Population Change in Nepal: A Comparative Study between

Census 2001 and 2011

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Abstract:

This paper tries to compare the demographic parameters between the National Census years 2001and 2011 and to find growth rate, sex ratio, percentage change of population on the basis of ecological belt, development zone, urban-rural area, and age-sex composition during the census year 2001 to 2011. It also tries to analyze exponential growth and population density from first census 1911 to last census 2011. It is found that the maximum percentage change of population in Terai region is19.07% but it is the least in Mountain i.e. 6.37%. It is the maximum in central development region which is 20.94% and minimum in western development region i.e.8.19%. Similarly, the percentage change of population in urban and rural area is 40% and 10.89% respectively. The age dependency ratio is 67.17 in the census 2011 where as it observed 84.68 in the census 2001. The sex ratio is 94.14(males per hundred females) in 2011 but it was 99.8 in 2001.The population density is changed from 157.30 square kilometer to 181.00 square kilometer during the census 2001 to 2011. This study expects that the findings of this paper may facilitate the planners and decision makers to formulate the population policies and programs for people of the nation regarding economic, social and political decision.

Keywords

Exponential growth, Percentage change, Population density, Sex ratio.

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Introduction

The literal meaning of population is the whole number of people or inhabitants in a country or region. Population change is the difference of population size between the end and beginning of a time period. A census of population is the total process of collecting, compiling, evaluating, analyzing and publishing demographic, economic and social data pertaining, at a specific time, to all persons in a country or well – delimited part of a country (Bhende & Kanitkar,2010:29). So it is the oldest statistics of all statistics collected by nation. Even in the ancient days, when statistical organizations were not developed and human race was comparatively less civilized, leaders of the tribes estimated their manpower to protect themselves and their group from other tribes. At that time leaders of tribes wanted to grow their population for safety of property, people and nation (Singh & Saymi, 1990:1). However, population growth has become major problem in the present world. This problem is hindering development of the world. It is not just a problem of a country. Now days, population growth is common problem of all countries.

The effects of over population are evident in the increasing poverty, unemployment, air and water pollution and shortage food, health resources and education resources. Currently, Nepal faces a vicious cycle of population increase due to poverty. The people, who have struggled to make two ends meet, produce more children because more children means more earning hands. The infant mortality rate among in poor family is higher due to the lack of facilities like food and medical resources. Thus, they produce more children assuming that not all of them could be able to survive, that results into population growth. Due to the increase of population, the problems of scare resources, jobs and poverty increases. If poverty and population both increase simultaneously, the development of the country and society will far-fetched.

In Nepal, the constitution of the Kingdom of Nepal (1990) had given the importance of the population census. According to it, the number of seats of House of Representative from each of the 75 administrative districts is determined on the basis of population census. So, population census is one of the largest statistical operations in Nepal. The 2011 census marked 100 years of population counting in Nepal, during these 100 years, the population of country grew phenomenally. In 1911, the population of Nepal was 5,638,749 which increased more than four times and reached 26,620,809 in 2011(Bastola and GC, 2003).

According to the demographic theory, every population undergoes five stages during its evolution and Nepal's population now reached the third stage marked by two phenomena-a sharp decline in mortality rate and slow decline in the fertility rate (Dhakal, 2011). A majority of people living outside the country belong to a reproductive age group. This means that they get little time to spend with their sexual partners. This has obviously resulted in a decline in fertility rate (Rai, 2011:2). As per the recently published report of Nepal Demographic Health Survey, Nepal's fertility rate has declined to 2.6 by now. Put it simply, every Nepali women gives birth to two to three babies. This rate was 4.1 in 2001 when the previous census was held (NDHS, 2011). It is remarkable point that the fertility rate is determined by three factors like the number of couple living together, the number of couples using various forms of contraceptives and the number of abortion cases. With the percentage of educated people witnessing a rise in recent years, people are increasingly being aware of the benefits only after becoming financially in independent. This growing urban phenomenon has truly been reflected in the current growth rate and in the overall population.

Nepal has experienced a very high unemployment rate and underemployment rate that compelled people to remain under the vicious cycles of poverty that resulted to involve in the process of migration to other places within and outside the country for looking better opportunities of livelihood (Aryal, 2013). Social scientists and researchers have been tried to search the solution of complex problems like hunger, poverty, illiteracy and other socio economic problems facing the human beings of third world countries due to high rate of population growth, limited land and natural resources, low level of literacy, a large percentage of unskilled dependent man power, agro- based economy and land locked geography.

Nepal, being a developing country, has had to face several economic and political challenges. One of the most important problems is the over population. Some of the reasons for over population are poverty, excess of medical facilities and migration from neighboring countries from India, Bhutan and Tibet. Although, the rate of increase has decreased, the rate has not reached the satisfactory level yet. The population in Nepal constitutes to increase at an alarming threat. In this respect, it needs to study the population change in Nepal, which may help to planners for making policies regarding economic, social and political decision. In this context, this paper attempts to investigate the comparative study between the population change of census year 2001 and 2011 on the basis of ecological belt, development region, and place of residence, gender and age.

Materials and Methods

All analysis and discussion have been based on published source of secondary data such as National Population and Housing Census 2011, Statistical Year Book of Nepal 2011, Nepal in Figure (2010) and National Demographic Health Survey (2011), Preliminary Results of National Population Census 2011 and other related materials. Population in 2001 and 2011 are the main variables of this study. Some demographic statistics such as sex ratio, percentage change, age dependency ratio and exponential growth are used to compare the demographic parameters between the National Censuses 2001 and 2011.

Exponential growth is an increase in number or size at constantly growing rate.

Exponential growth, $P_t = P_o e^r$ (1)

Where P_t = population at current year, P_o = population at base year, t = time interval between P_o and P_t, r = the growth of population and e = exponential constant value is equal to 2.71828.

The concept of ratio has also been used to measure the percentage change "before" and "after" the intervention.

Percentage change = $\left[\frac{After\ value}{Before\ value} - 1\right] \times 100$ (2)

Sex ratio of the population is the principal measure of sex composition. It is defined as the number of males over the number of hundred females.

Sex ratio $= \frac{P_m}{P_f} \times 100$ (3)

Where P_m= population of male, P_f = population of female

Age dependency ratio is defined as the ratio of the combined child population and aged population to the population of the intermediate ages.

Age dependency ratio $== \frac{P_{0-14}+P_{60+}}{P_{15-59}} \times 100$ (4)

Where P_{0-14}= population under the age 15 year, P_{60+}= population in the age 60 and over, and

P_{15-59} = population of intermediate age.

Results and Discussions

The history of Nepalese census is not so long, it has crossed only a century. At the first time, the National Census was taken in the year 1911.After that it has been taking every ten year interval. The population of Nepal in the first census year 1911 was 5,638,749. The following table shows the population of Nepal from first to last census year.

Table 1: Population Census in Nepal

Census Year	Total Population	Population change between the census		Exponential growth rate	Population density
		Number	Percentage		
1911	5,638,749	-	-	-	38.31
1921	5,573,788	-64961	-1.15	-1.17	37.87
1931	5,532,574	-41214	-0.74	-0.74	37.59
1941	6,383,649	751075	13.58	1.06	42.69
1952/54	8,473,478	1972976	31.50	2.30	56.10
1961	9,412,996	1156371	14.01	1.32	63.96
1971	11,555,983	2142987	22.77	2.07	78.52
1981	15,022,839	3466856	30.00	2.36	102.07
1991	18,491,097	3468258	23.09	2.1	125.64
2001	23,151,423	4660326	25.20	2.25	157.30
2011	26,620,809	3469386	14.98	1.4	181.00

 Source: Statistical Bulletin, 2011/12, Vo.105, No.1, CBS.

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Table 1 shows the population percentage change between the censuses 1911 to 1921 is decreased by 1.15 percent but it is increased between the censuses 2001 to 2011 by 14.98 percent. Similarly, the population growth rate is negatively projected at the first three decades then it is continuously in a positive way. The country's annual population growth rate is just 1.4 percent in 2011 as against 2.25 percent in 2001. There is drastic changed in population density of the country. In 1911, the population density of the country was less than 39 persons per square kilometer.By, 2011; the figure has risen to 181 persons for the same area.
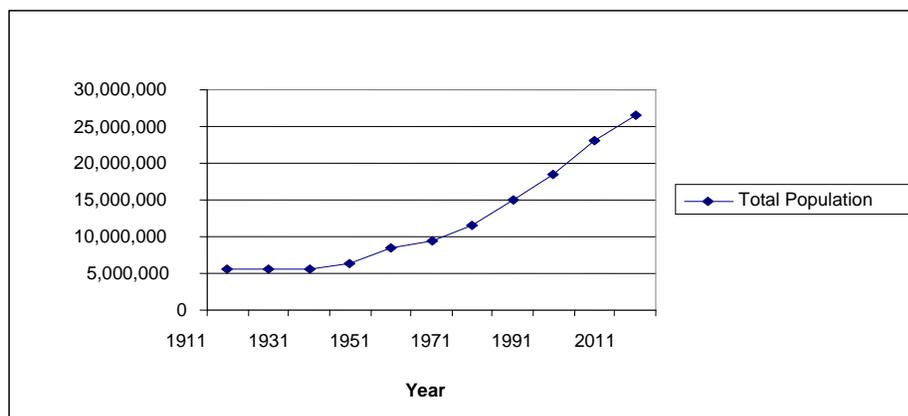
Figure 1: Population Trend in Nepal

Figure 1 indicates that growth rate was always recorded over two percent between 1971 and 2001. Nepal's population has seen negative growth rates twice. The first and second census had shown negative growth rates of 0.12 and 0.07 percents respectively.

The population growth rate had never declined to less than two percent in Nepal since1961. For the first time in the last 40 years, few babies are born and more people are either dying or migrating, especially outside Nepal. The decreasing rate of population growth is a very positive aspect for Nepal. This has revealed Nepal's increasing education level and awareness.

Ecologically, Nepal is divided into three regions, running east to west. They are mountain, hill and terai. The population is 1,795,354 in the mountain; 11,475,001 in the hill and 13,350,454 in the terai. The population is distributed over the three regions are shown in the following table:

Table 2: Population Change by Ecological Region

Region	Population		Growth rate		Sex ratio		Population change between the census	
	2001	2011	2001	2011	2001	2011	Number	Percent
Mount.	1,687,859	1,795,354	1.57	0.62	98.2	94.0	107,495	6.37
Hill	10,251,111	11,475,001	1.97	1.13	96.3	92.0	1,223,890	11.97
Terai	11,212,453	13,350454	2.62	1.74	104.4	97.0	2,138,001	19.07

Source: National Population and Housing Census 2011, CBS.

Table 2 shows that Terai constitutes 50.15 percent of the population, hill and mountain constitute 43.1 percent and 6.75 per cent respectively. The growth rate of population in terai, hill and mountain regions have 1.74; 1.13 and 0.62 respectively in 2011 but it was 2.62; 1.97 and 1.57 in 2001.The sex ratio of terai, hill and mountain regions are 97.0; 92.0 and 94.0 respectively but it was 104.4; 96.3 and 98.2 in 2001 respectively. The percentage change of population in terai region is 19.07% whereas it is 11.97% in hill and 6.37% in mountain. The population change by ecological region can be shown in the following figure:
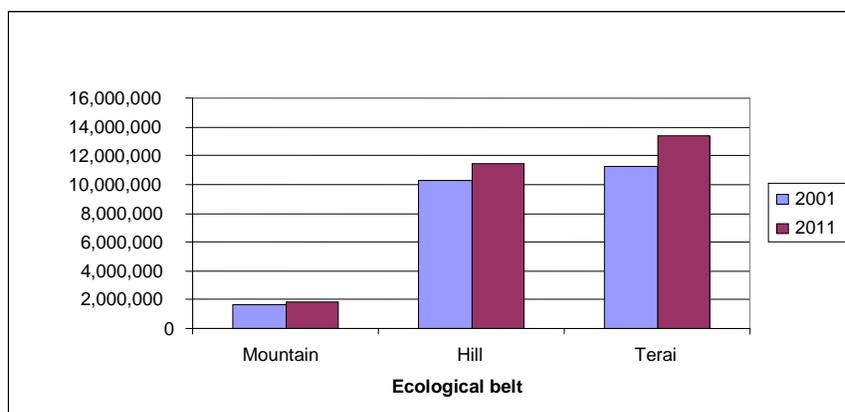
Figure 2: Population Change by Ecological Belt

Figure 2 indicates that the population is highly increased in Terai region from 2001 to 2011 in comparison to other ecological regions.

Nepal is divided into five administrative development regions. Central development region has the highest population and far-western region has the lowest population. The population is 5,834,128 in eastern, 9,713,702 in central, 4,945,190 in western, 3,584,586 in mid-western and 2,543,349 in far-western region in the census year 2011. The population changes by development region can be shown in the following figure:

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Table 3: Population Change by Development Region

Development region	Population		Growth rate		Sex ratio		Population change between the census	
	2001	2011	2001	2011	2001	2011	Number	Percent
Eastern	5,344,467	5,834,128	1.84	0.88	99.9	93.0	489,661	9.16
Central	8,031,629	9,713,702	2.61	1.90	104.8	100.0	1,682,073	20.94
Western	4,571,013	4,945,190	1.9	0.79	92.6	87.0	374,177	8.19
Mid-western	3,012,975	3,584,386	2.26	1.74	99.2	93.0	571,711	18.97
Far-western	2,191,330	2,543,349	2.26	1.49	98.2	92.0	352,019	16.04
Total	23,151,423	26,620,809	2.25	1.40	99.8	94.4	3,469,386	14.98

Source: National Population and Housing Census 2011, CBS.

Table 3 shows that 21.9% of total population lies in the eastern region, 36.5% in central region, 18.6% in western region, 13.5% in mid western region and only 9.6% in far western region in 2011 whereas 23.1% of total population lies in eastern region, 34.7% in central region, 19.7% in western region, 13% in mid western region and 9.7% in far western region in 2001. The growth rate of population is 0.88, 1.90, 0.79, 1.74, and 1.49 in eastern, central, western, mid-western and far western development regions in 2011 whereas it is 1.84, 2.61, 1.90, 2.26 and 2.26 respectively in 2001. The percentage change of population is 9.16% in eastern, 20.94% in central, 8.19% in western, 18.97% in mid-western and 16.04% in far-western development region from 2001 to 2011. The population changes by development regions can be shown in the following figure:

Figure 3: Population Change by Development Zone

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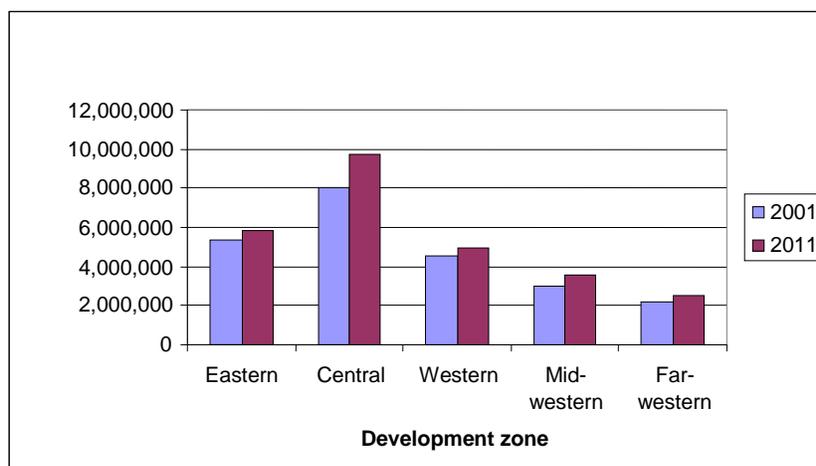http://www.ijmr.net.in email id- irjmss@gmail.com   Page 38

Figure 3 indicates that central development region is the most densely populated with 9.71 million holding 36% of the overall population, while the far western region remains the least populated with 2.5 million people making 9.6% of the total population.

The total number of people is 4,525,787 in urban area and 22,095,022 in rural area in the census year 2011 whereas the figure was 3,227,879 and 19,923,544 in the census year 2001.
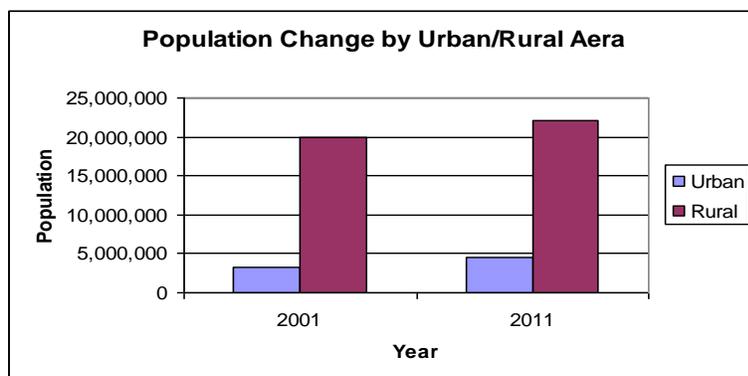
Table 4: Population by Place of Residence

Place of Residence	Population		Growth rate		Sex ratio		Population change between the census	
	2001	2011	2001	2011	2001	2011	Number	Percentage
Urban	3,227,879	4,525,787	6.65	3.38	98.8	92.0	1,297,908	40.00
Rural	19,923,544	22,095,022	1.72	1.03	106.4	104.0	2,171,478	10.89
Total	23,151,423	26,620,809	2.25	1.40	99.8	94.4	3,469,386	14.98

Source: National Population and Housing Census 2011, CBS.

Table 4 shows that urban population is increased by 3.1 percent and the rural population is decreased by 3.1 percent from census years 2001 to 2011. Similarly 17% of total population resides in urban areas and 83% in rural areas in 2011 where as 13.9% of total population resides in urban areas and 86.1% in rural areas in 2001. The population growth rate is 3.38 in urban area and 1.03 in rural area in 2011 but this figure was 6.65 in urban area and 1.72 in rural area in 2001. The sex ratio is 92.0 in urban area and 104.0 in rural area in 2011 whereas it was 98.8 in urban area and 106.4 in rural area in 2001.the percentage change of the population 40 percent in urban area and 10.89 percent in rural area from 2001 to 2011. The population change by rural-urban areas can be shown in following figure:

Figure 4: Population Change by Rural/Urban Area

The urban population is increased by 3.1 percent and the rural population is decreased by 3.1 percent from census years 2001 to 2011.

The male population is 12,927,431 and female population is 13,693,378 in the census year 2011 but it was 11,587,502 and 11587502 in the census year 2001. The following table shows the population of male and female in the census year 2001 and 2011.

Table 5: Gender wise Population Change

Gender	2001	2011	Population Change between the census	
	Population	Population	Number	Percentage
Male	11,563,921	12,927,431	1,363,510	11.79
Female	11,587,502	13,693,378	2,105,876	18.17

Source: National Population and Housing Census 2011, CBS.

Table 5 shows that sex ratio is 94.14(males per hundred females) in 2011 but it was 99.8 in 2001. So the sex ratio is decreased by 5.39 from 2001 to 2011. It means that there is slightly skewed female- to- male ratio with the female population at 51.44 percent against the 48.56 males.
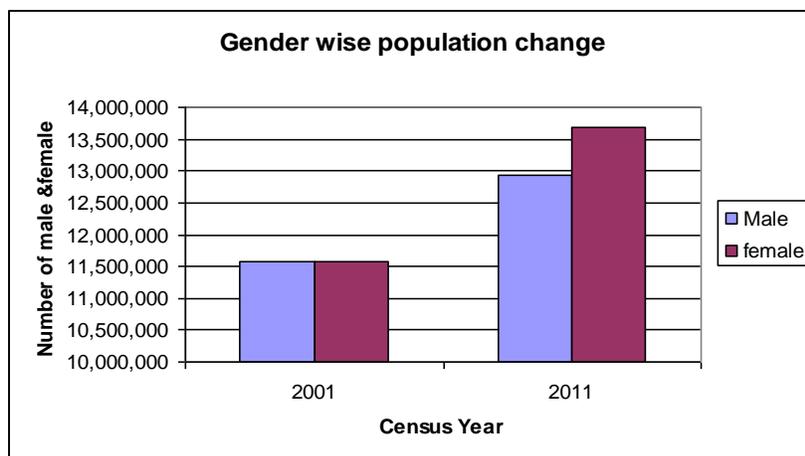
Figure 5: Gender wise Population Change

Figure 5 indicates that the female population in the census year 2011 is significantly increased with compare the census year 2001.

The population of age group between 15 to 59 years is known as economically active, and the people below this age group (0-14 years and 60 and 60+ years) are considered as economically dependent. The following table shows the different age group of population.

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Table 6: Age wise Population Change

Age in year	2001	2011	Population Change between the census	
	Population	Population	Number	Percentage
0- 4	2,755,213	2,567,963	(-187,250)	-6.80
5 -14	6,193,374	3,552,284	(-2,641,091)	-42.64
15 -59	12,310,968	18,346,152	6,035,184	49.02
60+	1,477,379	2,154,410	677,031	45.82

Source: National Population and Housing Census 2011, CBS.

Table 6 shows that age dependency ratio is 67.17 in the census 2011 where as it observed 77.19 in the census 2001.The percentage of population changes in the age group (15 to 59) year and (60 and 60+) are 49.02% and 45.82% respectively. It is decreased in the age group 0-4 year and 5-14 year by 6.80% and 42.64% respectively.

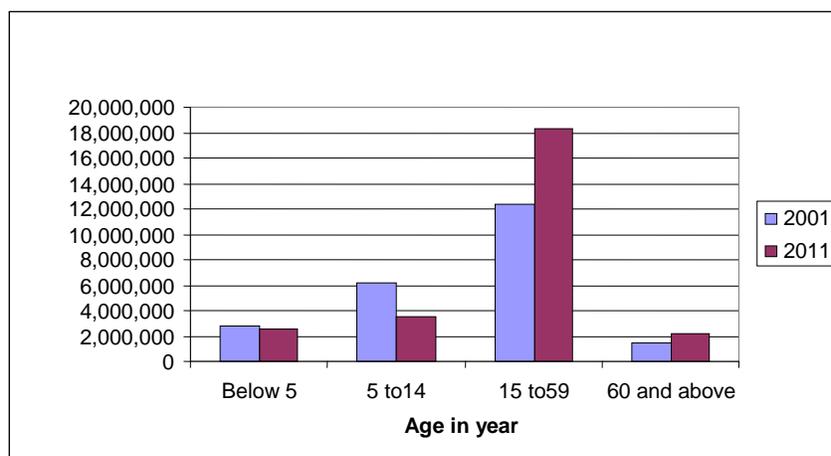Figure 6: Age wise Population Change

Figure 6 clearly indicates that the economically active population within the age group 15 to 59 years is increased in the census year 2011 in comparison to the past census 2001.

Conclusion

There is maximum percentage change of population in terai region (19.07%) in comparison to hill (11.97%) and mountain (6.37%) regions. The national census 2011 shows that more than 50 percent people habitat in the 17% area (terai). The percentage of population change is maximum in central development region (20.94%) and minimum in western development region (9.19%). Similarly, the percentage changes of population in urban and rural area are 40% and 10.89% respectively. The age dependency ratio is 67.17 in the census 2011 where as it observed 84.68 in the census 2001. The sex ratio is 94.14(males per hundred females) in 2011 but it was 99.8 in 2001.The population density is changed from 157.30 square kilometer to 181.00 square kilometer during the census 2001 to 2011.The population growth rate had never declined to less than 2% in Nepal since 1961 but it is 1.4 in 2011.. Nepal is in the third stage of demographic transition. This stage of characteristics is low death rate and low birth rate as a result of which the population growth rate has slowed down. The decreasing rate of population growth is a very positive aspect for Nepal. Both literates and illiterates people have adopted contraceptive measures. It has revealed Nepal's increasing education level and awareness about over population. Besides, population growth is low due to the fluctuation in migration trend as well as the growing trend of people to go to abroad for various regions. A huge chunk of population has shifted from agro-based profession to wage-based livelihood where family size is controlled by limited resources for living rather then farming. It means that the family size will further decrease in coming years. There is a slightly skewed in female to male ratio by the cause of birth selective trend of Nepalese people and large number of males going out of the country for employment.

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