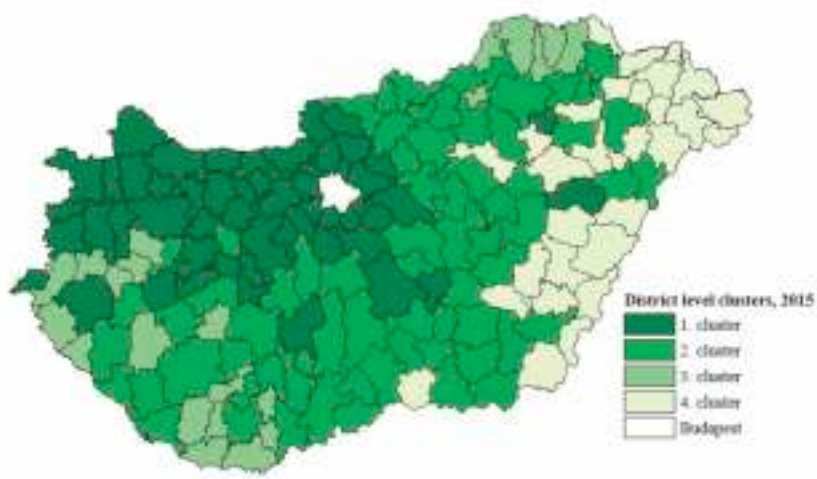
Source: Prepared on an examination of KSH (2016, 2017) and TEIR (2017) data

directly include the settlement size of the districts or data referring to settlement structure, this cluster obviously incorporates territories with small to very small sized villages. From the employment, economy and means-tested points of view, the settlements of this group are in a worse condition in comparison to those in cluster 2. The relative high rate of dependency due to the age-structure contributes to this; the presence of people under the age of 15 and over the age of 65 is relatively high. The overrepresentation of the young population is linking with strong presence of the Roma population, the share of such population is higher than the national average here. Due to the settlement structure the presence of institutions performing low and medium level tasks is the lowest here. However, it is partly countervailed by relatively high value on the factor of human and physical infrastructure.

Cluster 4, 'poor districts with peripheral location', is a mix of regions having settlement structure of tiny to big villages. However, the location being a common feature in them, they are located in the eastern part of the country alongside the border-designating thus an interconnected territorial unit (Fig. 2). 30 districts belong to this cluster with a total population with 0.92 million persons. Important ones included the Sátoraljaújhely, Fehérgyarmat, Derecske or the Csenger districts. Factors such as economic backwardness, social deprivation and high dependency ration, as attributed in case of cluster 3, are more accurately application in their case. Even the relative improved infrastructure failed to help these poor and peripherally located districts. Only the factor of institutions performing (sub) central functions registered a higher value that the areas included in the cluster 3. In fact, cluster 4 contains regions with big villages of the lowland, where these functions are present for their size.

Figure 2 mapping the location of the clusters reveals that the geographic proximity, the area size and the economic unit of space higher than the district level are conspicuous. However, we have not incorporated any spatial or temporal distance indicator into our analysis. Nonetheless, districts close to each other are typically on a similar level of development. This may refer to the diffusion of development, knowledge or the mobility of the residents as well, but perhaps it is mainly because of the fact that factors describing welfare and strength of the economy had a bigger role to play in

Fig 2: The cluster structure of the Hungarian districts (2015)



Source: Based on an examination of KSH (2016, 2017) and TEIR (2017) data

defining the clusters than the indicators of institutional provision (more related to settlements and small area size of units) in the analysis. According to this model, this regional development differentiates the Hungarian districts more than the settlement structure or other features of the districts. Unfortunately, in the map the east-west slope is conspicuous, which is based on the available indicators describing the state of the economy and the society the most markedly.

Returning to one of the original objective of the present study i.e. examination of the effects of the government's development measures using the data series of for 2007 and 2015, we could perform the appropriate cluster and main component analysis on the data for 2007 to make it comparable with the present district level (Fig. 3, Tables 1, 5 and 7).

Despite several constraints, our examination led to 5 main components and 4 factors similar to analysis for 2015, but with a surprisingly different result and spatial pattern. Considering the number of districts the most conspicuous difference is that in 2007 only 5 districts belonged to the most disadvantageous fourth cluster, while this number was 30 in 2015. In addition, the number of districts belonging to the second most poor, village-like third cluster has decreased from 62 to 22, partly at the expense of cluster 2 (Wealthy, but less urban). The number of districts in the most favourable position (together with the number of attached settlements and their populations) has also decreased marginally on the expenses of cluster 2 (Tables 5 and 7).

The mapping of results of the 2007 cluster analysis proves the restructuring more than the aggregated results (Fig.3). Though the west-east difference can be observed on this map, it is not only difference between the locations of district clusters, but also districts organized around cities (and sub-regions) have a rather bigger role. For example, Pécs, Szeged and Miskolc districts were transferred to cluster 1 (most favourable position), which is not a surprise. This partly highlights the disadvantage of the examination method. Those variables which are not available, or have already fallen out, were mostly left out from the "Poverty" main component, left out with only 19 variables in place of 26 in 2015. The examination did not replace, for example, the indicators, which were not available previously for data collection reasons. In case of the other main components these rates were much more favourable (Table 6), and this probably contributed to the fact that in the repeated main component analysis on the data of 2007, the central and sub-central urban functions had a significantly bigger role than the overall welfare of the society and the economy's regional performances. (The marked change in the F values reveals this, on the expense of the "Poverty" factor, but on the advantage of secondary and tertiary educational and other centres and functions.)

Still, if we attach importance to the difference between the two samples examined and their temporal development despite the fault, then we should see that since 2007, districts with smaller population sizes can be grouped into the poor or rather considered to be the part of the poor clusters (Table 5) and that (perhaps due to development of mobility) the economic drive of the given region rather than counting the functions of the nearby towns. These findings however must be handled with utmost care.

Territorial inequalities constantly characterize the history of the Hungarian nation (Buday-Sántha, 2011; Nemes-Nagy, 2013). As a result, lagging regions cannot prevail in all aspects on the EU market and in certain aspects their contribution to economic value creation is limited, negatively affecting the Hungarian national economy.

If examined historically, we can say that territorial, social welfare and economic inequalities reorganized at the time of political-economic regime change, and as a result of the alternation of political courses. This reorganization was typically caused by the change and partly the devastation of the industrial structure, and later on the outsourcing of the public services. This procedure resulted in economic and social development at certain fields, while at other fields

Table 5
Comparison of the results of 2015 and 2017 cluster analysis

Cluster	No. of districts		Total No. of settlements in the districts		Total population (in,000 persons)	
	2007	2015	2007	2015	2007	2015
1. Rich districts in favourable position	58	53	1177	973	4364	3054
2. Relatively wealthy districts	49	69	1100	1128	1254	3671
3. Rather poor, village-like districts	62	22	750	651	2614	403
4. Poor, peripherally located districts	5	30	127	402	110	942

Source: Based on authors calculations

Table 6
The control of the 2007 cluster analysis by one-way analysis of variance

Main component	Cluster		Error		F value	Significance
	Variance	Degree of freedom	Variance	Degree of freedom		
I. Poverty	8.48	3	0.87	170	9.77	0
II. Rate of minors and their education	18.94	3	0.68	170	27.72	0
III. Secondary and tertiary education and other intermediate and high level functions	32.96	3	0.44	170	75.58	0
IV. Human and physical infrastructure	18.83	3	0.69	170	27.47	0
V. Elderly and their provision	28.49	3	0.52	170	55.33	0

Source: Own edit with SPSS

Table 7
Four clusters in the five-dimension space – final cluster centres (2007)

Main components	Cluster N^{o}			
	1	2	3	4
I. Poverty	-0.34	-0.17	0.34	1.41
II. Rate of minors and their education	-0.19	-0.70	0.68	0.67
III. Secondary and tertiary education and other intermediate and high level functions	1.06	-0.61	-0.50	0.00
IV. Human and physical infrastructure	-0.15	0.82	-0.57	0.67
V. Elderly and their provision	0.04	-0.04	-0.32	3.97

Source: Own edit with SPSS

it worked adversely. However the starting point of this is economy, its manifesto is the resident population's welfare, but as the results of the cross-sectional examination show, the long term multiplier effect – in the demographic, social or economic segment – still lasts. This effect (irrespective of it being positive or negative) is strengthened by the resident population's provision with public services.

Main findings

The state moved from the previously operating caring style public services towards the management approach, based on the increase of the economic performance and the wages. As a result public goods in the economic category of the public services are produced as club goods at more and more places. Economies of scale have come to the fore, driven by the economic effectiveness, which heads public services for the lowest unit cost. This poses a double danger: on one hand it is adversely selective – threatening with destructive results both in health care and education; on the other hand it endangers peripheral districts with further lagging and depopulation (Faragó, 2016). Tense territorial differences disrupt social cohesion and national identity, which can affect social consciousness to an extent of affecting the conditions of existence. The direct losers of this are the concerned region's resident population, but the whole society can be the indirect loser.

The stability of the state is primarily defined by the extent of its operation and the applicable public administration tools. The result of the cluster analysis and the thematic maps point out that in case of the mainly north-eastern region and those with small villages there is causal correlation between the level of public services and territorial competitiveness. The dysfunction of the former one results in adverse selection impacting the competitiveness of the territories and the resident population negatively.

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SLOWING DOWN OF GROWTH RATE OF SIKH POPULATION IN INDIA

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One startling revelation of the 2011 Census of India was the staggering recent fall in growth rate of the Sikh population in India. An increase from 19.22 million in 2001 to 20.83 million in 2011 yielded a growth rate of only 8.42 per cent in their case, considerably below their estimated natural increase rate of around 12.0 per cent during the decade. It was half of 17.72 per cent growth rate of India's total population. As a result, share of the Sikhs in country's total population came down to 1.72 per cent in 2011 from 1.87 per cent in 2001. Moreover such a slow growth rate was typical not only of their home state of Punjab but also of other parts of India; the two rates being 9.68 per cent and 4.42 per cent, respectively

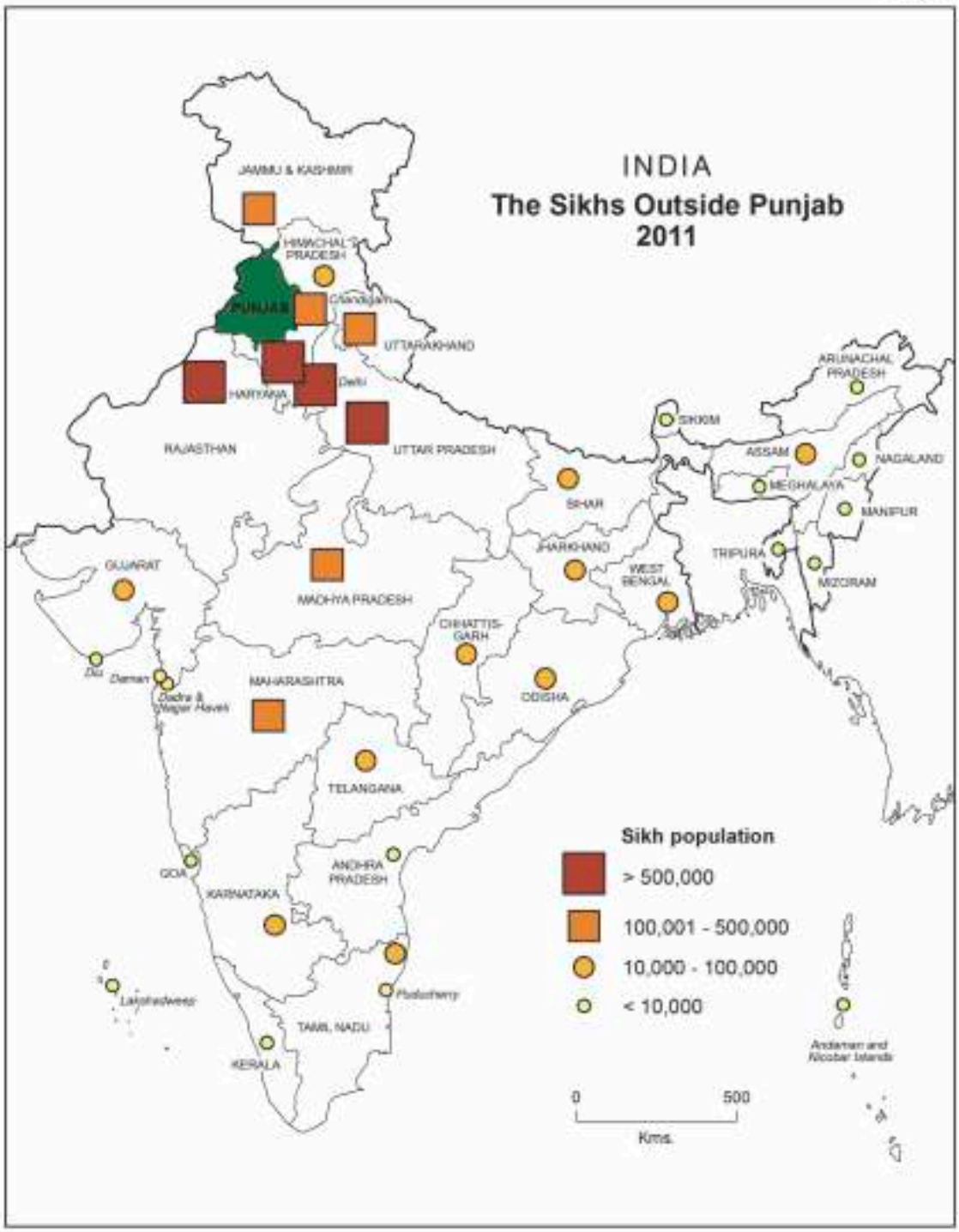
Table 1 shows that during a span of half-a-century covering 1961-2011, the Sikh population in India had increased from 7.85 million to 20.83 million. This represented a 2.65 fold numerical increase. The corresponding rise in their case in Punjab was from 6.18 million to 16 million, giving a factor of 2.59 times. Meanwhile the Sikh population outside Punjab in India recorded an increase from 1.67 million to 4.83 million, resulting in 2.89 times rise. This was an outcome of a somewhat higher incidence of net migration of the Sikhs from Punjab to other parts of India. Nearly one-fourth of the Sikh population in India resides outside their home state (Map1)..

Table 1
Number and growth rate of the Sikh population in India, Punjab and Rest of India, 1961-2011

Census year	Growth rate	India	Punjab	Rest of India	Sikh population outside Punjab (in%)
		Number in million and growth rate in percentage			
1961		**7.85**	**6.18**	**1.67**	**21.25**
	1961-71	32.30	32.08	33.11	
1971		**10.38**	**8.16**	**2.22**	**21.38**
	1971-81	26.14	24.99	30.37	
1981		**13.09**	**10.20**	**2.89**	**22.10**
	1981-91	25.44	25.19	26.34	
1991		**16.42**	**12.77**	**3.65**	**22.25**
	1991-2001	17.01	14.29	26.52	
2001		**19.22**	**14.59**	**4.63**	**24.06**
	2001-11	8.42	9.68	4.83	
2011		**20.83**	**16.00**	**4.83**	**23.18**

Source: Adapted from J.K. Bajaj (2015). Centre for Policy Studies, New Delhi.

Map 1


INDIA
The Sikhs Outside Punjab
2011
JAMMU & KASHMIR
HIMACHAL PRADESH
PUNJAB
Chandigarh
UTTARAKHAND
HARYANA
Delhi
RAJASTHAN
UTTAR PRADESH
BIHAR
SIKKIM
ARUNACHAL PRADESH
ASSAM
NAGALAND
MEGHALAYA
MANIPUR
TRIPURA
MIZORAM
JHARKHAND
WEST BENGAL
GUJARAT
MADHYA PRADESH
CHHATTIS-GARH
ODISHA
Diu
Daman
Dadra & Nagar Haveli
MAHARASHTRA
TELANGANA
GOA
ANDHRA PRADESH
KARNATAKA
Lakshadweep
Puducherry
TAMIL NADU
KERALA
Andaman and Nicobar Islands
Sikh population
> 500,000
100,001 - 500,000
10,000 - 100,000
< 10,000
0
500
Kms.

A phase of a distinct fall in growth rate of the Sikh population in both India and Punjab started in 1991 (Table 1). This is primarily attributed to a decline in their Total Fertility Rate (TFR), defined as 'average number of children a woman would bear during her life time if the prevailing birth trends continue'. It had come down from 3.1 in 1991 to a below replacement level of 1.8 in 2011. This rate of Punjab is now comparable to that of Kerala.

The decade 2001-11, in particular, is noted for a sharp drop in this respect. This is accounted for by mainly two factors: a continuing sliding down of the TFR and an enhanced pace of emigration to other countries. While declining TFR marked a demographic transition, the rising emigration to countries like Canada, the United States, Australia, and New Zealand represented a frantic search for lucrative employment opportunities abroad. The rather liberalized immigration policies of these counties facilitated this process. In addition, some emigration was directed toward European countries like the United Kingdom, Italy, France, and Germany. In this connection, information made available by the NSSO Report, published in 2010, does not come as a surprise. It mentions that 25.0 per cent households in rural Punjab and 15.0 per cent in urban Punjab had at least one emigrant member abroad.

Meanwhile percentage of the Sikh population outside Punjab in India, steadily rising during 1961-2001, experienced decline during 2001-11. The respective figures were 21.25 in 1961, 24.06 in 2001, and 23.18 in 2011. Since growth rate of the Sikh population was low both within and outside Punjab during 2001-11, one could not assume any significant return Sikh migration to Punjab from other parts of India. Emigration emerges as the major explanatory candidate.

Table 2 is a testimony to a widespread slowing down of growth rate of the Sikh population in most parts of India. Such a tendency was noticeable particularly in Punjab's neighbouring states of Haryana, Rajasthan, Himachal Pradesh, Jammu and Kashmir, and Uttarakhand (Map2). A number of states in the North-East Region also showed a similar trend. Rather Uttar Pradesh, Assam, and Maharashtra were noted for an absolute decrease in the number of the Sikhs. Such a situation warrants a special field investigation. Some of these states were, of course, a scene of anti-Sikh riots in 1984. By contrast, all the south Indian states, and the western Indian states of Gujarat and Goa recorded a rapid increase in the number of the Sikhs, particularly in cities like Bangalore, Hyderabad, Chennai, and Ahmadabad. The numbers involved were, of course, not very large.

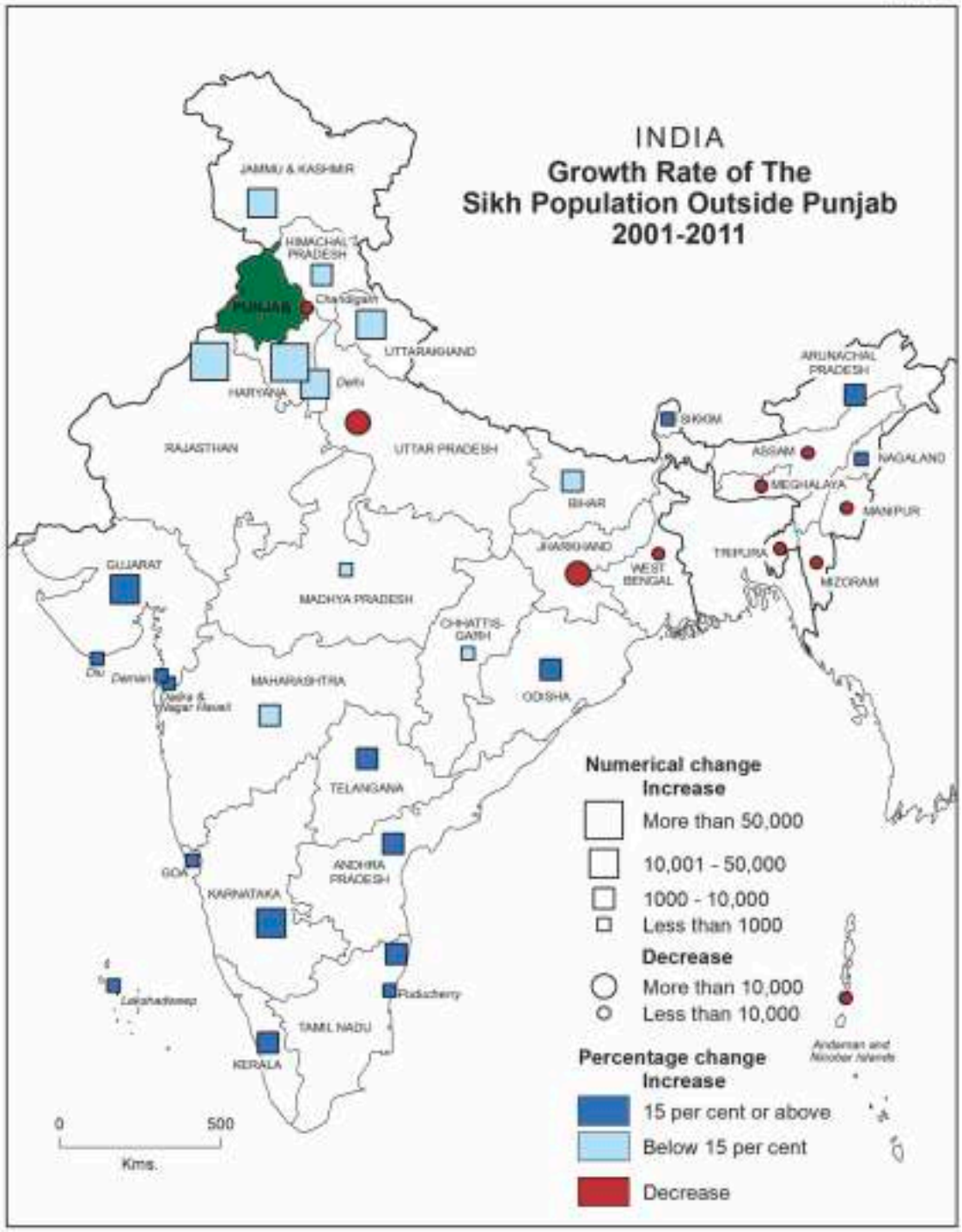
In sum, a significant decline in TFR and sizeable emigration from both within and outside Punjab emerge as the two inter-connected key factors, accounting for the recent fall in growth rate of the Sikh population. The emigration on a large number of the young had its implications for the TFR. Lack of aspirational employment opportunities at home for the educated and skilled youth, coupled with willingness and affordability of their parents to bear the expenses of their emigration, propelled this process of emigration. The role of any possible conversion of the Sikhs to other religions, such as Christianity, is difficult to contemplate and requires substantiation by evidence.

Table 2
India: Growth rate of Sikh population by states/union territories, 2001-11

State/ Union Territory	Population in 2011	Population in 2001	Change	Percentage change
Punjab	16004754	14592387	1412367	9.68
Haryana	1243752	1170662	73090	6.24
Rajasthan	872930	818420	54510	6.66
Uttar Pradesh	643500	678059	-34559	-5.1
NCT of Delhi	570581	555602	14979	2.7
Uttarakhand	236340	212025	24315	11.47
Jammu and Kashmir	234848	207154	27694	13.37
Maharashtra	223247	215337	7910	3.67
Madhya Pradesh	151412	150772	640	0.42
Chandigarh	138329	145175	-6846	-4.72
Himachal Pradesh	79896	72355	7541	10.42
Jharkhand	71422	83358	-11936	-14.32
Chhattisgarh	70036	69621	415	0.6
West Bengal	63523	66391	-2868	-4.32
Gujarat	58246	45587	12659	27.77
Telangana	30340	23821	6519	27.37
Karnataka	28773	15326	13447	87.74
Bihar	23779	20780	2999	14.43
Odisha	21991	17492	4499	25.72
Assam	20672	22519	-1847	-8.2
Tamil Nadu	14601	9545	5056	52.97
Andhra Pradesh	9904	7177	2727	38
Kerala	3814	2762	1052	38.09
Arunachal Pradesh	3287	1865	1422	76.25
Meghalaya	3045	3110	-65	-2.09
Nagaland	1890	1152	738	64.06
Sikkim	1868	1176	692	58.84
Manipur	1527	1653	-126	-7.62
Goa	1473	970	503	51.86
Andaman and Nicobar Islands	1286	1587	-301	-18.97
Tripura	1070	1182	-112	-9.48
Puducherry	297	108	189	175
Mizoram	286	326	-40	-12.27
Dadra and Nagar Haveli	217	123	94	76.42
Daman and Diu	172	145	27	18.62
Lakshadweep	8	6	2	33.33
INDIA	**20833116**	**19215730**	**1617386**	**8.42**

Source: Census of India 2001 and 2011. The states/union territories are listed in descending order of their Sikh population.

Map 2


INDIA
Growth Rate of The
Sikh Population Outside Punjab
2001-2011
JAMMU & KASHMIR
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Delhi
RAJASTHAN
UTTAR PRADESH
BIHAR
SIKKIM
ARUNACHAL PRADESH
ASSAM
NAGALAND
MEGHALAYA
MANIPUR
TRIPURA
MIZORAM
JHARKHAND
WEST BENGAL
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ODISHA
MAHARASHTRA
Diu
Daman
Dadra & Nagar Haveli
TELANGANA
ANDHRA PRADESH
GOA
KARNATAKA
Lakshadweep
Puducherry
TAMIL NADU
KERALA
Andaman and Nicobar Islands
0
500
Kms.
Numerical change
Increase
More than 50,000
10,001 - 50,000
1000 - 10,000
Less than 1000
Decrease
More than 10,000
Less than 10,000
Percentage change
Increase
15 per cent or above
Below 15 per cent
Decrease

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BOOK REVIEW

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Sikhs and Sikh Institutions in Pakistan by Dr. Manjit Singh Sidhu. (Publisher-Singh Brothers, Amritsar; pages 168; maps 2; sketch 1; photo plates 6; Price: Rs.395/-).

It is interesting to know, how the author of the book under review, Dr. Manjit Singh Sidhu, who is a former Professor of Geography, University of Malaysia, Malaysia and specialising in Population Geography, got interested in study of the Sikhs and Sikh shrines left behind in Pakistan after the partition of the Indian sub-continent, on communal lines, between the two dominions of India and Pakistan in 1947.

Dr. Sidhu, a Malaysian Sikh with roots in India, graduated from Government College, Ludhiana and then completed his Masters in Geography from the Panjab University, Chandigarh. He received his doctoral research degree from the University of Liverpool, Liverpool (UK) before returning back to Malaysia for a teaching assignment. Following his retirement as Professor of Geography from a Malaysian University, he keeps on visiting India to meet his friends and relatives. Also, he has been visiting Pakistan to pay his homage to Nankana Sahib, the birth place of Guru Nanak Dev and other Sikh shrines during the last fifteen years. During one of such visits to Pakistan, Dr. Sidhu accidentally met with the two top officials of Delhi Gurudwara *Parbandhak* (Management) Committee at Nankana Sahib Gurudwara. During the interaction, these officials got impressed by Dr. Sidhu's already published books on **Sikhs in Malaysia** and **Sikhs in Thailand**; hence asked him to conduct a similar kind of work on Sikhs in Afghanistan. Dr. Sidhu was frank enough to convey them that he being a retired teacher now does have enough resources to invest in such kind of a venture. To this, the two officials assured him of financial help from the Delhi Gurudwara *Parbandhak* (Management) Committee. Later on, when Dr. Sidhu met them at their Delhi office they suggested that he must work on Sikhs in Pakistan and reassured of sponsorship. But within no time they back out of their commitment. In the meantime, Dr. Sidhu had made some headway in the direction of collecting material on such a study, hence decided to go ahead with meagre resources in his personal kitty. He accepted it as a challenge as well as a commitment owing to his firm faith in Sikhism and Sikh traditions. Of course, a few good souls came forward to help him as the work progressed.

Briefly, the present work is an outcome of Dr. Sidhu's devotion and hard work spanning over the last 17 years between 2000 and 2017, when he kept on visiting Pakistan annually at least for a month every year to meet and interact with the members of the Sikh community living there. During visits, he used to stay in Sikh Gurudwaras. He could even established good contacts with the Sikh families, getting converted to the Islam.

Organized in four chapters, the study is mainly based on primary sources of information/data. On this side of the border, Dr. Sidhu conducted the detailed and lengthy interviews with fifteen individuals (now 80-plus in age), who were born in

west Punjab (now in Pakistan) but migrated to east Punjab (now in India), Jammu and Kashmir and Delhi after the partition in 1947. On the other side of the border, he took help of a questionnaire to collect information, and interviewed 50 individuals during January and February of 2014. For tracing historical development especially those pertaining to colonial rule in India, he scanned through the existing literature like books and government reports and documents. In the first chapter entitled 'Sikhs in Pakistan', he traced the emergence and growth of the Sikh colonies in Pakistan starting from the sixteenth century to present day in well summed up concise details followed by a reproduction of fifteen interviews, which he hold with those migrating to India after partition. What difficulties they faced, how and where they got settled and earned livelihood during the initial period of partition have been discussed in a simple and lucid manner, getting pathetic and tearful at places.

In the 2nd chapter entitled 'characteristics of Sikhs in Pakistan', which is based on information collected through a questionnaire along with that of interviews with the fifty individual Sikhs living now in Pakistan, and may be called Pakistani nationals. The author discussed about their birth place, spoken language, number of children born, age at marriage, marriage traditions, divorce practices, income level, foreign visits, and the desired place to spent remaining part of life. Quite interestingly, dominant majority marry in close relatives families and more than four-fifths would like to stay for the remaining part of their life in Pakistan and that too at Nankana Sahib, the birth place of the first Sikh Guru, Guru Nanak Dev. The second part of this chapter discusses general living conditions of Sikhs in Pakistan churned out of the interviews, the author had with the fifty Sikhs living in Pakistan. This part of the book makes an interesting reading and learning lessons from their life-time experiences.

The 3rd chapter devoted to Sikh Gurudwaras and other monuments in Pakistan does make not only an interesting reading but also looks like the inner soul of entire work. The author focuses the discussions on the location, religious importance, management system, available facilities and present condition of these Gurudwaras and Monuments. The chapter contains beautiful coloured pictures of eight such Gurudwaras and Monuments. In the end of this chapter, the author states that Sikhs in Pakistan makes a tiny minority of ten thousand persons, only a handful of them are well-educated and politically connected but none representing the community in the Pakistani Parliament. It is the goodwill and the generosity of the Government of Pakistan and Auqaf Board, responsible for managing the large properties attached to historical Gurudwaras in Pakistan, that the historic Sikh Gurudwaras in Pakistan are open for not only the local Sikhs but also the Sikhs spread all over the world including India. In his assessment, many of these monuments need urgent repairs, otherwise will soon disappear and many already at the verge of collapse (p.154).

In the 4th and final chapter of the book, where the author makes a retrospection combined with an assessment of the prospects, which the Sikh community have in Pakistan, finds that notwithstanding the glorious past, the future does not look bright. Since the total number of the Sikh community in Pakistan is quite small, scattered in different places and lacking organization and articulation as the Christians have in Pakistan, the Sikhs are likely to stay as the passive players in Pakistani politics, administration and economy. However, it depends a lot on the nature of future relations between India and Pakistan as well as the two Punjab (Indian and Pakistani).

On the whole, the book makes an interesting reading. The ideas are refreshing and thought-provoking; moreover presented in a lucid, direct, coherent, organized manner. The jacket of the book is well designed, and hard copy of the book is available on an affordable price of three hundred and ninety-five, minus discount. I strongly recommend the book for the general public as well as scholars especially interested in knowing about the life and situation of the Sikhs and the Sikh shrines in Pakistan.

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I, K.D. Sharma, hereby declare that the particulars given above are true to the best of my knowledge and belief.

Dated: December, 2018

Signature of Publisher

NOTE TO CONTRIBUTORS

Population Geography of the Association of Population Geographers of India is a refereed journal published twice a year in June and December. The Journal welcomes original papers in the area of Population Geography.

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