



CHANGING DEMOGRAPHIC STRUCTURE OF HASSAN DISTRICT, KARNATAKA, INDIA: A GEOGRAPHICAL PERSPECTIVE

Ravisha. G. M.¹ & H. Nagaraj², Ph. D.

¹Research Scholar, Dos in Geography, University of Mysore-570006, Karnataka

Email: ravishagm78@gmail.com

²MA. M.Phil., Ph.D. , Research Guide, Professor, DOS in Geography, University of

Mysore-570006, Karnataka Email: nagarajh66@yahoo.com

Abstract

The present paper aims to analyse the total and sex-wise causes of dynamic growth and distribution of population. Population growth is inevitable outcome of the demographic transition, primarily as a result of high fertility and secondarily mortality declines and mobility in view of rapidly growing or population explosion. Growth of population is the change in the number in a particular area between two given points of time. As described in the preceding paper, the population of our ancestors, a few million years ago, was confined to Africa and numbered only in Lakh. By the time our ancestors invented agriculture, the information started passing from generation to generation. The transmission of knowledge about hunting, gathering and preparation of food helped in expansion of agriculture and growth of population. The growth of population was, however, not continuous after the agricultural Revolution. Civilization rose, flourished and disintegrated; periods of good and bad weather occurred; and famine and war took their toll. Despite fluctuations in the birth and death rates, agriculture permitted the existence not only of higher population densities, and settled village life, but also of large scale cooperative ventures, specialization of labour, development of crafts and social stratification, the growth and development of irrigation and the emergence of towns and cities concentrated of economic power in the hands of numerically small elite. The major turning point in the population growth came with the Industrial Revolution, led the systematization of production with the help of urban power-driven machine. At the time of Industrial Revolution, urban population increased rapidly, and living standards in new industrial towns were abysmal, especially for the poorer families. Families become as the unit of production, goods were produced for sale in regional, national and international markets. There occurred to migrate from rural to urban areas and the productivity per capita increased substantially. The impact of migration on population (dynamics) size and age structure of population has been studied. Existing studies have paid a great deal of attention to population growth and its social and economic implications.

Keywords: Dynamic growth, fertility, mortality, mobility, agricultural evolution, irrigation.



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Introduction:

According to the 2011 census, Hassan district was 14th most popular district in the Karnataka State. The district has shown an impressive fall in decadal growth rate by about 12 percent (points) from 15.67 percent in 1981-1991 to 3.18 percent in 2001-11. The growth in Hassan

district remained well over 22 percent points. In five consecutive decades from 1961 to 2011, this step falls of about 12.50 percent within two decade from 1981-91 to 2001-11. The annual growth rate in the current census decade is 3.18 percent (15.67 percent for Karnataka) as against 9.68 percent in the previous census decade. This achievement of Hassan district despite its female literacy rate (68.30 percent, 2011) being lower than the male literacy rate (83.55 percent, 2011) is noteworthy. Perhaps no other demography of Hassan district's size has shown such a remarkable decline in population in a decade. So far Bangalore figured prominently in any discussion related to demographic achievements, we must turn our attention now to Hassan district and Bangalore may boast of the level of development in the social spheres, however, it recorded impressive low population growth. Factors such as female literacy are important, and awareness among women is needed to control population growth.

Review of Literature:

Helmat kloos and Aynalem Augna (1989): *Have examined the spatial temporal and altitudinal growth and distribution of Ethiopian population, with an emphasis on the 1984 census. Differential rural/urban growth and geographical/altitudinal patterns are analyzed in relation to economic, Demographic, political and historical factors.*

Ramachandran (1998): Have studied the process of Urbanization of this viewed in terms of certain factors such as socio- cultural, political, administrative, economic and geographical factors.

Shagi Others: Have studied the agricultural capacity and that in addition they have led to fundamental change in Egyptian agriculture reference the numerous problems and the multitude of manifestation of change can be found in the relevant works.

Sharma and Lanford (1959): Have studied The main nutrients are calories, proteins, mineral elements and the vitamins these nutrients are present in the food stuffs in different amount the deficiency of food nutrients causes a wide range of deficiency diseases and retards the working capacity of individuals.

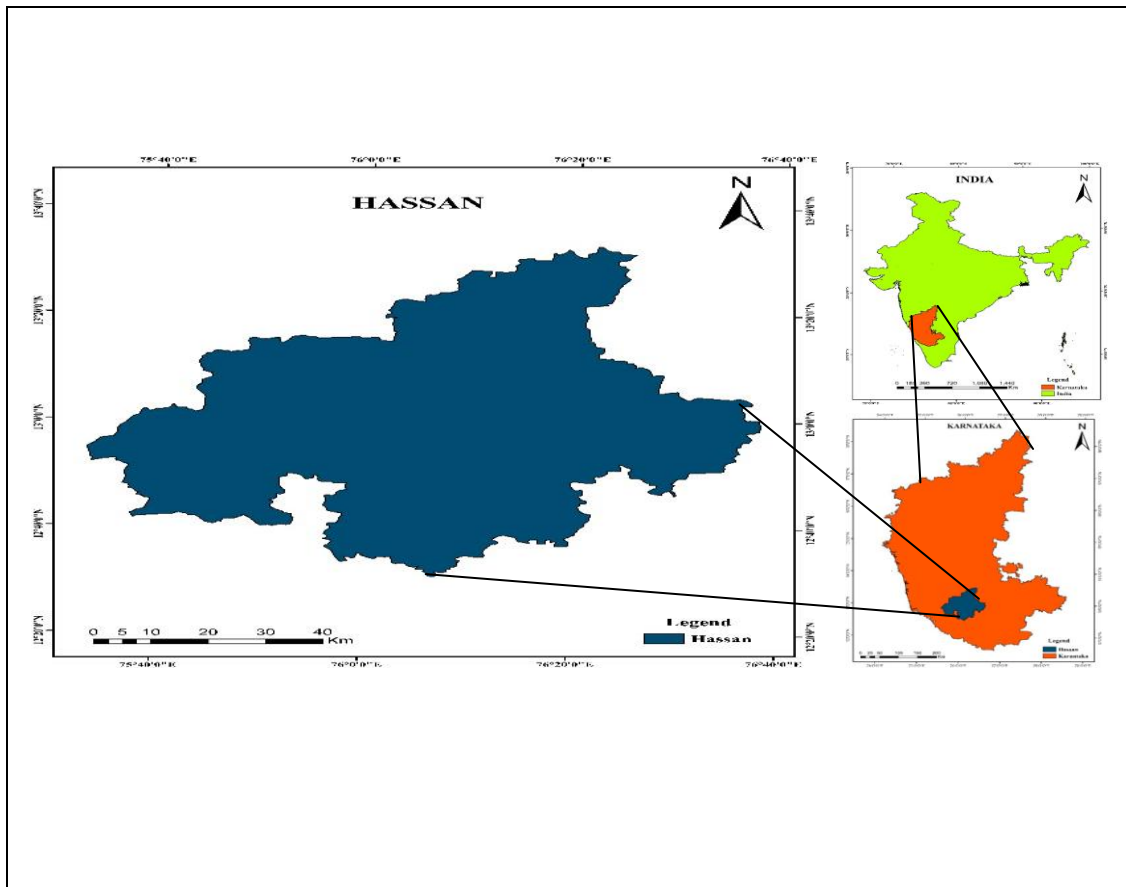
Shag (1969) Treydt Worz (1967): Have studied All in all there is no doubt that land reform and the cooperative organization of forms have had the effect of increasing

Study Area:

Hassan district is situated on old Deccan plateau and south western and interior central part of Karnataka, in terms of latitudinal and longitudinal position of the district; it extends entirely in the southern India. Average altitude is 960 meters above MSL (Mean Sea Level). The
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district lies between $75^{\circ} 33^1$ E to $76^{\circ} 38^1$ E longitude and $12^{\circ} 13^1$ N to $13^{\circ} 33^1$ N latitude. The greatest length of the district, from north to south, is about 80 miles or 129 kilometers, and its greatest breadth, from east to west, is about 72 miles or 116 kilometers, total area of the district has 6826.15 Sq, Km's. It is divided into 3 natural regions like *Southern Malnad*, *Semi Malnad* and *Southern Maidan*. It is divided into 8 taluks 38 hoblis and 2369 villages. The average rain fall is 1031 mms in rainy days (65days), the major rivers in Hassan Cauvery, Hemavathi, Yagachi, Vote hole, Yethinahole, Ganadahole.

Figure- 1 Hassan District: Location Map



Source: Geographic Information System (GIS), Location Map.

Main Objectives and Materials used:

The objective of this paper is to provide an account of demographic characteristic of the Hassan district, analyse the trends of rural and urban population in the district, study the impact of migration on environment, infrastructure and variations Fertility (Birth) and Morality (Death Rate) trends while discussing regional trend of the district has been divided into 3 regions or 8 taluks.

Methodology and Data Source:

The methodology adopted here has addressed the issues related to demographical and population geographical aspects related to dynamics of population in the Hassan district, in terms of density, distribution, growth rate, literacy rate, and regional growth trends. Aspects related to Morphological and dynamic have been made to establish causal relationship among apparently independent factors. In order to accomplish the task, data both from primary and secondary sources have been collected. Geographic Information System (GIS), the data used for the analysis has been drawn from a wide variety of sources like the Census of India 1901-2011, office of the Registrar General of India.

Statistical Technique:

In the present study several statistical methods and techniques are used. They have classified in to two types. They are descriptive and inference such as growth, percent, average, total population in numbers. Growth of population, (gender wise, age structure, literacy charts, and patterns of population distribution of the Hassan district) general population distribution, growth of population were compared to the index of Karnataka State and India. Percent of the district child population (> 6 years), age, percent of adult and elderly people of district, different type's literacy rates statues of sub divisions/taluks of the district.

Natural Regions of the Hassan district and taluks Included there in:

- 1) **Southern Malnad:** Western and northeastern portion of Belur taluk, western and central part of Alur & whole Sakleshpura taluk.
- 2) **Semi Malnad:** The central part of the Arkalgudu taluk. The western portion of the Hassan taluk the eastern portion of the Alur taluk. The central & eastern part of the Belur taluk & western part of Arsikere taluk.
- 3) **Southern Maidan:** Holenarasipura and Channarayapatna taluks eastern part of Arsikere and Hassan taluks & the south eastern portion of Arkalgudu taluk.

The Southern Malnad is a forest clad hilly region with a heavy rainfall. On the western periphery are the picturesque ghats extending from the pass at Bisle Ghats to the Jenukal hill, with some lofty peaks in them. The following description of the malnad region of the district by Major Montgomery, by and large, holds good even today. "The character of the country is generally undulating till on approaching the Ghats, when it becomes precipitous. Perhaps there is no scenery in India more beautiful than the southern part of this tract, adjoining the northwest of Coorg. It resembles for the most part the richest park scenery in England; hills covered with the finest grass or equally verdant crops of dry grain adorned and crowned with

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clumps of noble forest trees, in some instances apparently planted most carefully, and certainly with perfect taste. The southern differs from the more northerly and westerly parts of the Manjarabad (Sakleshpura) region, in the absence of that succession of dense jungles which obscure the view, and in the soft character of the hills, which are the most instances quite free from the stunted date. But the whole region is beautiful and less wooded than Coorg". The features of the Semi Malnad region fringing the Malnad area on the east are, more or less, similar to those of the Maidan, but the climate, the forest vegetation and the economic situation have strong similarities with the Malnad proper. The villages here are more compact than in the Malnad, but somewhat isolated. The rainfall in this region is lower than in the Malnad area.

Climate:

Hassan district is situated in the southern part of the Karnataka and thus virtually enjoys (extends in the) tropical monsoon climate, the district has all the characteristics of typical monsoon climate. At the same time it has well developed seasonally of winds for which district is described as a land of two monsoons. It has the influences of its geographical location, monsoon winds and relief features on its climate. It bears not only the influence of the nearby Arabian Sea, but also the Bay of Bengal which lie far off in the east. The southwest monsoons from the Arabian Sea are most important in the climate of the district. In addition the cyclones depressions which are formed almost regularly in the Bay of Bengal and occasionally in the Arabian Sea will bring large volume of moisture and influence the weather condition. The north east monsoons are predominant during the winters and also during the pre monsoon period in district forms part of the Western Ghats, are the typical relief features running almost from northwest to southwest of the district. Which have virtually divided the district climatically? As such most of the rivers of the district originate in the Western Ghats region include Malnad area. The Princely State of Mysore was one of the states of the country, which had maintained weather data for a long time. The princely state has established meteorological office at Bangalore long back in 1893 and 153 weather stations throughout the state to record meteorological data. According to the analysis the district has more diversity of climate compared to its geographical area. The climate of the district range from the moist rainy monsoons in the west, to semi and dry steppe climate patches include tropical savanna type of climate in the east.

Population Growth:

Hassan district is inhabited by a very complex and many faceted groups of people that have been subjected to continuous changes more due to vital rates and less due to migration. Although, the rate which population of the region is growing has been steadily declining since peaking 1960s at over 8.95 (lakhs of population of the district), 25.27 percent per decadal growth, the population has grown rapidly. Since the beginning of the second half of 20th century, sustained high fertility resulted in momentous growth and rise in the size of its population. In terms of population number, the province is manifested with a large size even larger than most districts of the Karnataka as well as of India.

Regional Distribution and Growth of Population:

The regional distribution of population in 2001 had divided rural population and urban population. Hassan taluk's urban population is 39.67 percent as rural population 3.25 percent their region urbanized region in the district. There was about three fold increase in the size of population from 1901 to 2001 on increase of 12.07 lakh in the 100 years.

Possibly due to the migration to Hassan urban centers mainly from rural areas of Southern Malnad, most populated area compared to Southern Malnad and Semi Malnad. Southern Malnad had least size of populated area in the growth rate of population performance between decades of 1901-1951. The shore of Hassan agglomeration has gone up from 1951 to 2011. Alur rural population size in 2001 census 8.16 percent and urban 28.69 percent, Arkalgudu rural 14.22 percent, urban 7.17 percent, (Negative Population), Arsikere rural 9.33 percent, urban 1.02 percent (negative raising), population Belur rural 6.79 percent, urban 20.37 percent, Channarayapatna rural 7.62 percent, urban 25.75 percent, Holenarasipura rural 9.72 percent, urban 14.74 percent, Sakleshpura rural 4.40 percent, urban 23.04 percent.

Fertility:

The term fertility refers to occurrence of birth another term that refers to the biological capacity of a woman to reproduce is fecundity. Fecundity differs from fertility in that while the former is the biological capacity, the later refers to the actual number of birth. Thus, it is possible for a population to be highly fecund. It is very difficult to measure the fecundity of population. The fertility can be measured relatively easily. Out of a number of measures of fertility, the simplest one is the crude birth rate (CBR), the crude birth rate or the birth rate, as it is often called or calculated as the number of live births per thousand of mid-year population. The midyear population for this calculation is arrived at by taking an average of the population at the beginning and at the end of the year under consideration. The CBR is

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calculated on the basis of total population (*including the males and females of all ages*) of the region. The age and sex composition of population and it is only a crude measure of fertility. The total child population 0-6 age is 165,637 in 2011 census; against 199,665 at the previous census. In 2001, male population (0-6 age) is 83,971 at (9.50) percent and female population (0-6 age) is 81,666 (9.15) percent in 2011 census child sex ratio per 1,000 to 1,005 in 2011 census it was 1,012 in rural child population and 1,003 in urban. An important demographic change that had swept the district Hassan during the last two decades had been the striking decline in the levels of fertility and recent annual birth rate among all the regions. In 2010-11, Hassan taluk was highest in district. It had 13,100 people births in annual record. Alur recorded the least decline with 510 births, Arkalgudu (1,889), Arsikere (8,311), Belur (1,302), C.R Patna (3529), and Holenarasipura (2416), Sakleshpura (1,194).

Mortality:

The mortality transition took place earlier than fertility transition in the district due to the eradication of killer diseases and advance must in medical and health facilities after independence. As a result of this there was a sharp increase in the population of the district especially after 1950. Total average death rate including male and female was in 2010-11 it was (12,233), Hassan urban Agglomeration occurrence has higher deaths. It was (3,340), and lowest in Alur taluk (434), other regions are Arkalgudu (1031), Arsikere (2,117), Belur (1,179), Channarayapatna (1,906), Holenarasipura (1,399), Sakleshpura (827).

Age and Sex Structure of the Hassan district

The age structure of a given district of taluks may be analyzed on the basis of age-groups on and the basis of physiological, economic activities. The age population is generally classified into three groups (i) younger (ii) the adults and (iii) the old age groups; children, between (0.6) age 1, 65,637 numbers in Hassan district as per 2001 census of which 83,971 are male children and 81,666 numbers are female children. It was against the number of child population 0-6 of 1, 99,665 as per 2001 census. As per 2001 census 16, 10,784 numbers people are adults and old age groups 90.67 percent. It was against to the 2001 census where adult and old age people are 15, 22,004, and (88.40 percent). In total population of the district, with 17, 76,421 numbers there are different age groups. Age wise population in Hassan is provided in detail in the table. The total population of all ages in the Hassan district is estimated at 17, 76,421 numbers out of which 8, 83,667 numbers is the male population and 8, 92,754 numbers is the female population. The rural population of all age groups in the district is estimated at 13, 99,658 numbers out of which 6, 95,583 numbers is the male
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population and 7, 04,075 numbers is the female population. The urban population of all age groups in the district is estimated at 376763 numbers out which 188084 numbers is the male population and 188679 is the female population.

Conclusion:

The Study highlights that regional disparities in the population growth rate of Hassan district are coming down and the positive aspect is that all the regions are experiencing decline in the population growth rate in recent years. There was change of 3.18 percent in 2011. It was against whom compared to the population growth rate of the previous census 2001 with (9.68) percent. Taking cognizance of the changing pattern of development, the Government of Karnataka released the importance of developing. Hassan urban area was a regional center rather than individual entity. The impact of Hassan district and taluks headquarters surrounding villages and towns in terms of population growth started gaining momentum after 1961 census. Rapid growth of population in urban and villages on attics fringe area and periphery caused construction activities to take place on a large scale. The spatial pattern of population does not necessarily remain unchanged over time although the major areas of high and low density of population have remained more or less the same over the last few decades there have been variation in the ranks of various taluks in term of density of population. Theoretically, such changes in the pattern of population distribution can occur due to the varying rate of growth either due to differences in the rates of natural growth or due to migrations most of these changes in Hassan district. However, it is a result of difference in the natural growth rates between different regions. Forgoing, analysis attempted above on the “changing demographic structure of Hassan district: a Geographical perspective”. And their relations with the population growth rate of the district. In the region of malnad, the high birth was accompanied by high death rate during the period of 1951-61 and low birth rate seems to a consequence of the low death rate during the period of 1981-91. An overview statistics in India are known to be extremely defective and even unreliable. Because the reporting agencies are not all identical to the duty entrusted to them in this regard. Since independence, the position had definitely worsened and the reported birth and death rate are even more suspectable.

Table-1: Average Decadal Exponential Growth Rates

YEAR	HASSAN	KARNATAKA	INDIA	Average Annual Exponential Growth Rate (India)
1911	1.61	3.6	5.75	0.56
1921	0.63	-1.09	-0.31	-0.03
1931	2.61	9.38	11	1.04
1941	5.16	11.09	14.22	1.33
1951	13.93	19.36	13.31	1.25
1961	25.27	21.57	21.64	1.96
1971	23.05	24.22	24.80	2.20
1981	23.1	26.75	24.66	2.22
1991	16.67	21.12	23.85	2.14
2001	9.68	17.51	21.54	1.93
2011	3.18	15.67	17.64	2.34

Source: census of India 1911-2011

Table-2: Growth of Population for the Last Ten Decades in the Hassan District

TALUKS	1921	1931	1941	1951	1961	1971	1981	1991	2001
ALUR	38,640	34,976	31,586	33,380	49,182	60,203	69,455	79,081	86,131
ARKALGUDU	79,493	74,289	75,186	85,739	86	0	3	7	3
ARASIKERE	93,390	41	81	87	06	1	6	9	0
BELUR	68,766	65,576	65,143	70,487	69	8	2	1	0
CHANNARAYAPA	1,01,4	1,10,5	1,19,6	1,40,6	1,70,54	2,18,08	5,84,21	2,78,11	
TNA	93,500	68	45	75	79	8	9	2	2
HASSAN	99,814	98	06	47	63	7	6	6	8
HOLENARSIPURA	64,032	66,489	71,206	79,322	89,340	0	5	5	8
SAKLESH PURA	44,115	44,300	43,765	53,398	77,522	91,175	8	3	7
Total	50	37	18	35	47	72	14	84	19

Source: Hassan District at a Glance: 2012-2013

Table-3: Density per (Sq. Km) Sex Ratio and Growth Rate in the Hassan District (1991 to 2001)

TALUKS	Density 1991	Density 2001	Sex Ratio 1991	Sex Ratio 2001	Growth Rate 1991	Growth Rate 2001
ALUR	183	199	1,008	1004	13.86	8.91
ARKALGUD	270	295	1,000	1002	17.96	9.09
ARASIKERE	224	238	981	991	11.42	6.55
BELUR	202	217	998	1002	15.15	7.49
CHANNARAYAPATNA	243	266	1,030	1019	16.56	9.4
HASSAN	335	385	991	1004	18.58	14
HOLENARSIPURA	263	290	1,000	999	20.83	10.37
SAKLESH PURA	121	129	995	1022	9.42	7.14
TOTAL	230	251	999	1005	15.67	9.66

Source: (1) Hassan District at a Glance: 1991-2001(2) Source: census of India 1991-2001

Table-4: Density and Decadal Growth Rate and Percentage of Population in the Hassan District; from 1991 to 2001 Census:

SL.NO	Taluks	Density per census	as 1991	Area (Sq.kms).	2001	Growth Rate in 1991	Growth Rate in 2001	Growth Rate in 2011
1	Alur	183		199		13.86	8.91	-0.95
2	Arkalgudu	270		295		17.96	9.09	2.31
3	Arsikere	224		238		11.42	6.55	4.06
4	Belur	202		217		15.15	7.49	0.38
5	CR Patna	243		266		16.96	9.40	0.61
6	Hassan	335		385		18.58	14.00	9.07
7	HN Pura	263		290		20.83	10.37	3.96
8	Sakleshpura	121		129		9.42	7.14	-4.25
	Total Hassan District	121		251		15.67	9.66	3.18

Sources: Hassan District Gazetteer and census of India Reports from 1911-2011.

Table-5: Growth of Population for Last Ten Decades from 1901 to 2011

S L	Taluks	1901	1911	1921	1931	1941	1951	1961	1971	1981	1991	2001	2011
1	Alur	0.43	0.39	0.38	0.34	0.31	0.33	0.49	0.60	0.69	0.79	0.86	0.85
2	Arkalgudu	0.76	0.81	0.79	0.74	0.75	0.85	1.06	1.27	1.54	1.83	1.99	2.04
3	Arsikere	0.79	0.86	0.93	1.07	1.18	1.40	1.67	2.08	2.55	2.84	3.03	3.15
4	Belur	0.76	0.70	0.68	0.65	0.65	0.70	1.02	0.21	1.47	1.70	1.83	1.84
5	CR Patna	0.90	0.95	0.93	1.01	1.10	1.19	1.40	1.70	2.18	5.84	2.78	2.79
6	Hassan	0.94	0.96	0.99	1.01	1.12	1.32	1.62	2.14	2.66	3.15	3.63	3.96
7	HN Pura	0.57	0.64	0.64	0.66	0.71	0.79	0.89	1.07	1.31	1.58	1.75	1.82
8	Sakleshpura	0.50	0.43	0.44	0.44	0.43	0.53	0.77	0.91	1.14	1.24	1.33	1.28
	Total	5.68	5.78	5.81	5.96	6.27	7.15	8.95	11.02	13.57	15.96	17.21	17.76

Sources: Hassan District Gazetteer and census of India Reports from 1911-2011.

Table-6: Adults and Age Group of the Hassan District as per 2011 Census

S N	Taluks	Male Adults and Old Age Groups	Female Adults and Old Age Groups	Total Adults and Old Age Groups
1	Alur	38,509	39,212	77,721
2	Arkalgudu	9,24,479	92,446	1,84,925
3	Arsikere	1,42,451		2,85,648
4	Belur	82,590	84,656	1,67,246
5	CR Patna	1,25,651	1,29,398	2,55,049
6	Hassan	1,78,495	1,80,976	3,59,471
7	HN Pura	82,522	81,826	1,64,348
8	Sakleshpura	56,999	59,377	1,16,376
	Total	7,99,696	8,11,088	16,10,784

Sources: Hassan District Gazetteer and census of India Reports 2011 census.

Table-7: No of Children in Age Group of (0-6), as per 2011 Census

S N	Taluks	Rural			Urban			Total		
		Male	Femal e	Total	Male	Fema le	Total	Male	Fema le	Total
1	Alur	3,390	3,477	6,867	354	313	667	3,744	3,790	7,534
2	Arkalgudu	8,912	8,943	17,855	906	899	1,805	9,818	9,842	19,660
3	Arsikere	12,682	11,973	24,655	2,595	2,441	5,036	15,277	14,414	29,691
4	Belur	7,524	7,427	14,951	1,192	1,069	2,261	8,716	8,496	17,212
5	CR Patna	10,304	9,908	20,212	2,321	2,216	4,537	12,625	12,124	24,749
6	Hassan	9,581	9,418	18,999	9,040	8,656	17,696	18,621	18,074	36,695
7	HN Pura	7,530	7,291	14,821	1,513	1,505	3,018	9,043	8,796	17,839
8	Sakleshpura	4,839	4,838	9,677	1,288	1,292	2,580	6,127	6,130	12,257
	Total	64,762	63,275	1,28,037	19,209	18,391	37,600	83,971	81,666	1,65,637

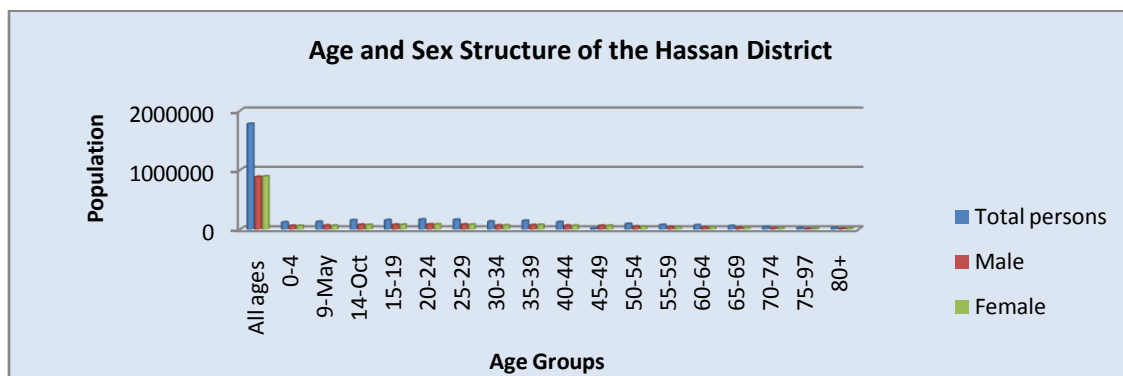
Sources: Hassan District Gazetteer and census of India Reports 2011 census.

Table-8: Decimal Growth Rate and Percentage of Population in the Hassan District from 1961 to 2011

Sl. No	Taluks	1961-71	1971-81	1981-91	1991-01	2001-11	Total G.R
1	Arsikere	24.53	22.14	11.42	06.55	04.06	80.56
2	Belur	18.30	21.66	15.14	07.49	00.38	78.10
3	Hassan	32.73	23.98	18.58	15.00	09.07	124.60
4	Alur	22.41	15.36	13.86	08.91	00.95	75.12
5	C.R. Patna	21.23	27.87	16.56	09.40	00.61	97.60
6	H.N. Pura	20.04	22.40	20.84	10.37	03.96	95.90
7	Arkalgudu	19.83	21.00	17.95	09.08	02.31	95.90
8	Sakleshpura	17.61	25.04	09.42	07.03	04.25	86.50

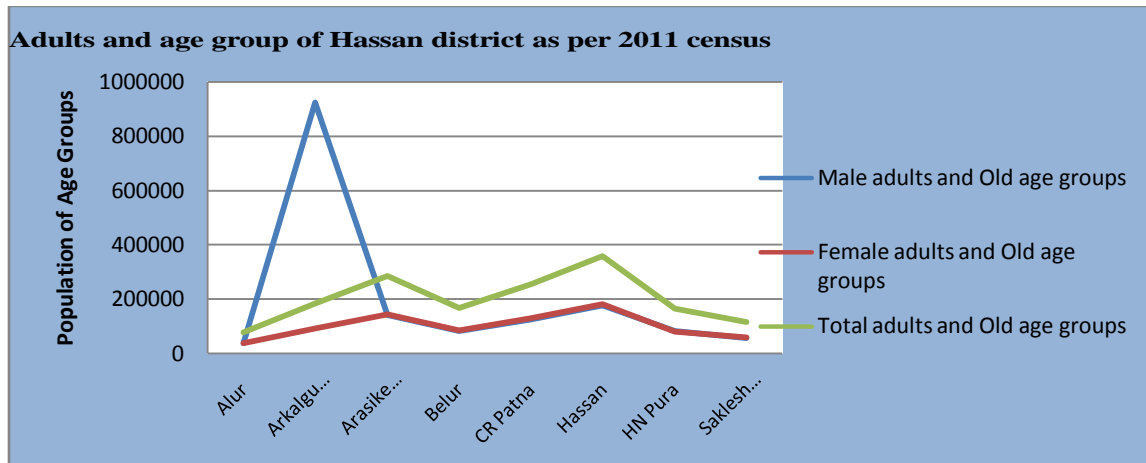
Sources: Hassan District Gazetteer and census of India Reports from 1961-2011.

Figure 2: Age Structure of the Hassan District



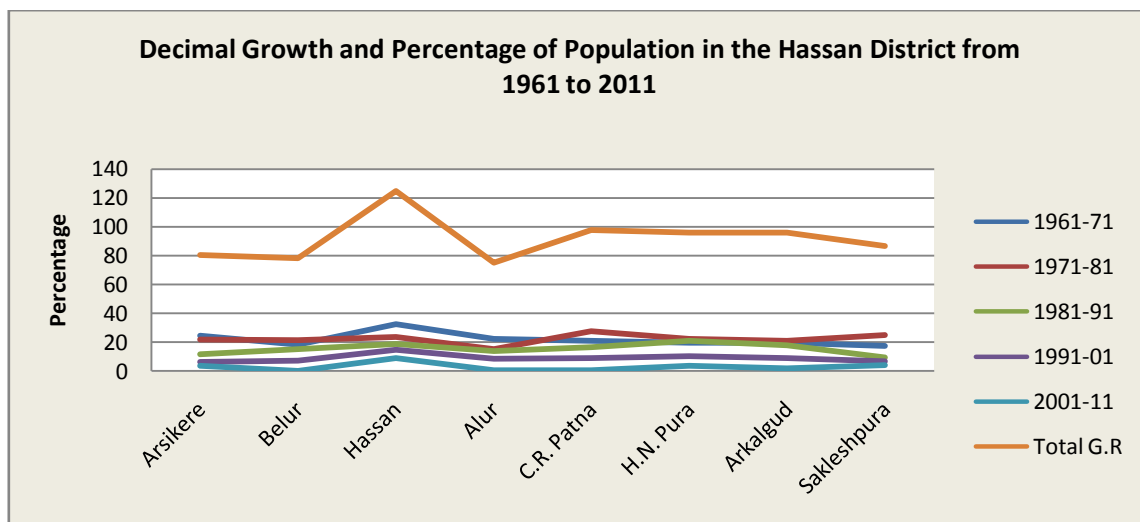
Sources: Hassan District Gazetteer and Census of India Reports as per 2011 census.

Figure 3: Adults and Age Group of the Hassan District as per 2011 Census



Source; Growth of Population 2011 Hand Book of Population and Hassan District Gazetteer and Census of India Reports as per 2011 census

Figure 4: Decimal growth and percentage of population in the Hassan district



Source; Growth of Population 1961-2-11 Hand Book of Population and the Hassan District Gazetteer and Census of India Reports

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