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POPULATION GEOGRAPHY

CONTENTS

Editorial Note

The previous issue of Population Geography published the research works accomplished by young and budding Geographers of India. The present one represents a blend of experienced and mature scholarship, with an enthusiastic and committed team. The young geographers are committed to excel in the near future.

The eight papers included in this issue offer a great variety. The paper on rural-urban divide in India presents a mixed picture of rural-urban disparity. While inter-state comparison of social parameters indicates gradual to fast decline in regional inequalities, the reverse trend is observed in the case of several economic parameters, indicating to the emergence of socially homogenizing but economically heterogeneous India. Another paper presenting a comprehensive literature review on slums and slum population in India and makes a detailed study of slums in Hyderabad City; the study reveals the huge increase in number of slums and slum population in Hyderabad city in the post-reforms period, and the southern part of Hyderabad having the largest cluster of slums and also the slum population. How the changes made time and again in planning policies and administrative decision-making by the government agencies can lead to re-densification of the existing urban localities and their phenomenal growth in urban population has been demonstrated in a paper, though a case study of the Chennai Metropolitan Area. Determinants of son preference in India are covered in another paper conclude its continuation in the Indian society albeit with different intensities across regions. Migration of workforce is the theme covered in the two papers; one highlighting the role of push factors another of pull factors and another of pull-factors by taking Bundelkhand region of Uttar Pradesh and Punjab as the case studies, respectively. The study on Punjab recommends for the formulation a policy so as to provide the farmers affordable farm technology to thwart the acute shortage of farm labour during the peak farm operations. Reflections on India's policy pertaining to Tibetan refugee population in India and its implications for Indo-China relations form the subject matter of still another paper. India is the home to Tibetan population next only to Tibet. It recommends political dialogue between India and China not only to resolve the Tibetan refugee population issue in India but also border issues between the two Asian giants. A paper on fertility transition in Maharashtra during 1971-2018 finding wide but narrowing down inter-district differentials in female fertility rates advocated for area based approach to tackle the problem in an effective manner.

The traditional as well as modern techniques of data analysis and interpretation have been put to service by the authors. The findings of these studies are worthy of special attention. These are to be noted for their applied value.

The Map Series, a regular feature of Population Geography journal, this time highlights the spread of Punjabi speaking people outside Punjab in India. A notable revelation is that the percentage of this linguistic community living outside their home state was the highest among all major linguistic groups in India, and there was no state or union territory which was without Punjabi speaking people. Family migration was rather typical in their case.

Finally, we are happy to announce the introduction of another series on the pattern of the Map Series. It is titled as Geo-Reflections, contributed by Professor Gopa Samanta, Department of Geography, University of Burdwan (West Bengal). The Editorial Board of Population Geography and the Executive Committee of the Association of Population Geography of India (APGI) express their gratitude to Professor Gopa Samanta for the initiative and a firm commitment to ensure the continuity of the series.

Surya Kant
Editor

RURAL-URBAN DIVIDE IN INDIA: A SPATIAL PERSPECTIVE

Shrikamal Sharma, Sagar

Abstract: *The unequal pace of development has created multidimensional disparity in the country; rural-urban disparity is one of them. The present study attempts to examine urban-rural divide in India from a spatial perspective with the help of a number of indicators pertaining to education, income, expenditure and health by picking up data from various sources. The study reveals that more than two-thirds of India's population living in villages is lagging far behind the urban on several parameters. The planned efforts of narrowing down the gaps in literacy, income, expenditure and health did not succeed in achieving desired results. For instance, disparity index of literacy was as low as 0.1397 for Goa and as high as 0.8911 for Mizoram in 2011. Rural per capita income is less than 32.0 per cent of urban income in Maharashtra, one of the developed states of the country. The same is true for the people below poverty line, per capita expenditure, total fertility, infant mortality, institutional deliveries, and availability of basic amenities. Persisting wide urban-rural gaps on various parameters have divided country into India and Bharat. The study recommends that development policies and programs aiming to reduce these gaps between these two segments of the society should be based on the principles of urban-rural linkages.*

Key words: Disparity, human development, indicator, enrolment, drop out, poverty, urban-rural linkage, fertility, infant mortality, crude birth rare, crude death rate, literacy.

Date of submission: 09.08.2020   Date of review: 13.08.2020   Date of acceptance: 12.11.2020

Introduction

The economic reforms in India accelerated the economic growth but widened social and spatial disparities especially between rural and urban areas. India is still predominantly rural with more than two-thirds of its total population living in the countryside. Rural habitats occupy nearly 97.0 per cent of total geographical area of the country against only about 3.0 per cent by the urban. Usually villages are small in size and widely distributed in space, resulting in low density and long intervening distances. Contrary to it, urban population is concentrated on minute piece of land yielding high and very high density, where the delivery of services and facilities is more economic and spatially efficient.

In the present set up, rural economy is losing its significance in the national economy. Nearly three-fourths (70.7 per cent) of rural main workers are engaged in agriculture (Census of India 2011). *Economic Survey, 2016-17* reports that the share of agricultural sector in the gross value added of the country has declined from 52.7 per cent in 1950-51 to only 19.6 per cent in 2016-17, at current prices. Rural areas are still far behind in welfare indices and gap between the two is very wide. It results in perpetual increasing flow of rural migrants to urban centres. Like atmospheric system, people from rural high pressure areas flow towards urban low pressure areas. During 2001-11, 82.6 million people migrated from rural to urban areas. Migration on such mass scale is the cause and consequence both of the disparity between them. Usually resources are disproportionately drained out of rural areas to towns and cities; a major hurdle in reducing the existing gaps.

Taking a cue from the above, the present study examines rural-urban divide from the spatial perspective in the light of the following objectives.

Objectives

1. To have a critical assessment of approaches adopted in India to narrow down the urban-rural gaps through the planned developments;
2. To assess the gaps between rural and urban areas in terms of literacy, health and economic empowerment and to see how far these gaps have narrowed; and
3. To analyze the trends in and pattern of socio-economic development between rural and urban areas in the country.

Data sources and methodology

Different secondary data sources have been tapped for the present study including the Census of India 2011, Economic Survey, 2016-17, Report of the Labour Bureau of India, 2016, Reports of National Sample Survey Organization on key indicators relating to the situation of Agricultural Households in India, 2014; Household Consumer Expenditure across Socio-economic Groups, 2015; Key indicators of household social consumption on education in India, 2019 and Drinking water, sanitation, hygiene and housing condition in India 2019; National Family Health Survey-IV, National Rural Health Mission and RBI's Handbook of Statistics on Indian Economy 2020.

A number of indicators relating to different dimensions of human well-being and development have been calculated, including longevity of life at birth rate, death rate with special reference to infant mortality, nutrition and life expectancy at birth, literacy rate particularly female literacy, and enrolment of school-going children, drop-out ratio, pupil-teacher ratio, wage rates, income and employment, per capita gross domestic product, incidences of poverty and employment opportunity.

For calculating urban-rural disparity, an index devised by David Sopher and known as Disparity Index (DI), has been put into the service (see Mundhe et al, 2017, 64). It can be expressed a formula:-

$$DI = Log (X2 / X1) + Log (100 - X1) / (100 - X2)$$
Where, DI = Disparity Index
X2 = Percentage of Urban Literates; X1 = Percentage of Rural Literates.
i.e. X2 X1

DISCUSSIONS AND ANALYSIS

Rural-urban population composition

In 2011, 833.8 million or 68.9 per cent of India's total population (1210.6 million) was living in nearly six lakh rural inhabitations. There are wide inter-state differentials in share of rural population, varying from only 37.8 per cent in Goa to 90.0 per cent in Himachal Pradesh. This share was more than >75.0 percent (high) in Himachal Pradesh, Bihar, Assam, Odisha, Meghalaya, Uttar Pradesh, Arunachal Pradesh, Chhattisgarh, Jharkhand and Rajasthan.

Except Punjab and Haryana in the north and West Bengal in the east, all other states in north, center, east and north-east have higher share of rural population than the national average of 68.9 per cent (Fig. 1). Among union territories, Andaman and Nicobar Islands (62.3 per cent) has highest share followed by Dadra and Nagar Haveli; it was quite low in NCT, Delhi (2.5 per cent) and Chandigarh (2.7 per cent).

Urban population was 377.1 million or 31.1 per cent in 2011 and fast growing. However, from global perspective India is still a low urbanized country; more than 55.3 percent of world population was urban in 2018 (UN, DESA 2019). Among states, Goa with 62.2 per cent is the most urbanized state in the country followed by Mizoram. Among the major states, Tamil Nadu is at top with 48.4 per cent, followed by Maharashtra (45.2 per cent). Gujarat, Karnataka, Punjab, Haryana, Andhra Pradesh and West Bengal also have this share higher than the national average. Urbanization is low to very low in all major states of north, central and north-east India. Himachal Pradesh (10.0 percent) is the least urbanized state. Bihar, Assam, Odisha and Meghalaya also are among the low urbanized states. In Uttar Pradesh only one-fifth (22.3 per cent) population is urban. Arunachal Pradesh, Chhattisgarh, Jharkhand, Rajasthan and Sikkim are also among low urbanized states. On the whole, urbanization is high in southern, western and north-western states.

In general, union territories have high level of urbanization. Dadra and Nagar Haveli and Andaman & Nicobar Islands are exception to this. It is as high as 97.5 per cent in NCT, Delhi and 97.3 per cent in Chandigarh.

Urban centres, considered as the growth engines, promote cultural and technological innovations. From this angle, states having very high shares of rural population are supposed to suffer in terms of various amenities, services and infrastructure and market facilities.

Rural-urban literacy differentials

The literacy rate in India has increased from 18.3 per cent in 1951 to 73.0 per cent in 2011. During the same period, rural literacy increased from only 12.1 per cent to 68.9 percent and urban literacy from 34.6 per cent to 85.0 percent. There are, however, wide male-female and rural-urban literacy differentials. Rural female literacy rate is 57.9 per cent against 79.1 per cent for the urban female; and male literacy rates are 67.8 per cent and 84.1 per cent, respectively. Evidently, rural male literacy rate is lower than urban female literacy rate.

Notably, gap in rural-urban literacy rate is declining continuously after 1961. Disparity index (DI) value that was the highest (0.61) in 1961 came down to 0.41 in 2011. Similarly, rural-urban literacy ratio, 1:2.9 in 1951, came down to 1:1.2 in 2011 (Table 1). During this period, rural literacy increased from 12.1 per cent to 68.9 per cent. NSO in its 75th round, *Key Indicators of Household Social Consumption on Education in India*, has estimated rural and urban literacy rates at 73.5 per cent and 87.7 per cent, respectively during 2017-2018, yielding ratio of 1:1.2. This indicates to parity between rural and urban literacy rates in near future (see also Victoria and Lahiri, 2012: 1).

Table 1, India: Progress in literacy rates (%), 1951-2011

Census Year	Total	Rural	Urban	Disparity index	Rural-urban literacy ratio
1951	18.33	12.1	34.59	0.585	1:2.86
1961	28.3	22.5	54.4	0.614	1: 2.42
1971	34.45	27.9	60.2	0.592	1:2.16
1981	43.57	36.0	67.2	0.561	1: 1.87
1991	52.21	44.69	73.08	0.526	1: 1.64
2001	65.38	59.21	80.06	0.442	1: 1.35
2011	73.00	68.91	84.98	0.407	1: 1.23
2017-18*	77.7	73.5	87.7	0.410	1:1.19
Sources: Census of India, for different years; * NSSO, 2019.					

A look on age-specific literacy rates is highly revealing. The difference between urban-rural literacy is less than 10.0 per cent points up in the age of 18 years, but increases thereafter to reach 32.8 per cent points in age-group of 75-79 years (Fig. 2). Rural people, below 18 years of age in 2011, were born after 1992. Low literacy difference in these age groups suggests that literacy movement in rural areas started in 1990s; supported in rapid increase of rural literacy after 1991 (see Table 1).

In addition, in spite of increasing literacy, absolute number of illiterates is also increasing in both urban and rural areas, simultaneously. Number of illiterates increased from 260 million to 351 million in rural areas and from 42.5 million to 96.3 million in urban areas between 1981 and 2011. It reveals that growth in literacy could not keep a pace with growth of population aged 7 years and above.

Disparity in rural-urban literacy rates: Pattern and change

In none of the states and union territories, rural literacy is higher than the urban. National average of difference between rural and urban literacy rate being 16.3 per cent points in 2011, it ranges from a low of 0.34 per cent point in Lakshadweep to a high of 25.7 per cent in Dadra and Nagar Haveli. Among states, it ranged from 2.1 per cent points in Kerala to 23.0 per cent points in Arunachal Pradesh. National average of DI value being 0.401, it varied from 0.020 in Lakshadweep to 0.891 in Mizoram. Taking the national index into account, states can be classified into three groups: high, medium and low disparity in rural-urban literacy rates (Fig. 3). Most of the states with high urban-rural literacy ratio have also high disparity index. Eleven states and union territories have high disparity index, located in a continuous belt from Karnataka and Andhra Pradesh in south to Arunachal Pradesh and Nagaland in the northeast, encompassing Arunachal Pradesh, Assam, Nagaland, Meghalaya, Mizoram, Jharkhand, Chhattisgarh, Madhya Pradesh, Andhra Pradesh and Karnataka. Index is also high in Union territory of Dadra Nagar Haveli.

Inter-state differentials in literacy rates are associated with the socio-economic structure of the population. Literacy disparity is directly and highly correlated with the proportion of

agricultural workers, proportion of ST and rural population. Literacy, particularly female literacy, is comparatively quite low among these segments of population than the urban literacy, causing higher disparity. Contrary to it, disparity declines with the increasing proportion of non-agricultural workers, rural literacy, female literacy and degree of urbanization (Table 2).

Table 2: Correlation of Rural-urban Literacy Disparity Index with certain variables			
Variables	Coefficient of Correlation	Variables	Coefficient of Correlation
Disparity Index	1.000	SC population (%)	-0.235
Agricultural workers (%)	0.574	Female literacy (%)	-0.247
ST population (%)	0.484	Urbanization (%)	-0.410
Rural population (%)	0.410	Rural literacy (%)	-0.417
Urban literacy (%)	0.179	Non-farm workers (%)	-0.574

The rural-urban gap in literacy rates of states declined during 1981-2011 (Fig. 4). Maximum decline is in Lakshadweep (-9.3 per cent per annum) followed by Tripura state (-4.8 per cent). In Tripura, rural literacy increased much higher than that of urban literacy. Rural literacy nearly doubled (45.8 per cent to 84.9 per cent, 1981-2011), while urban literacy increased from 83.4 per cent to 93.5 during this period. Other states experiencing high decline are Goa, Himachal Pradesh, Sikkim, combined Uttar Pradesh, Assam and Jammu & Kashmir; and Union Territories of Chandigarh, NCT, Andaman and Nicobar, and Daman & Diu. Except Uttar Pradesh other states are small in size and/or high urbanized with dominance of non-farm activities.

In all such states and UTs, rural literacy grew faster than the urban literacy. In rural areas also, female literacy increased steadily. Moderate decline (-2.0 - 3.0 per cent per annum) is recorded in Haryana, Maharashtra, West Bengal, Nagaland, Tamil Nadu, combined Madhya Pradesh, Punjab, Meghalaya and Gujarat states and Puducherry UT. The majority of these states have substantial share of tribes in total population. On the other hand, Rajasthan, Bihar including Jharkhand, Arunachal Pradesh, Odisha, Karnataka, Andhra Pradesh, Mizoram and Manipur and union territory of Dadra & Nagar Haveli witnessed a slow decline, ranging from -1.1 per cent in Dadra & Nagar Haveli to -1.9 per cent in combined Bihar. Except Rajasthan, all other states of this group are from southern and eastern parts of India. However, declining literacy disparity in majority of states of rural dominance is a healthy sign.

Formal education: Average number of years

In its 75th round of survey report, NSSO computed number of years of formal education completed by each person (15 years and above) completing 'below primary' or above level of education. The duration varied from 9.0 years (8.6 for females and 9.2 for males) in rural areas to 10.9 years (10.6 years for females and 11.2 years for males) in urban areas during 2017-18. The difference between the two averages being 1.9 years, it ranged from 0.5 year in Kerala to 2.5 years in Odisha. On the whole, the difference is more than 2 years in nine states, yielding disparity index of more than 0.10. These states are predominantly tribal and rural. Notably, rural areas need more functional and professional education rather than higher

formal education; still lacking in villages. Only 4.2 per cent of rural literates have received vocational/technical training against 6.4 per cent in urban areas.

This difference in years of formal education manifests itself in different shares of educated persons with higher grade. For example, only 30.6 per cent rural literates could cross higher secondary level against 57.5 per cent in urban areas (NSO, 2019). Contrary to it, more than two-thirds (69.6 percent) of educated youth aged 15 years and above could attain education up to middle standard in rural areas. Further, rural literacy took momentum in 1990s; the majority of rural literates were below the graduation age in 2011(Fig. 2).

Proportion of drop-outs

Rural-urban net enrolment of children in different standards is almost comparable up to middle level. However, the proportion of drop outs is still much higher in rural areas than in urban areas. As per NSSO 75th round survey report, overall dropout is 13.8 per cent among ever enrolled persons of 3-35 years of age in formal education system in rural areas, against only 9.6 per cent in urban areas. Rural-urban dropout difference is 4.2 per cent points. Notably, dropout rate is comparatively high up to secondary level in both the areas. Of course, it is higher in rural than urban areas. However, it narrows down thereafter. Absence of significant difference in dropout rates among girls (13.2 percent) and boys (12.1 percent) in both areas negates the myth of faster dropout among female students. NSSO (2019) stated that the commitment of engagement in economic and domestic activities, financial constraints and lack of interest in education are reasons behind the dropout.

Except Uttar Pradesh, all other states record higher drop-out rate in rural than in urban areas, the difference in rural-urban dropout ranging from -0.4 per cent points in Uttar Pradesh to 10.8 per cent points in Odisha, national average is 4.2 per cent points. Interestingly, drop-out is higher (3.7 per cent) in urban than rural areas (3.2 per cent) in Uttar Pradesh. Here, towns are more or less are an extension of rural hinterlands; hence rural-urban literacy disparity index is quite low (0.203). In all, eleven states, forming a belt from Assam, in the east, to Maharashtra, in the west encompassing Odisha, Jharkhand, Bihar, West Bengal, Assam , Maharashtra, Madhya Pradesh, Telangana, Karnataka, Gujarat and Haryana record higher difference than the national average (Fig. 6), having medium to high literacy disparity index, expect Haryana. Of them, Maharashtra, Gujarat, Karnataka, Haryana and West Bengal display high urbanization level. Higher dropout in rural areas is explained by factors other than the dominance of rural population and/or economic backwardness. Normally drop-out is higher among female than male students. But reverse is true in ten out of twenty-one major states of Punjab, Haryana, Himachal Pradesh, Uttarakhand, Uttar Pradesh, West Bengal, Gujarat, Madhya Pradesh, Kerala and Tamil Nadu, suggesting higher dropout of girls is not responsible for overall higher dropout rates.

Fig. 1

INDIA
Rural Population 2011

200 0   400
Kilometres

As percentage of
Total population

Ten million
persons

15
10
05
02
01

50
60
70
80

National average is 68.9 percent.

Fig. 2

India: Age-wise urban and rural literacy, 2011

Rural
Urban
Difference

Fig. 3

INDIA
Urban-Rural Literacy
Disparity Index, 2011

200 0   400
Km

Disparity Index

Low (< 0.30)
Medium (0.30 – 0.42)
High (> 0.42)

National average 0.4009.

Fig. 4

INDIA
Decline in Disparity in
Urban-Rural Literacy
1981-2011

200 0   400
Km

Average annual
rate of decline

Low (< - 2.00 percent)
Medium (- 2.00 –3.00%)
High (> - 3.0 percent)

National average -2.14

ECONOMIC DISPARITY: INCOME

Per capita income is traditionally used as an important measure to assess development level. But income data are not bifurcated into urban and rural sector at the state level. Information on average monthly household earnings, compiled by the Labour Bureau of India (2016-17) and summarized in **Table 3**, presents rural-urban gap in earning on national level About 76.9 percent of surveyed rural households have average monthly

earning up to Rs 10,000 as against only 44.9 per cent urban households. Contrary to it, more than 26.7 per cent of urban households earn Rs 20,000 or more per month whereas this true only for 7.1 per cent of rural households.

Table 3, India: Households by average monthly earnings, 2015-16. (in rupees)

Residence	up to 5000	5001-7500	7500-10000	10001-20000	20001-50000	50001-100000	>100000
Rural	27.3	29.6	20	16	6.3	0.7	0.1
Urban	9.3	15.3	20.3	28.5	21.7	4.4	0.6
Both	22.1	25.4	20.1	19.6	10.8	1.8	0.2

Source: Labour Bureau of India (2016).*Report on Fifth Annual Employment–Unemployment Survey, 2015-16, Vol. 1*, Ministry of Labour and Employment, Govt. of India, New Delhi. p 19.

Dholakiya and Dholakiya (1978) attempted for the first time to estimate urban-rural income differentials for major states for 1970-71. Again, Dholakiya *et al.* (2014:18) estimated to show wide rural-urban income disparity. They estimated that per capita rural income varies from Rs. 20,800 in Bihar to Rs. 87,614 in Haryana in 2011-12 (Fig. 5). Urban per capita income is also lowest in Bihar (58,336) and highest in Haryana (Rs.175, 860) in the same year. Rural per capita income made only 32.0 per cent of urban in Maharashtra but 71.0 per cent in Kerala. Only in four of 15 major states, for which data are available, rural per capita income made more than half of urban incomes. Further, only in six states (Kerala, Assam, Madhya Pradesh, Rajasthan, Uttar Pradesh and Odisha), the ratio of rural-urban ratio increased during 1994-2012, indicating to rapid growth of rural incomes than urban in these state. Tamil Nadu, Punjab and Karnataka present the reverse trend.

Population below Poverty Line

Rural poverty (25.7 per cent) is nearly double of urban (13.7 per cent), indicating to poor quality of life, deprivation, malnutrition, and hence low human development in rural areas. The eradication of poverty has been an integral component of the development strategy in the country. The importance of reduction in poverty and provision of other basic needs has been emphasized in all Five-Year Plans particularly 5th Plan onward. Government has two pronged approaches, viz. promoting economic growth and direct attack on poverty alleviation.

The comparable estimates of poverty, available at national and state level from 1973-74 to 2011-12, reveal that the poverty ratio declined from 56.4 percent to 25.7 percent in rural areas and from 49.0 percent to 13.7 percent in urban areas during this period (Table 4). Four major trends can be deducted: (i) the percentage of people living below poverty line has declined steadily both in rural and urban areas; (ii) there is still wide rural-urban disparity. Rural poverty ratio is almost double (25.7 per cent) the urban (13.7 per cent); (iii) decline in rural poverty ratio (30.7 points) is slower by 35.3 points in comparison to urban during 1973-2012; and (iv) poor people are concentrated in rural areas. According to 2011-12 estimates, of total 269.3 million people below poverty line, 220.9 million (82.0 per cent) are in rural areas. As evident in decline in value of disparity index, rural-urban poor declined up to 1999-2000 but

increased thereafter, indicating inconsistent decline in urban-rural gap. It has reached to 0.338 in 2011-12 from only 0.129 in 1973-74. Growth in rural earnings is not coping with that of the urban areas.

Fig. 5

India: Per capita annual rural & urban (estimated) income in major states, 2011-12

Thousand Rupees

Fig. 6 INDIA Urban-Rural Poverty Disparity, 2011-12

Disparity Index

Low (< 0.150)
Medium (0.150 - 0.350)
High (> 0.350)

National index is 0.338

Diparity increased during 1993-4 and 2011-12

Fig. 7 INDIA Comparison of Rural & Urban Per Capita Expenditure, 2011-12

Rural expenditure as % of urban expenditure

50
60
70
80

Average of the Country 54.4 percent.
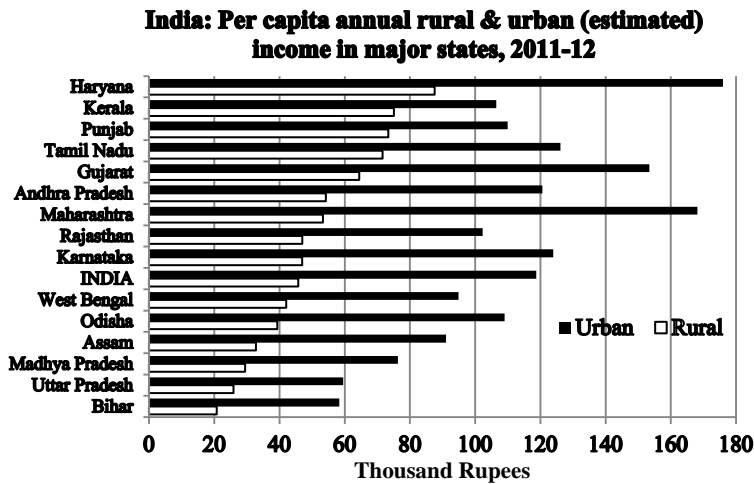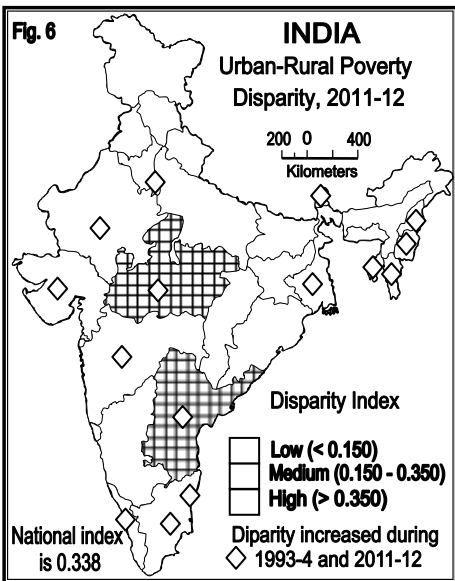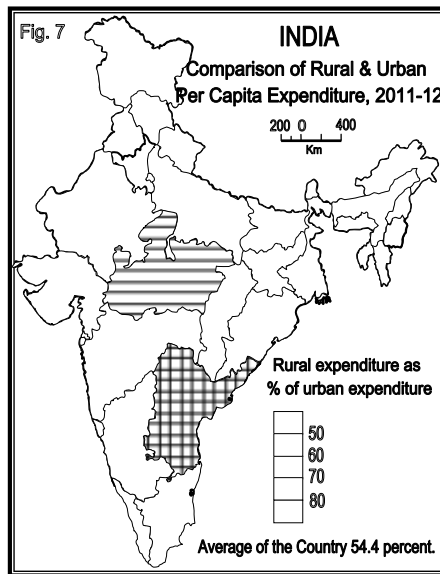
Regional pattern of rural-urban gap in poverty ratio

In 2011-12, the incidence of rural poverty varies from 6.8 per cent in Goa to 44.6 per cent in Chhattisgarh, giving a ratio of 1:6.5 between the lowest and highest poverty states. In most of

the states in central-north and eastern parts of India the share of rural poor is between 25.7 per cent (national average) and 40.0 per cent. In this group are Madhya Pradesh, Odisha, Bihar, Assam, Arunachal Pr adesh, Manipur, Mizoram and Uttar Pradesh. Against this, rural poverty ratio is below 10.0 per cent Goa, Kerala, Himachal Pradesh, Punjab and Sikkim. Remaining states fall in between the two. Urban poverty ratio ranges from 3.7 per cent in Sikkim to 31.2 per cent in Bihar. Notably, there is a high degree of correspondence between urban and rural poverty ratios in states, supported by high correlation value (r = 0.715).

Table 4, India: Trend in poverty, 1973 -2012

Year	Rural		Urban		Rural/Urban	Disparity
	Number	%	Number	%	poor	Index
1973-74	261	56.4	60	49.0	1.15	0.129
1993-94	244	50.1	76	32.4	1.53	0.333
2004-05	326	41.8	81	25.7	1.63	0.317
2009-10	278	33.8	76	20.9	1.62	0.286
2011-12	217	25.7	59	13.7	1.88	0.338

Source: Govt. of India (2002). *Economic Survey 2001-02*, and RBI (2020). *Handbook of Statistics on Indian Economy*, Table 154

Note: Population figures are in million persons and estimates of poverty in percentage

In 2011-12, the national average of rural-urban poverty DI value being 0.338, it ranges from 0.05 in Uttarakhand to 0.907 in Mizoram. The majority of major states fall in moderate or high category on this count (see Fig. 6). In low category are included the states that are either relatively developed or backward. In former states, the rural and urban poverty ratios both are quite low: Punjab, Haryana and Uttarakhand. In the latter category of states, both ratios are high: Bihar and Uttar Pradesh. In high DI value states, rural poverty ratio is more than twice of urban poverty. For example, in Maharashtra incidence of rural poverty (24.2 per cent) is 265.6 per cent of urban poverty (9.1 per cent). It suggests that it is not the proportion of rural population but the difference between rural and urban economic status that determines the rural-urban poverty gap.

Notably, there has been an overall decline in poverty ratio during 1994-2012 in India, but the decline in poverty had not been uniform across the states. Fifteen states for which comparable data for the two periods is available suggest that only five states of Karnataka, Goa, Uttarakhand, Bihar, Haryana and Jammu and Kashmir registered high decline in rural-urban poverty gap. On the whole, six states fall in low poverty frequency states and the nine in medium or high poverty frequency states. In the former six states, the rural poverty ratio declined faster than that urban poverty, reducing rural-urban poverty gap. In the remaining nine states, rural-urban poverty gap increased. Widening rural-urban poverty gap in the case already high poverty disparity states is dangerous for socio-economic development.

Per Capita Expenditure

Per capita expenditure throws light on living conditions and poverty. NSSO collects information on monthly per capita expenditure; latest such information was collected during 2011-12 in its 68th round. For the present discussion, data generated by Mixed Modified

Reference Period (MMRP) method has been used. At the national level, daily per capita expenditure (DPCE) for rural areas increased from Rs. 19 in 2004-05 to Rs. 48 in 2011-12, registering an increase of Rs. 29. During the same period, DPCE for urban areas rose from Rs. 37 to Rs. 88, registering increase of Rs. 51. Ratio between rural and urban expenditure was 1:1.94 in 2004-05, declined slightly to 1:1.83 in 2011-12.

However, there has been a gradual increase in rural-urban DPCE. DI value increased from 0.399 in 2004-05 to 0.900 in 2011-12; also corroborated by the actual value of difference between urban and rural expenditure (see Col. 5 of **Table 5**). Widening gap divides the country into: Bharat (rural) and India (urban).

Table 5, India: Trends in average per capita expenditure (in Rs.)

Year	Rural	Urban	Disparity Index	Urban-Rural difference
2004-05	19	37	0.399	18
2005-06	21	39	0.381	18
2006-07	23	44	0.420	21
2007-08	26	49	0.437	23
2009-10	35	66	0.557	31
2011-12	48	88	0.900	40

Source NSSO 66th and 68th Round Surveys

There is wide inter-state disparity in annual per capita rural expenditure. Average rural MPCE is very low in Odisha (Rs. 1003), Jharkhand (Rs. 1006) and Chhattisgarh (Rs. 1027); and low in Bihar, Madhya Pradesh and Uttar Pradesh (Rs.1125- Rs.1160). Six states having MPCE higher than Rs. 2000 are Kerala, Goa, Punjab, Haryana, Nagaland and Himachal Pradesh along with all union territories except Nagar Haveli.

Urban Bihar has lowest MPCE of Rs. 1507. In Chhattisgarh, Odisha, Jharkhand, Uttar Pradesh and Madhya Pradesh Urban MPCE range between Rs. 1865 and Rs. 2060, below the national average of Rs. 2630. In these states both rural and urban MPCEs are far below the national average.

Even rural-urban differential in MPCE is quite high in some states. For instance, urban MPCE is more than double of the rural in West Bengal. Other states of high differential are Jharkhand, Maharashtra, Karnataka and Odisha. The gap being the lowest in Punjab, other states of low gap included Rajasthan, Andhra Pradesh, Tamil Nadu, Bihar and Kerala.

At the state level, disparity in rural-urban expenditure is quite alarming. On national level, rural expenditure is nearly half (54.4 percent) of the urban. Representing the highest disparity in rural-urban expenditure, Jharkhand and West Bengal along with union territory of Dadra & Nagar Haveli have rural expenditure less than half of the urban (**Fig.** 7). On the other side of the scale, in Daman & Diu, and Manipur rural expenditure is higher than the urban; and in seven states/union territories rural expenditure made more than two-thirds of the urban. These included Nagaland, Lakshadweep, Punjab, NCT of Delhi, Goa, Chandigarh and Kerala.

Fig. 8 INDIA Total Fertility Rate (Rural) 2016
Children born per eligible married woman
2.0
2.5
3.0

Fig. 9 INDIA Disparity in Urban & Rural Total Fertility Rates, 2016
Disparity Class | Rural TFR as % of Urban TFR
Negligible 110
Low 125
Moderate 150
High
National average 139

Fig. 10 INDIA Gap in Proportion of Institutional Urban Rural Deliveries, 2015-16
Gap in Percent Points
05
10
Lowest - 3.0 in Goa
Highest 42.4 in Meghalaya

Fig. 11 INDIA Urban-Rural Access to Safe Water Disparity Index, 2018
Disparity Index
0.50
1.00
National average 0.459.
Lowest 0.094 in Kerala
Highest 1.666 in Mizoram

HEALTH

The improvement in the quality of health care over the years is reflected in some of the basic socio-economic parameters. The crude death rate (deaths per thousand of population in particular year) declined rapidly from 16.4 in 1971 to 9.1 per thousand in 2001 and 6.9 in 2016 in rural areas; and 9.7 in 1971 to 6.3 in 2001 and 5.4 in 2016 in urban areas. Decline in

infant mortality rate (deaths of children below one year of age per thousand live births) became less than one-third in 2016 of 1971 (138/1000). Less than 38 children die before attaining the age of one year per thousand of live birth in 2016.

Nonetheless, it is as high as 50 in rural Madhya Pradesh. Bihar, Meghalaya, Uttarakhand, Rajasthan, Assam, Odisha and Uttar Pradesh also record higher IMR rates than the national average of 38. It was ten or less in Chandigarh, Goa and Kerala, against more than forty Odisha, Uttar Pradesh and Madhya Pradesh. Notably, areas of high total fertility and high infant mortality almost coincide with each other. The same is supported in high positive correlation between the two (r=0.7485). Perhaps, uncertainty of the survival of the child born leads to high fertility rate (Sharma 2006, 48).

Infant mortality

Generally, rural IMR is higher in states. However, Tripura, Nagaland, Chandigarh, Andaman & Nicobar, Lakshadweep, and Daman & Diu display the case of higher urban IMR, and Kerala of parity between the two in 2016.

In Mizoram rural IMR was two and half times of urban, but only less than 10.0 per cent higher in Jammu & Kashmir. It ranged between 40.0 per cent and 50.0 per cent higher in NCT of Delhi, Uttarakhand, Karnataka; Goa, Tamil Nadu, Telangana, Jharkhand and Rajasthan; and between more than 50 per cent to 150 per cent higher in Madhya Pradesh, Meghalaya, Sikkim, Andhra Pradesh, Arunachal Pradesh, Maharashtra, Gujarat, Assam, Mizoram, D & N Haveli and Puducherry. Evidently, notwithstanding a sharp decline in IMR in both the rural and urban areas, rural-urban differentials in IMR among state are high to very high. Moreover, there is hardly any consistency of decline in rural-urban gap in IMR.

Total Fertility

Fertility rates also declined. Total fertility rate (TRF) registered a decline from 5.4 children per rural woman in 1971 to 2.5 in 2016. The rate of decline is likely to accelerate during the next decade revealing the success of the family planning program.

Nevertheless, TFR rate varies across states. In India, rural TFR is 2.5 against 1.8 for the urban areas, differing by almost one child per women. In turn, rural TRF varies from 1.5 in Manipur to 3.4 in Bihar and Uttar Pradesh in 2016 (**Fig. 8**). Rural TFR is more than 2.5 in Rajasthan, Madhya Pradesh, Uttar Pradesh, Bihar and Jharkhand. On the other side, it is below 2.0 children, below the replacement rate, in twelve states. Level of development and infant mortality find inverse relationship with rural total fertility.

In 2016, rural-urban gap in TFR is nil in Kerala but higher by more 50.0 per cent in Jammu & Kashmir (**Fig. 9**). It is more than 130 percent in West Bengal, Gujarat, Bihar, Himachal Pradesh, Uttar Pradesh, Chhattisgarh, Jharkhand, Madhya Pradesh, Assam, Odisha and Jammu & Kashmir. In major states of central, eastern and northern parts of the country rural-urban disparity in total fertility rates is moderate to high.

Happily, the rural-urban gap in TFR are declining and narrowing down. Difference that was 1.4 children in 1971 got to half (0.7 child) in 2016. However, the gap was still quite wide in states such as Uttar Pradesh, Bihar, Madhya Pradesh and Rajasthan.

Institutional delivery

The National Rural Health Mission (NRHM) program initiated in April 2005 with a special focus on 18 states in north, central and north-east India has yield some good results. It is aimed at to provide accessible, affordable, accountable, effective, and reliable healthcare facilities in the rural areas of the entire country with a focus on poor and vulnerable sections of population. *Janani Suraksha Yojana* (JSY), an intervention under the purview of NRHM, provides transport facility to expecting mothers to reach health institutions for delivery; and the beneficiaries receiving cash incentives immediately after the delivery.

On an average, there were only 39.0 per cent institutional of deliveries in the country during 2005–06. However, after the introduction of NRHM in 2005, there has been drastic improvement in institutional deliveries. According to 4th NFHS, 2015-16, the share of institutional deliveries has gone as high as 78.9 per cent. Of course, there is wide urban-rural difference. The share of institutional delivery is 75.1 per cent in rural areas against 88.7 per cent in the urban, differing by 13.6 percent points. Which is, however, much lower than it was in 2005-06 (38.6 per cent points), suggesting rapid bridging of the gap between the two.

At the state level, the share of institutional delivery in rural areas is only 24.0 per cent in Nagaland, while it is almost cent percent in Kerala. Notably, this in twelve states (Arunachal Pradesh, Nagaland, Meghalaya, Assam, Manipur, West Bengal, Bihar, Uttar Pradesh, Uttarakhand, Chhattisgarh and Jharkhand) is below the national average (75.1 percent). In hill states of Meghalaya Nagaland and Arunachal Pradesh, proportion of institutional deliveries is below 50.0 per cent. Against this, in six states and three union territories proportion of institutional delivery in rural areas is above 90.0 per cent. Among the major factor determining the occurrence of institutional deliveries one is education. As the number of years of education increases, more and more women go for institutional deliveries. Evidently, education has a huge potential to turn around the status of maternal and infant care in rural areas.

The share of institutional deliveries in government hospitals was higher in rural areas (55.5 percent) than in urban area (47.5 percent); *Janani Suraksha Yojana* and '108 ambulance service' are credited for it. Against the national average of 13.6 per cent point gap in rural-urban institutional deliveries, it ranged from -3.0 percent points in Goa (rural institutional deliveries are higher than urban) to 42.4 per cent point in Meghalaya in 2015-16 (**Fig 10**). The gap is more than 10.0 per cent points in Bihar, Jharkhand, West Bengal, Chhattisgarh, Arunachal Pradesh, Assam, Meghalaya, Nagaland, Manipur, Tripura, Mizoram, Madhya Pradesh, Jammu & Kashmir, Himachal Pradesh and Uttarakhand. Contrary to it, gap is negligible or in favour of rural areas in Punjab, Haryana, Delhi, Sikkim, Kerala, Tamil Nadu, Karnataka, Goa, Puducherry, Andaman & Nicobar and Lakshadweep.

BASIC AMENITIES

Rural India lags far behind in basic services and amenities such as housing condition, availability of water, toilet, bathroom and kitchen and use of electricity for light. According to data available from Report number 584 of 76th Round of NSSO (2019, b), survey conducted during July and December 2018, of total houses used for living in rural areas, only 34.7 per cent are in good condition against 58.2 percent in urban areas, gap being 23.5 per cent points (Table 6). Thanks to *Pradhan Matri Awas Yojana* the share of *pucca* houses in rural areas has gone up to 76.6 per cent against 96.0 per cent in the urban.

Table 6, India: Urban -Rural Disparity in Basic Amenities, 2018

Amenities	Rural	Urban	Total	U-R Diff.
Good house	34.7	58.2	42.7	23.5
Pucca houses	76.7	96.0	83.3	19.3
Tap water	36.9	65.0	43.9	28.1
Principal source of water within premises	56.4	80.7	65.9	24.3
Principal source of water with in 0.2 Km	30.4	13.8	24.7	-16.6
Water source away, >0.2	11.4	5.5	9.3	-5.9
Electricity for domestic uses	93.9	99.1	95.7	5.2
HH Latrine facility	71.3	96.2	79.8	24.9
HH with bathroom	56.6	91.2	68.5	34.6
HH with kitchen	52.4	75.3	60.2	22.9

Source: NSS Report No 584 (2019). Drinking water, sanitation, hygiene and housing condition in India.

Further, more than half (56.1 percent) of rural against 78.6 per cent urban households have access of improved sources of drinking water with in the premises. Rural tap water supply reached 36.9 per cent households, against 85.0 per cent in urban areas. Though situation improved 1990s onward (Das and Pathak, 2012, 4), rural-urban gap on this count is still 28.1 percent points on national level. Among states, this share ranged from 23.0 per cent in Odisha to 95.4 per cent in Goa (**Fig. 11**). Among UTs, it varied from 29.5 per cent in Dadra and Nagar Haveli to cent percent in Chandigarh. Rural-urban gap, expressed in disparity index, ranges from 0.054 in Daman and Diu to 2.253 in Andaman and Nicobar. In majority of the states distributed in west, central and south the DI value is higher disparity than the national average.

In sanitation also rural areas lag far behind the urban. Less than two-thirds (63.2 percent) of rural households had latrine facilities in the premises against more than three-fourths (77.6 percent) urban households. The Central government scheme of providing financial support for construction of latrines has enhanced this facility in rural areas. In 2011, only 30.7 per cent rural households had this facility.

RURAL-URBAN GAP: MISSING LINKS

Undoubtedly, multifaceted efforts have been made for the development of rural economy and society since independence by evolving several methodologies and approaches. Problems relating to rural development can be broadly classified into three major groups. Firstly, there is a problem of policy perception. Most of the rural development programs are visualized in

isolation from urban areas (Ticoli 1998). At the same time, villages are treated as independent entity rather than a part of integrated settlement system. Further, the development efforts have urban bias (Lipton 1977, 2000, Sharma 2016), benefitting towns and cities. However, the studies conducted on micro to macro scales conclude that towns and villages are intimately interconnected and are complementary to each other (World Bank, 2013; Cali and Menon, 2013). Rural areas cannot be developed in isolation.

Rural problems must be seen in terms their internal and external linkages both. No doubt, socioeconomic and infrastructural changes in the villages are prerequisite for initiating development, it is equally important to review their relationship with their urban counterparts. Classical studies of von Thunen and Christaller have established this relationship. There is, in fact, an urban dominance in decision-making, major share of benefits going to them. In the present setup of governance, development benefits accrue to the dominant areas and dominant people (Sharma, 1987). Urban-rural linkage is pre-requisite and is capable of enhancing inclusive development (Akkoyunlu, 2015), but most of the rural development programs heavily concentrate on transformation of internal rural structure, ignoring their urban linkages. Urban areas treat villages as source areas of raw materials, labour, capital, water, energy and market for their products. Heavy dependence on agriculture and allied activities and their low productivity compels rural people to move to cities and towns, creating dangerous situation for both. Unless terms of trade between rural and urban areas are not properly visualized and promulgated, development disparities may continue as such.

Secondly, policies, programs and projects for rural development are formulated, improved, modified and restructured at the state and central levels. In absence of appropriate institutions and organizations for their implementation, these hardly percolate or reach quite late and that too in pieces to the rural communities. For example, NSSO conducted survey during 2013 on conditions of farmers, bringing out several astonishing facts. The scheme of crop insurance against possible crop loss was opted by a very small segment of agricultural households. It also revealed that in spite of creating several institutions for cheap and easy loan for farmers, 40.0 per cent of the outstanding loans were taken from non-institutional sources, agricultural/professional moneylenders. Similarly, to facilitate access of farmers to modern technology and technical advice, a ladder of such institutions were created, but the survey revealed that 59.0 percent of agricultural households were benefited neither from governmental nor from private extension agencies. Further, of 41.0 per cent receiving technical advices, only 11.0 per cent got information from governmental extension officers, Krishi Vigyan Kendras, agricultural universities and colleges; majority receiving information from progressive farmers (20.0 per cent) and radio/ TV/newspaper/internet (19.6 percent). It is because of ineffective implementation process on ground level. Therefore implementation machinery must be geared up.

Third and more serious is the colonial and deep rooted general belief especially among the rural people that the development is the responsibility of the government. This is detrimental to the development. The process of development originates within and it cannot be

superimposed. Therefore, it is prerequisite to infuse awareness, belongingness, entrepreneurship, active participation and positive attitude towards development programs among rural people. States with such characteristics of their residents are at higher level of development with low disparity. Kerala, Punjab and Haryana are the examples.

Conclusions

The preceding discussion reveals that the rural-urban gaps on various counts are narrowing down with time, particularly in social and infrastructure development. Rural literacy, particularly among the young age groups, is getting quite close to that in urban areas. Enrolment rates are almost similar in both areas. The achievement in health sector is more remarkable, reducing gaps in terms of infant mortality, total fertility and delivery in health institutions. Amenities in rural habitats, though have improved remarkably, are still far behind the urban. Improvement in housing, toilet facilities and electrification in rural areas has reduced the gap in these areas.

Against this, the economic sector, supposed to be instrumental in development, presents a gloomy picture. There is a very wide rural-urban gap in both per capita income and expenditure. It manifests in sluggish decline in proportion of rural poor. Resultantly, poverty disparity index shows increasing trend. Rural-urban divide is more pronounced with inter-state differentials in the economic conditions. As such, backward states present higher disparity on most of the development indicators. Rural development programs could not uplift the rural face to the desired level in these states, required to create rural-urban parity or near parity. Approaching rural and urban segments of settlements and population separately from each other in development policy is the detrimental factor in this respect.

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SLUMS OF HYDERABAD: A SPATIO -TEMPORAL ANALYSIS

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ABSTRACT: The present study, part of a larger project, is an overview of the various studies on slums in India including those related to Hyderabad. Making a detailed analysis of the slums of Hyderabad over a period of time (1962-2009) along with certain cases of 2019, the study reveals that Hyderabad, in line with all other such cities, had only a few slums in the beginning. The number of slums multiplied with incessant migration into the city. It has been in the post reforms era that Hyderabad has witnessed a burgeoning number of slums. The southern part of Hyderabad has the largest cluster of slums as also the slum population. It is also characterized by a very small areal extent of slums and their close juxtaposition to each other. Apart from this, the relatively outlying areas like Serilingampally and Kukatpally are found to have a large population in non-notified slums pointing out to a massive growth of slum population in these areas in the near future.

Keywords: Urban planning, Haphazard growth, Slums, Explosive growth, Globalization

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Introduction and the study area

Hyderabad, a historic city experiencing rapid growth and development along with physical expansion, is not free from the slums, which have grown fast recently. Slum dwellers account for one-third or 33.0 per cent in population of the city. The slum population increased more than two and half times (264.0 per cent) between 2001 and 2011. These slums started growing and developing on vacant parcels of land in the absence of adequate urban planning and when the neighbouring areas became densely populated they are found in the center of such densely populated residential areas, right in the city centre. The more recent slums started growing and developing near upcoming residential and industrial areas, especially in the west, northwest, north and northeast. Slums are also found close to water bodies, sometimes encroaching on their dry beds and hence are susceptible to flooding. They are also found in other floodable low-lying areas. Slums are also quite surprisingly found close to high-class areas and commercial areas of Hyderabad, providing employment opportunities to the slum dwellers (Markandey et al. 2011). Thus, it is not surprising if one finds islands of poverty in the midst of an ocean of magnificence.

More than half of the slum population of Hyderabad (2.3 million) has had a stay of 10 years in the city and the other half migrated from different parts of India in the last decade. These slum dwellers are mainly street vendors and construction workers, engaged in the informal activities.

The number of slum households in the city is about half a million, living in grim conditions without basic civic amenities like safe drinking water and sanitation, which affects their immune system and increases susceptibility to infectious and communicable diseases like tuberculosis, diarrhea, pneumonia, malaria and dengue. Lack of public healthcare services

and absence of health-seeking behaviour in these underserved communities further makes it challenging for them to lead a healthy life. (See for details: smilefoundationindia.org/slums-of-hyderbad.html).

The definition of a Slum varies from country to country depending on the cultural mores and economic conditions. Slums are residential areas of the least choice, dilapidated houses, poor ventilation, inadequate lighting, poor sanitation, lack of safe drinking water, overcrowding, convoluted street patterns, fire and flood hazards, poor facilities for education and health, unhygienic living conditions and air and water- borne diseases. Socially, they are characterized by drug abuse, alcoholism, crime, vandalism, escapism, apathy and social isolation (Census of India, 2001; Haggett et al., 1981).

In India, slums have been defined under section 3 of the Slum Areas (Improvement and Clearance) Act, 1956 as areas where buildings are in any respect unfit for human habitation; are by reason of dilapidation, overcrowding, faulty arrangement and design of such buildings, narrowness or faulty arrangement of streets, lack of ventilation, light, sanitation facilities or any combination of these factors which are detrimental to safety, health and morals.

Census of India has adopted the definition of 'Slum' areas as follows:(i) All areas notified as 'Slum' by State/Local Government and Union Territory Administration under any Act; (ii) All areas recognized as 'Slum' by State/Local Government and Union Territory Administration which have not been formally notified as slum under any act; and (iii) A compact area of at least 300 persons or about 60-70 households of poorly built congested tenements, in unhygienic environment usually with inadequate infrastructure and lacking in proper sanitary and drinking water facilities (Census of India, 2001).

Squatter settlements, similar to slums in their physical appearance, lack basic amenities, and are a concentration of dwellings built on land neither owned nor rented by the squatters. These settlements develop by organized invasion, by gradual accretion/by government initiation. They are a dominant feature in urban areas of Asia, Latin America and Africa and have high rates of in-migration from traditional inner-city dwellings and from rural areas. They are, therefore, regarded as transitional urban settlements.

Thus, while the term 'slum' refers to the environmental aspects of an area, 'squatter' refers to the legality of land ownership and infrastructure. While slums take up the old settled central city locations, squatters are usually found on the periphery of the city. Squatters are also known as spontaneous settlements/shanty towns as they come up without notice and grow in an uncontrolled way. They also lack in service provision; and are the transitional areas at the fringe of urban areas acting as reception zones for the migrants, finding a semblance of both the rural and urban life and hence ease in adaptation.

Scholars have used different terms for squatter settlements, highlighting the attitudes and approaches towards them-ranging from a positive to neutral to negative outlook. These are called: Informal settlements, Low-income settlements, Semi-permanent settlements, shantytowns, spontaneous settlements, unauthorized settlements, unplanned settlements, and

uncontrolled settlements. Some of the local/colloquial names for squatter settlements (often also used for slum settlements) are Ronchos-Venezuela, Callampas, Campamentos-Chile, Favelas-Brazil, Barriadas-Peru, Villas Misarias-Argentina, Colonias Leterias–Mexico, Barong Barong–Phillipines, Kevittits-Myanmar, Gecekondu-Turkey, Bastee, Jhuggi-Jhampri- India (Srinivas, 2015).

Much before the municipalities notifying the slums, they appear on the urban landscape as squatter settlements. At this stage if they can be recognized with the help of their signatures, and ameliorative measures taken, the cities administrators can avoid the burgeoning problems that accompany them (Markandey, 2005).

Literature review

In 2009, according to the Greater Hyderabad Municipal Corporation there were 1466 slums in Hyderabad housing more than 1.8 million persons (GHMC 2019). The perpetual increase in the number of slums and their population is a result of recurrent migration of people from the rural areas. Das (2015) noted that more than one-fourth of the urban population of Hyderabad resides in the slums, the national average being 17.5 per cent. As already stated, this share has gone to 33.0 per cent now.

Developing country like India with its escalating population is bound to have housing problems. A general common model to explain the intra-urban residential mobility originates in a centrally located slum followed by peripheral squatter *kuccha* (mud built) huts, transformed later into *pucca* (durable) houses. Then follows the intra-urban migration from the center to the periphery. However, considering the Indian urban scene this common model is inadequate to denote the reality of urban areas (Thakur and Parai, 1993). Rural-urban migrants migrating to escape the declining rural economies have spurred the growth of the slums and the informal sector. There is thus a shift of workers from the traditional to modern sectors of the economy (Kundu, 2011). With reference to the bottom-up approach to city development there is a low-end housing construction like Rajiv Awas Yojana in India where the slum dwellers gradually become property owners (Maringanti, 2011). These packages, however, have their own limitations and are also criticized as property rights are considered exclusivist and not much suited to India's urban poor as they may not have the required 'credit–worthiness' and adequate 'length of stay', thus making them less eligible for these benefits.

The efforts of the city governments to make the cities more visible and competitive from an international perspective have relegated the urban poor to the peri-urban areas. In Hyderabad, the poor farmers are forced to sell their land in 17 villages on the periphery of the city and facilitate the setting up of Cyberabad. A skilled workforce coupled with investment in the software sector has spurred the growth of this economic sector not only in Hyderabad but in other cities of its kind as well (Das, 2015).

There can be numerous heat islands in the city contingent to the built-up area, density of population, physiography etc., (Ramachandraiah, 1997). It is found the temperature gradient is

rather steep over the slums of Visakhapatnam at three to five degrees compared to 0.1 degrees over the central parts of the city for every 100 feet of ground distance. Heat islands play an important role in climatic variations within the city and also alter the micro climates within cities. Thus, the slum areas are perceptibly the warmer parts of the city.

Water is reported to be available to 95.0 per cent population of Hyderabad. For slum population, this average is 90.0 and that too with the irregular and insufficient supply, responsible for several health issues like gastrointestinal disorders and skin problems among the slum dwellers.

In 2016, the city had over 3.87 lakh water connections. Of them, more than 98 thousand or 25.5 per cent were to the slums. The Greater Hyderabad Municipal Corporation (GHMC) has recorded 1,468 slums spread across the city, of which 1,131 are notified and have access to water connections (for details, *thenewsminute.com/article/water-access-gruelling-game-hyderabad-s-slum-dwellers-103226*).

In a study, Kit and Lideke (2013), using multi-year and multi-sensor very high-resolution satellite data to automatically identify slum area change in Hyderabad from 2003 to 2010, found a remarkable increase in slum area in the city. They attempted to detect the tendencies towards slum development. Kotyal and Biradar (2008) identified slums in the twin cities of Hubli-Dharwad to analyze their characteristics and suggested measures for their eradication.

Environmental problems of industrial slums have been studied in the context of the urban environment and quality of life in two industrial slums in Hyderabad and it is believed that this study will be a forerunner to further studies in this direction (Balakishan, 2011).

More than one third of the slums of Hyderabad originated in vacant land (Markandey, 2008). Old slums have occupied small pockets of vacant spaces within the built-up areas in the heart of the city, while new ones seem to be radiating out from the core of the city in a sectoral fashion. In a paper entitled 'Sustainable Land Resource Management', Reddy (2017) found a total of 1476 slums in Hyderabad (1179 notified and 297 non-notified). The total slum area was stated to be 80.45 Km^2 making more than one-tenth or 12.0 per cent of the total GHMC area; and more than 3.5 lakh persons residing in the notified slums.

In a study of the slums of Hyderabad (Markandey, 2005) with all types of land use associations it is found that the slums have certain generic characteristics as they are viewed from space and certain unique characteristics. They stand in contrast to their surrounding areas as they have very irregular roads i.e. lanes and bye-lanes within the slum and hence an asymmetrical internal geometry. They also have an uneven external geometry, small low-rise structures, random distribution, immensely fluctuating reflectance and sometimes a distinct transition from one to another land use type e.g. from industrial to middle class residential etc. The specific characteristics are where the slums on the periphery of the city have low-rise buildings compared to those in central city locations showing a resemblance of the third dimension. Also slums located in the thickly populated and high value land in the central city show an impenetrable packing of structures; those close to graveyards display the small

structure phenomena; those on elevated land display a chipping off of the sides of hillocks to make room for the housing structures; and those along linear features like roads, railway lines, *nalas* etc., show a distinct tendency to be linear.

In a study on squatter settlement of Delhi, Shekhar (2012) found that the policy of demolition, eviction and resettlement has failed to contain the growth of slums in the past forty years. The study noted that the slums in varying locations had varying problems; and for gaining a better insight into the scenario a typology of slums, based on their location and services present, was attempted. The study recommended that the slums lying at critical location and also those where pressure on services was beyond repair having a threat of outbreak of epidemics posing a threat to human health need to be resettled. This study brought out the fact that slums are not usually located on areas of least choice as is commonly understood. In Delhi they are located on prime lands and with the intervention of the concerned agencies and the judiciary they will eventually be evicted.

A study of Agra in Uttar Pradesh reveals that how constant efforts in remaking Agra as the 'global' tourist destination has overtaken the local. The slums dwellers and disadvantageous communities have been marginalized in urban space (Gavsker, 2017). According to 2001 Census, only 10.0 per cent population of Agra was residing in the slums, while the District Urban Development Authority puts forth that about 44.0 per cent of total population of Agra lives in slums, located at very spatially and environmentally susceptible areas. About two-fifths the slum population does not have access to sanitation facility.

In an article, Sajjad et al. (2011) studied child labour in six sampled slum localities of Meerut city to find that the poor incomes of the parents have driven the children into a vulnerable ecology where they are the victims of diseases owing to poor living and unhygienic working conditions.

In a paper Shekhar (2014) highlighted the importance of satellite remote sensing in mapping and monitoring of the slums for sustainable planning. It attempts to find answers to the questions: Why do we need "slum ontology"? How can the slum ontology help in identifying the slums in a high-resolution data? Who is going to identify the slums? The results are quite encouraging, and further research on this to refine the slum ontology will yield better results to enact slum policies in the developing countries. The stakeholders vary from geospatial experts at GIS cell of national, state or municipal corporation level to the poor slum dwellers. The knowledge models such as slum ontology help them to understand the domain concepts and facilitated the communication between the stakeholders. By refining the ontology further and also training of the local community, better results can be obtained. This will really help in the better intervention of slum development programs, where the benefit of science will reach the common man in improving their living standards.

In another paper, Singh and Kaish (2013) examine the plight of migrant slum dwellers, their livelihood conditions, and factors behind migration. The study based on primary data collected from 1140 households, points out that rural poverty, higher wages in urban areas

and better employment opportunities are the main reasons behind migration. However, the migrants lack education and skill; and get employment only in the informal sector. The researchers noted that job uncertainty, low wages and indebtedness being the common phenomena, the migrants in slums get the worst of both the rural and urban worlds.

A study by Ayyar and Khandare (2013) of the slums located in the suburbs of Mumbai, based on socio-anthropological surveys, focused group discussions and interviews, examines the role of caste and social networks in the background of voluntary housing. The study indicates to a positive outcome of social networks, enabling the poor to have safety nets vital to their survival. However, these networks have been found to be segmented, closed and restrictive and exclude others.

A study of five slums of Varanasi, based on primary survey of 150 households in the five slums, examines the quality of life in slums statistically. Taking the 10 variables, the study uses composite index and standard deviation techniques for determining the quality of life. Also, the study briefly compare the condition of slum dwellers with the targets of UN Millennium Development Goals and India Vision 2020 to suggest some measures of inclusive development and planning to improve the quality of life in slums (Jha and Tripathi, 2014). A study of slums in Nanded city concluded that slums are increasing in city and the general standard of living of the people is on decline (Deshmukh and Khadke, 2015).

Shekhar (2017) while examining slum development planning and programs in India with special focus on Rajiv Awas Yojana (RAY) noted that several programs have been launched at different times to promote integrated development of the city and to help slum dwellers in gaining access to basic services. The study making an overview of various slum development programs of India discusses the principles underlying RAY and suggests the ways to overcome the shortcomings of earlier slum development programs.

In a study focusing on child nutrition and anthropometric failures among children in slums and rehabilitation areas of Mumbai, based on a primary survey of 510 children in low-income households, Gupt and Chattopadhyay (2018) examined the levels and reasons for child undernutrition along with the impact of micro environmental conditions of slums on child undernutrition. The study found that nutritional conditions of children in slum rehabilitation housing are better than those in the slums. Stunting, wasting and underweight, the three undernutrition indices, are worst in non-notified slums followed by notified slums and are lowest in the rehabilitation centres. Apart from better micro environment factors like housing, mother's education, income generation and mother's nutrition also impact child nutrition.

In a paper, Raghavswamy (2016) provided detailed information on the Government of India initiatives for use of GIS technology in urban planning and slum improvement. In this context, 11th Plan (2007-2012) efforts to create GIS database for multi-level planning of towns/cities and slums. The Ministry of Urban Development (MOUD) and the Ministry of Housing and Urban Poverty Alleviation (MoHUPA), Government of India, New Delhi launched the National Urban Information System (NUIS) and the National Slum Free City

Planning (SFCP), respectively. The latter initiative aimed at developing GIS database for 152 towns/cities in the country on different spatial-scales, sensors, themes, applications with a view to prepare the Master Plans/Development Plans, Detailed Town Planning Schemes and Utility Plans. The mapping work was done on 1: 10,000 or 1:2000 scales using satellite, aerial, and GPS techniques supported by ground verification and collaborative data. The two important datasets of NUIS were Urban Spatial Information System (USIS) and National Urban Databank Indicators (NUDBI). The SFCP focused to prepare, update and manage 'slum level' database. A combination of geospatial technologies like remote sensing, GPS, Total Station along with GIS and MIS were utilized. The mapping was done on 1: 5000/1:500 scales. Both the schemes gave sufficient push for capacity building and training. The final quality checked thematic database is hosted in Bhuvan Portal.

While mapping physical infrastructure of slums in Kamareddy town of Telangana state, Goud (2016) found at least 17 slums, which were plagued by the usual problems of shortage of affordable housing for the poor and lack of amenities, causing unhygienic living conditions and homelessness. The study developed the digital database for critical physical infrastructure for the of slum dwellers. Field work is carried out to obtain spatial and non-spatial data with regard to various infrastructure facilities and to map informal settlements through geospatial technologies like GIS, GPS and Remote Sensing. It is found that the availability of physical infrastructure is weak and the geospatial techniques provide enough support for the arguments.

Slums of Hyderabad

Hyderabad, being the capital city of a Princely State in British India with a sprawling pattern of layout, had very few slums to begin with. Even after the reorganization of the states in 1956, Hyderabad becoming the capital of Andhra Pradesh, it had just 106 slums (in 1962). Thereafter, growth of slums had been phenomenal. It has, nonetheless, to be remembered that the increase in numbers is tied up with the notification and de-notification of the government policy having political overtones. Sometimes, slums attain a level of amenities and facilities, where they no longer merit being labelled as slums, yet they retain the tag as it entitles them to certain benefits and subsidies like lower property taxes, water cess etc. apart from being covered by an umbrella of various welfare schemes implemented by the government from time to time. The lower rate of growth of slums does not rule out the emergence of squatter settlements, which do not have the legal status of a slum (Markandey, 2005).

The latest survey of slums conducted by the GHMC in 2009 states that Hyderabad has 1466 slums with a population of more than 1.8 million (Fig. 1 and Fig. 2). There has been a remarkable increase both in the number and population of slums 1980s onward. It is largely attributed to rural-urban migration, Hyderabad acting as a prime magnet to attract the migration flows. The slums are mostly concentrated in the Central, followed by the Southern, the Northern, the Eastern and the Western zones (Fig. 3). The Central and the Southern zones were part of the erstwhile Municipal Corporation of Hyderabad (MCH), now the core of

Hyderabad city. So far as the Northern, Eastern and Western zones are concerned, some of their constituent units were part of the erstwhile Hyderabad Urban Development Authority (HUDA) having a larger jurisdiction compared with MCH, others were appended subsequently. Some of them are in the process of infilling, mostly having dense population already. It was observed in 2005 that the more recent slums started growing and developing near upcoming residential and industrial areas, especially in the west, northwest, north and northeast (Markandey, 2005). The eastern part of the city has the State Highway connecting Hyderabad with Warangal and cutting across the former and hence connecting it to a broad swath of areas in its hinterland which act as the origin areas of several migrants, subsequently settled in the slums on the periphery in the close proximity to the city work areas as well as their home-towns/native villages.

Hyderabad
Number of Slums, 1961-2009

Source: GHMC   **Fig. 1**

Hyderabad
Population in Slums, 1962-2009
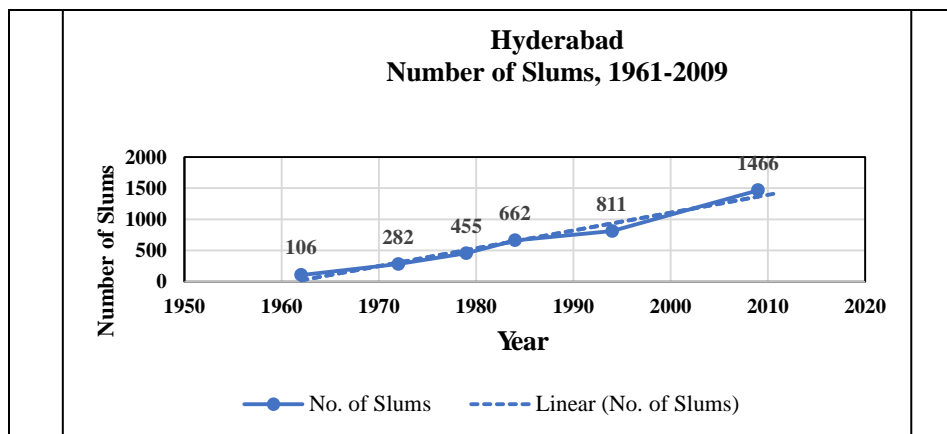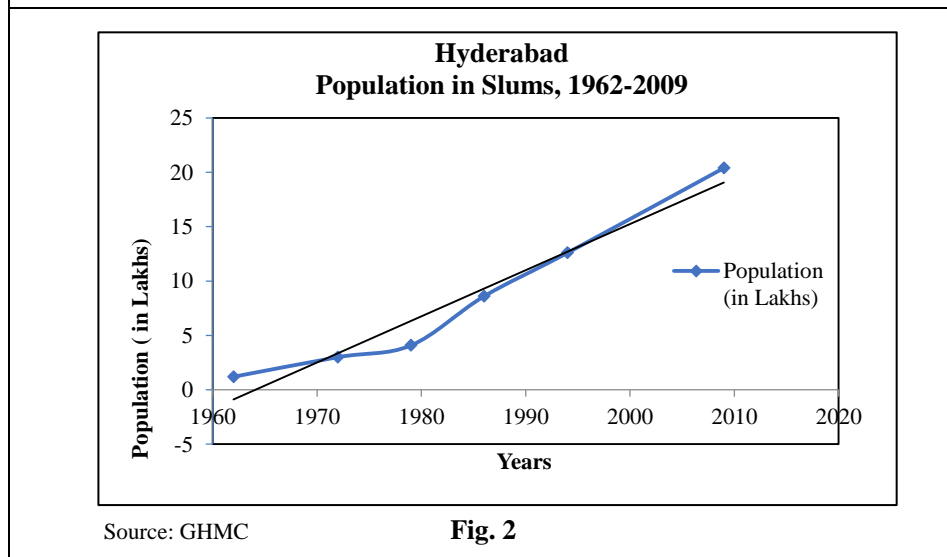
Source: GHMC   **Fig. 2**

In the following, an attempt has been made to discuss slums by localities rather than individual slums. This same pattern has been followed in regard to showing the slums in the maps. Before moving further, we shall also like to share with the readers that information is not available with concerned government offices regarding the notified as well as non-notified slums under the jurisdiction of some of the municipal units. Hence, we have excluded such slums from the discussions in the proceeding paragraphs.
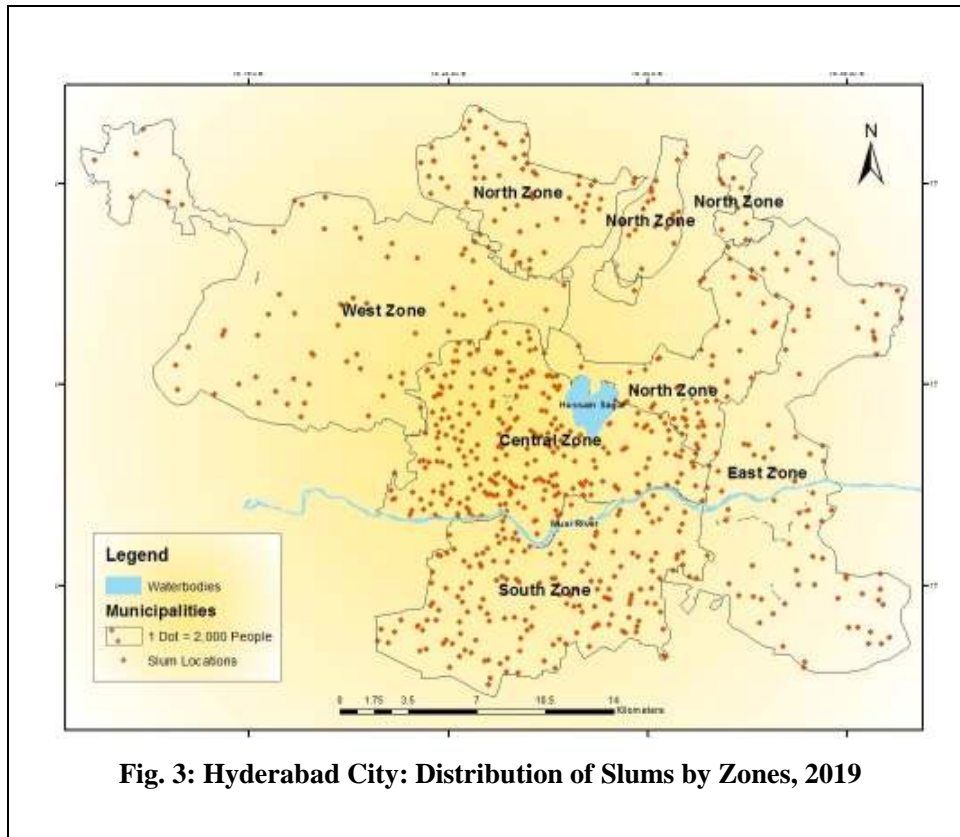
Fig. 3: Hyderabad City: Distribution of Slums by Zones, 2019

Starting with the notified slums, the Charminar locality, in the Central zone, stands out as the area of the highest concentration of population among the notified slums (Fig. 4). This is followed by Saroornagar, Gaddiannaram, Secunderabad, Qutbullapur, Kukatpally and Khairatabad localities in the same zone. Then, Gachibowli, Gajula Ramaram, Yusufguda, Alwal, Patancheru and Uppal localities fall in order. Except Yusufguda, all of them fall in the peripheral zone.
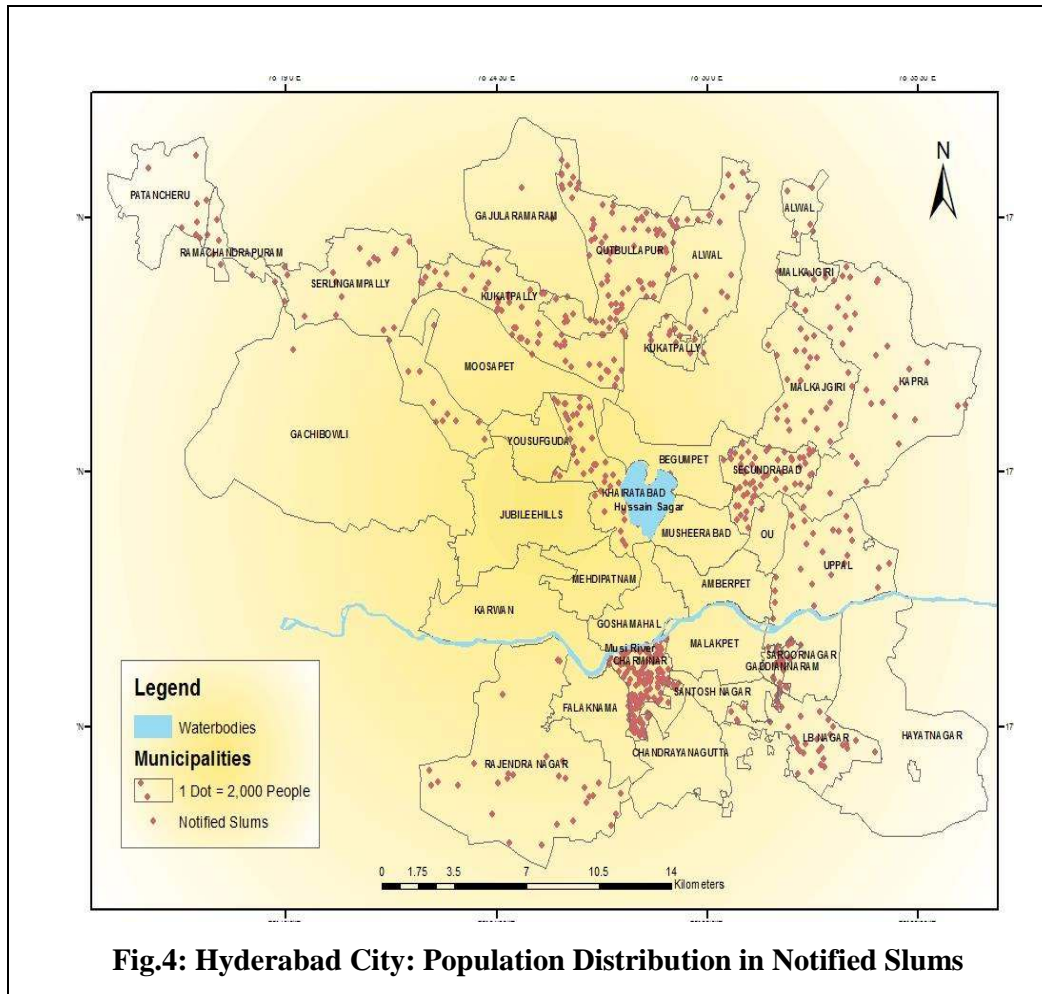
Fig.4: Hyderabad City: Population Distribution in Notified Slums

In the category of non-notified slums, the Charminar, Serilingampally and Kukatpally localities have the highest concentration of slum population (Fig. 5). This is followed by Khairatabad, L.B. Nagar and Rajendra Nagar in that order. Municipal units like Secunderabad, Uppal, Malkajgiri and Alwal are next so far as the population of non-notified slums. It is to be noted that some of the municipal units/localities such as the Charminar and Uppal fall in the highest slum population concentration category both in case of notified and non-notified slums. In addition, the eastern periphery of the city also exhibits a predisposition towards attracting slums population.
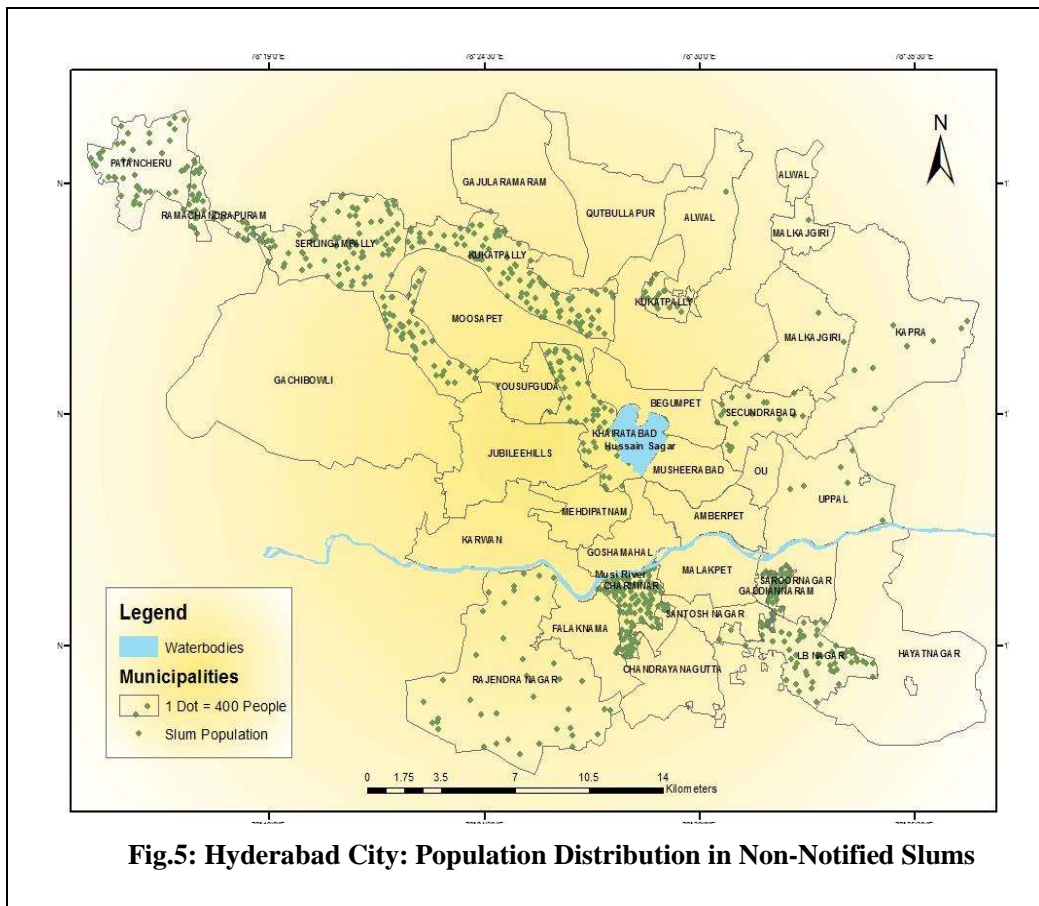
Fig.5: Hyderabad City: Population Distribution in Non-Notified Slums

By and large, the family size of slum dwellers is big in the southern part of the city along with the Jubilee Hills and Mehdipatnam areas (see Fig. 6). Against this, the family size is relatively small in the areas on the eastern and western periphery of the city. The migrants in these areas have come mostly in recent years, hence not as well established to attract their kith and kin from the rural areas, as is the case in the large parts of the old city and core city area. Migration in some of these cases is generally dominated by the male members of the working age-group.
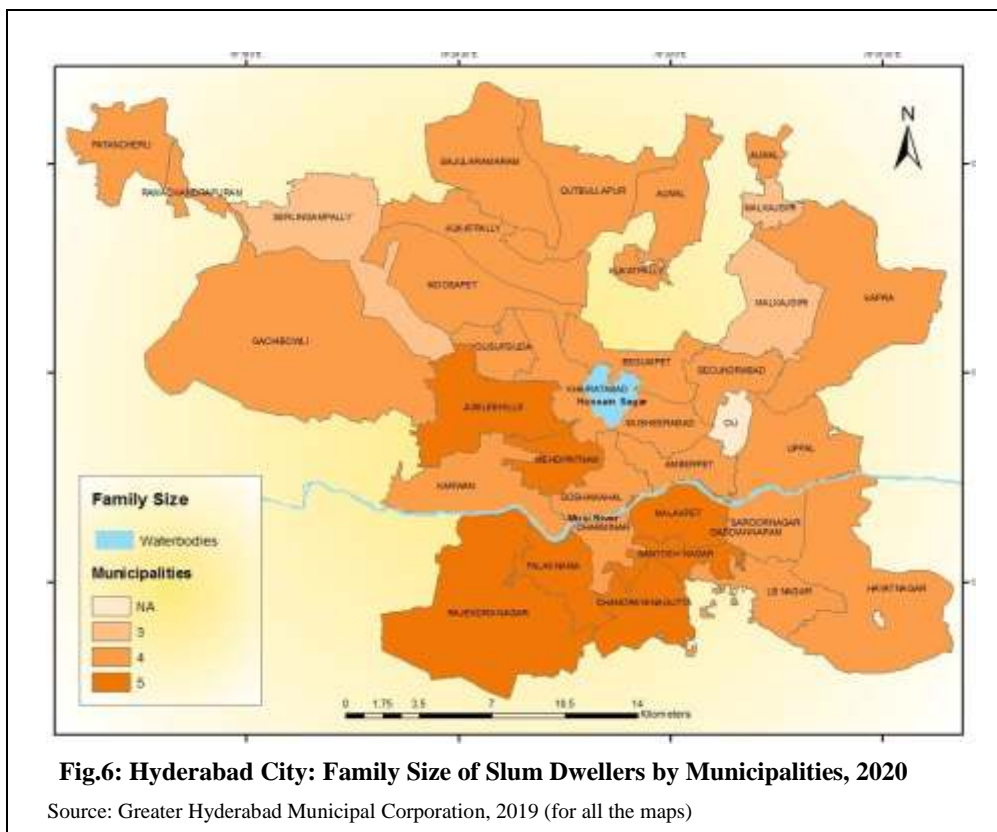
Fig.6: Hyderabad City: Family Size of Slum Dwellers by Municipalities, 2020

Source: Greater Hyderabad Municipal Corporation, 2019 (for all the maps)

Concluding remarks

The study reveals that Hyderabad had a lesser number of slums to start with and like all other cities of its kind. The slums have increased owing to incessant migration into the city. It has been in the post-reforms era that Hyderabad has witnessed a burgeoning number of slums. The southern part of Hyderabad has the largest cluster of slums as also the slum population. It is also characterized by a very small areal extent of slums and their close juxtaposition to each other. Apart from this, the relatively outlying areas like Serilingampally and Kukatpally are found to have a large population in non-notified slums pointing towards the explosive growth of slum population in the near future.

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DYNAMICS OF POPULATION GROWTH AND URBANIZATION IN CHENNAI METROPOLITAN AREA

N.Usha and R. Jaganathan, Chennai

Abstract: The paper attempts to study the trends in population growth and urbanization in Chennai Metropolitan Area and its constituent units by linking these with changes in land use planning and land transformation effected through Metropolitan Area Regional Planning to accommodate rapid increase in population due to in-migration of people to the city in search of employment and better civic amenities and facilities. In addition, an effort has been made to identify areas, which accommodated the major share of population and also the areas having potentiality to accommodate more population in near future.

For the purpose, the data/information available from various publications/documents/reports of Census of India, and Chennai Metropolitan Development Authority were calculated, tabulated, mapped and analyzed.

The study reveals that a large share of population has been accommodated in areas already having large population. It happened mainly because of changes made in land use planning, land use zoning plan, increase in floor area ratio, re-densification, height of the buildings, and land use transformation by the planning authorities.

Keywords: Master plan, Population Growth, Urbanization, Chennai Metropolitan Area, Development Regulation, Land Transformation

Introduction

Madras (now Chennai) is one the four major metropolitan cities in India, other three being Calcutta (now Kolkata), Bombay (now Mumbai) and Delhi. Located in the four different directions, these cities were controlling the economy, the trade and governance in their respective regions. During the colonial period, the former three being port cities were used to collect raw materials from their hinterlands for export to industrial centers of the master countries and to import finished goods for distribution. These port towns were well connected through the rail and road routes with their hinterlands. In most of the cases, there developed a radical pattern of transport network. These towns grew along transport routes in radial pattern. Chennai is the typical example of radical growth along the rail and road transport network.

In line with other metropolitan cities in the country, Chennai grew fast in post-Independence period. According to Census data, total population of Chennai Municipal Corporation (MC) area grew by more than thrice between 1951 and 2011: from 1.43 million in 1951 to 4.65 million in 2011. However, the physical expansion in municipal boundary of the city also contributed to some extent in this growth. The total area of under the Chennai MC, which was about 135 km^2 in 1961 increased to 175 km^2 in 2011. Nonetheless, it is phenomenal growth of population mainly contributed by in-migration of population not only from other parts of the state but also other states of India. Rapid increase in population took place between 1971 and 2001, growing from 2.57 million to 3.84 million. In-migrants came in

search of better employment opportunities and civic amenities and facilities with expansion of industry, trade, commerce and administrative services. Local planning agencies played an important role in accommodating population coming to city on such a large scale. Notable, Tamil Nadu has a long tradition of town planning initiated with the visit of Sir Patrick Geddes to Madras (now Chennai) in 1916 (Town and Country Planning Organisation, 1997).

The planning authorities initiated efforts to plan Chennai City in the regional context by incorporating areas from the adjoining districts. Such an area unit was termed as Chennai Metropolitan Area (CMA), having geographical area of 1189 Km^2 and a population of 8.88 million, accounting for more than one-fourth (25.6 per cent) of total urban population of the state in 2011. The CMA comprises of the Chennai City Corporation, eight Municipalities, twelve Town Panchayats, and 179 villages grouped under the ten Panchayat Unions.

A new planning and development authority constituted for metropolitan regional planning is known as Chennai Metropolitan Development Authority. The planning authorities made various efforts to develop the City and its adjoining areas in a coordinating and harmonious manner. Important among these included the regularization of land use, and provision of basic infrastructural facilities along with having control on haphazard growth of population, settlement and economic activities. In addition, re-densification of already existing residential areas, change in floor area ratio and increase in height of buildings and changes in land use zoning were the other measures adopted (Chithra, 2013).

Taking a cue from the above statements, the present paper examines the trends in population growth and urbanization in different units falling under the Chennai Metropolitan Area (CMA) and linking these two with land use changes and land transformation effected through the planning process by the planning authorities.

Objectives of the Study

Following are the main objectives of the present study:

(i)   To study trends in growth of population taking place in CMA and its constituent units during 1971-2011;

(ii)   To link the population growth with land transformation and changes in land use effected by the planning authority; and

(iii)   To identify areas absorbing major part of the increased population, and areas potentials to absorb more population in the near future.

Data sources and methodology

The study is based on secondary sources of data/information such as Census of India, and Office of the Chennai Metropolitan Development Authority. These included *Primary Census Abstract*, Tamil Nadu, and *Town Directory*, Tamil Nadu for various Census years, available from the Office of the Registrar General and Census Commission of India, New Delhi; and different reports and documents available from the Office Chennai Metropolitan Development Authority, Chennai. The details of planning permissions issued by Chennai

Metropolitan Development Authority from 2009 to 2018 and the details of land use changes carried out by Chennai Metropolitan Development Authority from 1977 to 2018 were also pressed into service.

Available data/information was calculated, tabulated, mapped and analysis using appropriate cartographic and statistical techniques.

Chennai Metropolitan Area: The study area

The Chennai Metropolitan Area (CMA) extends over 1189 km^2, comprising of Chennai City, the eight Municipal towns, twelve Town Panchayats and 179 village Panchayats grounded under the ten Panchayat Unions (Table 1). The CMA covers the entire Chennai district and parts of Tiruvallur, Kanchipuram and Chengalpet Districts.

Table 1: Chennai Metropolitan Area (CMA): Details of constituent units					
I.	**Municipal Corporation**	**III.**	**Town Panchayat**	**IV.**	**Panchayat Union**
1.	Chennai	1	Chitlapakkam	1	Kattankulathur
		2	Kundrathur	2	Kunrathur
II	**Municipalities**	3	Madambakkam	3	Minjur
1	Anakaputhur	4	Mangadu	4	Poonamallee
2	Avadi	5	Meenambakkam	5	Puzhal
3	Pallavaram	6	Minjur	6	Sholavaram
4	Pammal	7	Naravarikuppam	7	St. Thomas Mount
5	Poonamallee	8	Peerkankaranai	8	Sriperumbudur
6	Sembakkam	9	Perugalathur	9	Thiruvallore
7	Tambaram	10	Thirumazhishai	10	Villvakkam
8	Thiruverkadu	11	Thiruneemalai		
		12	Thiruninravu		
Source: Office of the Chennai Metropolitan Development Authority; *Note*:179 Villages Panchayats have grouped under the ten Panchayat Union					

Chennai (then Madras) has a long history of growth and development. In 1639, it started as a small fishing port, but started to grow fast under the colonial impact (Buch, 1987). The Chennai City Corporation was constituted in 1798. In 1901, the city had an area of 68 km^2 and a population of 5.41 lakh persons. It has been growing fast after Independence both in area and population. Its area of about 135 km^2 and population of 1.75 million in 1961 increased to 175 km^2 and 4.65 million, respectively in 2011. After the conduct of census in 2011, boundaries of the Chennai Corporation were further extended to absorb the area and population of the seven municipalities, the three town Panchayats and the thirteen Panchayat Unions of Tiruvallur district and the two municipalities, the five Town Panchayats and the twelve Panchayat Unions of Kanchipuram district. As a result, Chennai Corporation area increased to 426 km^2.

The urban form of Chennai metropolitan area has been dictated by developments along the main road corridors *viz* the grand Northern Trunk Road connecting Kolkata (NH5), and the Grand (Southern) Trunk Road (NH45) and the Grand (Western) Trunk Road that linking Bengaluru (NH4) along with the rail links radiating from the center of Chennai City (Fig.1). The rail corridors run in the north-west and south-west apart from the MRTS link along the Buckingham canal and the Metro rail corridors. A higher concentration of population has been observed in the southern and the western railroad corridors (CMDA, 2008).

Fig.1
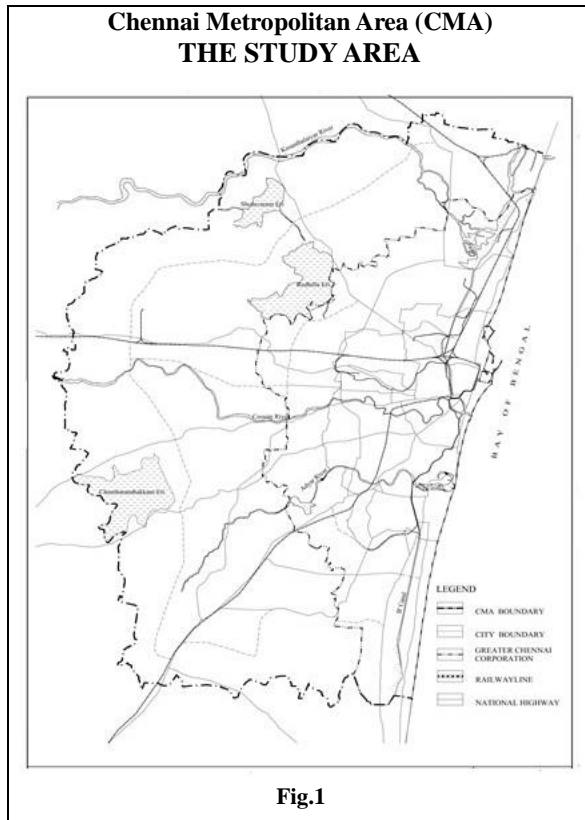
Trends in population growth, 1971-2011

The trends in population growth during 1971-2011 have been examined by divided in CMA in two parts: (i) Chennai Municipal City, and (ii) Rest of the CMA. In 1971, population was mainly concentrated in Chennai City. Of the total population of 35.04 Lakh in CMA, Chennai City shared 26.42 lakh persons making more than three-fourths (75.4 per cent) in total. In 1981, Chennai City area population increased to 32.85 lakh person, registering an annual compound growth rate (ACGR) of 2.20 per cent during the decade (1971-1981). Against this, total population of the rest of CMA increased 13.16 lakh from 8.62 lakh during the same time, registering ACGR of 4.32 per cent, while the overall growth rate of CMA remaining 2.76 per cent during this period. Evidently, notwithstanding that population of the rest of CMA only about one-third of the total population of Chennai City area, it grew almost twice rate of population growth in Chennai City (Table 2). This can be explained by the two factors: (i) the base of population being large in the case of Chennai City, growth rate is low but total increase in population is still quite high, and (ii) in-migrants to Chennai City prefer to settle down in areas outside the Chennai City Corporation boundary for relative low housing rent in the areas in close vicinity of the City, and daily commuting to work place is possible due to increase in transport facilities.

Table 2: CMA: Trends in population growth, 1971 -2011					
Census Year	Chennai City		Rest of CMA		Total	
	Population	ACGR (%)	Population	ACGR (%)	Population	ACGR (%)
1971	26.42	-	8.62	-	35.04	-
1981	32.85	2.20	13.16	4.32	46.01	2.76
1991	38.43	1.58	19.75	4.14	58.18	2.37
2001	43.44	1.23	26.97	3.16	70.41	1.93
2011	46.46	0.67	42.38	4.62	88.84	2.35
1971-2011		1.42		4.06		2.35
Source: Census of India (2011).*General Population Tables, India, Table A -4.* Note: Population figures are in Lakh.						

In 1991, when the total population of Chennai City area rose to 38.43 lakh persons, it grew at the ACGR of 1.58 per cent, much lower than growth rate earlier during 1981-91. This indicated to slowing down process in growth of population in Chennai City area. Against this, population growth rate in the rest of the CMA was 4.14 per cent, more than two and half times higher than that of Chennai City, but slightly lower than its own average growth rate earlier during 1971-81. It means the ACGR of population declined in both the segments of CMA during this decade in comparison to earlier 1971-81, but decline in ACGR was sharp in the case of Chennai City and only marginal in the rest of the CMA. Evidently, differentials in population growth rates between Chennai City and rest of the CMA further widened, indicating that the larger share population growth, which was taking place in CMA, is settling down in the rest of the CMA, outside the Chennai City Corporation limits.

This attributed to the major factors: (i) rapid increase of affordable and readily available vehicular transport, making commuting between Chennai City area and its hinterland in the CMA easy and faster, and (ii) planning strategies adopted by the Chennai Metropolitan Development Authority to absorb growing population in the rest of the CMA. These points will be discussed in details in the next section, where land transformation and land use changes in CMA have been examined.

In 2001, when the total population of Chennai City area went up to 43.44 lakh persons, its ACGR further declined to 1.23 per cent during 1991-2001, from 1.58 per cent earlier during 1981-91. The ACGR of population in the rest of the CMA area also declined during the same period, but it was nearly thrice that of Chennai City area, further widening the gap in population growth rates of the two segments of the CMA. It means the saturation level was approaching in the case of the Chennai City Corporation area, against larger potentialities to accommodate population in the rest of the CMA area.

In 2011, when the total population of Chennai City area increased to 46.5 lakh persons, its ACGR came down to less than one per cent (0.67 per cent) during 2001-11. Against this, population in the rest of the CMA recorded the highest ever growth rate of 4.62 per cent during the same period. During 2001-11, the rest of CMA recorded an absolute increase of 15.41 lakh persons in its total population, which was much higher than its total population of 13.16 lakh in 1981. This entire growth of population in the rest of CMA area can't be attributed to natural increase or in-migration or both, but there were some other factors contributing to such a phenomenal growth of population. During 2001-2011, there has been

an increase of about 44.0 km^2 in the area of CMA and earlier during 1991-2001 an area of more than 200 km^2 was added to it. Against this, only one square kilometer area was added to Chennai Corporation area boundary during 1991-2011. Hence, among others, the jurisdiction changes effected during 1991-2011 in the outer boundaries of the rest of CMA area have also contributed significantly to phenomenal growth of population in this during the last two census decades, 1991-2011. To strengthen this argument further, it can be added that the municipal towns of Tiruvottriyur, Ambattur, Madhavaram and Alandur, registering high population growth during 2001-2011 were merged with rest of CMA. Similarly, the town panchayats of Kundrathur, Sembakkam, Mangadu and Thirunindravur along with St. Thomas and Kundrathur Panchayat Unions, again registering high population growth during this period, were amalgamated with CMA in 2011.

As stated earlier, there are different types of area units included in CMA. In 2011, more than half or 52.3 per cent of total CMA population was residing in area falling under the Chennai Corporation. Another more than one-fifth or 22.8 per cent was residing under the Extended Chennai Corporation. In other words, three-fifths of total population of CMA was residing under Chennai and Extended Chennai Corporation areas (Table 3). The remaining one-fourth was distributed among three remaining units in the following manner: Municipalities (11.1 per cent), Town Panchayats (4.6 per cent), and Panchayat Unions (9.2 per cent). It is to be noted here that 179 villages falling under the jurisdiction of MCA have been grouped in ten Panchayat Unions for rural administration (see for details Table 1).

Table 3: Chennai Metropolitan Area: Population shares by constituent units, 2011		
Constituent unit name	Population (in lakh)	% in total
Chennai Corporation	46.46	52.30
Extended Chennai Corporation	20.29	22.84
Municipalities	9.83	11.06
Town Panchayats	4.11	4.63
Panchayat Unions	8.15	9.17
Total	**88.84**	**100.00**

Source: As of Table 2

Briefly, there has been rapid growth of population in and around Chennai City Corporation limits during the post-Independence period, mainly due to in-migration of persons and their families looking for better employment opportunities and civic amenities and facilities. During 1971-2011, annual compound growth rate of population was the highest during 1971-81 decade and the lowest during 1991-2001. Throughout the entire period, population growth rate in areas adjoining to the Chennai City Corporation limits, termed as the rest of the CMA, has been twice or more than that of the Chennai City Corporation area. Population growth rate in the rest of CMA has been the fastest during the latest census decade (2001-11), contributed not only by in-migrant population but also by the jurisdictional changes in its boundary. Notwithstanding this, growth rate of population in the rest of the CMA area has been twice or more than that of Chennai City area during the entire study period (1971-2011).

Growth and Development of CMA: Master Plans

In the following, an attempt has been made to evaluate the planning strategy adopted by the Chennai Metropolitan Development Authority (CMDA) to regulate land use planning and land use zoning plan to accommodate population and regulate the development within the Chennai City Corporation boundaries and other parts of Chennai Metropolitan Area (CMA).

CMDA has prepared and implemented the two Master Plans for the regulated and harmonious development between Chennai City and its hinterland. The First Master Plan (1971-2008) came in operation in 1971.The Second Master Plan (2008-2026) came in force from September 2008.

In fact, the Master Plan, one of the important statutory documents prepared to facilitate and encourage the optimal growth of dominant functions of urban areas along with strengthening the intra-urban linkages and providing an elbow room for spatial growth, is prepared under the Town and Country Planning Act for laying down the basic framework for guiding and regulating the future growth of an urban area (Nallathiga, 2009). A Master Plan primarily consists of three basic instruments: (i) a zoning plan, determining the use of each land parcel in the development area, (ii) road network plan, guiding the provision of trunk infrastructure, and (iii) development control regulations, determining the built form in the development area.

The main objective behind the planning strategy adopted by the CMDA in the Master Plans has been to regulate developments in an orderly manner along with providing the necessary land use pattern to accommodate the demand for developments in context of population growth. The major initiative that would influence the urban form of Chennai Metropolitan Area including major road infrastructure projects viz formation of the IT corridor, extension of NH Bypass and the formation of Outer Ring Road, Strengthening of the Suburban railway infrastructure, extension of the Mass Rapid Transit System and the proposed implementation of Metro Rail corridor were considered in the preparation of the Second Master Plan (2008-2026).

Table 4: CMA: Existing land use, 2006				
Land use Type	Chennai City		Rest of CMA	
	Area (in hectares)	% to total	Area (in hectares)	% to total
Residential	9523	54.3	22877	21.9
Commercial	1245	7.1	390	0.4
Industrial	908	5.1	6563	6.3
Institutional	3243	18.4	3144	3.0
Open Space & Recreation	366	2.1	200	0.2
Agricultural	99	0.6	12470	11.9
Non-Urban	82	0.5	2433	2.3
Others*	2087	11.9	56507	54.0
TOTAL	**17,553**	**100.0**	**104,584**	**100.0**

Source: CMDA: *Second Master Plan for CMA, 2008-2026*
* *including vacant land, forest, hills, low lying areas, water bodies etc.,*

The land use existing in 2006 presents a contrasting picture between the Chennai City and the rest of CMA. With more than half (54.3 per cent) of its total area under the residential use, Chennai City is the densely populated area against rest of the CMA having only more than

one-fifths (21.9 per cent) of its areas under the residential use (Table 4). On the other side of the scale, land falling under 'others' category, including the vacant land and forest area also, was more than one-half (54.0 per cent) in the rest of the CMA area, against only about 12.0 per cent in Chennai City area. Evidently, while Chennai City was a densely populated area, the rest of CMA was full of future potentialities for residential and other developments. However, very little land area under open spaces and recreational sites was a matter of serious concern in the case of the rest of CMA.

Table 5: CMA: Proposed land use by zones, 2026				
Land use zone type	Chennai City		Rest of CMA	
	Area (in hectares)	% to total	Area (in hectares)	% to total
Primary Residential	5916.35	33.6	32090.7	31.7
Mixed residential	2426.90	13.8	13503.1	13.3
Commerial	714.24	4.0	880.3	0.8
Institutional	2868.97	16.3	3888.8	3.8
Industrial	691.83	3.9	7274.3	7.2
Special & Hazardous industrial	130.67	0.7	3416.1	3.4
Open Space & Recreation	1000.65	5.7	392.9	0.4
Agricultural	-	-	7295.8	7.2
Non-Urban	113.31	0.6	2332.9	2.3
Urbanable	-	-	2075.9	2.0
Others*	3754.79	21.3	28147.6	27.8
TOTAL	**11617.70**	**100.0**	**101298.4**	**100.0**

Source: CMDA: *Second Master Plan for CMA, 2008-2026*
* *including roads, forest, red hills, catchment area, water bodies etc.,*

A comparative examination of existing and proposed land uses makes an interesting story (see Tables 4 and 5). It proposes to bring in near parity in shares land under residential use between Chennai City and the rest of CMA. Other the other side of the scale, there is a proposal to bring down the share of land under industrial use in the Chennai City from 5.2 per cent in 2006 to about 4.0 per cent by 2026. Against this, there is a proposal to increase the share of industrial use to 7.2 in the rest of CMA from 3.0 per cent during the same time. By 2026, the land under 'others' category is proposed to reduce to about 28.0 per cent from 54.0 in 2006, but there is proposal to increase the share of such land by more than twice in Chennai City. It will be interesting to see whether the CMDA will be able achieve its projections.

In this context, it will not be out of the context to have a cursory look at the objects set by the CMDA for spatial paln during the Second Master Plan (2008-2026). The five main objectives are: (i) optimum utilization of land by channelizing the developments in the right directions and locations; (ii) the future land needs of the metropolitan area by recognizing the existing growth trends and strengthening the infrastructure links needed, (iii) efficient transportation network integrating work, living, shopping and recreation areas to arrive at balanced developments, (iv) wider scope for decentralized employment locations and economic development, and (v) preservation and conservation of ecologically sensitive areas and natural and built heritage (CMDA 2008).

In the following, a brief examination has been made of the spatial planning objectives and strategies in the physical form.

(i) **Mixed land use zoning:** The concept of mixed land use zoning has been prevalent in Chennai City since 1975 and has remained continue so far. A new zoning term, the urbanisable zone, has been coined in the 2ndMaster Plan; this zone facilitating the most environmentally safe urban uses paving the way for demand driven developments-without affecting the quality of life in the neighbourhood (CMDA, 1975; 2008).

(ii) **Development regulations:** The development regulations formulated as part of the 2nd Master Plan for CMA incorporated population projections and revised to promote development in conformity with zoning regulations and the desired urban structure. Source of the key components of development regulations included permission to: multi-storied buildings outside the city; (ii) IT buildings in more zones; (iii) higher Floor Space Index (FSI) for developments in MRTS influence Area to promote Transit Oriented Development; (iv) induce Transfer of Development Rights in cases of road widening and other public infrastructure projects, and (iv) promote lower income group housing by allowing more FSI.

Planning permissions issued by categories

CMDA has been implementing the development regulations since 2008. In the process, it has been issuing permission for certain categories of developments. For example, all developments exceeding six dwelling units and an area of 300 m^2 along with is more than Stilt plus two floors in commercial zones were asked to obtain Planning permission from CMDA; the criteria got revised with the implementation of the Tamil Nadu Common Development and Building Rules, 2019. The parameters of development regulations were revised to be more flexible so as to promote denser developments. An examination of permissions issued by CMDA for various categories of development during 2009-2018 is highly revealing. In all, 4,530 permissions were issued during this period giving an average of 453 permissions per annum. The highest number of 3323 permissions, making nearly three-fourths of total, was issued for special buildings (residential uses) followed by the special buildings (commercial & other uses) with 664 or about one-seventh of total permissions; both in combine receiving about nine-tenths of all permission (Table 6). Special buildings refer to buildings with less than five floors and Multi-storied buildings refer to buildings with more than five floors and it is also observed that special buildings are more in number while compared to Multi-storied buildings. The buildings constructed by the Tamil Nadu Housing Board and Tamil Nadu Slum Clearance Board are also covered in the planning permissions.

The basic objective was to bring safety, security, health and convenience along with economy in the functioning of different land use zones.

In terms of the distribution of permission by different year, the maximum number of 604 permissions was issues in 2003, which is mainly attributed permissions for residential areas.

On the whole, first five years during 2009-2018 received permissions higher than the annual average of 453 permissions, while the reverse was true for the latter five years.

Table 6: CMDA: Planning permissions issued during 2009-2018					
Year	Details of permissions issued				
	Special building		Multi-storied building		Total
	Residential	Commercial & other uses	Residential	Commercial & other uses	
2009	365	72	20	12	469
2010	441	82	19	51	593
2011	374	52	17	17	460
2012	441	90	38	30	599
2013	453	75	31	45	604
2014	246	44	21	26	337
2015	290	45	41	17	393
2016	239	42	39	20	340
2017	278	84	21	27	410
2018	196	78	19	32	325
Total	**3,323**	**664**	**266**	**277**	**4,530**

Source: As table 5

The number of planning permissions is an indirect indicator for measuring the trends of development and it is the density of development that is actually a direct indicator. Even though the actual number of planning permissions may be less, the number of dwelling units or the commercial space covered in such planning permissions may be much more depending on the intensity of development. Further the various local bodies with Chennai Metropolitan Area including the Greater Chennai Corporation have been delegated with necessary powers to issue planning permissions for certain categories of development and the local bodies account for a large share of planning permissions in Chennai Metropolitan Area.

An analysis carried out to identify areas having greater development potential reveals that Koyambedu, Mangadu, Velachery, Zamin Pallavaram, Ambattur, Alandur, Kottivakkam are areas where large scale developments have been approved. This indicates in these areas higher increase in population growth necessitated the need for providing housing and other facilities to accommodate the increased population, demonstrating their higher potentiality for development.

Land use changes in CMA

Before moving directly to changes effected by the CMDA, we have brief discussion on land use zoning, the first step in the direction of land use planning with serious implications. Done to maintain public safety, security, convenience and tranquility, zoni ng separates the non-conforming land uses from each other, e.g. residential areas from the industrial areas. It helps in preservation of open space, prime agriculture land and ecologically sensitive areas also. However, land use zoning prevents the optimum development of a particular site, when the site is zoned for more than one land use zone; expansion of existing activities is also curtailed due to non-confirming land use zone; and the sites zoned for open space, recreational use and institutional use are not put to use as these sites are not acquired by the Govt., making hardship to the owners of such lands.

However, the demand for developments is market driven. In order to provide the necessary right to change the land use classification, as stipulated in the Master Plan, Sec.32(4) of the Act (see Govt. of Tamil Nadu, 1973), provides for reclassification of one to other category of land use. Landowners apply for reclassification and such requests are examined and decided on individual merits in accordance to the provisions of the Act. The provision for reclassification enables flexibility in land use zoning by catering to the demand created by large-scale urbanization on the provision of housing and other facilities.

Information on the number of changes made in land use during 1977-2018 has been presented in table below (see Table 7). These changes were effected following the due procedures for reclassifications ever since the First Master Plan for CMDA came into operation from August 5, 1975. Changes have been classified based on administrative jurisdiction to understand the trend in terms of growth in population in the respective constituent units i.e., city Municipalities, Town Panchayats and Panchayat Unions and an attempt has been to correlate the growth of population and the changes in the land use pattern.

Table 7: CMA: The number of times land use changes effected during 1977-2018					
Year	Chennai City	Municipality	Town Panchayat	Panchayat Union	Total
1977-81	3	11	5	3	22
1982-86	113	40	99	114	366
1987-91	90	24	54	196	364
1992-96	101	42	51	128	322
1997-2001	92	13	37	120	262
2002-2006	46	15	44	116	221
2007-2011	62	25	20	114	221
2012-2018	111	34	20	109	274
TOTAL	**472**	**148**	**291**	**712**	**1623**

Source: As table 5

In all, 1623 times land use changes were effected during 1977-2018, giving an annual average of about 41 changes per annum. The minimum number of changes was during 1977 81 and the maximum number during 1982-86. Among the constituent units, village panchayats accounted for the maximum number of 712 changes, making about 44.0 per cent the total reclassifications. Since the vast vacant lands were available for development further the availability of sub-urban rail transport both towards north and south direction in the Metropolitan Area has facilitated the movements of the population leading to demand.

On the whole, the period between 1982 and 1996 witnessed the largest number of land use changes. During this period, as many as 1,052 changes made, make about two-thirds of all changes during 1977-2018. It was during this period that large scale construction of flatted developments was undertaken within the Metropolitan Area. The expansion of Chennai Corporation rectified the increase in reclassification of land from agricultural to Residential and other uses of land to accommodate the needs of the population. The period from 2012 to 2018 witnessed again an increase in the number of reclassification of land use.

An attempt has also been made to identify the land use categories, which has undergone the maximum number of reclassifications during 1977-2018. It is evident from Table 8 that land

use changes are predominantly carried out from Agriculture use zone accounting for about 46.0 per cent of the total reclassifications. Among the uses to which the agriculture use zone has been changed, the residential category is at the top with more than two-thirds or 67.0 per cent of the changes. This indicates that there has been a greater effort to accommodate the housing needs of the increasing population especially in the peri-urban area. The next land use category that subjected to the large number of changes is the primary residential use zone, being converted into mixed residential and commercial use zones. Which was done to accommodate the growing demand for the commercial activities?

Table 8: CMDA: Number of land use reclassification (transformation) by use categories, 1977-2018

From/ To	Residential		COMM	INDL	S&H	INST	OS&R	AGRI	NU
	PR	MR							
PR	6(EWS)	278	134	103	13	95	3	14	
MR	8	-	18	31	2	4	-	6	
COMM	4	-		10	-	-	-	-	-
INDL	41	7	3	1	1	6	1	6	-
S&H	5	5	2	2	-	2	1		-
INST	100	26	19	11	-	-	4	2	-
OS &R	63	14	12	30		8	-	6	-
AGRI	622	38	28	167	11	45	8		17
NU	21	3	6	4		6	-	-	-

PR=Primary Residential, MR=Mixed Residential, COMM=Commercial, INDL=Industrial, S&H=Special Hazardous, INST=Institutional, OS&R=Open space and Recreational, AGRI=Agriculture, NU=Non-Urban

Source: As Table 5

The change from residential use to mixed residential and commercial use is observed in Chennai city and the surrounding municipalities, where more than three-fifths or 63.0 per cent of the land use changes are from 'primary residential' use zone to 'mixed residential' and 'commercial' use zone. Substantial reclassification to industrial uses have also occurred which reflects in the increase of industrial developments including large scale manufacturing in automobile sector. Lands earmarked for 'open space and recreational' use zone has also been changed to 'residential and commercial' use zones to a certain extent. Generally, it is observed that in most of the cases the place moved the lower order use zone to the higher order use zones.

Conclusions

An examination of growth of population in CMA and the planning permissions and reclassification issued by CMDA reveals that the areas identified with higher growth rate of population are also the areas of higher potentials for residential developments to accommodate the housing needs of rapidly growing population in and around Chennai City.

The development regulations forming part of the Master Plan provided adequate flexibility for taking up large-scale developments with more intensive use of land. The newly added Municipalities and Town Panchayats to the extended Greater Chennai Corporation are fast growing urban centers, identified as the areas with greater development potential for their close proximity to the core city. The process of reclassification has increased the availability

of land for residential and other uses and the conversion from 'agriculture use zone' to 'residential use zone' in the outlying areas within CMA. While the change of use from residential to commercial and other higher order uses has been observed in the core city and extended areas of Chennai City Corporation Area.

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DETERMINANTS OF SON-PREFERENCE IN INDIA

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Abstract: Without exception, the desire for boy child has been a common phenomenon in the South Asian countries including India. Although the preference for sons in India has declined over the years, it persists across states, albeit in different degrees. Son-preference has various adverse out comes including low child sex ratio and low rate of fertility transition, attracting the attention of scholars from various fields. While the phenomenon of son-preference is largely due to cultural beliefs and norms which cannot be altered significantly within a short period of time, there are a set of interdependent socio-economic factors helping the persistence of such a practice. These factors need to be identified and proper policies must be outlined to curb this prejudiced attitude. Present study attempts to understand the current scenario of son-preference across the states in India and identify the factors along with their persistence. The study concludes that son preference continues to be prevalent in the Indian society albeit with different intensities across regions. Strong son-preference attitude prevails in northern, central, eastern and north eastern regions of India while western and southern states record lower son-preference. Northern, central and eastern regions also record the lowest child sex ratios. Since fertility rates are on the decline and couples are opting for the small family size, preference for boy child will only accentuate the skewness in sex ratio. This is where policy intervention is necessary.

Keywords: Son-preference, child sex ratio, fertility rates, ideal family size, sex composition of children

Introduction

Preference for sons over daughters has been a widespread phenomenon in most South and Southeast Asian countries, India being no exception to this. Sons are preferred on the basis of three types of utilities: economic, social and religious (Arnold, et al., 1998, 2002). In India, the major cause of son-preference is due to the economic utility. Sons can participate in family farms and businesses; having better prospects in the labour market and expected to provide financial and emotional support to his parents in the old age. Sons can continue the family lineage whereas daughters are married-off and form part of another family (Das Gupta et al, 2003). The practice of dowry during marriage of a daughter poses a huge burden on the financial resources of the family while a son's marriage is an avenue for incoming financial resources. Also, according to Hindu faith, souls of deceased parents attain salvation when their sons lit the funeral pyre and perform the last rites. Aversion towards girl children can stem out from a variety of socio-economic and cultural factors wherein girls are considered to be a liability in terms of protecting her in adolescence, finding suitable groom, paying dowry, among many others (Robitaille and Chatterjee, 2017, 2018; Radkar, 2018).

Desire for male child has been one of the prime reasons for high fertility rates in India as the woman continues to bear children till a son (or desired number of sons) is born to her. Bearing a son is not only the sole responsibility and duty of the woman but is also an empowerment

enhancing tool in her marital family (Das Gupta et al, 2003; Robitaille and Chatterjee, 2017). Studies have shown that women with at least one son has to face lesser abuse and violence and her chances of facing future violence also decreases once her son is old enough to protect her (Rao, 1997; Robitaille and Chatterjee, 2017).

Son-preference has been a subject of interest to researchers because it has multiple adverse impacts on demography and society. It affects the attitudes and behaviour of couples regarding the total number of children they want, the sex composition of the children and also whether they want more children (Das Gupta et al., 2003; Mishra et al., 2004; Arokiasamy, 2002; Arnold et al., 1998, 2002; Clark, 2000; Pande and Astone, 2007; Radkar, 2018). Female infanticide and daughter-neglect are manifestations of preference for boy child, resulting in the highly skewed child sex ratio in India. This is often referred to as the 'missing women' or 'disappearing daughters'. Since daughters are considered a burden, sex-selective neglect after birth is a common phenomenon. Neglect of girl children is manifested in their poor and inadequate diet, immunization status, schooling, health care utilization (Arnold et al., 1998; Kishor, 1993), higher burden of household work (Lin et al., 2013) and is reflected in adverse health outcomes. It leads not only to low development of the girl children but also results in high morbidity and mortality rates. Pre-natal sex determination and sex-selective abortion has become prevalent in the last few decades (Robitaille and Chatterjee, 2018; Radkar, 2018). Instead of female infanticide or daughter-neglect, the 'unwanted' girls are not allowed to be born at all. Despite the implementation of the Pre-Natal Diagnostic Techniques (Regulation and Prevention of Misuse) (PNDT) Act in 1994, further amended in 2003 to become the Pre-Conception and Pre-Natal Diagnostic Techniques (PCPNDT) Act, pre-natal sex determination and sex-selective abortion continue to be prevalent.

According to the National Family and Health Survey NFHS-4 (2015-2016), women between 15-49 years of age have reported an ideal family size of 2.2 children but their ideal family composition is 1.1 sons, 0.9 daughters and 0.2 children of either sex. This implies that in the choice of the sex of the child a woman is biased towards sons in comparison to daughters. Though declining son-preference has been recorded from NFHS-1 to NFHS-4, yet it continues to exist, despite declining fertility rates. In the light of above statements, the present paper attempts to study the existing scenario of son-preference in India and the factors contributing towards this phenomenon. Since fertility rates are on the decline and couples are opting for small size of the family, the preference for boy child will only accentuate the skewness in sex ratio. This is where policy intervention is an urgent requirement.

Literature review

In India, men have traditionally outnumbered women and skewed sex ratio has been an old phenomenon. While biology is regarded as an important factor, there are other social and cultural factors responsible for the skewed sex ratio in India and son-preference is one of them. Though it

is argued that son-preference is weakening in the recent years especially among the urban families, yet data reveal that it persists across the country. Son-preference has been a matter of interest to researchers for a variety of reasons. The impact of different social, economic and cultural factors on preference for sons has been widely studied. The role of education on whether a woman will prefer sons over daughters can hardly be exaggerated. Clark (2000) used data from the NFHS-1 (1992-1993) and concluded that the odds of desiring sons are higher among uneducated women than among women who have higher education. The more the woman is educated, the weaker is her son-preference. Pande and Astone (2007) used data from the rural sample of the NFHS-1 (1992-1993). They have used ordered logit model and results show that women with secondary or higher education have significantly weaker son-preference than women with lower levels of education. Radkar (2018) argues that son-preference can further become less significant with rising education and employment of women.

The economic status of the household is also a decisive factor for son-preference. Kashyap (2011) used data from the Delhi sample of the NFHS-3 (2005-2006). Using a logistic model she concluded that son-preference weakens with increased household wealth and higher levels of mothers' educational attainment. Gaudin (2011) used cross-sectional data from the NFHS 2 and 3 (1998-1999 and 2005-2006) and measured son-preference using the difference between ideal number of boys and girls divided by the ideal family size. She used maximum likelihood methods to conclude that lower preference for sons is associated with higher per capita state GDP (Gross Domestic Product), lower relative wealth, wealthier households, higher levels of education and higher media exposure. Basu and Jong (2010) used household-level data from the 1992 Demographic and Health Survey (DHS), India. They analyzed the effect of covariates on son targeting behaviour. They concluded that the age of the mother decreases the probability of son-targeting behaviour while the respondents' participation in the labour force increases the probability of son-targeting behaviour. Low and middle income families have a higher probability of son-targeting behaviour.

Besides education and wealth, the place of residence also determines level of son-preference. Robitaille (2012), whose study is based on data from the NFHS-3 (2005-06) and used the sub-sample of men and women who had never been married, measured son-preference as the ratio of boys desired by the respondent to the total number of children he/she desires. With the help of ordinary least squares method, she concluded that urban and better educated women with relative rich household background living in the southern and eastern states of India had lower son-preference. Similar results were found in the case of men as well. The attitude of son-preference is highly affected by the social and cultural set up of a country or a state. It has been documented that there is a stronger son-preference attitude in the northern and the eastern states in India as compared to the southern states mainly due to the stronger patriarchal norms prevalent in the northern and eastern states. Change in the existing social norms, attitudes of people and an

improvement in the status of women can result in significant weakening of preference for sons (Jayaraman et al., 2009).

In the recent years improved medical technology has helped in retaining the son-preference attitude. Pre-natal determination of sex is illegal but prevalent. People want to be sure about 'what' is going to be born. The direct and indirect pressure on women to have male heirs is immense and when a male heir is born, the worth of the woman in the family rises. Reproduction is a family decision influenced by societal norms rather than an individual decision. Robitaille and Chatterjee (2017) have analysed NFHS-3 data to conclude that the mother-in-law has a significant influence on son-preference by the daughter- in-law-a major reason for skewed sex ratios in India.

The Objective of the study

In the light of all this, the main objectives of the present study are: (i) Inter-state differentials in son-preference across Indian states, and (ii) to identify the major factors responsible for the son-preference attitude among women across the states in India.

Data sources and methodology

This study is based on sample survey data of **NFHS-4 (2015-2016)** and **Sample Registration System (SRS)** Tables 2015 available from the Census of India-1991, 2001 and 2011. Statistical software IBM SPSS Statistics 20 has been used to analyse the NFHS data and ArcMap 10.2.2 has been used to generate maps. Data from Census of India 1991, 2001 and 2011 has been used to study the trends over time and across states, studied in relation with percentages of mothers desiring more sons than daughters. Data from SRS tables 2015 has been used to study the relation between son-preference and general fertility rates.

Binary logistic regression has been used to predict son-preference (i.e. dependent variable). To assess women's ideal number of children, NFHS-4 asked men and women the number of children they would like to have if they could start over again. Women with no children were asked, 'If you could choose exactly the number of children to have in your whole life, how many would that be?' Women who already had children were asked, 'If you could go back to the time you did not have any children and could choose exactly the number of children to have in your whole life, how many would that be?' Those who gave numerical response to either of the above questions were further asked how many of these children they would like to be boys, how many they would like to be girls and for how many the sex would not matter. Responses were entered as number of boys, girls or 'other'. Based on these questions, son-preference is coded as 1 if the mother reports ideal number of sons to be higher than ideal number of daughters and is coded as 0 if the mother reports ideal number of daughters to be higher than ideal number of sons or desires equal number of children of either sex. There is a common problem with the dependent variable 'son-preference', which is based on a subjective question. When respondents are asked

about their ideal sex composition of children, she either reveals her true preferences or provides a socially desirable answer. It is difficult to recognize the women who misreport intentionally - a major drawback of the dependent variable (Maitra, 2013).

Son-preference has been studied in the light of eight variables indicating various background characteristics including: (i) Age of the woman, recorded as continuous variable. This data set includes women between 15-49 years age; (ii) Education status of women- divided into four categories (0 if the woman is not educated, 1 if having primary education, 2 if having secondary education and 3 if having higher education), (iii) employment status of the women and her exposure to mass media are categorical variables (1 if she is employed and exposed to mass media and otherwise takes 0). NFHS 4 has recorded respondent's media exposure by enquiring about the frequency (almost every day; at least once a week; less than once a week; or not at all) with which they read a newspaper or magazine, watch television, or listen to the radio. On the basis of these, the variable media exposure has been created (0 if the respondent does neither of these either daily or once a week, and 1 if the respondent does at least one of these daily or once a week). These variables are important to understand the attitude of a woman towards preference for son.

Household related variables include the **place of residence, religion, caste and wealth index of the household**. Type of place of residence consists of two categories (1 for urban and 2 for rural). Religion (Hindu, Muslim and Others), Caste variable (scheduled caste, scheduled tribe, other backward classes and others) and Wealth index has been provided by NFHS-4 on the basis of assets possessed by the households (poorest, poorer, middle, rich and richest).

Fig. 1: Preferred sex composition of children as stated by women in India by states/UTs, 2015
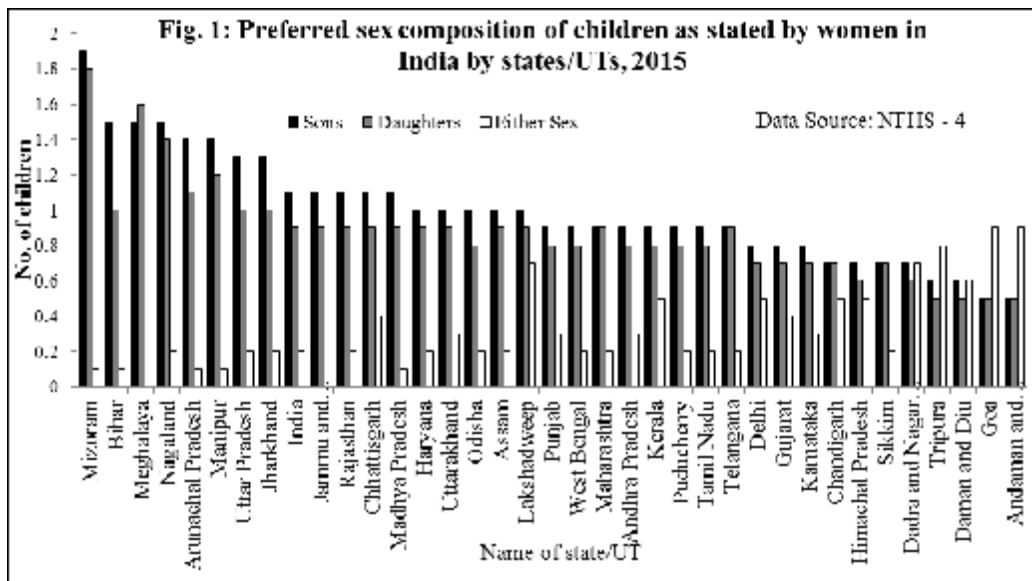
BACKGROUND

Son preference in India

The figure 1 depicts the ideal composition of children as stated by women of 15-49 years of age by states. Notably, this is the composition of children as stated by the women rather than the actual composition of living children. Each state has three columns: (i) the ideal number of sons, (ii) the ideal number of daughters, and (iii) the ideal number of children of either sex. Meghalaya is the only state where the women stated the higher ideal number of daughters than sons. In this state, 14.0 per cent women stated that they desire more sons than daughters, against 21.0 per cent reporting that they desire more daughters than sons. In all other states and union territories, the ideal number of sons is reported more than daughters. In states/UTs such as Maharashtra, Telangana, Chandigarh, Sikkim, Goa and Andaman and Nicobar Islands, the women stated the equal ideal number of sons and daughters. In Goa and Andaman and Nicobar Islands less than 2.0 per cent women desire more sons than daughters; also recorded the lowest difference between percentages of women desiring more sons than daughters/more daughters than sons. In southern states of Karnataka and Kerala also, there has been the low difference (about 5.0 per cent) between percentage of women desiring more sons than daughters and more daughters than sons. In contrast, very high difference is noted in Bihar (35.2 per cent), Uttar Pradesh (29.9 per cent), Jharkhand (25.1 per cent), Arunachal Pradesh (22.7 per cent) and Manipur (19.9 per cent).

Sex ratios in India

The sex ratio at birth (SRB) always favours males–about 105 males are born per 100 females-equals to 952 females born every 1000 males. Biology is generally considered to be the factor responsible for such skewness in sex ratio at birth. It is believed that some of the boys will not survive in due course and hence the ratio will get balanced. India has always experienced a skewed sex ratio, worsening decade after the decade. There were 972 females per 1000 males in 1901, which declined to as low as 927 in 1991 and again increased to 943 in 2011 (Fig. 2).

Child sex ratio (number of girls per 1000 boys 0-6 years of age) was better than overall sex ratio till 1991 (since fertility rate was high and at least some girl children were being born), after which child sex ratio has fallen below overall sex ratio (as fertility rates are declining and couples prefer smaller families; therefore the process of selection is gaining pace). Since 1991, the child sex ratio declined below 952 females per 1000 males (the natural sex ratio at birth) and has been continuously low during 2001 and 2011.

Fig. 2: Trends in sex ratio and child sex ratio in India 1901-2011

Source: Census of India, 2011
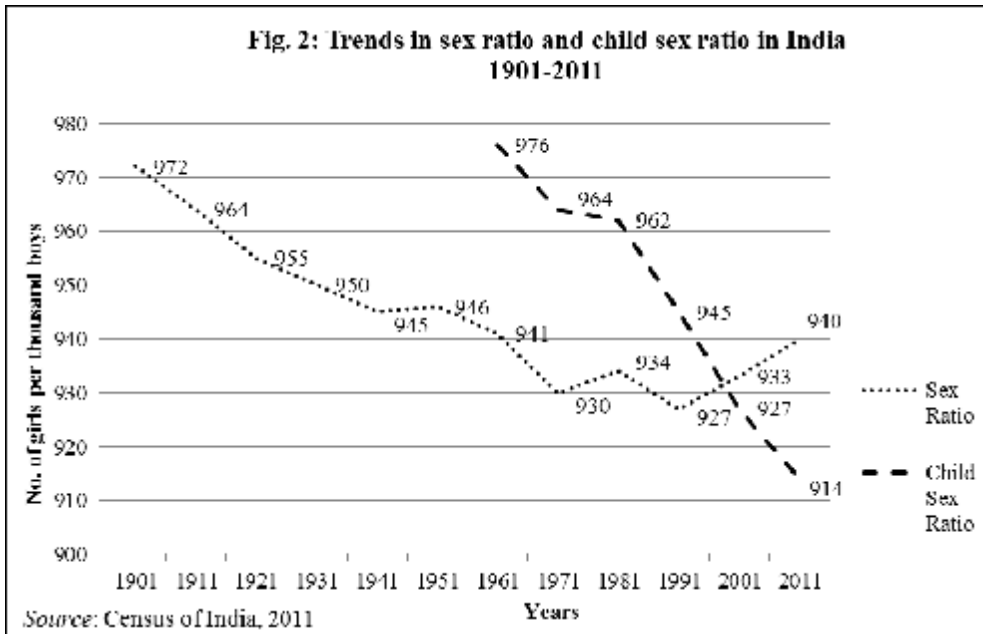
Son-preference, child sex ratio and general fertility rates

According to Radkar (2018), it is impossible to alter SRB in a short period of time without human intervention. Scholars are of similar opinion regarding the fact that there are non-biological factors responsible for the skewed sex ratio in India and son-preference is an important contributing factor for the same. Preference for sons over daughters has been a major reason for the lesser number of females compared to males, reflecting the patriarchal norms in India. The relationship among son-preference, child sex ratio and general fertility rates across states has been studied (see Map 1 (son-preference), Map 2 (child sex ratio) and Map 3 (general fertility rates).

After a careful examination, the states have been grouped into the four broad groups, described in the following:

  i. **States with high son-preference and low child sex ratios:** The northern and central states such as Uttar Pradesh, Bihar, Rajasthan and Haryana fall under this category. They record high son-preference (>15 per cent) and low child sex ratio (< 910 girls per 1000 boys) and high general fertility rates.

 ii. **States with low son-preference and high child sex ratios:** The southern states such as Karnataka, Kerala and Tamil Nadu fall under this category. They record lower son-preference and high child ratios. General fertility rates are also lower in these states.

iii. **States with high son-preference and high child sex ratios:** Jharkhand and Chhattisgarh fall under this category. They record high fertility rates, son-preference, and child sex ratio. The general fertility rates are high.

iv. **States with low son-preference and low child sex ratios:** Maharashtra, Himachal Pradesh and Punjab are included in this category. These are the states with low son-preference as well as low general fertility rates.

Results and discussion

Table 1 presents the summary of results of the binary logistic regression. The dependent variable is son-preference, coded as 0 and 1.

It is observed that all the variables considered in the model are significant. This indicates that all these variables explain the preference for sons. The results are also consistent with earlier studies. Age of the woman is directly related to son-preference. Higher aged women show a stronger preference towards sons as compared to women of the lower age groups. The reason for such a tendency may be found under the strong patriarchy norms entrenched within the Indian society. As the age of the woman increases, she faces more pressure from her family to bear sons. Also, at higher ages, she becomes more concerned and worried about the family lineage and hopes that if she has sons, they will look after her in the old age. At lower ages, these matters may be of lesser concern to the women. Also, the lower age women may be exposed to more progressive views helping her do away with such prejudices. The relation between age of the woman and son-preference reveals a positive sign, since it can be expected that son-preference will weaken as the women in the lower fertility age believe less in this practice. The place of residence also has an influence on whether the woman will have a higher preference for sons. In rural areas the fertility rate is high, therefore, among many children there will be few sons and few daughters. On the other hand, since the fertility rate is low in the urban areas and couples prefer small families, the preference for son increases. For example, if a couple wants to have only one child, they might prefer to have a boy. Also, people in the urban areas have the choice to undergo pre-natal determination of sex and sex-selective abortion making it easier for them to manipulate the sex composition of their children. A gradient is observed in son-preference along the wealth index of the household. As one moves from poorest (lowest wealth index) to richest (highest wealth index) group of people, it can be seen that the intensity of son-preference decreases. This implies that there is lesser son-preference among the middle income group and the higher income groups. This can be better understood if we consider income as a function of education, whereby the more educated have more income, they fall in the upper income quartile (highest wealth index). As education increases, awareness also increases and people discriminate less between boys and girls. Therefore they have lesser son-preference. However, it must be remembered that son-preference is intricately related to the Indian social structure and some amount of son-preference exists in every quartile of the society, the variation in the rates makes the difference. All income groups prefer sons, but their intensity of preference varies. Similar results can be seen in the case of education level of the respondent. Compared to women with no education, the odds of preferring sons among women educated till the primary level is 2 times.

Map 1

INDIA
PERCENTAGE OF MOTHERS WHO PREFER
MORE SONS THAN DAUGHTERS
2015 - 2016

N

Percentage of women who want
more sons than daughters

Greater than 25%

15 to 25%

Less than 15%

Data Source: NFHS - 4

0   165 330   660   990   1,320
Kilometers

Map 3

INDIA
GENERAL FERTILITY RATE
2015

N

General fertility rate

Greater than 83

63 to 83

Less than 63

Data not available

Data Source: SRS Tables, 2015

0   165 330   660   990   1,320
Kilometers

Map 2

INDIA
CHILD SEX RATIO
2011

N

Number of girls per 1000 boys
(0 - 6 years)

Greater than 943

910 to 943

Less than 910

Data Source: Census of India, 2011

0   165 330   660   990   1,320
Kilometers

However, this again decreases as one becomes more educated. Though son-preference continues to be directly related to education, but the intensity of preference decreases with increase in educational level. As already mentioned, education creates awareness and people make little distinction between boys and girls. More educated women would prefer to have equal number of boys and girls or might even prefer girl children. Mass media plays an important role in creating awareness among people; hence women not exposed to media have a high preference for sons. Compared to scheduled caste population, scheduled tribes and non-scheduled population have a higher preference for sons. Religion is also an important determinant of fertility rates and choices, hence son-preference as well. The Hindus have lower son-preference than Muslims and other religious groups.

Category	Variable	Reference category	Coefficient	Sig.	Odds
	Age of the woman		0.024	0.000	1.024
Type of place of residence		Urban		0.000	
	Rural		-0.095	0.000	0.91
Wealth quintile		Poorest		0.000	
	Poorer		0.505	0.000	1.656
	Middle		0.281	0.000	1.325
	Richer		0.107	0.000	1.113
	Richest		0.106	0.000	1.112
Employment status		Not employed		0.000	
	Employed		0.083	0.000	1.087
Exposure to mass media		Exposed to media		0.000	
	Not exposed to media		0.427	0.000	1.533
Religion		Hindu		0.000	
	Muslim		0.222	0.000	1.248
	Others		0.532	0.000	1.702
Caste/tribe		Scheduled caste		0.000	
	Scheduled tribe		0.246	0.000	1.279
	OBC		0.036	0.270	1.037
	Others		0.279	0.000	1.322
Woman's education level		Not educated		0.000	
	Primary education		0.77	0.000	2.16
	Secondary education		0.531	0.000	1.701
	Higher education		0.216	0.000	1.241
	Constant		-3.469	0.000	0.031

Estimated by the author from NFHS-4.
Note: P-values at a 95% confidence interval, P-values =0.05 is considered as the significance level

Conclusion and recommendations

The foregoing discussion makes it evidently clear that son preference continues to be prevalent in the Indian society albeit with different intensities across regions. Strong son-preference attitude prevails in northern, central, eastern and north eastern regions of India while western and southern states record lower son-preference. Northern, central and eastern regions also record the lowest child sex ratios. Since fertility rates are on the decline and couples are opting for the small family size, preference for boy child will only accentuate the skewness in sex ratio. This is where policy intervention is necessary. Since son-preference is influenced by a set of interdependent socio-economic factors, the route to obliterate this phenomenon also lies in these factors. Data reveals that better educated women have low son-preference; therefore this can be used as a tool to further reduce the son-preference attitudes. Education opportunities should be enhanced for women. Policies should be directed towards improvement in the education, employment and empowerment status of women helping them to be more independent and hence less directed by social customs. Provision of incentives to families with girl children is an important way to make them realize that having girls in the families are not burdensome. The government can create awareness through mass media campaigns to promote equality between boys and girls. Since this is not a desirable situation both socially and demographically, the government must ensure better and stricter implementation of the existing laws to curb manipulation of sex composition of children.

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RURAL OUTMIGRATION FROM BUNDELKHAND REGION OF UTTAR PRADESH: A STUDY OF PUSH FACTORS

Anamika Singh, Varanasi

ABSTRACT: Out-migration from rural areas to earn livelihood is a common phenomenon in Bundelkhand region of Uttar Pradesh. Such a process not only accelerated in recent years but also changed in character. Earlier it used to be the male oriented, but gradually it is turning to couple migration as well as the family migration, both seasonally and permanently. The present study attempts to study the out-migration streams from the rural Bundelkhand along with the reasons behind such a forced migration. Based on data collected from the secondary sources including government records, along with non-government agencies/media reports, the study concludes that the major push factors working behind the forced rural-urban migration are poverty, underemployment and unemployment, caused due to climatic extremes, frequent crop failure, low agricultural productivity and poor demand for non-farm goods and services as the alternate sources of income. Debt-ridden households, marginal farmers and agricultural labourers are forced to move out to urban areas to find other sources of employment.

Keywords: Out-migration, debt-ridden, regional backwardness, unemployment, poverty

Introduction

Migration is the geographic movement of people away from their usual residence, establishing a new temporary/permanent residence due to environmental, social, economic, and other causes (Das and Saha, 2012). Lee (1966) explains, peoples are "pushed" out from their places of origin, where they are dissatisfied (for socio-economic, or other reasons) and "pulled" by destination places where they can "better" themselves.

Rural to urban migration in a developing country like India mostly takes place due to push factors (like poverty, unemployment, natural calamities and under development etc.) of the places of origin, not pull factors of destinations (Das and Saha, 2012). It has been observed that extreme poverty, stressed ecosystems, climatic hazards, and socio-political shocks force people to move away from their places of origin (Parkins, 2010). In fact, this type of migration indicates wide range of disparities in economic and social conditions between places of origin and destination (UNFPA, 1993). Migration from a particular region to developed states or big cities in search of better employment opportunities shows the state of underdevelopment, and agrarian structure. It also reflects a very high level of regional disparities in development. In India, similar pattern of migration is very common, where rural out migration is directly linked with the rate of development in the concerned states.

In EAG (Empowered Action Group) states including Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, Uttaranchal and Uttar Pradesh, the rate and volume of out-migration is higher than other states due to low levels of urbanization, lack of industrialization, underdeveloped agriculture, and lack of transport and communication

facilities (Mukherjee and Das, 2011). In this group of states, Uttar Pradesh is the state where out-migration has been adopted as a common livelihood strategy due to wide spread rural poverty and underdevelopment, and thus the state has emerged as a major supplier of cheap labour within and across the national borders (Ahmad, 2018). Data available from the Census of India (2001) reveals that Uttar Pradesh contributes the largest number of net-migrants (-2.6 million), who move out from the state with the reason of **'**Work/Employment' and /or 'Moved with households' among all states. Uttar Pradesh alone shares 23.0 per cent of country's total out-migration (Census of India, 2001), against its share of 16.0 per cent in total population of the country.

Within Uttar Pradesh, Bundelkhand region is identified as one of the least developed part of the country, making media headlines for severe draughts, suicides by debt-ridden farmers, eating hay bread due to extreme poverty, starvation deaths, large-scale migration of marginal farmers, agricultural labourers, and also youth-outmigration for livelihood in cities (Samara, 2008). For decades, rural out-migration is a common phenomenon in Bundelkhand region. But in the last few years the process accelerated and also changed its character. Earlier only male member/s of the family used to migrate to the cities for employment, but presently not only the male migration is happening, but also couple migration, and complete household migration have been added, both seasonally and permanently.

Research Objectives

In the light of the above statements, the present paper sets the following research objectives for their investigation. These included the study of-

1. The magnitude and the direction of out-migration from rural Bundelkhand within the state of Uttar Pradesh,
2. Factors working behind the out-migration;
3. Changes in migration strategies, and
4. Demographic and socio-economic implications of the out-migration.

Study Area

Bundelkhand, a historic and geo-cultural region of the Central India, lies in dry Vindhean plateau area. It comprises of 13 districts (seven from southern Uttar Pradesh) and the remaining six from Madhya Pradesh. These included Chitrakoot, Banda, Jhansi, Jalaun, Hamirpur, Mahoba and Lalitpur from the former and Datia, Tikamgarh, Chhatarpur, Damoh, Panna, and Sagar from the latter. The topography of Bundelkhand is filled with uneven rocky hills and deep ravines. The region has abundance in natural resources. However, the ground water is not only found at considerable depth but also its quality is highly poor. Mostly it is unfit for drinking purposes. The draught conditions, infertile land, and the lack of irrigation facilities are the main problems of this region.

The present study covers the former seven districts from Uttar Pradesh, called as Bundelkhand region of Uttar Pradesh. It lies between 24° 10¹ N to 26°25¹ N and 78° 10¹ E to 81°35¹ E, extending over an area of 29,148 sq. km. and 12.2 per cent in total land of the state

of Uttar Pradesh. As per 2011 Census, the total population of this region was 96.82 lakh, making only 5.2 per cent in total population of the state. Evidently, Bundelkhand is a sparsely populated part of Uttar Pradesh. This is further supported in low population density of 338 persons per sq. km. in comparison of the state average of 828 persons per sq. km. In addition, it is a highly rural and agricultural part of the state. Nearly 77.0 per cent of the total population of the region is living in the rural areas. In other words, less than 23.0 per cent population lives in urban areas. Almost the same is true for the state as a whole. However, if we exclude Jhansi district, having about 42.0 per cent of urbanization level in 2011, from the Bundelkhand region, urbanization level comes down to less than 18.0 per cent, and urbanization level in Chittrakoot district is less than 10.0 per cent. One-third of total households are officially covered in Below Poverty Line (BPL) and entitled in state's welfare schemes (Draught Assessment Report, Bundelkhand, UP, 2016).

Fig. 1: Bundelkhand Region
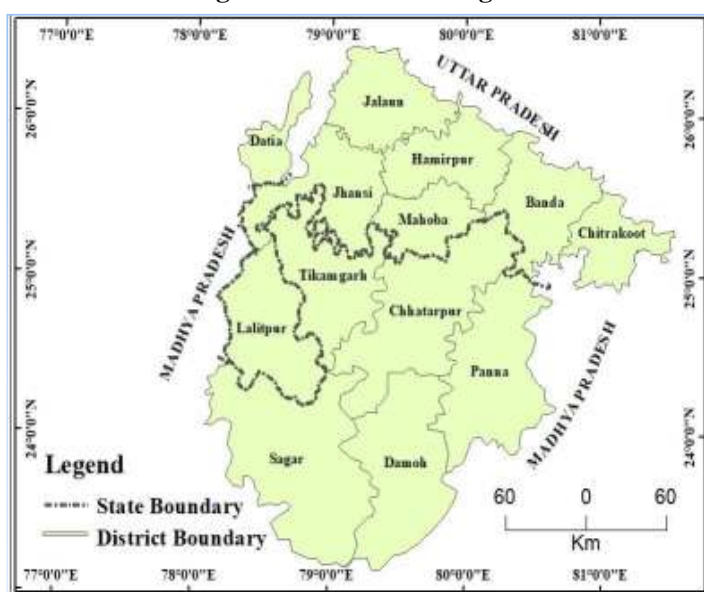
It is clear that the Bundelkhand is one of the most backward parts of Uttar Pradesh (Human Development Report, UP, 2012) and the country as well. Its social backwardness is also clear from social composition of population. The majority of population (53.0 per cent) belongs to Other Backward Castes (OBCs), and another one-fourth (25.0 per cent) to scheduled castes are 25.0 per cent. About one-fifth population belongs to Rajputs and Brahmins, owning the majority of agricultural land.

More than 80.0 per cent workforce of this region is still engaged in agriculture as cultivators or labourers, showing a high dependence on agriculture. Living conditions especially of the of rural poor are very bad. They are highly vulnerable to agricultural droughts. On other side, illiteracy coupled with lack of employment opportunities lead to serious socio-economic distress.

Data Sources and Methodology

This study is mainly based on secondary sources of data/information. This included Census of India (2001) Data Highlights– Migration Tables D1, D2 & D3; Census of India: Primary Census Abstracts 2001 & 2011; Census of India (2011) B-3 Main Workers, Marginal Workers, Non-Workers and Those Marginal Workers, Non-Workers Seeking/Available For Work Classified by Educational Level And Sex- 2011; Socio-Economic and Caste Census (2011); Ministry of Rural Development, Government of India, NSSO (2010); Migration in India, National Sample Survey Organization, Ministry of Statistics and Planning Implementation, Government of India, Report No. 533; 64th round data, collected during July, 2007–June, 2008, Niti Aayog (2015) and Human Development Report: Bundelkhand 2012. In addition, government reports, research journals, websites, and NGO and media reports have also been pressed into service. Various cartographic and statistical techniques have been for mapping and data analysis and interpretation.

DISCUSSION, ANALYSIS AND FINDINGS

Causes of Migration

Rural to urban migration in India is associated with pushed and pull factors. In the former case, people feel motivated due to a desire of getting better employment possibilities, higher wages, and good quality of education and better living standard of the destination place. In the latter case, it happens due to various push or distress factors at their place of origin. Some of these factors are drought or extreme weather conditions, agricultural failure, lack of alternative employment opportunities, low wages, and debt etc. (Bhaduri and Marglin, 1990; Haan, 1999; Srivastava, 2005 and Kundu, 2008).

According to the data available from the National Sample Survey Organization (NSSO, 2010), rural people migrated to cities mainly for four reasons: Economic, Educational, Social and Others. The majority of rural workers (55.4 per cent) do migrate to cities for economic reasons (Table 1). The next important reason for migration is education (26.6 per cent). Due to lack of education facilities in the villages, people migrate to cities. Social and other reasons constituted another about 3.0 per cent and 15.0 per cent, respectively. Other Studies also show that the main reason behind rural-urban is the economic (Kundu, 2008). In a study of Bundelkhand region (UP), Prasad (2016) identified the two main reasons for out-migration: lack of gainful employment and the low wages. For example, 40.0 per cent from Banda district and 46.7 per cent from Hamirpur district do migrate to urban areas for non-availability of work at their native places.

Census of India (2001) has also listed six main reasons of migration (work/employment, business, education, marriage, moved after birth, moved with household and others) for the period of 1991 to 2001. Table 2 presents information on the reasons for out-migration from Uttar Pradesh. This is based on the duration of last residence of migrant outside the state, between 0-9 years. There have been significant variations in the reasons for migration between male and female migrants. Among males, seeking employment was the most

important reason, while the marriage constituted the main reason for migration among the females. In the former case, it 45.3 per cent and the latter case it was 57.8 per cent.

Table 1: Bundelkhand: Reasons for Rural-Urban Migration, 2008

Reason for migration	Percentage
Economic	55.4
Education	26.6
Social	02.7
Others	15.3

Source: Prasad, S. (2016). Socio-economic characteristics of rural households in Bundelkhand region, Uttar Pradesh. *Journal of Regional Development and Planning, 5*(2): 69.

Note: Economic: In search of better employment, In search of employment, to take up employment/better employment, Transfer of service/contract, Business, Post retirement, Education, Social and Others: Acquisition of own house/ flat, Proximity to place of work, Natural disaster (drought, flood, tsunami, etc.), Social/political problems (riots, terrorism, Political refugee, bad law and order, etc.), Displacement by development project, Health care.

If we study on push and pull factors of rural-urban migration, then it is better to exclude marriage from the list of reasons. It being a social phenomenon does not fall under the push or pull factors. Then we shall be able understand the actual causes behind rural-urban migration.

Another interesting fact coming out of data presented in the table 2 is the migration with entire household. It was 30.9 per cent in the case of males and 27.8 per cent in the case of females. Notably, moving with household (migration along with family) is also a part of migration for work and employment. This happens in two ways: (i) if the male member of the family migrates for employment, and finds a proper arrangement for stay in the city, then he takes his family to urban area, and (ii) if the migration takes place due to extreme poverty and starvation or due to non-availability of any alternative source of income in the village, then in such cases the household moves to the city as a survival strategy.

Table 2: Uttar Pradesh: Reasons behind out-migration for 0-9 years duration, 2001

Reasons for migration	Percent migrants (duration 0-9)		
	Persons	**Male**	**Female**
All migrants	100.0	100.0	100.0
Work/employment	21.5	45.3	7.6
Business	0.7	1.2	0.4
Education	3.0	6.9	0.7
Marriage	36.9	1.1	57.8
Moved by birth	0.7	1.0	0.5
Moved with household	28.9	30.9	27.8
Others	8.3	13.6	5.2

Source: Census of India (2001). *Migration data, Abstract on Data Highlights- Table D1, D2 & D3.* Retrieved from https://censusindia.gov.in/Data_Products/Data_Highlights/Data_Highlights_link/data_highlights_D1D2D3.pdf

This reflects the practice that the rural women are less likely to marry across states, and more likely to move when their household moves (Migration Report, 2017). And if we combine both reasons, migration for work and migration with family, it can be said that the male migration from rural to urban areas is mainly for employment. Only a small proportion of the migrants do migrate for business (0.7 per cent) or educational purposes (3.0 per cent). It makes evidently clear that rural-urban in Uttar Pradesh is not by choice but a sort of

compulsion to earn livelihood. Bundelkhand, which is an economically backward part of Uttar Pradesh, contribute to rural-urban migration mainly because of the fact that the rural economy of region fails to provide gainful employment to those seeking or available for employment.

It is quite interesting to note that Kanpur Nagar, followed by Fatehpur and Kapur Dehat are the three major destinations for the rural migrants from Bundelkhand region. These three districts, in combine, received more than seven of each ten migrants from the Bundelkhand region (Table 3 and Fig. 3). Kanpur Nagar alone receiving nearly three of each ten migrants from the region. Kanpur city located in Kanpur Nagar district is the nearest metropolitan city capable of providing job to employment seekers not only from the hinterland region but also other parts of the state as well as other states in India. Ghaziabad and Gautam Buddha Nagar, other two important urban-industrial centres in the state received, in combine, only about 6.0 per cent of all migrants from Bundelkhand region. The distance of place of destination from the place of origin plays an important role. More than nine-tenths of all migrants migrant to districts located within a radius of 150 km. from the region.

Table 3: Bundelkhand Region (UP): Major migration flows to other districts of the state

OTHER DISTRICTS OF UP ↓	Name of district							
	Jalaun	Jhansi	Lalitpur	Hamirpur	Mahoba	Banda	Chitrakoot	Total
Kanpur Dehat	15,805	806	39	6,212	216	2,662	109	**25,849**
Kanpur Nagar	7,189	3,424	200	18,240	1,431	11,148	332	**41,964**
Fatehpur	448	116	17	5,758	318	28,377	1,128	**36,162**
Allahabad	349	540	43	260	133	3,527	1,927	**6,779**
Ghaziabad	772	1,230	61	662	451	879	70	**4,125**
Gautam. Buddha Nagar	360	732	48	637	949	1,097	115	**3,938**
Lucknow	1,626	2,384	198	1,605	486	2,119	223	**8,641**
Etawah	4,135	410	24	555	59	615	38	**5,836**
Auraiya	9,572	446	21	1,121	74	534	27	**11,795**
TOTAL	**40,256**	**10,088**	**651**	**35,050**	**4,117**	**50,958**	**3,969**	**145,089**

Source: Census of India (2001). *Migration Table D-11: Persons born and enumerated and districts of the State, 2001*

Fig 2: Major migration flows to other states from Uttar Pradesh
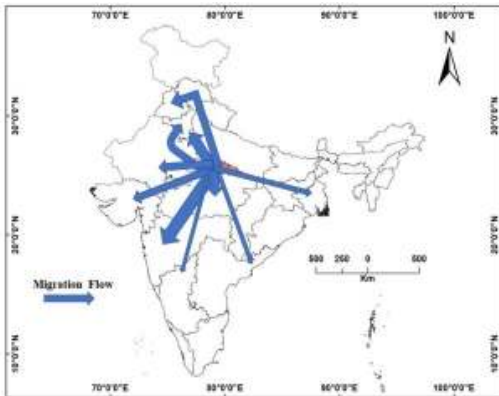
Source: Census of India, Migration Table D-11: Persons Population born and enumerated Vs. districts of the state 2001

Fig 3: Major migration flows to other districts of Uttar Pradesh from Bundelkhand region
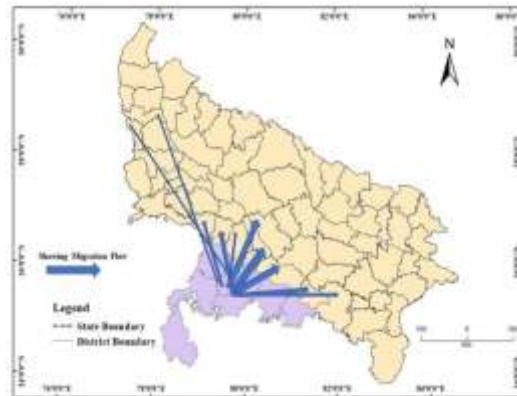
Source: Census of India, Migration Tables, D-1: Classified by birth and sex, UP 2011

On the other side of the scale, the three of seven districts in Bundelkhand region of Uttar Pradesh contributed nearly nine-tenths or 87.0 per cent of the total migration stream from the region. These districts included Banda, Jalaun and Hamirpur. Banda district alone contributed more than one-third or 35.0 per cent to total out-migrants from the region. The dominant majority of migrants from these three districts reached Kanpur Nagar, Kanpur Dehat or Fatehpur districts. Outside these three districts, Auraiya is another district receiving distantly 8.0 per cent of total out-migrants.

Major factors behind out-migration

According to Lee's theory and model of migration, there are two principal factors responsible for migration- Push and Pull (Lee, 1966). Here, push factors are deeply associated with the place of migrant's origin while pull factors with the area of destination. In the context of Bundelkhand region of UP, the main pushing factors are poverty, natural calamities and extreme weather conditions, lack of assured irrigation facilities, crop failure, low agricultural productivity, landlessness, lack of work opportunities, unemployment, underdevelopment, issues of food security and starvation etc. On the other hand, major pulling factors are better prospects of employment, higher wages, and regulated working hours. In the light of all this, we examine the factors prevalent in the Bundelkhand region.

Extreme Weather Conditions (Drought, uncertainties of rain and flood):

It is well established that a drought cannot be avoided but can be predicted in due course of time and necessary precautions may be taken in advance for alleviating their adverse effects (Agnew, 1990; Agnew and Warren, 1996; Le Houerou, 1996; Palmer, 1965; Smakhtin and Hughes, 2007). Several studies have identified that drought is a major pushing factor in a place from where migration originates. On the basis of historical studies, a number of scholars have established that drought and poverty are the major reasons of migration (Ezra, 2001). Herman and Garbe (2019) stated that drought leads to increased mobility, mainly triggering short-term migration to nearby locations for meeting immediate needs such as food shortages etc.

The *'Report on drought mitigation strategy for Bundelkhand region of Uttar Pradesh and Madhya Pradesh',* submitted by Inter-ministerial team, clearly mentions that Bundelkhand has been called the drought-prone region of the country. During 18th and 19th centuries, the region, on an average, faced a major drought in every 16 years, which tripled during 1968 to 1992 (Planning Commission, 2009; Samra, 2008). The frequency and severity of droughts in Bundelkhand region has increased over the past decades (Thomas, Nayak and Ghosh, 2015).

Recently the country has faced the worst drought in the year 2015. For this, Bundelkhand region of UP experienced an extreme level of rainfall deficiency, more than 50 per cent. Resultantly, the groundwater level was also reduced drastically. Due to which all districts of the region faced major crop failure (Drought Assessment Report, Bundelkhand region UP, 2016). Besides uncertain and heavy rainfall also negatively affect the cropping system of various types of pulses including moong (lentils), til (sesame) and arhar (pigeon peas).

Different types of poisonous grasses use to grow due to such disturbances in rainfall regime, harmful for cattle (PERSPECTIVES, 2010).

The immediate effect of drought and untimely rainfall on agriculture and people of Bundelkhand is the crop failure, low agricultural production, and lack of employment opportunities in agricultural sector. As three-fourths of population of Bundelkhand relies on rain-fed agriculture, issues related with food security, water stress, losing livestock and migration to other places to look for livelihood are the prominent phenomenon (World Vision India, 2019).

Rain fed agriculture and crop failure

The Royal Commission on Indian Agriculture has expressed that agriculture in India was considered as gamble with monsoon (Govt. of India, 1928). This statement still holds truth in the context of Bundelkhand region. Agriculture, which is mostly rain-fed and depends on the environmental conditions, is the primary economic activity of the region. About three-fourths of the population depends on agriculture for income and livelihood.

Table 4: Main source of household income in Rural Bundelkhand Region (UP) by districts

	Household income source						
District Name	Cultivation	Manual Labour	Part time/Full time Domestic services	Foraging rag picking	Non-farm own account enterprise	Begging/ charity aims collection	Others
Jalaun	48.10	43.03	2.54	0.14	0.97	0.11	5.11
Jhansi	55.01	34.01	1.4	0.31	1.23	0.17	7.86
Lalitpur	74.24	20.31	0.77	0.07	0.34	0.07	4.2
Hamirpur	39.60	54.82	1.04	0.04	0.55	0.15	3.81
Mahoba	43.66	51.17	0.91	0.03	0.26	0.15	3.83
Banda	40.11	52.88	1.57	0.15	0.70	0.20	4.39
Chitrakoot	43.62	48.17	1.20	0.07	0.15	0.23	6.56
Average (%)	49.19	43.48	1.35	0.12	0.60	0.15	5.11

Source: Socio-economic and caste census, 2011   Note: All figures are in percentage

Cultivation is the major source of income. On average, 49.2 per cent of total rural households get their income through cultivation in Bundelkhand region (Table 4). Another, 43.5 per cent of the rural households depends on manual casual labour for their livelihood, usually working as agricultural labourers. The share of households depending on income from non-farm enterprises is very less than 1.0 per cent. Evidently more than nine-tenths of total rural households in Bundelkhand are directly (as cultivator) or indirectly (as agricultural labour) dependent on agriculture for their income or livelihood.

According to data available from the Census of India (2011) 56.7 per cent of the 'main' workers in Uttar Pradesh are engaged in agriculture sector. This share was 69.4 per cent for Bundelkhand. Continuous failure of rainfall in the region means that the landless labourers neither get satisfactory work in agriculture, nor they can get sufficient food for their comfortable livelihood. The continuous drought conditions have destroyed the entire economy of the region. All such conditions are resulting in out-migration on a large-scale of rural population from Bundelkhand region (Samara, 2008).

Lack of irrigation facilities

Irrigation is another decisive factor for the success of crop production and increasing the agricultural productivity. In 2011, the percentage of net irrigated area to net area sown was only 52.2 per cent in Bundelkhand region against as high as about 92.0 per cent in western Uttar Pradesh. The former is the lowest and the latter the highest in the entire state. Evidently, there is a huge gap between the highest and the lowest net irrigated area shares in the state (Government of India, 2011). The irrigation facilities in Bundelkhand region are inadequate not only for its rocky terrain, but also for poor financial and technological support. The use of modern irrigation techniques such as sprinkle and canal irrigation facilities has limited presence in the region. It is interesting to note that the share of area irrigated by the private tube wells has more than doubled during 2001-2013 in Bundelkhand region against a sharp decline in canal irrigated area during the same period (Table 5).

Table 5 : Bundelkhand region (UP): Percentage share of net irrigated area by irrigation sources, 2013

Year	Ownership of pumping sets		Other irrigation sources			
	Private	Public	Canal	Govt. owned tube wells	Private tube wells	Other Sources
2000-2001	3.00	5.50	44.45	4.47	10.16	10.80
2012-2013	2.19	5.94	36.43	4.61	24.52	34.44

Source: *District wise Development Indicator, Uttar Pradesh*, 2013

Increasing trend in irrigation from ground water sources indicates increased dependency on ground water. Any decrease in ground water level therefore affects the availability of ground water. The traditional methods of irrigation and environment friendly water storage systems which existed here since the times of the Bundela and Chandela Rajputs in the 10th and 11st centuries, but registered a gradual decline due to the neglect, and encroachment.

Poverty and Starvation

Scholars have pinpointed the migration as "the oldest action against poverty" (Galbraith, 1979). It is also considered that the history of migration is the history of people to escape poverty and insecurity, and to move forward in response to opportunity (Das and Saha, 2012).

There are a number of methods available to measure poverty. A common method used to estimate prevalence and depth of poverty in India is based on the income or expenditure levels, and if the income or expenditure falls below a given minimum level, then the household is said to be 'Below the Poverty Line' (BPL). However, poverty based on income/expenditure does not in itself explain everything about deprivation (Human Development Report, 2012). According to National Sample Survey of 2004-2005, in Bundelkhand or southern Uttar Pradesh, poverty level is quite high. According to 61st NSS survey round (2004-05), the percentages of rural and urban poor were 44.7 and 48.2,

respectively; the two averages being 42.7 and 34.1 per cent, respectively for the state as a whole. In the next round (66th held in 2009-10), rural poverty level in Bundelkhand went up to 45.9 per cent, while urban poverty registered a decline (31.7 per cent). The national average for rural poverty in 2009-10 was 33.8 per cent and urban poverty level 20.9 per cent. Obviously, Bundelkhand region is one of the poorest regions of the country from all standards.

Food Security

The most obvious effect of drought on the life of the people is the lack of adequate access to food and water (World Vision India, 2019). Another indicator to assess the level of poverty is food security. Several studies have reported that food insecurity is, in some cases, the driver of migration. In some food-secure householders, only male member of the family migrates. While in extremely poor families including small cultivators, debt-ridden marginal farmers, agricultural labourers, landless and backward castes, the male migrates with whole family and work in exploitative jobs in poor conditions (Haan, 2011). Therefore, food security has a potential to affect the pattern of migration.

For the sake of survival, some coping mechanism is also adopted by such people, like borrowing food and money from others, collecting wild fruits & other products for avoiding starvation, many were doing work for food, and sometimes they practice barter system. As a result, the problems of starvation deaths are more prominently observed in this region, caused due to scarcity of food, poor agricultural productivity and failure of crop.

Non-availability of gainful employment opportunities at the Village level

Non-availability of gainful employment in non-farm activities at the village level or in the surrounding cluster of villages push people outside the region for seeking employment for livelihood. The rural Bundelkhand is a typical example of underdeveloped and intra-regional inequalities.

Table 6: Bundelkhand region (UP): Rural employment and income status by districts

Employment and income characteristics						
District	Total Households with Salaried income	Households with salaried Job			Classification of households by monthly income of the highest earning household member		
		Government offices	Public sector enterprises	Private Sector enterprises	Less than Rs. 5,000	Rs. 5,000-9,999	Rs. 10,000 or above
Jalaun	6.05	3.37	1.22	1.46	76.81	16.48	6.71
Jhansi	5.03	3.34	0.35	1.34	80.68	13.54	5.78
Lalitpur	2.77	2.08	0.15	0.54	85.80	10.06	4.14
Hamirpur	4.64	3.76	0.55	0.33	81.34	13.50	5.16
Mahoba	3.57	2.89	0.23	0.45	81.71	13.50	4.72
Banda	3.48	2.55	0.42	0.51	82.40	13.51	4.09
Chitrakoot	4.80	4.04	0.38	0.38	80.52	12.14	7.34
Average	**4.32**	**3.14**	**0.47**	**0.71**	**81.32**	**13.24**	**5.42**

Source: Socio-Economic and Caste Census, 2011   Note: All figures are in percentage

Only less than one of each twenty or 4.32 per cent households in the region earn their livelihood from the salaried income (Table 6). Among district, it ranged from a high of 6.1 per cent in Jalaun district to less than 3.0 per cent in Lalitpur district, the former having more than double of such households than the latter. In absence of manufacturing activities, the dominant majority of salaried households were dependent of income earned by their working members in government offices as teachers, clerks or peons. Here also, there were wide inter-district disparities, ranging from a high of 4.0 per cent in Chitrakoot district to only 2.6 per cent in Banda district. The similar situation can be observed in case of public sector and private sector enterprises. Another notable feature of income earned by households was the the highest paid household member in more than eight of each ten earners earned less than Rs. 5000/- per month. Against this, only about one of each twenty earners earned Rs.10,000/- or more per month. This speaks of a highly pathetic situation of employment and income in the region. The non-farm employment opportunities especially in manufacturing sector are almost completely absent from the region. Consequently, population in the working age-group is forced to move outside the region to earn livelihood.

Underdevelopment and low level of urbanization

The level of urbanization is also an important indicator of the level of development. In 2011, 22.7 per cent population of region was residing in urban areas, against the state average of 22.2 per cent. However, urbanization level comes down to less than 18.0 per cent if Jhansi district is excluded from the region. In Jhansi district urbanization level is about 42.0 per cent. On the other extreme, it less than 10.0 per cent Chitrakoot, a least urbanized district in the region. Except, Jhansi and Jalaun districts, the remaining five districts have urbanization level below the state average of 22.2 per cent in 2011.

Almost on the indicators of industrial development, Bundelkhand region is lagging far behind not only the state average but also the national average (Table 7).

Table 7: A comparative picture of employment in factory sector in different regions of Uttar Pradesh

Indicator	Eastern	Western	Central	B'khand	All U.P.	India
Number of Persons Employed in Registered Factories (per lakh of population) (2002-03)	106	435	218	67	245	747 (2001-02)
Number of Persons Employed in Registered Factories (per lakh of population) (2005-06)	99	682	312	76	-	-
Per capita Gross Value of Industrial output (Rs.'000) (2002-03)	1502	8593	3834	1699	4544	9273 (2001-02)
Total Number of Working Factories (per lakh of population) (2002-03)	1.1	5.0	3.0	1.2	2.9	12.4

Source: 11th Plan document, Government of Uttar Pradesh   Note: Figures the number/per lakh persons

Due to low level of urbanization and industrialization in Bundelkhand region, there has been a demand coming time and again to make this region into a separate state, since people of region perceive that statehood can open the new vistas of development in the region (Chaturvedi, 2015).

Conclusion

The study demonstrates how the regional backwardness perpetuated by a variety of physical and institutional factors forces the working population to out-migrate for earning livelihood. Bundelkhand region of Uttar Pradesh where a combination of physical handicaps coupled with the administrative and political neglect not only in pre-independence period but also after the Independence created conditions of widespread poverty and unemployment-forcing people to move out of region to earn livelihood. The region is highly dependent on rain-fed agriculture, faced frequent droughts in the past, lacks irrigation facilities, experiencing low agricultural productivity, and landlessness. All this has resulted into a scale poverty and underemployment.

Such formidable situation forces the rural folks to leave villages to move towards the urban centres to earn livelihood leaving behind their families. This is a kind of forced migration adopted as an alternative survival strategy by the people of this region.

Recently, there has been a change in migration strategy. Earlier, it used to the male earning members of households, who will go out to an urban area to learn livelihood, but now the entire household moves out of the village. This is happening in the two ways: (i) if the male member of the family migrates for employment, and finds a proper arrangement for stay in the city, then he takes his family also, and (ii) if the migration takes place due to extreme poverty and starvation or due to non-availability of any alternative source of income in the village, then the entire the household moves out to the town as a survival strategy.

Since it is distress migration, the overwhelming majority of migrants earn less than Rs. 5000/- per month. It is only a small proportion of less than 6.0 per cent earning Rs.10,000/- or more per month.

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Migrant Farm Workers in Punjab: A Spatio-Temporal Analysis

Sucha Singh and Dhian Kaur, Chandigarh

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ABSTRACT: The study examines spatio-temporal changes in distributional pattern of migrant workers especially the farm labour in Punjab. The data on migrant labour, available from the Census of India, have been used to study changes during 1991-2011 and for the migrant agricultural labourers during 1991 and 2001. The analysis reveals that the state has witnessed an increase of 58.0 per cent in rural migrant workers during 1991-2011. The central region with high cropping intensity and industrial development has recorded a very high increase of such workers in comparison to rural and agricultural southwestern Punjab. However, there has been a decline in the number of migrant agricultural labourers in the vast areas distributed in the central plains and north-eastern sub-mountainous region during same period. The study recommends for the formulation a policy so as to provide the farmers affordable farm technology to thwart the acute shortage of farm labour during the peak farm operations.

Introduction

Agricultural labour in Punjab is closely linked with the changes in farming practices (Singh, 2020). It reflects the complexity of market forces and technical factors, influencing the demand for labour on farms in the state. In the late 1960's and early 1970's, the introduction of modern production technology called "Green Revolution" for wheat and paddy crops unleashed the forces of change that influenced productivity, production and employment (Billings and Singh, 1970; Chadha, 1986; Bhalla and Singh, 2001; Rathi, 2020). Increased farm mechanisation was accompanied by higher labour absorption in the production process due to the increase in cropping intensity, HYV seeds, pesticides, weedicides, chemical fertilisers, expansion in irrigated area and higher land productivity (Grewal and Kahlon, 1974; Sidhu and Johl, 2002).

A huge demand thus created for agricultural labour in Punjab attracting migrant worker mainly from the backward states of eastern India (Grewal and Sidhu, 1979; GOP, 2009; Rathi, 2020). It was quite difficult to meet the labour requirements from local labour market during the peak periods of operations. The numbers of migrant agricultural labour in the state increased rapidly during the nineties (Sidhu et al. 1997). Interestingly, seasonal migration of labour during peak periods of agricultural operations led to the change in the agrarian structure of Punjab. Migrant agricultural labour started replacing the local labour in most of the agricultural operations especially the paddy transplantation in Punjab by the end of nineties (Singh, 1995; GOP, 2004; Rathi, 2020). The inflow of migrant labour accelerated during the 1990s compared with the 1980s (Singh et al. 2007). Moreover, the changes such as the rapid capitalisation of agriculture and mechanization of various farm operations brought about by the Green Revolution and followed by the New Economic Policy of 1991, have led

to the displacement of labour (local and migrant) from farm operations and transference to the non-agriculture sectors (Jodhka, 2008; Institute of Applied Manpower Research, 2013; Singh, 2016). Thus, the employment of migrant labour has been changing over time and space in the state.

However, as evident from an in-depth analysis of literature review on the theme, most of the studies on migrant labour have been conducted from the economic perspective. The spatio-temporal perspective is largely missing in such studied. Finding a research gap, the present paper focuses on spatio-temporal variations in distributional pattern of migrant workers especially the agricultural labourers with reference to Punjab.

Research objectives, data sources and methodology

The main objectives of the study are to analyse the spatio-temporal changes in the distribution pattern of migrant workers, and to study the changing pattern of migrant agricultural labour (total, male and female) in Punjab.

For the purpose, the secondary sources of data have been pressed into service. Data available from Census of India, *Migration Tables of D-Series,* published by the Office of the Registrar General and Census Commissioner of India, New Delhi, have been calculated and tabulated at the district level. According to Census of India, a person is considered as the migrant agricultural labour if the place in which he/she is enumerated in the census is other than his place of immediate last residence and the reason for migration is employment as an agricultural labour.

Though the Census of India released the data of D-Series of 2011 by states in the mid-July, 2019 but data on migrant workers by place of last residence and industrial category have not been published yet. Hence, the paper used tables "D-3: Migrants by Place of Last Residence, Duration of Residence and Reason for Migration-2011" to analyse spatial variations of the total migrant workers and their rural-urban composition at the district level. However, the data from table D11 (S): "Migrant Workers by Place of Last Residence and Industrial Category-1991" and table D8: "Migrant Workers by Place of Last Residence and Industrial Category-2001" have been analysed for examining the patterns of distribution of migrant agricultural labour in the state.

The state has witnessed changes in administrative units between 1991 and 2011. In 1991, Punjab had twelve districts, increased to seventeen by 2001 and then to twenty in 2011. New districts carved out during 1991-2011 were from the twelve districts. For making data comparable, the district boundaries were adjusted using the equivalence table, used by Census of India for comparing data sets of different Census years (GOI, 2011). These equivalence tables have been used to study the spatio-temporal changes in the migrant workers during 1991-2011 and for migrant agricultural labour during 1991-2001.

Data migrant agricultural labourers have been tabulated in absolute numbers and percentage at the district level for 1991 and 2001 to study urban-rural and male-female composition of migrant labour. For cartographic representation of data ArcGIS 10.0 software has been used.

For studying the relationship between migrant agricultural labourers and size of landholdings imple linear regression method has been used. A direct relationship between the sizes of landholdings with the higher use of migrant agricultural labour has been assumed.

RESULT AND DISCUSSION

Migrant workers in Punjab: An overview

Agricultural and agro-industrial development in India especially in the post-Green Revolution phase generated a huge demand for labour, which was beyond the capacity of local labour market to meet. This led to in-migration of labour in Punjab from the rural areas of backward states especially Uttar Pradesh and Bihar (GOP, 2009). In 1991, the total number of migrant workers was 1.6 million, which rose to 2.32 million by 2011. Every fourth migrant cited the search for work as a reason for his/her migration to Punjab. In 2011, migrant workers made nearly 6.0 per cent in total workers of the state.

Table 1: Punjab: Percentage share of migrant workers by districts, 2011					
District	Per cent in total	Level	Per cent of total		
			Rural	Urban	Total
Ludhiana	28.39	High	67.14	32.86	100
S.A.S Nagar	10.81	High	56.32	43.68	100
Jalandhar	10.49	High	64.85	35.15	100
Bathinda	6.96	High	66.95	33.05	100
Patiala	6.47	High	61.34	38.66	100
Hoshiarpur	5.17	Moderate	81.94	18.06	100
Amritsar	5.13	Moderate	56.93	43.07	100
Firozpur	3.61	Moderate	70.37	29.63	100
Kapurthala	3.49	Moderate	71.01	28.99	100
Fatehgarh Sahib	3.49	Moderate	79.57	20.43	100
Sangrur	2.94	Low	72.73	27.27	100
Rupnagar	2.25	Low	72.17	27.83	100
Gurdaspur	1.79	Low	62.12	37.88	100
Barnala	1.74	Low	73.43	26.57	100
S.B.S. Nagar	1.66	Low	81.56	18.44	100
Sri Muktsar Sahib	1.63	Low	71.74	28.26	100
Moga	1.32	Low	58.52	41.48	100
Mansa	1.19	Low	74.25	25.75	100
Faridkot	0.98	Low	57.61	42.39	100
Tarn Taran	0.48	Low	61.83	38.17	100
Punjab	**100**		**66.73**	**33.27**	**100**
Source: Census of India (2011). *D-3 Migration Tables, Punjab,* Office of the Registrar General and Census Commissioner of India, New Delhi. Accessed from www.censusindia.gov.in					

The distribution of migrant workers among the districts of Punjab makes an interesting reading. In 2011, more than one-fourth or 28.4 per cent of total migrant workers came to Ludhiana district followed by S.A.S Nagar (Mohali) with 10.8 per cent, Jalandhar with 10.5 per cent, Bathinda with about 7.0 per cent, and Patiala with 6.5 per cent. The top-ranking seven districts, each having more than 5.0 per cent, had, in combine, about three-fourths (or 73.4 per cent) of total migrant workers (Table 1). On the other side of the scale were seven districts, namely Gurdaspur, Barnala, S.B.S. Nagar, Sri Muktsar Sahib, Moga, Mansa, Faridkot and Tarn Taran districts which shared only less than 2.0 per cent, each, of the total migrant workers in the state. Their combined share, which made only about 11.0 per cent in total migrant workers, was about two-fifths of total such workers in Ludhiana district. Geographically speaking, more urban-industrial districts located in the Central corridor received high shares of migrant workers, against low to very low shares of such workers were received by districts located in more rural and agricultural southwestern Punjab.In their rural-urban distribution, two-thirds or 66.7 per cent of migrant workers came to rural areas to work as wage labourers in agricultural operations. Among districts, the share ranged from a high of about 82.0 per cent in Hoshiarpur district to a low of only 56.3 per cent in S.A.S Nagar (Mohali). On the whole, three of each five districts in the state had this share higher than the state average (66.7 per cent). On the other side, in the four districts namely S.A.S. Nagar, Amritsar, Moga and Faridkot, this share was less than 60.0 per cent. In other words, the share of such workers in these districts was high in urban areas than that of the rural areas. It can be assumed that a considerable part of the labour demand for agricultural operations in these districts was fulfilled from the locally available labourers.

Briefly, the demand for labour in agricultural operations has been the major pull factor, attracting the migrant workers from other states to the rural parts of the state.

In the following, an attempt has been to examine changes in the proportion of migrant workers at the district level. As already stated, there has been an increase of as many as eight districts in Punjab during 1991-2011. Table 2 depicts the clubbing of districts in 2011 according to 1991 for having a more realistic picture of changes in proportional share of migrant workers at the district level taking place during 1991-2011.

Table 2: Punjab: Equivalence Table -1(Districts Clubbed as Groups)	
District-1991	District-2011
Gurdaspur	Gurdaspur
Amritsar	Amritsar - Tarn Taran
Kapurthala	Kapurthala
Sangrur	Sangrur –Barnala
Rupnagar	Rupnagar - SAS Nagar
Bathinda	Bathinda – Mansa
Firozpur – Faridkot	Firozpur - Faridkot - Moga - Sri Muktsar Sahib
Ludhiana – Patiala	Ludhiana - Patiala - Fatehgarh Sahib
Jalandhar – Hoshiarpur	Jalandhar - Hoshiarpur - SBS Nagar
Source: Census of India (2011). *Administrative Atlas of India*, 2011	

Punjab has witnessed an increase of 2.12 lakh migrant workers during 1991-2011: from 3.63 lakh in 1991 to 5.75 lakh in 2011, registering an increase of 58.0 per cent (Table 3). All the districts except Gurdaspur have recorded an increase, ranging from a low of 7.0 per cent in Firozpur-Faridkot-Moga-Sri Muktsar Sahib districts, as a group, to a high of 120.0 per cent in Bathinda-Mansa districts. In other words, while Gurdaspur district registered an absolute decline of more than 600 migrant workers, Bathinda-Mansa districts, in combine, more than doubled the number of such labourers. Absolute decline in number of migrant labour in Gurdaspur needs a further probing. On the whole, only the three combinations of districts, namely Bathinda-Mansa, Jalandhar-Hoshiarpur-SBS Nagar, and Ludhiana-Patiala-Fatehgarh Sahib districts recorded an increase in share of migrant labour, which is higher than or equal to the state average (58.0 per cent). The rest of the combinations of districts recording low to very low of the state average indicated to a high skewness in increase of the number of the migrant labour among the districts in the state (Table 3). The districts having either the big urban-industrial centres located in them and/or facing the problem of labour availability at the local level have attracted higher shares of migrant labour during 1991-2011. Jalandhar, SBS Nagar, Ludhiana, Patiala and Bathinda districts fall in this category.

Table 3 : Punjab: Change in number and percent share of migrant workers, 1991- 2011									
District	**Total**		**Change (in %)**	**Rural**		**Change (in %)**	**Urban**		**Change (in %)**
	1991	**2011**		**1991**	**2011**		**1991**	**2011**	
Gurdaspur	10963	10302	-6.0	6220	6400	3.0	4743	3902	-18.0
Amritsar-Tarn Taran	22160	32208	45.0	4320	18470	328.0	17840	13738	-23.0
Kapurthala	15220	20077	32.0	6220	14257	129.0	9000	5820	-35.0
Sangrur-Barnala	18367	26878	46.0	7550	19618	160.0	10817	7260	-33.0
Rupnagar-S.A.S.Nagar	37084	75055	102.0	13650	44322	225.0	23434	30733	31.0
Bathinda-Mansa	21260	46808	120.0	7340	31836	334.0	13920	14972	8.0
Firozpur-Faridkot-Moga-Sri Muktsar Sahib	40678	43332	7.0	18580	28997	56.0	22098	14335	-35.0
Ludhiana-Patiala-Fatehgarh Sahib	139645	220355	58.0	27360	148283	442.0	112285	72072	-36.0
Jalandhar-Hoshiarpur-SBS Nagar	57134	99499	74.0	23976	71193	197.0	33158	28306	-15.0
Punjab	**362,511**	**574,514**	**58.0**	**115216**	**383376**	**233.0**	**247295**	**191138**	**-23.0**

Source: Computed from Census of India (1991). *D-11(S) Migration Tables, Punjab,* and Census of India (2011). *D-3 Migration Tables, Punjab,* Office of the Registrar Genera and Census Commissioner of India, New Delhi retrieved from www.censusindia.gov.in

Rural-urban classification of the change in number and the share of migrant labour make an interesting story. While the number of such workers during 1991-2011 increased by more than twice or 233.0 per cent in rural Punjab, urban areas witnessed a dip by 23.0 per cent during this period. With the exception of Bathinda-Mansa combination, where has been a marginal increase of 8.0 per cent in migrant workers in the urban areas, all other districts recorded a decline in the number of such workers. Ludhiana-Patiala-Fatehgarh Sahib, Kapurthala, Firozpur-Faridkot-Moga-Sri Muktsar Sahib, Sangrur-Barnala, Rupnagar-SAS

Nagar, and Amritsar-Tarn Taran, combinations, recording a decline is percentage share of urban migrant labourers more than or equal to the state average (-23.0 per cent).

Obviously, rural and urban areas present a contrasting picture of change in the number as well as the share of migrant labourers in the state during 1991-2011. Against the average increase of 233.0 per cent in migrant labourers in the rural Punjab, it was as high as 442.0 per cent or more than four times increase in Ludhiana-Patiala-Fatehgarh Sahib group of districts. This group was followed by Bathinda-Mansa with 334.0 per cent) and Amritsar-Tarn Taran with 328.0 per cent. Against this, Gurdaspur district registered a marginal increase of 3.0 per cent in the number of such workers. In addition, Kapurthala, Sangrur-Barnala, and Firozpur-Faridkot-Moga-Sri Muktsar Sahib combination recording low to very increase in share of migrant workers during 1991-2011. This conforms to the changes taking place in the spatial organization of Punjab economy in the post-reforms period. For example, Rupnagar-SAS Nagar combination, where the number of migrant workers in rural areas more than doubled during 1991-2011, benefitted from the spill-over effect from Chandigarh. With liberalization and privatization of Indian economy after 1991 a number of private colonizers developed residential colonies in towns such as Zirakpur, Dera Bassi, Kharar, Mullapur, and Naya Gaon. In addition, with privatization of higher education in India, several engineering and medical colleges/universities have been established in the areas located in the surroundings of Chandigarh. This attracted a large number of migrant labourers to work in construction activities, milk and vegetable services, and lower level jobs in medical and engineering colleges. The dominant majority of such migrant workers are residing in nearby villages of such towns. The almost the same is true for Ludhiana-Patiala-Fatehgarh Sahib districts. Bathinda-Mansa benefitted from the political patronage it received during the previous government in Punjab between 2007 and 2017.

Notwithstanding a decline of 23.0 per cent points in number of migrant workers in urban Punjab during 1991-2011, Rupnagar- S.A.S. Nagar group (31.0 per cent) and Bathinda-Mansa group (8.0 per cent) of districts recorded increase. The decrease in the proportion of urban migrant workers can be attributed to the place of enumeration of migrants as most of the migrant workers tend to settle in the rural areas for the low rent residential accommodations in the surrounding villages from where they compute to work in non-farm works like construction and manufacturing units in the nearby urban-industrial centre.

Migrant agricultural workers in Punjab

In 2001, Patiala district ranked at the top with 13.4 per cent of the total migrant agricultural workers in the state. It was followed by Firozpur (12.9 per cent), Ludhiana (12.2 per cent) and Hoshiarpur (10.8 per cent) districts. These four top ranking districts, each having more than 10.0 per cent of the total migrant workers, in combine, had nearly half of the total such workers. Against this, low ranking eight districts, each having less than 5.0 per cent of migrant agricultural workers, had, in combine, only about one-fifth or 20.0 per cent of total such workers (Table 4).

Table 4: Punjab: Classification of districts by their shares in total Migrant Agricultural Labourers, 2001	
Category	**District**
High (> 10.0 per cent)	Patiala (13.43), Firozpur (12.87), Ludhiana (12.24), Hoshiarpur (10.82) **Total= 4**
Moderate (5.0 -10.0 per cent)	Jalandhar (7.17), Sangrur (6.13), Bathinda (6.02), Mansa (5.86), Sri Muktar Sahib (5.30) **Total= 5**
Low (<5.0 per cent)	Rupnagar (4.80), Kapurthala (2.91), Gurdaspur (2.86), SBS Nagar (2.81), Fatehgarh Sahib (2.10), Amritsar (1.97), Moga (1.45) Faridkot (1.23) **Total= 8**
Source: Census of India (2001). *D-8 Migration Tables, Punjab,* Directorate of Census Operations, Punjab, Chandigarh.	

Among the migrant workers 52.0 per cent constitutes the males and remaining about 48.0 per cent females (Table 5). However, there are marked variations. In most of the eastern and northern districts of the state, the proportion of male migrant agricultural labourers is high (>65.0 per cent) - mostly seasonal going back after the peak season. In the western and southern Punjab, female migrant agricultural labour shares high proportion in the total migrant agricultural labour, due to large number of females from neighbouring states of Rajasthan and Haryana for farm operations related with cotton.

Table 5: Punjab: Composition of migrant workers by districts, 2001				
District	**Male**	**Female**	**Rural**	**Urban**
Fatehgarh Sahib	85.35	14.65	83.22	16.78
Jalandhar	85.20	14.80	75.85	24.15
Ludhiana	84.13	15.87	62.85	37.15
S.B.S. Nagar	82.09	17.91	94.88	5.12
Kapurthala	81.99	18.01	77.14	22.86
Rupnagar	73.89	26.11	88.11	11.89
Amritsar	69.13	30.87	64.84	35.16
Moga	69.09	30.91	83.98	16.02
Hoshiarpur	66.55	33.45	94.78	5.22
Faridkot	64.06	35.94	75.02	24.98
Gurdaspur	44.12	55.88	89.22	10.78
Sangrur	36.33	63.67	84.92	15.08
Firozpur	31.45	68.55	94.41	5.59
Sri Muktsar Sahib	30.64	69.36	93.56	6.44
Bathinda	25.42	74.58	83.57	16.43
Patiala	24.84	75.16	91.12	8.88
Mansa	17.81	82.19	94.23	5.77
Punjab	**51.88**	**48.12**	**85.37**	**14.63**

Interestingly, migrant agricultural labourers come to rural areas of the state. The state average for such workers being more than 85.0 per cent, this share is more than 90.0 per cent in the six districts namely SBS Nagar, Hoshiarpur, Firozpur, Mansa, Sri Muktsar Sahib and Patiala. In these districts, the local agricultural labour shifted to non-farm occupations (Singh, 1995; Sidhu and Singh, 2004; GOP, 2004; Singh, 2012; and Rathi, 2020). The studies reveal that the majority of the migrant workers suffer from severe unemployment and under

employment, low wages, large families, poor economic conditions and indebtedness in their home states (GOP, 2004).

Distribution of migrant agricultural workers at district level

The share of migrant agricultural workers differs widely across districts in the state. In 2001, it ranged from a maximum of 26.6 per cent in Firozpur district to a minimum of only 3.7 per cent in Amritsar district, range difference being of more than seven times. The state average being 10.1 per cent, districts have been categorized into the three categories: (i) Areas of high migrant agricultural workers (>20.0 per cent), (ii) Areas of moderate migrant agricultural workers (10.0-20.0 per cent), and (iii) Areas of low migrant agricultural workers (>10.0 per cent). In the following, these areas have been discussed in the detail.

(i) Areas of high migrant agricultural workers (>20.0 per cent)
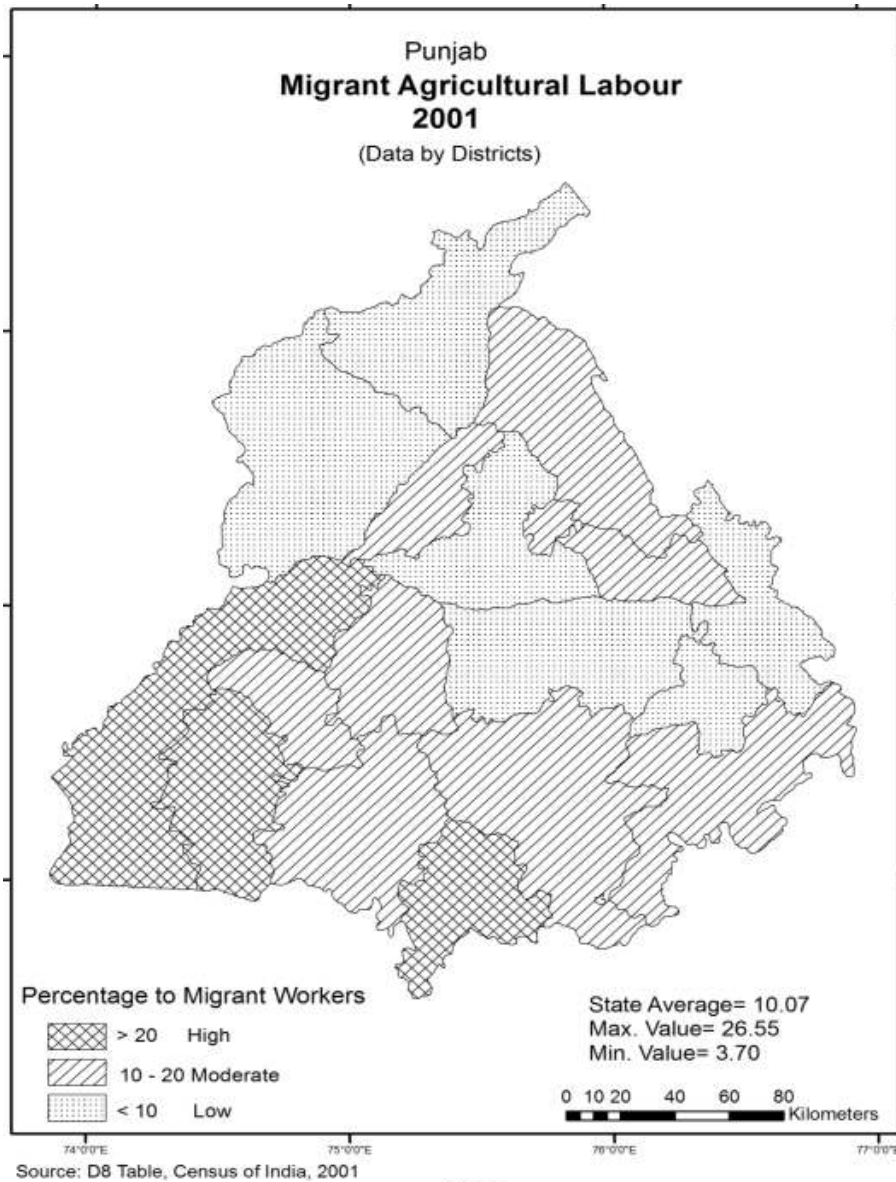
In the three districts of Firozpur (26.6 per cent), Sri Muktsar Sahib (24.5 per cent) and Mansa (23.8 per cent), where the share of such workers in total agricultural labourers was higher than 20.0 per cent, were located in the southwestern region of the state (Map 1). This region generates a higher demand for agricultural labour due to relative large size of landholdings (Singh and Kaur, 2012), needing to hire labourers in large number to perform various farm operations. In addition, cotton cultivation in this part of the state demand more than labourers for cotton plucking.

(ii) Areas of moderate migrant agricultural workers (10.0-20.0 per cent)

In another eight districts, where the share of migrant agricultural labourers ranged between 10.0 and 20.0 per cent, are distributed in different parts of the state. Three of these (Bathinda, Faridkot and Moga) are located in southwestern plains, another four in the Central plains (Kapurthala, S.B.S. Nagar, Sangrur and Patiala), and remaining one Hoshiarpur in the north eastern sub-mountainous region. It was observed by the first author during the field work that there is a considerable competition from local labour in these districts, having large shares of scheduled castes in their total population. Hence, these districts fall in moderate category.

(ii) Areas of low migrant agricultural workers (<10.0 per cent)

In remaining six districts the share of such labourers was low share (<10.0 per cent) were distributed the central plains (Amritsar, Jalandhar, Ludhiana and Fatehgarh Sahib) and the north-eastern sub-mountainous region of region (Gurdaspur and Rupnagar). In most of these districts intensive cultivation is practised with the use of machinery on relatively small sized landholdings. All the three types of labour (migrant, local and family) are used to perform different farm operations. This came to the notice of the first author during the field work conducting in 2017. Relatively high level of urban-industrial development in the region also explains the low proportion of migrant agricultural labourers coming in these pockets. In addition, the use of local labour is comparatively higher for manual operations of sugarcane and wheat crops.

Punjab
Migrant Agricultural Labour
2001
(Data by Districts)

Percentage to Migrant Workers

	> 20	High
	10 - 20	Moderate
	< 10	Low

State Average= 10.07
Max. Value= 26.55
Min. Value= 3.70

0 10 20   40   60   80
Kilometers

74°0'0"E   75°0'0"E   76°0'0"E   77°0'0"E

Source: D8 Table, Census of India, 2001

Map 1

Briefly, high proportion of migrant agriculture labour in districts of southwestern plains is explained by the huge labour demand on large size holdings compared with the districts of central plains region. In order to quantify their relationship, linear regression diagram has been drawn by taking selected factors. (Table 6 and Fig. 1) The large landholdings (explanatory factor) are positively associated with migrant agricultural labour (response) by indicating a value of .024075, significant at $p < 0.05$. The result validates the hypothesis that the size of landholdings is positively related with employment of migrant agricultural labour in the state (see also Singh et al. 2007).

Table 6: Punjab: Linear regression between migrant agricultural Labour and Landholdings, 2001				
Sr. No.	District	Migrant labour (%)	Large landholdings (%)	
1	Rupnagar	1.86	5.15	
2	Amritsar	4.88	3.7	
3	Ludhiana	8.74	4.04	r= 0.5437
4	Patiala	8.24	13.65	
5	Gurdaspur	2.19	8.63	
6	Fatehgarh Sahib	7.85	8.94	
7	Hoshiarpur	2.87	18.65	P-Value=
8	Jalandhar	5.33	9.42	.024075
9	Moga	7.63	10.35	
10	Kapurthala	6.78	10.04	
11	SBS Nagar	2.91	17.64	Significant at
12	Sangrur	8.21	12.42	p< .05
13	Firozpur	12.89	26.55	
14	Bathinda	13.61	14.53	
15	Faridkot	10.58	12.07	
16	Mansa	10.04	23.81	
17	Sri Muktsar Sahib	17.59	24.47	
	Punjab	**7.28**	**10.07**	
Sources: (i) Census of India (2001). D-8 Migration Tables, Punjab, Directorate of Census Operations, Punjab, Chandigarh. (ii)Agricultural Census of Punjab (2001-02).				

Punjab: Linear Regression between Migrant Agricultural Labour and Large Landholdings, 2001

$y = 0.8775x + 6.3569$
$R^2 = 0.2956$

r= 0.5437
P-Value= .024075
Significant at p< .05

Fig. 1

Source: D8 Table, Census of India, 2001 and Agricultural Census of Punjab, 2001-02
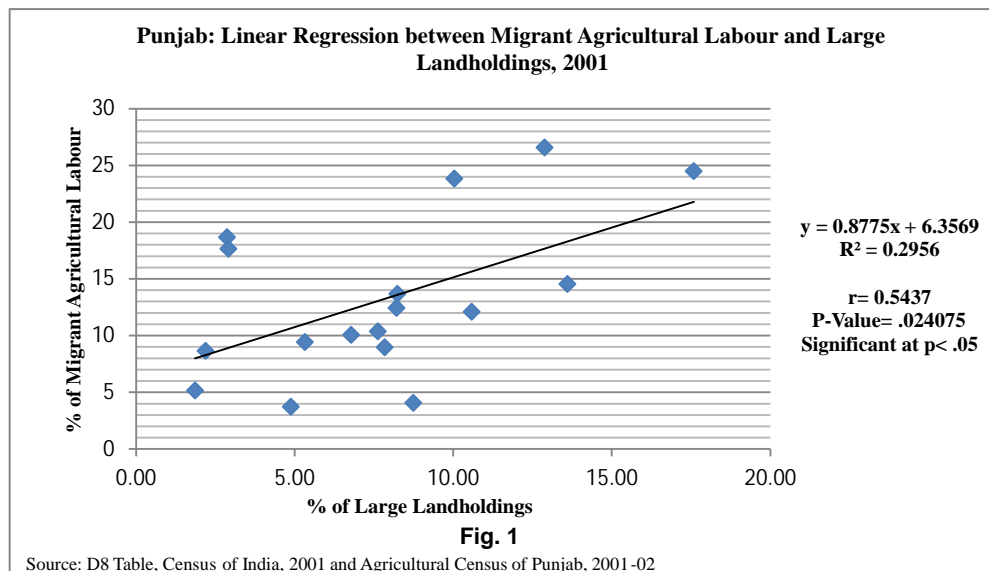
Conclusions and recommendations

The study reveals that high proportion of migrant labourers came to mainly the central plains of Punjab having high intensive cultivation of crops like paddy and vegetables coupled with higher level of industrial development than rural agrarian southwestern plains. A contrasting situation has been notice with regard to rural and urban migrant labourers in the state. While

the number of migrant labourers in rural areas registered an increase more than twice (233.0 per cent) during 1991-2011, the number of such workers in urban areas registered a decline by 23.0 per cent during the same period.

Better wage rates and higher number of employment days have attracted rural migrant workers attracted to Punjab from the rural backward areas of other states in India. In addition, an offer of accommodation and ration by the farmers helped the process of labour in-migration to rural areas of Punjab.

In Punjab, the districts which received the higher shares of migrant agricultural labour had large to medium land holdings. The male migrant labourers from the states in eastern India came in maximum number to agriculturally developed districts in the inner parts of Punjab, while districts sharing borders with neighbouring Haryana and Rajasthan received higher number of female migrant labourers. Rural areas of all districts received a higher proportion of migrant agricultural labourers, due to low availability of local agricultural labourers during the peak farm operations.

Linear regression analysis run on the data proved the hypothesis that the migrant agricultural labour is positively correlated with the size of landholdings in the state. Engagement of local scheduled castes labour in farm operations in parts of southwestern plains, central plains and north eastern sub-mountainous region has led to a relatively lower proportion of migrant labour. Most parts of central plains and north eastern sub-mountainous region have witnessed a decline in such workers on account of the shift of labour from the farm to non-farm works such as construction. Also the shift of local labour from sugarcane operations has led to an increase in migrant agricultural labour in some pockets.

In sum, most parts of Punjab have experienced a decline in the proportion of migrant agricultural labour after 1991 mainly due to increased mechanization and shift of workers from farm to non-farm sectors. This has resulted in acute shortage of migrant agricultural labour especially in the central plains region. In view of the fact that the local agricultural labour in almost all districts have shifted to other non-farm occupations, the study recommends the formulation of a policy for providing appropriate machinery to the farmers on custom hiring basis. This can be done through cooperatives at an affordable cost, helping in addressing the problem of acute shortage of agricultural labour particularly migrants during peak farm operations such as paddy transplanting, and potato and sugarcane harvesting especially in the central and north eastern sub-mountainous region of Punjab.

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TIBETAN REFUGEE POPULATION IN INDIA
(Reflections on India's Policy and India-China Relations)

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ABSTRACT: The present paper attempts to understand the dynamics of the settlement of Tibetan refugee population in the different parts of the world with a focus on India along with the implications of the policy for India's internal political dynamics as well as India-China relations in the era of growing interdependence between the states to seek answer to research questions:(i) What are the spatial expressions of Tibetan migration to India on the Indian landscape?; (ii) What are the likely trans-national implications of the presence of the Tibetan refugees? (iii) How have the Indian Government responded to the creation of Tibetan settlements and the benefits extended?

The paper attempts to be descriptive, evaluative and analytical in nature largely drawing the data available from secondary sources like books, articles from journals available offline and online, newspapers, other internet sources etc.

While only 2.0 per cent of total Tibetans population in the world was living outside Tibet, more than seven of each ten persons living outside Tibet were residing in India. Within India, more than a half of total Tibetan refugees were living in Karnataka followed by West Bengal and NCT of Delhi, three in combine having 99.0 per cent of them. The refugees engaged in various economic activities, having social, cultural and religious freedom but staying as refugees and are not allowed to enter government jobs and indulge in anti-China activities.

China, on its part, maintains Tibet a disputed territory of Lamas as an integral part of China under 'One-China Policy'. For India, Tibet has been a dilemma, as on one hand Indian government has accepted 'One China policy', on the other hand it continues to extend asylum of Tibetans in its territory; India's border issue with China still remains unresolved largely attributable to Tibet issue. The study recommends that to resolve the Tibetan issue, both India and China need to start a political dialogue. This will not only solve the Tibetan problem but also address border issues between the two Asian giants.

Keywords: Tib*etan Refugee Population, Dalai Lama, Political Asylum, China, 1951 Refugee Convention*

Introduction

By their invasion of Tibet in 1959, the Chinese demolished not only the Tibetan cultural and heritage monasteries but also ill-treating their men, women and children. At that time, fearing persecution by the Chinese, Dalai Lama, the Tibetan leader, along with his eighty thousand followers took asylum in India (Dinesh, 2008:105).

Tibetans came to India in three separate phases: (i) The Dalai Lama fleeing to India with his close relatives and ministers and taking refuge here; (ii) China partially opening Tibet to the world in the 1980s; and (iii) 1996 onward. During the past six decades India has walked a fine line between granting asylum to the Tibetans along with providing them a base for setting up a government-in-Exile and recognizing China's right over Tibet under its *'One China Policy'*.

The resettlement of such a huge number of Tibetan refugees in India is one of the best examples of accommodating persecuted people by any host country. Since their arrival, they

have garnered a good amount of support for their cause from India as well as a few western countries like the United States, and the United Kingdom. India has always respected their religious guru, the great 14th Dalai Lama, and supported him financially to preserve Tibetan's religion, their identity, culture and language. With the cooperation of state governments, India rehabilitated these refugees in permanent settlements throughout the country with freedom to practice their religion, culture, and language. In addition, they are free to do any kind of work like an ordinary Indian citizen. Even to support them economically, the government has provided them opportunities to work in the handloom sector and open small restaurants and Tibetan markets in and around their settlements.

The dual and somewhat ambiguous approach adopted by the Indian government has serious implications for India-China relations as well as international order. Over the six decades of their stay in India, the Tibetans have built their own settlements on the Indian landscape. Through the medium of these settlements, the Tibetans have recreated their own homeland at a foreign place, leaving, in the process, their imprint on the spatial, cultural and geopolitical landscape of India as well as the larger region.

Taking a cue from the above statements, the present paper attempts to understand the dynamics of the settlement of Tibetan refugee population in the different parts of the world with a focus on India along with the implications of the policy for India's internal political dynamics as well as India-China relations in the era of growing interdependence between the states in the light of the following research questions.

Research questions

1. What are the spatial expressions of Tibetan migration to India on the Indian landscape?
2. What are the likely trans-national implications of the presence of the Tibetan refugees? and
3. How have the Indian Government responded to the creation of Tibetan settlements and the benefits extended?

The paper attempts to be descriptive, evaluative and analytical in nature largely drawing the data available from secondary sources like books, articles from journals available offline and online, newspapers, other internet sources etc.

Contextualising the Problem

Currently, India hosts more than 2.0 lakh refugees, forced to flee conflict and persecution in their home countries. As per available information, the details are as follows: (Afghanistan, 10,340; Myanmar, 4,621; Sri Lanka 1, 01, 896, and Tibetans 1, 10,095) are living in India (Ministry of Home Affairs, 2015). Apart from these, there are refugees from Pakistan, Bangladesh, and the Middle East countries, whose exact number has never been officially collected and estimated. In 2019, the Ministry of Home Affairs issued a statement stating that more than 30,000 persons belonging to minority communities (Hindus, Sikhs, Buddhists, Jains, and Christians) from Bangladesh, Pakistan, Afghanistan are living on Long-Term Visas

in India (Ministry of Home Affairs, 2019). These Long-Term Visas are granted to refugees based on existing guidelines after due security verification etc., permitting them for facilities at par with other foreigners. By availing this document, they can get employment in the private sector and can study in any educational institution (Ministry of Home Affairs, 2015).

For Tibetans, the rehabilitation policy was first framed in 1959. As per the guidelines provided by the policy, Tibetans living in settlements in India can stay indefinitely (UNHCR, 2003) and can do any kind of work except government jobs. They cannot buy land or property and their freedom of movement is limited within and outside India. During the early years, Tibetan refugees without identification documents in India were at risk of persecution, arrest, and deportation in China. According to the new policy guidelines, the Central Tibetan Relief Committee can take land on lease for the resettlement of Tibetan refugees and also use it for educational, cultural, and commercial purposes. Basically, the Tibetan Rehabilitation Policy is an executive policy and has been reviewed every twenty years (The Indian Express, 2017). Gradually, with the passage of time, the government of India has given a lot of exemptions in its policy guidelines and increased the benefits for Tibetan refugees.

In October 2014, the Government of India reviewed the Tibetan rehabilitation policy with the aim to provide better livelihood opportunities for the Tibetan refugees in the country. It provides uniform guidelines for states to demarcate facilities for Tibetan refugees to follow in their respective areas. As per the policy, it is mandatory for the Central Tibetan Authority (CTA) to carry out the census of Tibetan refugees in India every five years and to submit the report to the Central government and to the respective state governments (Government of India, 2015). The following are the benefits and facilities provided by the Indian government for the overall development of Tibetan refugees in various sectors.

Economic Benefits

The Indian Government has allowed Tibetan refugees to open Tibetan markets. They can sell products like handloom, handicrafts, etc. Qualified professionals among them can work in private and non-government sectors. They are free to do any work as they desire, can apply for trade licenses from the respective state governments. All Tibetans are entitled to get bank loan facilities. They are provided with the facilities of crop loans and crop insurance. The government has also advised the states to launch skill up-gradation and training programs for the welfare of Tibetans.

Social Welfare Schemes

Tibetans refugees are also entitled under the largest poor welfare schemes like public distribution system (PDS) and *Indira Awaas Yojana*. Under the PDS scheme, the governments in states of their residence have provided them ration cards that allow them to purchase essential goods at the subsidized rates. Similarly, under Indira Awaas Yojana government will built houses for homeless Tibetans and for those living in dilapidated and kutcha houses.

Besides, the Central Government has also ordered the state governments to benefit Tibetan refugees under central employment schemes like National Food Security Act (NFSC), National Rural Health Mission (NRHM), *Rajiv Awas Yojana* (RAY), National Rural Livelihood Mission (NRLM) and Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), and under all other social security schemes that are available for an Indian citizen.

Education and Health Facilities

India has funded Tibetan schools to provide free education for their children and also provide subsidies to the Tibetan children in schools and universities to pursue professional courses such as engineering and medical sciences. They can pursue any career in all fields according to their professional qualifications including nursing, engineering, accounting, medicine, etc. Also, India provides free health care to Tibetan refugees at subsidized rates in all village dispensaries and government health centers.

Religious and Cultural Support

India has never forced any of its refugee communities to follow any particular religion. Since the inception of Tibetan refugees in India, their settlements in India have been designed in such a way so that they can live together within their society and practice their religion, culture, and language. The Indian government also provided the land and financial help to Tibetan refugees to build a large number of Buddhist monasteries on their land.

Citizenship, Voting Rights and Other Amenities

According to Indian law all Tibetan refugees born between January 26, 1950, and July 1, 1987, are eligible for Indian citizenship (Goyal, 2019). Under this law, a large section of the second and third generation of Tibetans living in India became eligible for Indian citizenship. However, for that benefit, they have to abandon all the privileges or benefits that the Central Tibetan Administration grants them. They will also have to leave designated Tibetan settlements if they are residing in them. They will also have to forfeit the subsidies that they are entitled with the refugee certificate (RC), renewed annually.

In the year 2014, Chief Election Commission directed all Indian states to include Tibetans and their children born in India in the electoral rolls and granted voting rights to all people of Tibetan origin born in India between 1950 and 1987 (Goyal, 2019).

The government of India also provided the guidelines that the land allotted to Tibetan refugees should not be disturbed by the respective state governments. The Center government also ordered the states to provide infrastructural facilities and basic services like transportations, electricity, and drinking water in or around all Tibetan settlements.

Tibetan Population in Exile: Global and Indian Scenario

For Tibetans, India became their one of the favourite destinations, may be due to geographical proximity and the favourable response from the Govt. of India for their political asylum. Although, as per Tibet Data Website, only 2 .0 per cent or 129 thousand of their total

6.41 million population is living outside Tibet (Tibet Data, 2015), i.e. in other parts of the world; their quest and demand for their independent homeland is still alive.

Of the total 129 thousand Tibetan diasporic community living worldwide, 94 thousand or more than 70.0 per cent are currently based in India (Table 1). While about 13,500 live in Nepal, almost 2, 000 in Bhutan and the remaining 19,000 migrated to other parts of the world. Switzerland is the first distant country that came forward to assist the Tibetan refugees. In the 1960s, around 1,000 Tibetans migrated from South Asia to Switzerland for resettlement. From then onwards, there has been a steady increase in the Tibetan refugees in Switzerland. According to the 1998 CTA survey, more than fifteen hundred Tibetans are settled in Switzerland. Canada is the second Western country that welcomed the Tibetan refugees from South Asia in a large number. The first group of 228 Tibetan refugees arrived between 1970 and 1972. In 2010, the Canadian government decided to take nearly a thousand Tibetan refugees living in Arunachal Pradesh of India for resettlement in Canada. As per the 2016 Census in Canada, the Tibetan community comprised over 8040 members in that country. The earliest Tibetan immigration to the USA took place in the 1950s, and by 1985, around 524 Tibetans were living in the USA. In 1990, the US granted resident alien status to 1,000 Tibetan refugees through a special act of the US Congress. With this, Tibetan population as well as the US policy of family reunification, the number of Tibetans in the United States increased dramatically, the total number of Tibetans settled in the United States moved up to 11, 265 by 2013. Tibetan refugees from South Asia also migrated to other parts of the world such as Europe, Japan, Taiwan, Australia, and New Zealand (Choedon, 2019:16).

Table 1: Distribution of Tibetan Population in the World, 2015					
Country	Population (in number)	% to total	Country	Population (in number)	% to total
Tibet	6, 282, 187	97.98	Bhutan	1,298	0.02
India	94, 203	1.47	United Kingdom	650	0.01
Nepal	13, 514	0.21	Rest of Europe*	640	0.01
USA	11, 265	0.18	Others**	1,254	0.02
Canada	4, 640	0.07	**Total**	**6,411,191**	**100.00**
Switzerland	1,540	0.02			

*Excluding Switzerland and Scandinavia   ** Including Australia (533), Taiwan (485), Scandinavia (110), New Zealand (66), and Japan (60), where total Tibetan population is less than 600 persons, each.

Different sources provide different population figures on the Tibetan refugee population living in India. According to CTA figures 94, 203 Tibetans are living in India. Government of India estimates this figure more than 1.10 lakh persons (Government of India, 2015). Ahmad (2012) in a research article stated that their total population in India is around 1.49 lakh. In this context, it is to be noted that no census has been held of Tibetans population since 2009.

The Tibetans headquarter in India is located at McLeod Ganj in Dharamshala- the district headquarters of Kangra district (Himachal Pradesh). It is also knowns as '*Little Lhasa*' and perceived as *de facto* capital of Tibetan Community in Exile (Purohit, 2019). Tibetan population is distributed in various parts of India. Karnataka state, in south India, alone hosts more than half of their total population of 1.49 lakh persons in India. Another, 24 thousand

and 14 thousand are residing in West Bengal and NCT of Delhi, respectively. The Himalayan states of Uttarakhand, Himachal Pradesh and Arunachal Pradesh also have their population in significant numbers. Jammu and Kashmir, Maharashtra, and Uttar Pradesh are other states where their population is more than 1500 persons in each case (see Table 2). According to research published in the Tibet Journal, today there are approximately 150, 000 Tibetan refugees living in India in almost 37 diverse settlements and 70 scattered communities.

Table 2: Showing Population of Tibetan Refugees in Major States of India			
State	**Population**	**State**	**Population**
Karnataka	75, 000	Jammu and Kashmir	2,300
West Bengal	24,000	Maharashtra	2, 200
Delhi	14, 000	Uttar Pradesh	1, 800
Uttaranchal	9,800	Assam	,800
Himachal Pradesh	9, 600	Others	3, 800
Arunachal Pradesh	5, 700	**Total**	**1 49, 000**

Source: Ahmad, 2012

The Tibetans keep on entering India for different reasons. There are, however, different estimates on this count. According to the estimates of the CTA, the Indian government and United Nations High Commissioner for Refugees (UNHCR), 1500 to 3500 Tibetans are entering to India annually, mostly coming via Nepal (Tibet Justice Center, 2016). According to the estimates of International Campaign for Free Tibet, a non-profit organization, 2,500 to 3,500 Tibetans flee Tibet into India and Nepal annually. It may be further mentioned that all emigration from Tibet is not for permanent settlement in India; some are coming to receive traditional Tibetan education and some others to meet and pay homage to their religious *guru*. It is stated that many of them also return back (United States Bureau of Citizenship and Immigration Services, 2003). The highest percentage (45.0 per cent) of such emigrants to India come for monastic purpose followed by those coming for Tibetan education with 30.0 per cent, nomads and unemployed with 20.0 per cent and the farmers with remaining 5.0 per cent (see The International Campaign for Tibet, 2006:30).

Tibetan Refugee Settlements in India and their Types

Soon after the first wave of Tibetan refugees arrived in India, the Government of India provided immediate relief assistance for them. The Indian government first resettled them in temporary settlements, which were later converted into permanent settlements. The Tibetan religious leader re-established his government in exile with the permission of the Government of India, better known as the Central Tibetan Administration (CTA) (Bernstorff & Welck, 2003:135). Dalai Lama also established the Home Department to look after their various issues like establishment, maintenance and handling of their settlements. Through this department, the Government of India has been providing them financial help to avail them the basic facilities and adequate sources of livelihood.

Till present the Central Tibetan Administration has established 58 Tibetan settlements in India, Nepal and Bhutan out of which 39 major settlements are located in India, while 12 and 7 in Nepal and Bhutan respectively (Department of Home, CTA, Central Tibetan relief

Committee, 2020). Out of the total 39, fourteen settlements are present in Himachal Pradesh, five in Karnataka, five in Arunachal Pradesh, four in Uttarakhand, three in West Bengal, two in Sikkim and one each in Ladakh, Delhi, Maharashtra, Orissa, Meghalaya and Chhattisgarh.

On the basis of occupation, Tibetans settlements in India, Nepal and Bhutan are categorised into three types: (i) agro based, (ii) handicraft based and (iii) cluster communities (Department of Home, CTA, 2020). In the following, a list of **Tibetan Settlement Offices** in India has been presented.

(I) *Agricultural Based:* Choephelling, Dhargyeling, Tenzingang, Tuting (all in Arunachal Pradesh); Lugsung Samdupling, Dhondenling, Dickyi Larsoe, Doeguling, Rabgyeling (all in Karnataka); Doeguyulgyelling (Uttarakhand); Kunphenling (Sikkim); Norgyeling (Maharashtra); Phendeling (Chhattisgarh); Phuntsokling (Odisha); and Sonamling (Ladakh); =**Total 15**

(II) *Handicraft Based:* Bir Dege, Bir Chauntra, Bir Tibetan Society; Phuntsokling, Gapa Tibetan Society, Kham Khatok, Paonta Cholsum, Sakya Tibetan Society TashiJong, Tashiling, Tibetan Bonpo Foundation, and Yangchen Gatselling (all in Himachal Pradesh) =**Total 12**

(III) *Cluster Communities:* Bomdila (Arunachal Pradesh); Darjeeling (West Bengal); Palrabling, Tashiling, Dharamsala (Himachal Pradesh); Lingtsang, Dekyiling, Dhondupling (Uttrakhand); Gangtok (Sikkim); Kalimpong (West Bengal); Samyeling (NCT, Delhi); and Shillong (Meghalaya) = **Total 12**

Each settlement has a Tibetan representative called a welfare officer taking care of the welfare and interests of these settlements. Moreover, these settlements have been set up keeping in mind their employability issues. Indian government has taken several steps to rehabilitate Tibetan refugees at various places in the country. The concerned state governments have been provided them agricultural land on leasehold basis to earn livelihood. To generate more employment for them, the government of India has also established Handicrafts centers at Dalhousie, Dharamshala, Shimla, and Kullu in Himachal Pradesh, Darjeeling in West Bengal and Raipur village of Dehra Dun district in Uttarakhand (Government of India, 2015). The permissions to run shops and restaurants have also been granted to them. Moreover, they are also being helped financially to establish their monastic institutions and the Ministry of Cultural Affairs of Government of India provides funds for the development and maintenance of Tibetan Art and Culture annually (Government of India, 2019). The Government of India with the help of local and international NGOs and the western countries also provides a huge sum to the CTA for the development and establishment of new settlements and monasteries.

Tibetans-in-Exile: Some Issues

(a) Legal Status: Refugees or Foreigners?

Although India is not a signatory of the 1951 Refugee Convention or its 1967 Protocol but a large number of refugees are living in the country. In absence of a uniform law to deal with a huge number of refugees living in India, it treats the incoming refugees according to their national origin and political considerations. Recently, Indian Citizenship laws have been amended to accommodate specifically the persecuted non-Muslim religious minority groups from Pakistan, Afghanistan, and Bangladesh, but this step seems to be motivated by nationalist politics rather than humanitarian concern because somewhere the government ignored other refugee groups needing protection.

India has been dealing with refugees and asylum seekers on an ad-hoc basis (Bhattacharjee, 2008:71). Ministry of Home Affairs has been issuing standard operating procedures (SOP) from time to time and case to case basis in this context. According to these rules any person fleeing their country due to fear of persecution on the basis of race, religion, sex, nationality, ethnic identity, membership of a particular social group or political opinion, the Ministry of Home Affairs can grant Long Term Visa (LTV) after due security verification, on the recommendation of the respective State/UT administration (Government of India, 2014).

As it has already been stated, India is not a signatory to any International Refugee Convention (UNHCR, 2011), the Tibetans in India are considered to be foreigners under certain basic Indian laws relating to foreigners (Tibet Justice Center, 2016:6). However, in practice, India has never treated them as foreigners and the Government of India has made special provisions and rules for the welfare of Tibetans in exile. All the refugees have been receiving special attention and treatment. Although they do not enjoy the right to formally participate in Indian politics like an Indian citizen, but all Tibetans coming before 1987 or born in India can apply for Indian passports and citizenship; also free to work and own property in India. Moreover, the Government of India provides them a legal identity document, registration certificate (RC) renewed annually, to live and travel within India. In addition, the Government of India issues another identity certificate, Yellow Book, on the basis of which Tibetans are allowed to travel abroad and in India; and there is no problem in renewal of these documents.

(b) Protest in Arunachal Pradesh against Tibetan Rehabilitation Policy

In 2017, Arunachal Pradesh government implemented the revised Tibetan rehabilitation policy, which faced huge protests across the state. These were mainly organized by the Arunachal Pradesh Congress Committee, Arunachal Civil Rights, All-Arunachal Pradesh Students Union, and the People's Party of Arunachal to express their opposition to the establishment of permanent settlement of Tibetans in the state (*The Indian Express*, 2017). These organizations also demanded the revocation of illegally issued PR/ST certificates to them along with the cancellation of business license already obtained, a written undertaking

from the CTA for not demanding Indian citizenship and STC/PRC in Arunachal Pradesh, and Tibetan refugees to be moved back in the demarcated camps (*Tibetans Journal*, 2018).

The local population of the state was also not happy with revised guidelines. They believed that the Tibetan resettlement guidelines set up by the government were a threat to their identity and culture and also weakened constitutional safeguards for indigenous communities. They also feared that jobs and other facilities availed by the original tribal population would be endangered by the settling of Tibetans.

Apart from the above incident, there have been some sporadic anti-Tibetan incidents in the state and other parts of the country. Broadly speaking, the Tibetan refugees are living a protective and peaceful life without any kind of harassment from the Indian; and the government of India is also not forcing them to return to Tibet.

Tibetan Refugees and India-China Relations

As stated before, India, on the one hand, accepts 'One China Policy' and, on the other, continues to support Tibetan refugees in India. In other words, India accepted Chinese suzerainty over Tibet, and assured the Chinese of not allowing any political activities against them by the Tibetans living on Indian soils.

In contrast, India is continuously harbouring Tibetans and supporting them for their cause. This contradiction in India's policy is constantly harming its relations with China (*The Hindustan Times*, 2012). For India, Tibet has been always a dilemma and the Tibetan issue has always played a major role in Sino-Indian relations. By considering Tibet as a part of China, India has made a huge mistake that can never be rectified. China always sees the 'Tibetan community in India' as a threat to its national security and blames the Dalai Lama and his followers for all anti-China incidents in Tibet (*The Indian Express*, 2018). Furthermore, the Chinese officials also think that Tibetan religious and political leader Dalai Lama wants to drive out all non-Tibetans from the Tibet Autonomous Region (TAR); and for that the exiled Tibetans along with their leader recognized the Five-Point Peace Plan of 1987 and the Strasbourg Proposals of 1988 as their political guidelines since 2005. For China, these proposals are similar to agendas that Tibetans adopt for their secessionist activities. Also, in view the Chinese leadership, these proposals 'were seen as an extension of Indian foreign policy' (Pardesi, 2012).

After 1949 when the Chinese Communist Party came into power it initiated its age-old expansionist policy and as soon as it confiscated the territory of Tibet, revoked the 1914 Simla agreement. China always claims that Indian state of Arunachal Pradesh had been a part of south Tibet. Its Tawang region is the main center of Karma-Kagyu sect headed by Karmapa lama. Therefore, whenever India allows Tibetans religious leader His holiness Dalai Lama to visit Arunachal Pradesh especially the Tawang area, China has always been customarily objected warning India its adverse impact on bilateral relations (Rajdan and Nair, 2017). It seems that The Dalai Lama's visit to Tawang does not fit into the Chinese scheme of things (Dutta, 2017). Moreover, China aggressively promotes the "*One-China Policy*". In

2017 when Tibetan religious leader, The Dalai Lama, visited Arunachal Pradesh then China again objected and behaved aggressively. Chinese leaders had issued belligerent remarks and warned India that allowing the Tibetan leader to address the gathering there would severely damage bilateral relations. Recently, the Chinese media accused Indian Prime Minister Narendra Modi of going against his predecessors and taking a different stance on the Dalai Lama issue. They stated that he is challenging Beijing by increasing public engagement with the monk (Rajdan and Nair, 2017).

China has also blamed an organization of Tibetan Youth Congress (TYC) based in India and Tibetan refugees from around the world for the anti-Chinese activities and protests that began in Tibet in 2008. China sees TYC as a reserve force for Tibetan independence. As this organization is founded in India, Chinese authorities somewhere believe that India has been deliberately supporting this organization against Chinese (Pardesi, 2012). More importantly, China emphasizes that the socio-political activities of Tibetan refugees in India are not limited only to religion and culture. They believe that India wants to make Tibet independent using the Tibetan government in exile and Dalai Lama. Consequently, Chinese misperceptions of India's intentions vis-à-vis Tibet are severely affecting its relations with India. The quintessential example of this Chinese misperception is the 1962 India-China war. As Pardesi (2012) has rightly pointed out that Chinese misconstrued fear of India's intentions to re-establish Tibet as a 'buffer state' between India and China, was a major factor leading to China's decision of launching an attack against India in 1962.

India shares 3488 Km long border with China, which is not fully demarcated. This leads to small-scale skirmishes between the armed forces of the two nuclear powers since they fought a major war on territorial integrity in 1962. However, despite these major irritants, at present China is the India's largest trading partner and both states are members of several multilateral organizations including China-Russia-India trilateral, BRICS, SCO, and G20. The two nations talk of promoting globalization and share a common interest and position on various international issues concerning both the States. The two sides have also taken various initiatives to bring new thrust in developing their bilateral relations (Haider, 2019). However, in spite of all this, there is deep mistrust between the two nations, especially in relation to the border dispute. Moreover, the unresolved Tibet issue also continues to cast a shadow over their turbulent relations. Although, His Holiness Dalai Lama with his Tibetan followers living as refugees since last more than six decades are looking up at China for accepting his 'Middle Way Approach', meant to get legitimate autonomy for Tibetans living in Tibet Autonomous Region (TAR) within the framework of the People's Republic of China. But China has not paid any heed to this approach, as suggested by The Dalai Lama. So, the unresolved border issues between India and China also largely owe its origin to the illegal occupation of Tibet by China. The unsettled Tibet issue will continue to have its direct or indirect bearing on India's relations with China.

Concluding Remarks

India has been hosting a large group of Tibetan refugees for the last six decades, coming from its rival neighbour occupied territory without seeking any permanent solution to resolve the Tibetan issue. In absence of any specific policy on these refugees, it is very difficult to say how long they will continue to stay in India, and if China does not accept their demands, what will be the India's stand on the issue? The presence of Tibetan refugees and their religious leader, The Dalai Lama, has always influenced India's relations with China, demanding India to reconsider its stand on 'One China Policy' till the Tibetan as well as the border issue with China are resolved. India can put pressure on China by supporting the anti-China activities of exiled Tibetans living in India, but it will never go with such an option as it knows that such activities of exiled Tibetans may threaten the security of the region and India-China relations. To resolve the Tibetan issue, both India and China need to start a political dialogue. This will not only solve the Tibetan problem but also address border issues between the two Asian giants.

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FERTILITY TRENDS AND PATTERN IN MAHARASHTRA
(A DISTRICT LEVEL ANALYSIS, 1971-2018)

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Abstract: The paper examines fertility trends and differentials at the districts in the state of Maharashtra using data available from the Census of India, the Sample Registration System, National Family Health Surveys, and Fertility at District Level in India: Lessons from the 2011 Census. The bivariate analysis of changes and trends has been conducted from 1971 to 2018. The analysis revealed that Maharashtra has achieved below replacement level fertility but there are wide inter-district differential in fertility rates. The study shows a fluctuating trend in fertility decline. It registered a steep drop during 1971-81 with a moderate fall during 1981-91 and again steep drop during 1991-2001 and 2001-2011 decade but a slow decline during 2011-2018. There has been a correspondence between fertility decline and socio-economic development, decline in higher-order births of three and above and decrease in fertility among older women in the age group 30 and above. Fertility differentials by education, caste, religion, and occupation exist in Maharashtra.

Keywords: Fertility, trends, differentials, marital fertility, Maharashtra

Introduction

Maharashtra has though experienced a substantial decline in fertility to achieve below replacement level fertility, but there are wide spatial variations on this count. In some districts fertility is though declining but continues to remain well above the replacement level. The importance of acceleration in fertility reduction efforts cannot be understated, especially in districts having a slow fertility transition.

The experiences of the European countries indicate that during the early stages of fertility transition of a country, urban fertility differs from rural fertility, urban fertility usually lower than the rural (Mosk, 1980). A study on rural-urban differentials in India using the Sample Registration System data during 1970-80 revealed that there was a decline in marital fertility at the older ages and a marginal increase in the younger age groups. Urban women were found to have lower fertility than their rural counterparts; and voluntary fertility control was the main reason behind a larger decline in marital fertility (Pathak and Murthy, 1987). In their study on fertility trends and differentials in Andhra Pradesh, Ramchandran and Ramesh (2005) examined fertility differentials in terms of education, religion, caste, and occupation. A strong negative association was observed between the educational level of women and fertility, rural and urban areas both.

Another study found that increasing contraceptive prevalence rate has relatively low impact on birth rate because most of the acceptors desired as well as had three or more children (Kulkarni, 1994). It is found that mean number of children ever born among adolescents decreased steadily during 1992-2006. The total fertility rate is declining in India as well as in Maharashtra, the teenage fertility is still high but its contribution to the total fertility rate shows a decline (Dutta and Sarkar, 2014). The pattern of fertility decline varies across

districts and between rural and urban areas. Maharashtra government announced its New Population Policy to reduce fertility by various specific interventions linked to the acceptance of small family norms (Government of Maharashtra, 2000).

According to 2011 Census, population of Maharashtra was 112.4 million making 9.4 per cent in total population of India. Maharashtra ranks the third in area but the second in area in the country. Nearly one-fifth of its population belongs to scheduled (caste/tribe) population, separately 10.2 per cent castes and 8.8 per cent tribes. The density of population was 365 persons/ km^2 in 2011, increased from 164 persons/ km^2 in 1971. Decadal growth of population has declined from 27.5 per cent in 1971 to 16.0 percent in 2001-11. The state has urbanized fast, urban population has grown by about one and half times from 31.2 per cent in 1971 to 45.2 per cent in 2011. The sex ratio has declined slightly from 930 to 929 females/1000 males during last four decades between 1971and 2011.

According to Sample Registration System data, the total fertility rate in Maharashtra is 1.7 in 2018; rural fertility rate (1.8) is higher as compared to urban (1.5). The factors underlying the fertility differentials are, however, a matter of debate among the scholars and the policymakers.

Rationale of the research problem

For a long time, the focus of various socio-economic development programs in India has remained either at macro or meso spatial scales. The fertility related programs are not an exception to this. In their studies, the scholars and academicians have also focused on national level or state level studies in looking at the levels of and the trends in fertility rates. Notwithstanding the wide differential in the levels and trends of fertility rates at the micro or district level, there are only a sporadic literature on the trends and patterns of fertility rates at the district level. Moreover, the sample registration system has repeatedly been recording substantial differentials in fertility rates by residence, religion, caste/tribe, and socio-economic characteristics of population living in different districts.

Finding a research gap, the present paper attempts to examine the factors responsible for variations in fertility trends and patterns at district level by making Maharashtra a case study in the light of the following research questions.

Research questions

1. What have been the trends in fertility transition in Maharashtra during 1971-2018?

2. How the fertility rates differ across districts, and between rural and urban areas?

3. What are the correlates of fertility transition in Maharashtra as a whole as well as at the district level?

Materials and Methods

For conducting the present study of fertility trends and differentials at the district level in Maharashtra data were picked from the *Census of India*, the *Sample Registration System*, the

National Family Health Surveys, and *Fertility at District Level in India: Lessons from the 2011 Census,* a study published in Economic and Political Weekly. Data on age-specific fertility rates, age-specific marital fertility rate, total fertility rate and total marital fertility rate from 1971 to 2018 has been used for the purpose.

Bivariate technique has been used to analyse the distribution of currently married women at age of 15 to 49 by socio-economic characteristics, such as religion, caste/tribe, education, and occupation. The bivariate analysis of changes and trends has been done to study the association between total fertility rate and socio-economic characteristics of women such as religion, caste/tribe, education, and occupation from 1971 to 2018.

DISCUSSION AND RESULTS

Vital rates in Maharashtra

Population growth in a region depends on fertility, mortality, and migration. Population grew at accelerated rate in Maharashtra up to 1971, to register a marginal decline in 1981. The decadal population growth came down to 24.5 per cent during 1981-91 from 27.5 per cent during 1971-81. Further decline in fertility was witnessed in 1991, 2001, 2011, and 2018. The crude birth rate (CBR) in Maharashtra has declined from 32.2 per thousand persons in 1971 to 28.5 in 1981 and to 26.2 in 1991 (Table 1).

Table 1: Trends in birth rate, death rate and infant mortality rate of Maharashtra, 1971-2018

Year	Birth Rate			Death Rate			Infant Mortality Rate		
	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban
1971	32.2	33.7	29	12.3	13.5	9.7	105	111	88
1981	28.5	30.4	24.5	9.6	10.6	7.4	79	90	49
1991	26.2	28	22.9	8.2	9.3	6.2	60	69	38
2001	20.7	21.1	20.2	7.5	8.5	5.9	45	55	28
2011	16.7	17.3	15.8	6.3	7.3	5.1	25	30	17
2018	15.6	15.9	15.2	5.5	6.3	4.5	19	24	14

Source: *Vital Statistics Division*, Office of Registrar General and Census Commissioner, New Delhi, for 2009, 2011 and 2018

It further declined to 20.7 in 2001, 16.7 in 2011, and 15.6 per thousand persons in 2018. CBR in rural Maharashtra has declined from 33.7 per thousand persons in 1971 to 15.9 per thousand persons in 2018 whereas in urban areas it declined from 29.0 per thousand persons to 15.2 per thousand persons during the same period. CBR has declined by 51.6 per cent in Maharashtra. Interestingly, the contribution of rural areas in declining birth rate was higher (52.8 percent) than their urban counterparts (42.6 per cent) during 1971-2018. Similarly, CDR has also declined from 12.3 per thousand persons in 1971 to 8.2 per thousand persons in 1991; further to 8.5 per thousand persons in 2001, 6.3 per thousand persons in 2011, and 5.5 per thousand persons in 2018. CDR in rural areas of Maharashtra has declined from 13.5 per thousand persons in 1971 to 6.3 per thousand persons in 2018, against this decline in urban areas was from 9.7 per thousand persons in 1971 to 4.5 per thousand persons in 2018. The CDR has declined by 55.3 per cent in Maharashtra; the contribution of urban areas was marginally higher (53 6 per cent) than rural

areas (53.3 per cent) during 1971-2018. Infant Mortality Rate (IMR) in Maharashtra has steadily declined from 105 in 1971 to 60 in 1991. It further declined from 45 in 2001 to 25 in 2011 and 19 in 2018. IMR in rural and urban areas has declined from 111 and 88 in 1971 to 24 and 14 in 2018, respectively. IMR in Maharashtra has declined by 81.9 per cent; urban areas contributing higher (84.1 percent) than their rural counters (78.4 per cent). All the three rates (CBR, CDR, and IMR) are higher in rural than urban areas.

Fertility trends in Maharashtra

The age-specific fertility rates (per 1000 women) are much higher among younger age groups than older age groups of women. Similarly these are higher in rural than urban areas of Maharashtra. There is a consistent decline in fertility rate by residence among all age groups. The age-specific fertility rates declined from 1971 to 2018 in both urban and rural areas. The peak age of child bearing is 20-29, with steadily declining fertility rates thereafter. The high fertility is still concentrated in the prime childbearing age 20-29 years both in urban and rural areas. Fertility rates declined sharply beyond the age of 30, to reach extremely low level for women age 40-44 and 45-49. Early child bearing (in the age group 15-19) is declining in Maharashtra accounting for 2.64 per cent of births. The contribution of early child bearing (age 15-19) is higher (3.21 percent) in urban areas than the rural areas (2.25 per cent) in Maharashtra. It is also found that 71 per cent of births occur among women below the age of 30 consisting of 75.6 per cent in rural areas and 64.5 per cent in urban (Table 2). The age-specific marital fertility rates also follow an almost similar pattern to the total fertility rate. The fertility in the higher age groups (mothers aged 35 and above) has fallen substantially in rural areas, as couples choose to limit their family size, and stop having children after they have had the desired number (between two and three children per woman on average). The fertility in urban areas, among older women has grown, as better educated women are able to delay marriage and childbirth, and improved healthcare allows women to have children later in life. While fertility in general is lower among more educated women, there is one notable exception: in urban areas, fertility rates among women in their 30s are higher among better educated rather than less educated women.

The total fertility rate (TFR) declined considerably from 1971 to 2018 in Maharashtra. The fertility seems to have remained stable at around 5 children per woman before 1971. The pace of fertility decline accelerated with time. For example, estimated TFR of 4.6 in 1971 declined to 3.6 in 1981, to 3.0 in 1991, 2.4 in 2001, 1.8 in 2011, and 1.7 in 2018 (Table 3). Maharashtra had experienced a steep fall during 1971-81, moderate during 1981-91 and again steep during 1991-2001 and 2001-2011, but sluggish decline during 2011-2018. The annual decline (in percentage) during 1971-2018 was 1.35 for the state. The comparison of the TFR between 1971-81 and 1981-91 shows that the rate of decline in the TFR has been lower during 1981-91 (1.67 per cent per annum) compared to 2.17 per cent earlier during 1971-81. The comparison of the TFR between 1981-91 and 1991-2001 indicates that the rate of decline has been higher during 1991-2001 (2.0 per cent/year) compared to 1.67 per cent during 1981-1991. The comparison of the TFR between 1991-2001 and 2001-2011 indicates that the rate

of decline in TFR has been higher during 2001-2011 (2.5 per cent) compared to 2.0 per cent per annum during 1991-2001. Similarly, the comparison of the TFR between 2001-2011 and 2001-2018 indicates that the rate of decline has been higher in 2001-2011 (2.5 per cent per annum) compared to 0.79 per cent during 2011-2018. On average, now a woman in Maharashtra gives birth to two children (1.7) as compared to five in the early 1970s.

In 1971, TFR in Maharashtra was 4.9 in rural and 3.9 in urban areas, differing by more than 25.0 per cent. By 2018, these rates came down to 1.8 and 1.5, respectively, giving a difference of 20.0 per cent. During 1971-2018, average annual decline in TFR being 1.34 per cent for entire Maharashtra it was 1.35 per cent in rural and 1.31 per cent in urban areas. In the recent period (i.e. 2001-2018), the fertility decline in urban Maharashtra has been faster (an average annual decline of 0.89 per cent in the TFR) as compared to 0.75 per cent in rural areas. The difference between rural and urban TFRs has decreased from 25.0 per cent in 1971 to 20.0 per cent in 2018. The total marital fertility is also followed an almost similar pattern like the total fertility rate. The fertility decline occurred in the state due to higher rates of literacy and education, along with greater equality for women. With increased access to education, economic and other development opportunities, there has been a sharp decline in fertility during recent decades. Women's education and labour force participation seem to have played a key role in reduction of TFR. The decline in fertility during 2001-2011 is largely explained by increase in contraceptive use with a small contribution from rising age at marriage. The fertility decline during 2011-18 is due to increases in abortion and rising age at marriage.

Prior to 1990s, women's education, reduction in child mortality, and the rising cost of child bearing were the leading factors in fertility decline (Dreze and Murthi 2001; UN 1987). Since 1990s, the diffusion process is said to be the leading factor in fertility decline. More than three-fifths of the decline in fertility in the 1990s was contributed by the illiterate or less educated women (Bhat 2002; Arokiasamy 2009). The transition is being driven by the increased use of the contraceptive. The education has played a key role in reduction of TFR. The decline in fertility during 2001-2011 is largely explained by an increase in contraceptive use with a small contribution from rising age at marriage. The fertility decline during 2011-18 is due to increase in abortion and rising age at marriage (IIPS and ICF, 2018).

Table 2: Trends in age-specific fertility rate and age-specific marital fertility rate by residence from 1971 to 2018 in Maharashtra

Age Group	Age-Specific Fertility Rate							Age-Specific Marital Fertility Rate					
	1971	1981	1991	2001	2011	2018	Change (%) 1971-2018	1984	1991	2001	2011	2018	Change (%) 1984-2018
Total													
15-19	79.0	80.9	80.0	44.9	28.6	8.8	88.86	240.0	228.0	192.9	155.3	200.3	16.54
20-24	226.0	232.8	238.4	226.1	179.5	119.1	47.30	326.4	308.2	321.0	261.1	272.9	16.39
25-29	233.0	202.3	173.1	140.8	107.5	107.2	53.99	206.4	190.9	160.4	123.7	147.2	28.68
30-34	185.0	123.6	74.6	46.9	34.8	69.0	62.70	108.9	80.2	51.0	37.9	78.6	27.82
35-39	115.0	59.3	32.2	18.7	9.1	21.1	81.65	47.0	35.0	20.4	10.0	23.0	51.06
40-44	46.0	21.1	9.4	5.4	1.6	6.1	86.74	17.1	10.6	6.1	1.8	6.7	60.82
45-49	17.0	9.6	1.3	2.0	0.4	1.6	90.59	4.2	1.5	2.4	0.5	1.8	57.14
Rural													
15-19	81.0	90.9	99.3	55.2	38.8	8.1	90.00	222.7	224.3	183.1	157.8	175.6	21.15
20-24	243.0	249.8	263.0	254.0	213.8	138.2	43.13	318.5	307.8	322.4	266.1	279.4	12.28
25-29	236.0	214.5	177.7	134.9	104.0	126.0	46.61	212.0	190.3	148.1	112.5	164.6	22.36
30-34	209.0	136.7	80.1	43.7	23.2	60.3	71.15	115.5	85.7	47.1	24.9	67.8	41.30
35-39	126.0	70.0	37.7	18.3	6.4	20.3	83.89	53.2	41.0	19.9	7.0	21.8	59.02
40-44	53.0	24.4	12.6	5.2	1.8	6.0	88.68	20.1	14.3	5.8	2.0	6.4	68.16
45-49	18.0	11.4	1.6	2.7	0.5	1.5	91.67	3.9	2.0	3.2	0.6	1.6	58.97
Urban													
15-19	75.0	57.2	41.2	27.9	13.6	9.7	87.07	15-19	299.7	247.7	233.1	145.6	238.6
20-24	198.0	200.1	197.4	186.7	136.2	95.6	51.72	20-24	341.1	309.0	318.5	251.7	262.1
25-29	226.0	180.3	165.9	149.2	111.1	89.5	60.40	25-29	197.8	192.0	179.3	136.6	129.0
30-34	137.0	98.4	65.7	51.7	47.5	77.2	43.65	30-34	97.4	71.3	57.0	52.5	88.8
35-39	87.0	36.8	23.1	19.3	12.3	22.0	74.71	35-39	33.2	25.1	21.2	13.5	24.2
40-44	30.0	13.8	3.7	5.6	1.4	6.3	79.00	40-44	10.6	4.2	6.4	1.6	6.9
45-49	5.0	5.0	0.5	0.9	0.3	1.8	64.00	45-49	5.1	0.6	1.0	0.3	2.1

Source: As Table 1

Table 3: Maharashtra: Trends in TFR and total marital fertility rate by residence, 1971-2018

Year	TFR			TMFR		
	Total	Rural	Urban	Total	Rural	Urban
1971	4.6	4.9	3.9			
1981	3.6	4.0	3.0	4.8	4.7	4.9
1991	3.0	3.4	2.5	4.3	4.3	4.2
2001	2.4	2.6	2.2	3.8	3.6	4.1
2011	1.8	1.9	1.6	3.0	2.9	3.0
2018	1.7	1.8	1.5	3.7	3.6	3.8
Index of TFR						
1971	100	100	100			
1981	78	82	77	100	100	100
1991	65	69	64	90	91	86
2001	52	53	56	79	77	84
2011	39	39	41	63	62	61
2018	37	37	38	77	77	78
TFR: Annual decline (in percent)						
1971-1981	2.17	1.84	2.31			
1981-1991	1.67	1.50	1.67	1.49	1.22	2.04
1991-2001	2.00	2.35	1.20	1.16	1.63	0.24
2001-2011	2.50	2.69	2.73	2.11	1.94	2.68
2011-2018	0.79	0.75	0.89	-3.33	-3.45	-3.81
1971-2018	1.34	1.35	1.31	0.67	0.69	0.66

Source: As Table 1

The pattern of Higher-Order Births

Distribution of live births by order of birth gives an idea of the total number of children ever born to an eligible woman, broadly speaking about the small family preference. An examination of trends in the pattern of higher-order births (four or more) also indicates to fertility decline in Maharashtra. Change in higher-order births is a good indicator of fertility change and helps to assess the overall fertility impact of contraceptive prevalence. Since the focus of family planning program in India is to reduce higher-order births, changes in proportion of higher-order births over a period are expected to reflect changes in fertility levels. The proportion of lower-order births is expected to increase with reduction in higher-order births when fertility declines high to low level. It is noticeable that the percentage of births to four children or more declined from about 20.0 per cent in 1991 to only 2.4 per cent in 2018 (Table 4).

Table 4: Maharashtra: Distribution (%) of live births by order of birth, 1991-2018

Year	Birth Order											
	Total				Rural				Urban			
	1	2	3	4+	1	2	3	4+	1	2	3	4+
1991	32.1	27.2	21.1	19.6	30.9	26.8	21.8	20.5	35.8	28.3	19.1	16.9
2001	38.9	32.1	16.4	12.6	38.1	31.6	17.1	13.2	40.4	33.0	15.2	11.4
2011	47.8	34.9	11.6	5.7	46.8	35.3	12.3	5.6	49.2	34.4	10.6	5.9
2018	59.6	29.4	8.7	2.4	59.5	29.8	8.3	2.4	59.7	28.8	9.1	2.3

Source: As Table 1

As expected, the percentage of the first and the second-order births has increased during 1991-2018: from 32.1 per cent and 27.2 per cent to 59.6 percent and 29.4 percent, respectively. The share of 3 order births has also declined from 21.1 per cent to 8.7 per cent during 1991-2018. It may also be noticed that the share of birth order up to 2 has increased from 59.3 percent in 1991 to 89 percent in 2018 whereas the percentage of birth order above 3 has declined from 40.7 per cent in 1991 to 11.1 per cent in 2018, showing the evidence of fertility decline in Maharashtra. The same is true for rural and urban areas both.

Inter-district differentials in fertility rates

There are wide inter-district variations in fertility rates in Maharashtra. Among districts, Akola, Amravati, Bhandara, Chandrapur, Gadchiroli, Jalgaon, Mumbai, Nagpur,Raigarh, Ratnagiri, Satara, Sindhudurg, Wardha, and Yavatmal districts have experienced a faster pace of fertility transition as compared to other districts (Table 5). Seventeen out of thirty-five districts namely Amravati, Bhandara, Chandrapur, Gadchiroli, Gondiya, Kolhapur, Mumbai, Mumbai Suburban, Nagpur, Pune, Raigarh, Ratnagiri, Sangali, Satara, Sindhudurg, Thane, and Wardha achieved the replacement level fertility (TFR = 2.1) in 2011.

In 1981, the highest TFR (5.0) was found in Nanded and Yavatmal districts and the lowest (3.4) in Mumbai district, with a difference of 32.0 per cent. In 1991, the highest TFR (4.6) was registered in Akola, Aurangabad, and Nanded districts and the lowest (2.9) in Kolhapur district, differing by 37.0 per cent. In 2001, the highest TFR (3.4) was found in Hingoli district and the lowest (1.6) in Mumbai district, differing by 53.0 per cent. Coming to 2011, Jalna district registered the highest TFR (3.2) and Mumbai and Sindhudurg districts the lowest (1.4), difference of 56.0 per cent. Evidently, differential level in TFR among districts increased during 1981-2011.

Based on the estimated values of TFR in 2011, all the districts fall in the first four groups (Table 6). Sixteen districts of Bhandara, Chandrapur, Gadchiroli, Gondiya, Kolhapur, Mumbai, Mumbai Suburban, Nagpur, Pune, Raigarh, Ratnagiri, Sangli, Satara, Sindhudurg, Thane, and Wardha fall in Group I, where fertility have attained the replacement level. In another six districts, where fertility is approaching near replacement level fall in Group II. These included Ahmadnagar, Akola, Amravati, Jalgaon, Solapur, and Yavatmal districts. The group III, which consists of ten districts and the TFR ranging between 2.5 and 2.99, included Aurangabad, Buldhana, Dhule, Hingoli, Latur, Nanded, Nandurbar, Nashik, Osmanabad, and Washim. The fourth group IV, TFR ranging between 3 and 3.99, consists of Bid, Jalna, and Parbhani districts.

Inter-group movement of districts during the study period makes an interesting story. Kolhapur, Mumbai, Pune, Sangali, Satara, and Thane districts, in the Group IV in 1981, moved up to reach Group I in 2011. Ahmadnagar moved from IV to II Group II; Bhandara, Chandrapur, Gadchiroli, Nagpur, Raigarh, Ratnagiri, Sindhudurg, and Wardha districts moved from V to I Group during the same period. Akola, Amravati, Jalgaon, and Solapur districts moved from V to Group II; Aurangabad, Buldhana, Dhule, Latur, Nashik, and Osmanabad from V to Group

III. Similarly, Bid, Jalna, and Parbhani falling in Group V moved to IV; and Nanded and Yavatmal districts from VI to III and II Groups, respectively during this period. Any further reduction in fertility in Maharashtra state would depend upon the pace of fertility decline in 13 districts of Bid, Jalna, Parbhani, Aurangabad, Buldhana, Dhule, Hingoli, Latur, Nanded, Nandurbar, Nashik, Osmanabad, and Washim districts, where the current levels are considerably high.

Table 5: Trends of fertility in the districts of Maharashtra, 1981 -2011

Districts	Total Fertility Rate				% decline in TFR			
	Census		Guilmoto and Rajan 2001	Guilmoto and Rajan 2011	1981-91	1991-2001	2001-2011	1981-2011
	1981	1991						
Ahmadnagar	3.8	3.8	2.7	2.3	0.0	-28.9	-14.8	-39.5
Akola	4.7	4.6	2.7	2.2	-2.1	-41.3	-18.5	-53.2
Amravati	4.8	4.0	2.5	2.0	-16.7	-37.5	-20.0	-58.3
Aurangabad	4.6	4.6	3.1	2.8	0.0	-32.6	-9.7	-39.1
Bhandara	4.5	3.8	2.4	1.9	-15.6	-36.8	-20.8	-57.8
Bid	4.3	4.4	3.2	3.0	2.3	-27.3	-6.3	-30.2
Buldhana	4.6	4.5	3.0	2.6	-2.2	-33.3	-13.3	-43.5
Chandrapur	4.8	3.8	2.4	1.8	-20.8	-36.8	-25.0	-62.5
Dhule	4.8	4.2	2.7	2.6	-12.5	-35.7	-3.7	-45.8
Gadchiroli	4.8	4.0	2.9	2.0	-16.7	-27.5	-31.0	-58.3
Gondiya	Na	Na	2.5	1.9	na	Na	-24.0	Na
Hingoli	Na	Na	3.4	2.9	na	Na	-14.7	Na
Jalgaon	4.8	3.9	2.7	2.4	-18.8	-30.8	-11.1	-50.0
Jalna	4.3	4.5	3.2	3.2	4.7	-28.9	0.0	-25.6
Kolhapur	3.5	2.9	2.3	1.8	-17.1	-20.7	-21.7	-48.6
Latur	4.6	4.3	3.1	2.6	-6.5	-27.9	-16.1	-43.5
Mumbai	3.4	3.0	1.6	1.4	-11.8	-46.7	-12.5	-58.8
Mumbai Suburban	Na	Na	2.0	1.6	na	Na	-20.0	Na
Nagpur	4.6	3.5	2.2	1.8	-23.9	-37.1	-18.2	-60.9
Nanded	5.0	4.6	3.3	2.8	-8.0	-28.3	-15.2	-44.0
Nandurbar	Na	Na	3.3	2.9	na	Na	-12.1	Na
Nashik	4.7	4.1	3.1	2.6	-12.8	-24.4	-16.1	-44.7
Osmanabad	4.6	3.9	3.0	2.6	-15.2	-23.1	-13.3	-43.5
Parbhani	4.3	4.5	3.3	3.0	4.7	-26.7	-9.1	-30.2
Pune	3.6	3.2	2.3	2.0	-11.1	-28.1	-13.0	-44.4
Raigarh	4.4	3.8	2.3	2.0	-13.6	-39.5	-13.0	-54.5
Ratnagiri	4.0	3.7	2.1	1.6	-7.5	-43.2	-23.8	-60.0
Sangali	3.5	3.0	2.3	1.9	-14.3	-23.3	-17.4	-45.7
Satara	3.8	3.3	2.3	1.9	-13.2	-30.3	-17.4	-50.0
Sindhudurg	4.0	3.3	1.8	1.4	-17.5	-45.5	-22.2	-65.0
Solapur	4.2	3.5	2.7	2.4	-16.7	-22.9	-11.1	-42.9
Thane	3.9	3.4	2.6	2.1	-12.8	-23.5	-19.2	-46.2
Wardha	4.6	3.5	2.3	1.7	-23.9	-34.3	-26.1	-63.0
Washim	Na	Na	3.0	2.5	na	Na	-16.7	Na
Yavatmal	5.0	3.9	2.9	2.2	-22.0	-25.6	-24.1	-56.0

Sources: i) Registrar General, 1989, 1997; ii) Guilmoto, C. Z. and I. Rajan, 2013

Table 6: Maharashtra: Classification of districts according to level of TFR, 1981-2011

Group	TFR	Census Year		Guilmoto and Rajan 2001	Guilmoto and Rajan 2011
		1981	1991		
I	< 2.10			Mumbai, Mumbai Suburban, Ratnagiri, Sindhudurg,	Bhandara, Chandrapur, Gadchiroli, Gondiya, Kolhapur, Mumbai, Mumbai Suburban, Nagpur, Pune, Raigarh, Ratnagiri, Sangli, Satara, Sindhudurg, Thane, Wardha
II	2.11-2.49			Bhandara, Nagpur, Chandrapur, Pune, Kolhapur, Raigarh, Sangli,Satara, Wardha	Ahmadnagar, Akola, Amravati, Jalgaon, Solapur, Yavatmal
III	2.50-2.99		Kolhapur,	Ahmadnagar, Akola, Amravati, Dhule, Gadchiroli, Thane, Gondiya, Jalgaon, Solapur, Yavatmal	Aurangabad, Buldhana, Dhule, Hingoli, Latur, Nanded, Nandurbar, Nashik, Osmanabad, Washim
IV	3.00-3.99	Ahmadnagar, Kolhapur, Mumbai, Pune, Sangli, Satara, Thane	Ahmadnagar, Bhandara, Chandrapur, Jalgaon, Pune, Mumbai,Nagpur, Raigarh, Osmanabad, Ratnagiri, Sangli, Satara, Sindhudurg, Solapur, Thane, Wardha, Yavatmal	Aurangabad, Bid, Buldhana, Hingoli, Jalna, Latur, Nanded, Nandurbar, Nashik, Osmanabad, Parbhani, Washim	Bid, Jalna, Parbhani
V	4.00-4.99	Akola, Amravati, Jalna, Aurangabad, Bhandara, Bid, Buldhana, Dhule, Latur, Chandrapur, Gadchiroli, Jalgaon, Nagpur, Nashik, Raigarh, Parbhani, Osmanabad, Ratnagiri, Sindhudurg, Solapur, Wardha	Akola, Amravati, Bid, Aurangabad, Buldhana, Dhule, Gadchiroli, Jalna, Latur, Nagpur, Nanded, Nashik, Parbhani, Raigarh, Ratnagiri, Sindhudurg, Solapur, Wardha		
VI	5 and above	Nanded, Yavatmal			

Source: Computed from Table 6

Fertility differentials by educational level of women

An examination of age-specific fertility and TFR rates by educational level and residence of women in Maharashtra reveals that there are marked rural-urban differences in the state. The rural areas, in general, reported higher level of fertility than their urban counterparts for all age groups. Fertility attains the peak in 20-24 years age-group both in rural and urban areas except for the women having educational level 12th and above. With few exceptions, 'Literate' women have lower levels of age-specific fertility rates than the 'Illiterate' women both in rural and urban areas (Table 7). Within the 'Literate' group there is a general decline in the fertility rates with the increase in the educational status both in rural and urban areas. The total fertility rate is lower (1.6) for the women having only the informal educational status as compared to 'Illiterate' women (1.9). It is quite intriguing that the women having educational status 'primary' and 'middle' have recording the highest TFR of all the

educational levels even including the 'illiterate' women both in rural and urban areas of the state. A cursory look at the table reveals that it is mainly because of their highest TFR in the age-groups of 20-24 and 25-29 years. However, it requires a further research investigation even a re-look of the data by the data providing agencies.

Table 7: Age-specific fertility rates and total fertility rates by education in Maharashtra, 2018

Age Group	Illiterate	Literacy/educational level							
		Total Literates	Without any formal education	Below primary	Primary	Middle	Class X	Class XII	Graduate and above
Total									
15-19	19.3	8.8	11.4	9.0	9.2	7.0	8.6	12.2	0.0
20-24	126.0	119.5	96.9	118.3	205.3	163.1	132.4	86.5	70.8
25-29	144.9	106.9	128.9	83.5	141.6	117.7	104.7	118.0	77.5
30-34	58.4	69.7	25.5	94.2	63.9	59.6	67.0	77.8	79.3
35-39	25.9	20.9	19.5	17.4	21.7	25.6	16.0	19.5	26.1
40-44	12.3	5.6	12.8	1.0	7.1	3.5	5.3	4.3	10.0
45-49	0.5	1.8	0.6	0.8	0.0	0.9	1.2	12.4	0.2
TFR	**1.9**	**1.7**	**1.5**	**1.6**	**2.2**	**1.9**	**1.7**	**1.7**	**1.3**
Rural									
15-19	14.8	8.1	8.0	4.4	8.8	5.7	8.7	11.5	0.0
20-24	148.0	139.0	90.3	69.9	199.1	172.7	147.0	112.0	98.1
25-29	178.8	125.9	98.2	85.9	147.7	141.7	116.9	150.3	83.2
30-34	18.7	61.9	29.8	95.3	60.8	56.3	56.1	77.6	56.2
35-39	19.8	20.4	24.4	15.9	21.0	27.7	14.9	19.3	21.5
40-44	5.9	6.0	4.2	1.5	9.5	5.0	5.4	5.1	17.7
45-49	1.1]	1.5	0.9	1.1	0.0	1.5	2.2	5.7	1.3
TFR	**1.9**	**1.8**	**1.3**	**1.4**	**2.2**	**2.1**	**1.8**	**1.9**	**1.4**
Urban									
15-19	23.8	9.7	19.4	17.8	10.0	9.1	8.5	12.6	0.0
20-24	107.6	95.5	16.3	180.1	214.5	146.7	105.0	59.1	61.5
25-29	126.6	88.8	15.6	80.5	134.9	89.1	88.8	82.7	75.5
30-34	80.6	77.0	13.3	92.8	67.2	63.6	80.8	78.1	85.7
35-39	30.0	21.6	4.6	20.3	22.6	22.6	17.3	19.7	27.2
40-44	17.0	5.2	33.8	0.0	3.7	1.7	5.2	3.8	8.3
45-49	0.0	2.1	0.0	0.0	0.0	0.0	0.0	17.7	0.0
TFR	**1.9**	**1.5**	**2.0**	**2.0**	**2.3**	**1.7**	**1.5**	**1.4**	**1.3**

Source: Registrar General, 2018

Fertility differentials by socio-economic and other characteristics of women

Apart from the residence and educational level, religion, caste, and occupation also affect the fertility rates. Muslim women have exhibited higher fertility than that Hindus in all the surveys. The scheduled tribe women were found to have the highest fertility as compared to

women among scheduled castes and other backward class and other castes. However, these differentials have not been the same in all the surveys.

Table 8: Maharashtra: Fertility differentials by religious and caste groups, 1978-2016

SRS/NFHS	Socioeconomic characteristics	TFR		TMFR	
	Religion	**Rural**	**Urban**	**Rural**	**Urban**
1978 (SRS)	Hindu	3.62	2.64	4.22	4.11
	Muslim	4.74	3.81	5.51	5.38
1984 (SRS)	Hindu	4.2	3.2	5.0	4.8
	Muslim	4.9	4.3	7.7	6.2
NFHS	**Religion**	1992-93	1998-99	2005-06	2015-16
	Hindu	2.69	2.45	2.00	1.82
	Muslim	4.11	3.30	2.85	2.33
	Buddhist/Neo-Buddhist	3.14	2.14	2.35	1.73
	Other	1.65	2.87	1.44	1.38
	Caste/tribe				
1978 (SRS)	Scheduled Castes	3.38	4.18	3.90	5.61
	Scheduled Tribes	3.68	3.53	4.67	4.64
	Non-SC/ST	3.60	2.78	4.23	4.31
1984 (SRS)	Scheduled Caste	4.1	3.5	4.7	4.8
	Scheduled Tribe	4.6	3.4	5.6	4.4
	Non SC/ST	4.2	3.7	4.9	5.0
NFHS	**Caste/tribe**	1992-93	1998-99	2005-06	2015-16
	Scheduled Caste	3.04	2.42	2.14	1.88
	Scheduled Tribe	3.24	2.93	2.43	2.19
	Other backward class	Na	2.19	1.98	1.72
	Other	2.80	2.59	2.10	1.85
	Occupation				
1978 (SRS)	Worker	3.23	2.10	3.81	4.15
	Non-worker	4.76	3.01	4.74	4.44
1984 (SRS)	Worker	Na	Na	4.9	4.0
	Non-worker	Na	Na	5.2	5.2

Sources: Census of India, 1981 and 1989
IIPS, 1995; IIPS and ORC Macro, 2001, IIPS and Macro International, 2008 and
IIPS and Macro International, 2018

The fertility differentials have also been observed between working and non-working women. The non-working women were having higher fertility as compared to working women. According to the National Family Health Surveys (NFHS), TFR has been regularly declining from the first to fourth survey. NFHS-1, conducted in 1992-93, TFR in Maharashtra was 2.86, which declined to 2.52 in the NFHS-2, conducted in 1998-99, it declined further to 2.11 in NFHS-3, conducted in 2005-06, and then to 1.9 in NFHS) 4, conducted in 2015-16. In this way, the fertility declined by around one child (0.96) between NFHS-1 and NFHS 4. This decline was more than half-child (0.62) between NFHS-2 and NFHS-4. Currently, TFR in Maharashtra is 1.9 children per woman, which is below the replacement level. Fertility has declined by 0.2 children in a period of ten years between NFHS-3 and NFHS-4. Even the fertility of 2.1 children per woman in rural Maharashtra, is almost at the replacement level. Fertility in urban Maharashtra, which is 1.7 children per woman, is well below the replacement level.

The fertility rates for other backward class (OBC) women are at replacement level and lower than for scheduled castes and scheduled tribes women. The fertility rate for Hindu women (1.8) is below replacement level, whereas it is above replacement level for Muslim women (2.3). The fertility rate for Muslim woman was half child higher than that for a Hindu woman. Happily, the results from the National Family Health Surveys indicate that: (i) fertility is declining among the all socioeconomic groups, and (ii) fertility differentials are narrowing down with time i.e. from 1992-93 to 2015-16.

Briefly, fertility differentials exist by education, religion, caste/tribe, and occupation. The education is playing an important role in the declining fertility in the state of Maharashtra. The educational level creates more differentials in TFR than in the TMFR, since the influence of education on fertility is mainly through age at marriage. Socio-economic factors of development play a vital role in fertility decline, especially the decline in higher-order births of three and above and that of fertility among older women in the age group 30 and above. Socio-economic development can more effectively reduce the fertility rate if the emphasize is placed on an equal distribution of benefits. This would entail a more widely dispersed development program, stressing wider improvements in conditions, influencing fertility reduction. There is a negative relationship between education and fertility. This indicates that women education has contributed to lower fertility. Therefore, the education of the girls needs to be encouraged with strict implementation of minimum legal age at marriage. There is a need to place a larger thrust on rural areas and districts with high fertility for achieving universal below-replacement fertility in all the districts of Maharashtra. In other words, area specific approach would provide the most desirable results in this context.

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PUNJABI SPEAKING PEOPLE OUTSIDE PUNJAB IN INDIA, 2011

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The number of Punjabi speaking people in the world is estimated at 126.6 million (*Ethnologue*, 2018). Pakistan partakes 91.5 million or 72.2 per cent of them; India 33.1 million or 26.2 per cent; and rest of the world (notably the United Kingdom, the United States, Canada and Australia) 1.98 million or 1.6 per cent. Punjabi speaking people in Pakistan are Muslims, in India predominantly Sikhs and the Hindus, and in other countries a mix of the three religious communities, with their roots in India or Pakistan.

Among 33.13 million Punjabi speaking people recorded by the 2011 Census of India, 24.92 million or 75.2 per cent were found in their home state of Punjab and 8.21 million or 24.8 per cent were distributed among other parts of India. The percentage of this linguistic community living outside their home state was the highest among all major linguistic groups in the country (Table 1). They are commended for making outstanding contribution to socio-economic development of areas wherever they are settled.

Table 1

India: Percentage of Various Linguistic Groups * Living outside their Home State, 2011

Language Group	Percentage	Language Group	Percentage
Assamese	1.41	Odia	7.49
Kashmiri	1.72	Tamil	7.64
Dogri	3.20	Telugu	12.89
Maithali	3.87	Manipuri	13.57
Bodo	4.50	Bengali	19.07
Gujarati	6.37	**Punjabi**	**24.78**
Marathi	6.70	Santali	55.62
Malayalam	6.97	Konkani	57.27
Kannada	6.99	Nepali	60.52

Source: Census of India (2011): State-wise Distribution of Population by Scheduled Languages in India, Part I.
*Hindi, Sindhi, Sanskrit and Urdu have been excluded, since these were not specific to any single state in terms of their affiliation.
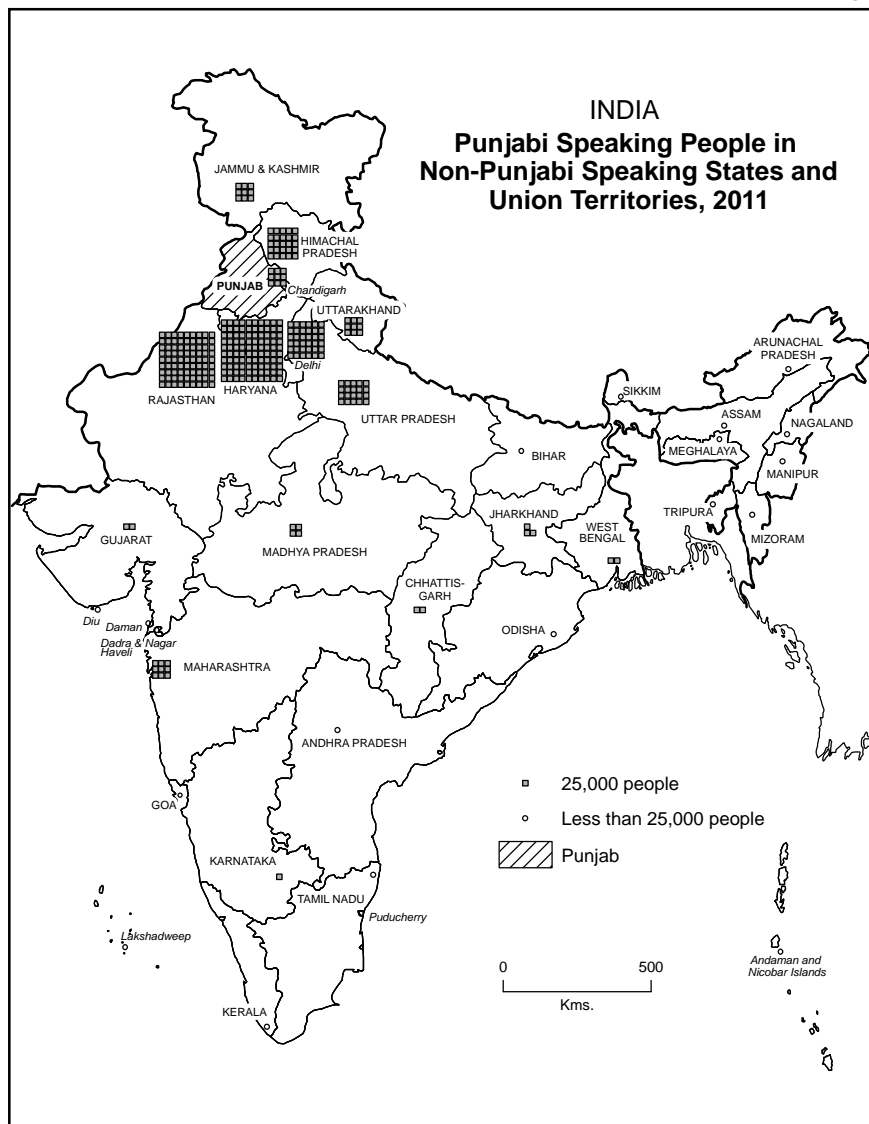
Among Punjabi speaking people outside Punjab, no less than 75.0 per cent were concentrated in its neighbouring states of Haryana, Rajasthan and Himachal Pradesh, Chandigarh (UT), and the NCT, Delhi (Table 2). Most of them were displaced persons from Pakistan and had settled/were settled here after partition of the Indian subcontinent in 1947. The inflow of the displaced persons was so massive that many of them had to be rehabilitated in parts of Uttar Pradesh, Uttarakhand, Rajasthan and Madhya Pradesh. Similar was the case of the Jammu region of Jammu and Kashmir (Map 1). In villages in contiguity with Punjab, many of the Punjabi speaking people were native to these places.

Table 2
India: Number of Punjabi Speaking People outside Punjab, 2011

State/UT	Total	Male	Female	Percent (Total)
Haryana	2,400,883	1,251,882	1,149,001	29.25
Rajasthan	2,274,342	1,183,773	1,090,569	27.71
Delhi	873,477	446,986	426,491	10.64
Himachal Pradesh	615,022	310,618	304,404	7.49
Uttar Pradesh	508,736	269,489	239,247	6.20
Maharashtra	280,192	145,718	134,474	3.41
Uttarakhand	263,310	137,505	125,805	3.21
Chandigarh	232,516	120,109	112,407	2.83
Jammu & Kashmir	219,193	124,834	94,359	2.67
Madhya Pradesh	139,658	73,993	65,665	1.70
Jharkhand	78,712	42,097	36,615	0.96
Chhattisgarh	65,425	34,282	31,143	0.80
Gujarat	63,288	34,667	28,621	0.77
West Bengal	61,080	33,120	27,960	0.74
Karnataka	25,981	13,832	12,149	0.32
Andhra Pradesh	24,413	12,941	11,472	0.30
Assam	23,313	13,534	9,779	0.28
Odisha	19,470	10,554	8,916	0.24
Bihar	10,467	5,763	4,704	0.13
Tamil Nadu	6,565	3,628	2,937	0.08
Meghalaya	4,540	2,498	2,042	0.06
Arunachal Pradesh	3,674	3,200	474	0.04
Nagaland	2,249	1,856	393	0.03
Goa	1,959	1,136	823	0.02
Sikkim	1,954	1,732	222	0.02
A & N Islands	1,565	855	710	0.02
Kerala	1,380	924	456	0.02
Manipur	1,370	996	374	0.02
Tripura	997	892	105	0.01
Dadra & Nagar Haveli	414	252	162	0.01
Mizoram	349	315	34	0.00
Daman & Diu	222	125	97	0.00
Puducherry	121	64	57	0.00
Lakshadweep	4	3	1	0.00
Total	**8,206,841**	**4,284,173**	**3,922,668**	**100.00**

Map 1

INDIA
**Punjabi Speaking People in
Non-Punjabi Speaking States and
Union Territories, 2011**

Note: Though every state and union territory in India has Punjabi Speaking people, yet three-fourths of them living outside their home state are confined to Punjab's neighbouring Hindi speaking states and union territories.

Even prior to independence, Punjabi speaking people had started migrating eastward to Kolkata, Jamshedpur, Patna, Kanpur and other cities. This process slowed down over time to assume gradually a westward shift toward cities like Mumbai, Pune and Ahmedabad. These places were also destination for some displaced persons from Pakistan at the time of partition. Overall the presence of Punjabi speaking people was well marked in big industrial-commercial cities, cantonment towns and places of Sikh pilgrimage.

Table 3
India: Distribution of Punjabi Speaking Population by States/Union Territories, 2011

State/UT	Total	Male	Female	Percent (Total)
Punjab	24,917,885	13,056,758	11,861,127	75.22
Haryana	2,400,883	1,251,882	1,149,001	7.25
Rajasthan	2,274,342	1,183,773	1,090,569	6.87
Delhi	873,477	446,986	426,491	2.64
Himachal Pradesh	615,022	310,618	304,404	1.86
Uttar Pradesh	508,736	269,489	239,247	1.54
Maharashtra	280,192	145,718	134,474	0.85
Uttarakhand	263,310	137,505	125,805	0.79
Chandigarh	232,516	120,109	112,407	0.70
Jammu & Kashmir	219,193	124,834	94,359	0.66
Madhya Pradesh	139,658	73,993	65,665	0.42
Jharkhand	78,712	42,097	36,615	0.24
Chhattisgarh	65,425	34,282	31,143	0.20
Gujarat	63,288	34,667	28,621	0.19
West Bengal	61,080	33,120	27,960	0.18
Karnataka	25,981	13,832	12,149	0.08
Andhra Pradesh	24,413	12,941	11,472	0.07
Assam	23,313	13,534	9,779	0.07
Odisha	19,470	10,554	8,916	0.06
Bihar	10,467	5,763	4,704	0.03
Tamil Nadu	6,565	3,628	2,937	0.02
Meghalaya	4,540	2,498	2,042	0.01
Arunachal Pradesh	3,674	3,200	474	0.01
Nagaland	2,249	1,856	393	0.01
Goa	1,959	1,136	823	0.01
Sikkim	1,954	1,732	222	0.01
A & N Islands	1,565	855	710	0.00
Kerala	1,380	924	456	0.00
Manipur	1,370	996	374	0.00
Tripura	997	892	105	0.00
Dadra & Nagar Haveli	414	252	162	0.00
Mizoram	349	315	34	0.00
Daman & Diu	222	125	97	0.00
Puducherry	121	64	57	0.00
Lakshadweep	4	3	1	0.00
Total (INDIA)	**33124726**	**17340931**	**15783795**	**100**

By comparison, the migration of Punjabi speaking people to South Indian states and North-East region was of small magnitude. The four South Indian states of Andhra Pradesh, Karnataka, Tamil Nadu and Kerala and the union territory of Puducherry together recorded less than sixty thousand Punjabi speaking people. The figure for the entire North-East region was also on the lower side of forty thousand. Only some cities like Bengaluru, Hyderabad and Chennai held some attraction from them.

Nonetheless there was no state or union territory which was without Punjabi speaking people (Table 3). Family migration was typical in their case. This is indicated by their sex being almost the same in most parts of India as in their home state. Several states in the North-East region emerge as an exception where many of them were posted as defence or security personnel.

In popular perception, the Sikhs and Punjabi language go together. Such an observation needs to be put in proper perspective. The 2011 Census of India placed the number of Punjabi speaking people at 33.13 million while that of the Sikhs at 20.83 million. This presented a difference of 12.30 million. Moreover, 0.20 million Sikhs outside Punjab had recorded a language other than Punjabi as their mother tongue. The implication is that Punjabi was spoken by 12.50 million people other than the Sikhs. This is based on an assumption that every Sikh in Punjab was Punjabi speaking. One could say that while practically every Sikh was Punjabi speaking, every Punjabi speaking was not essentially Sikh.

It follows from the above that while around one-fourth of Punjabi speaking people in the world lived in India, about one fourth of them in India resided outside their home state of Punjab. Among those living outside Punjab, over three-fourths were concentrated in its neighbouring or nearby Hindi predominant states or union territories. The remaining were scattered in big metropolitan cities like Mumbai, Kolkata, Hyderabad, Bengaluru, and Chennai, big cantonments like Pune and Jabalpur, and Sikh pilgrimage places like Nanded.

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BEYOND BINARIES IN GEOGRAPHY: RURAL AND URBAN

Gopa Samanta, Burdwan

Introduction

Spatiality and spatial divisions are intrinsic to the study of Geography. The tradition of spatial division based on certain kinds of parameters intensified in Geography through the influence of dualism. Since then, the divisions and binaries have become significantly important in the study of Geography. These binaries are many—nature/culture; land/water; rural/urban—the list is long. In the system of binaries, we often take it for granted that these categories are fixed, non-negotiable and cannot transgress into each other. Now the question arises—can we really maintain these boundaries from the points of view of physical reality? These boundaries are in a real sense often fluid and each transgresses into the other. They are hybrid as well, where no clear cut character of one is visible; rather the mixed character of both is evident. Although there are many other binaries within Geography, this popular article is intensely focused on the critique of the hard and fast divide between rural and urban in population, settlement, cultural and economic geography.

I start with Settlement Geography, within which we learn these categories of rural and urban as places/settlements explicitly different from each other. Each and every country of the world has different methods of identifying settlements as rural or urban. One of the most common characteristics is the size of population of those settlements, while others vary between built up area, occupation of people and nature of economy, etc. In India, we usually classify settlements on the basis of population size, density of population and the occupation of people living in those settlements. We have fixed parameters and their tentative values which were set in 1961. These were probably very apt at that time. However, since then we have continued to use the same numerical values for each and every parameter to define rural and urban settlements in India. In 1961, the dividing lines between these two kinds of settlements were very sharp—nature of buildings (pucca/kachha), roads (metalled/unmetalled), infrastructure (presence/absence of water supply), services (presence/absence of sanitation, health and education), culture (differential way of speaking, interpersonal relations, food habits, dress, etc.), society (form and structure: advanced/feudal or orthodox)—each and every one of those characteristics would easily be detected as different from each other. However, many things have changed in the last eight decades since we decided the classifying norms of rural and urban in India in 1961.

Questioning Rural and Urban Livelihoods

Another problem lies in the process of understanding the livelihoods of rural and urban areas. When we go to a rural household and ask questions about livelihoods, we always try to focus on income sources. However, livelihood is more than that. Livelihood is a broad amalgamation of various elements such as assets (natural, physical, human, financial, and social capital); activities (strategies of use) and access to these (mediated by institutions and social relations). These three things together determine the living made by the individual or household. Although frameworks for livelihood analysis differ in their details, the basic elements consider resources (what people have), strategies (what people do), and outcomes (the goals people pursue). In understanding livelihoods, we have to focus on households rather than individuals, where different individuals might be engaged in different types of activities in different locations, either in rural or in urban areas.

Thus the problem lies in how we can make the differentiation between rural livelihoods and urban livelihoods. Should we consider the location of residence or should we consider the location of work? People have differential locations for their work and residences. Some people living in villages of Murshidabad district of West Bengal might be working in Delhi, Surat or in Thiruvananthapuram cities, and send money to their villages to contribute to the livelihoods of their families. Similar is the case of millions of rural-to-urban commuters who live in villages and work in towns. There are also significant numbers of urban-to-rural commuters from different cities of India to their surrounding rural regions. Now the question is, how do we categorize those livelihood strategies? Are they called rural livelihoods or urban livelihoods?

The situation gets far more complicated when we have several earning members in a family and some of them work in rural areas while some are engaged in non-farm work in cities. The livelihoods include all of those activities in a family and the problem arises when we try to put them into a single spatial category. Similarly, a family living in a city might have landed property in the village, where a big contribution to their livelihood comes from rural areas in general and from the farm sector in particular. Thus the reality is far more complicated than putting them into simplified binary categories of rural and urban livelihoods.

Commuting: An Element of Narrowing the Social and Cultural Gap

Up to the later part of the twentieth century, people used to stay near the places where they used to work. By the end of the century and moreover, with the spread of the neo-liberal economy all over the world, things started to change. Industrial houses no longer produce everything together. Outsourcing of goods and services has become the norm, cities have become more costly to live in, and the

development of transport has facilitated people to move for longer distances between their residence and workplace on a daily basis. In India, due to multiple reasons like non-remunerative farm sector and higher natural growth of population in rural areas, the rural people cannot get enough job opportunities in and around their villages. In contrast, the expansion of informal service sector economy in urban areas has created many job opportunities in towns and cities. However, these kinds of service sector jobs are often temporary in nature, without a proper job contract, and in most cases they are low paid. Therefore, rural people cannot afford to live in cities because of their low income and high expenditure for housing; they rather prefer to commute even for longer distances.

Both the quantum of such commuting, and the distance covered have increased enormously in the last two decades, and this has become especially possible because of the development of road transport in rural areas. These commuters play a major role in changing the social and cultural norms and practices in rural areas. They observe the lifestyle of city people and bring it back to their own native places. The immense increase in use of smart phones and exposure to social media has also impacted the changing social and cultural characteristics of villages, and has narrowed the divide between urban and rural culture. Lifestyle choices and consumption patterns are no longer as different between rural and urban areas as it was twenty years before. Moreover, the instances of commuting from urban to rural areas have also increased, as middle-class people can afford to stay in cities and they prefer to commute if their work places are located in rural areas. This group of people also helps to bring about some social and cultural changes in the rural areas where they work. Thus the social and cultural divisions which used to be defined as rurality and urbanity are narrowing down, creating problems for the binary categorization of rural and urban, and to conceptualize them as completely different from each other.

Urban Economy in Rural Locations

Whenever we think about the economy of a place, theoretically, we make a clear distinction in the nature of that economy by labelling it as rural economy and urban economy. Urban economy is linked to industrial and tertiary sector activities and in contrast, rural economy is linked to farm and allied activities. However, this traditional distinction does not exist in reality these days. The people in rural areas are no longer solely engaged in farm activities due to the declining returns from the farm sector and increasing use of technology in farming. A major share of the rural population is engaged in expanding service sector activities either in rural areas or in nearby urban areas. Commuting of rural people has increased multiple times in the last two decades in the direction of nearby towns and cities. Circular and semi-permanent flow of labour from rural to urban destinations has also increased

significantly due to the increasing demand for labour in the city's expanding informal service activities. Therefore, even people still living in rural areas may no longer be engaged in farm sector activities.

In the globalizing India, industrial activities are no longer just a part of the urban economy. Industrial activities have started to be anchored in rural areas along the transport corridors connecting big cities and ports, but at the locations away from cities. Cities can no longer afford to allow the pollution of different kinds generated by industries. By shifting industries away from cities, they can also bypass many other stringent rules that need to be followed in urban and peri-urban areas. Moreover, land has become very precious because of the burgeoning real estate market in neo-liberal India and therefore, cannot accommodate industries in and around cities. The new industrial activities are increasingly taking place in rural areas, thus changing the original morphology and socio-economic structure of those settlements which are neither purely rural nor absolutely urban in character. The changing landscapes and morphology of these settlements are making them fluid in between rural and urban. They look like urban settlements, but are not urban in the statutory sense.

The problem of blurring boundaries between rural and urban is more frequently encountered when we think about smaller cities. These cities in most cases are based on the local economy which is not comparable to the economy of the big cities. These local economies are so enmeshed with the surrounding rural areas that it becomes more complex to understand. The signs of rurality or urbanity are not at all visible at the superficial level. For example, Hazaribagh town of Jharkhand seems to be a mining town. However, none of the mines are located even in the periphery of the town. At the superficial level it would look like a market town, but a little research into the economy of the city will reveal that mining and industrial activities located in the surrounding rural areas control the overall economy of the city. The people engaged in mining, especially all the white collar workers, live in the city and the surplus from the mining sector economy is being invested in the commercial and real estate sectors of the city. Thus rural and urban economies are intricately linked to each other and drawing a clear cut boundary in between them becomes difficult. In most cases both these kinds of economies are again linked to the global forces in neo-liberal India.

Fluid Categories: In-between Settlements

Among different settlement categories of India, two are completely fluid. These are Census Towns and Town Panchayats. These kinds of settlements are literally in between rural and urban, and challenge the binary of understanding categories. The first one is defined as a settlement which fulfils the threshold conditions of being designated as urban following the norms of the census of India, but

administratively comes under rural areas, i.e., panchayats. To be declared a Census Town, a settlement has to fit three criteria: (i) a locality with a population of 5,000 or more, (ii) a population density of 400 persons per square km, and (iii) 75% of the male workforce in the non-agricultural sector.

There is another category of in-between settlement in many states in India called Town/Nagar Panchayats. The Town/Nagar Panchayats are small towns which are usually recognized as towns before they become a full grown municipality. Usually Census Towns of bigger sizes are recognized as Town/Nagar Panchayats in many states and the threshold population size of such settlements again varies from state to state. For example, in Jharkhand and in Bihar, the threshold population sizes for Town/Nagar Panchayats are 10,000 and 12,000 as specified in their respective state municipal acts. These Town Panchayats are governed by authorities with a status below that of a municipality. In some states, Town Panchayats are under the Ministry of Rural Affairs, whereas in others these are under the Ministry of Urban Development. Usually, these Town Panchayats provide basic services such as road maintenance, street lighting, water supply and sanitation. These are financed both by local bodies and by the state governments, with each state sharing the costs in different proportions. Provisions are also made for shared taxes between Town Panchayats and the State Government, to facilitate the development of such settlements. Moreover, these Town Panchayats also charge different taxes such as property tax, professional tax, license fees, surcharge on stamp duty, water tax and so on to provide better services.

In different states of India, where there is no provision of Town/Nagar Panchayats, Census Towns do not receive any kind of urban services as long as they do not qualify as municipalities. These settlements continue to grow as urban, while being governed by rural local bodies, which have a limited capacity to provide basic urban services such as water supply, street lighting and sanitation. The norms controlling the physical expansion of built-up area are also not very strict, as panchayats do not have any building rules at all. These Census Towns are, therefore, ideal places where unmonitored industrial, commercial and real-estate investments take place. Thus these kinds of in-between settlements always pose problems to the binary system of rural and urban as completely different categories.

Conclusion

From the above analysis, it is quite clear that boundary projects are problematic. This was detected long back by Critical Geography and recently by Hybrid Geography through the critique of dualism in Geography. The dualism caused a lot of harm to Geography, as the very foundation of Geography lies in the holistic approach of understanding both natural and human world as complementary to each other. However, in spite of those critiques, we continued to engage ourselves in the dualism through many binaries such as socio-cultural vs. spatial-analytical, natural vs. cultural, physical vs. human, land vs. water, rural vs. urban, and so on. The world has become far more complicated than it was fifty years ago, and to better understand that world, we need better approaches and methods which can help us to understand the different layers and shades of the human–nature relationship. Probably the days for developing simplified models and buying simple categorical divisions of things are long gone. We need to prepare ourselves to go beyond the traditional idea of Geography as a spatial science. Geography as a subject is blessed to have a position in between the natural and social sciences. The call of the day is to go beyond boundaries and bring the concept of hybridity in Geography, which would transcend boundaries and restore fluidity. This is a simple call for young geographers in India to think and to decide which path to follow, in order to make Geography into a discipline which can efficiently bridge the gap between the natural sciences and social sciences.

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POPULATION GEOGRAPHY

CONTENTS