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Population Growth Dynamics of Nepal: Evidence from Different Population Censuses

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Abstract

Demographics processes – birth, death and migration, determine the population size and the growth rate of any place. Changes in one of these components affect population growth and size. Higher population growth creates stress on natural resources while lower growth causes shortage of human resources for several development activities. Based on the population growth data from 1981 to 2021 published by Central Bureau of Statistics, and National Statistical Office of Nepal, this paper analyzes the patterns and trends of population growth by ecological regions and districts of Nepal. The findings show that a high population growth has observed before 2001 compared to the two successive censuses i.e. 1.35% in 2011 and 0.92% in 2021. A significant change has been observed in the number of districts with negative population growth in Hill and mountain regions. Before 2001, the Hill region had 1 to 2 % population growth in general and Tarai had above 2 % which has declined to 0 to 1 % and 1 to 2 % respectively in 2021. The low growth can have a number of, and far reaching consequences for development such as shortage of human resources

in agricultural and other various development activities in the country. It is thus, Nepal needs to review its population policy along with its employment and development policy at large.

Introduction

Population of Nepal has been changing over the time. Population of any place change due to birth, death and migration. Birth and death are the natural processes but the migration is not a natural process. It is human induce. Birth and death change population size slowly while migration can change the population size quickly and also effect on spatial pattern of distribution.

Nepal has been carrying out scientific population census since 1952/54. Over the time, population size, growth rate and spatial distribution of population have been changing. Nepal is a mountainous country. The country has three parallel ecological regions. The Mountain region is in the northern most part of country and it consists high mountain peaks and very rugged terrain. The southern most part of country below 1000 meters above the sea level consists of Chure Range and further southern there is the flat land known as Tarai. The Tarai region is very fertile region and also known as the grain bowl of the country. Between Mountain and the Tarai, there is Hill region also known as Mahabharat region which is between 1000-3000 meters above msl in general has gentle mountain, hillocks and fertile river valleys. The whole country has been

further divided into 77 districts, which were 75 before 2015.

Population census data shows that there has been shift in spatial distribution of population over the years. As per the 2021 population census, 6.1 % people live in mountain region, 40.3% in Hill region and 53.6% in the Tarai (NSO, 2024) while the percentage of people in these three ecological region were 6.7%, 43%, and 50.3% respectively in 2011 census (CBS, 2012). This spatial changes in population size by ecological regions has resulted due to the changes in birth, death and migration. Among these three, the most important in bringing rapid changes in population size and growth rate is the migration due to which population size and growth rate of Tarai region has been rapidly increased at the cost of mountain and hill districts.

The changing population growth rate has affected in the availability of human resources for the development. Both decreasing population size and migration of people particularly young people has affected in agricultural activities, infrastructural development and other several aspects. Despite this, , there is no systematic analysis of spatial dynamics of population growth rate in relation to development in Nepal This paper, based on the population census data on growth rate from 1981 to 2021, aims to analyse the changing population growth rate by district.

Methods and Materials

This study is based on the secondary data published by Central Bureau of Statistics (CBS), Nepal which is now known as National Statistical Office (NSO). Nepal has been conducting scientific census in every ten years since 1952/54. The latest census was conducted in 2021. This paper collects the population data at district level from the results of national population census of 1981, 1991, 2001, 2011 and 2021. The population growth data of these censuses is available at district level. The population growth data was collected, and compiled in MS excel. The data were regrouped for the analysis. Importantly, the data were integrated into the GIS system for the mapping. Mapping of population growth rate

present the spatial visualization which is important for understanding the situation by ecological regions.

Results and Discussions

Population Size and Growth Rate at National Level

Nepal's population size has been growing consistently over time. However, a major shift has observed in the population growth. As given in Table 1, population growth rate has continuously increased from 1961 to 2001 and it has sharply decreased thereafter. The average annual growth rate was 1.64 in 1961 which reached to 2.25 in 2011, then declined to 1.35 in 2011 and 0.92 in 2021. The latest growth rate is the lowest in 80 years.

Table 1: Population size and growth rate at national level (1952/1954-2021)

Census year	Total population	Annual growth rate	Doubling time
1952/54	8,256,625	2.27	31
1961	9,412,996	1.64	42
1971	11,555,983	2.05	34
1981	15,022,839	2.62	26
1991	18,491,097	2.08	33
2001	23,151,423	2.25	31
2011	26,494,504	1.35	51
2021	29,164,578	0.92	75

Source: NSO, 2024

With decreasing population growth rate, the doubling period has also been reduced. The doubling period was 60 years in 1941, decreased to 42 years in 1961, further to 33 years in 1991, and to 31 years in 2001. Coming to the 2021 census, it has been 50 years. This is mainly due to the decreasing birth rate

and death rate and massive migration of Nepali youth to foreign countries for jobs and studies.

Despite the overall increase in population size, the growth rate was negative during the 1920 and 1930 censuses. This decline was attributed to significant losses in the

Nepalese army during the First World War and the global influenza epidemic. Additionally, the turmoil of the period likely led to undercounting (CBS, 1987).

Population Growth Rate by District 1981-2021

Nepal has a distinct geographical setting. The Mountain region, located in the northernmost part of the country has a harsh climate, rugged topography, and limited agricultural land. The Hill region is characterized with beautiful landscapes, a pleasant climate, and sloping terraced land, and settlements located along the hillslope and river valleys. The Tarai region is located in the southern part. It has flat land. It has fertile soil and has good agricultural land.

Because of these bio-physical characteristics, the population size and growth rate has observed increasing with decreasing altitude. In other words, the population size and growth rate of mountain districts is lower than the Hill districts. Furthermore, the population size and growth rate of Hill districts

except a few exception, is lower than the Tarai districts in general. The population growth rate of Nepal is uneven by ecological regions. The Tarai region consistently shows the highest growth (1.54%) compared to Hill (0.30%) and Mountain regions (-0.05%) in 2021.

Considering the population growth rate by districts, four patterns are clearly emerged: i) negative growth, ii) positive but low growth, iii) medium growth, and iv) relatively high growth (Chapagain, 2075 BS) (Table 2). A large number of districts (35) has observed with negative growth rates ranging from -0.01 to -1.67 percent in 2021 census. These districts are from both Mountain Hill regions. Population growth patterns also vary sharply by district. Ramechhap had the lowest growth rate (-1.67%), while Bhaktapur had the highest (3.35%) in 2021. The negative growth rate was observed in 27 districts in 2011 census. The detail of the population growth rate by district and its spatial distribution is given in Annex 1.

Table 2: Number of districts by annual population growth rate, 1981-2021

Population growth category	Census Year				
	1981	1991	2001	2011	2021
Negative growth	9	3	0	27	34
0-1 %	12	18	6	10	18
1 to 2 %	16	26	39	22	22
2 and above %	38	28	30	16	3
Total districts	75	75	75	75	77

Note: before 2015, there were 75 districts

The number of districts with higher growth rate has increased up to 2001 then it declined. As given in Table 2, there were 38 districts with growth rate of 2% and above in 1981 that has decreased to 28 in 1991, 16 in 2011 and 3 districts in 2021. These are the districts with high population growth rate. Similarly, the number of districts with medium growth rate (1 to 2%) were 16 in 1981 that has reached to 39 in 2001 and gradually declined to 22 in 2011 and remains 22 in 2021 also. The number of districts with positive but low growth rate (0 to 1%) has somehow the same throughout different censuses as there were 12 districts in this category in 1981 that increased to 18 in 1991 and decreased to 10 in 2011 and again increased to 18 in 2021. A significant change has observed in the number of districts with negative population growth. There were 9 districts with negative growth in 1981

that decreased to 3 in 1991. There was no district with negative growth rate in 2001. In the census of 2011, 27 districts were appeared with negative population growth rate which was increased to 34 in the 2021 census.

There are a rapid change in population growth pattern by ecological region. It has observed the negative growth rate is in Hill districts especially after 2001. There is low but positive growth rate in Hill especially in western Hill region. From 2001, there is mild (1 to 2%) population growth in Hill region until 2001 which has been occurred in Tarai after 2001. The high population growth (2 % and above) is always observed in Tarai region. It is clearly evident that until the end of the 20th century, Hill region of Nepal had 1 to 2 percent population growth rate followed by 2 % and above percent in the Tarai region.

Table 3: Number of districts with growth category by ecological region, 1981-2021

Growth rate Category	Number of districts by ecological region and census year														
	1981			1991			2001			2011			2021		
	M	H	T	M	H	T	M	H	T	M	H	T	M	H	T
Negative growth	5	4	-	3	-	-	-	-	-	11	16	-	10	24	-
0 to 1	2	9	1	5	13	-	1	5	-	-	7	3	8	4	6
1 to 2	5	9	2	8	15	3	17	21	1	3	4	15	2	3	17
2 and above	7	10	21	3	4	21	1	6	23	5	5	6	-	1	2
Total	19	32	24	19	32	24	19	32	24	19	32	24	20	32	25

Note: M, H and T refers to Mountain, Hill and Tarai respectively. Tarai also includes Inner Tarai. The division of the district into the ecological region is as per the government of Nepal.

Source: Annex 1.

The growth rate pattern has taken a dramatic shift as negative growth rate has observed in Hill. The mild growth has observed in Tarai while 2 % and above was observed in Tarai until 2000 that has decreased to 1 to 2 percent after 2001 (Table 3). The mapping of the population growth from 1981 to 2021 shows a clear spatial pattern that the eastern, central and western Hill and mountain districts were observed with negative growth rate in 2011 that has been further extended

to the far-western Hill districts in 2021. It is clearly observed that the districts in Tarai region have high population growth rate until 2001. The Karnali region experienced a high growth rate in 2011 where the growth rate is still high compared to the other districts of Mountain and Hill regions in 2021. The detail spatial pattern of distribution of districts with different growth rate in different censuses from 1981 to 2021 is given Figure 1.

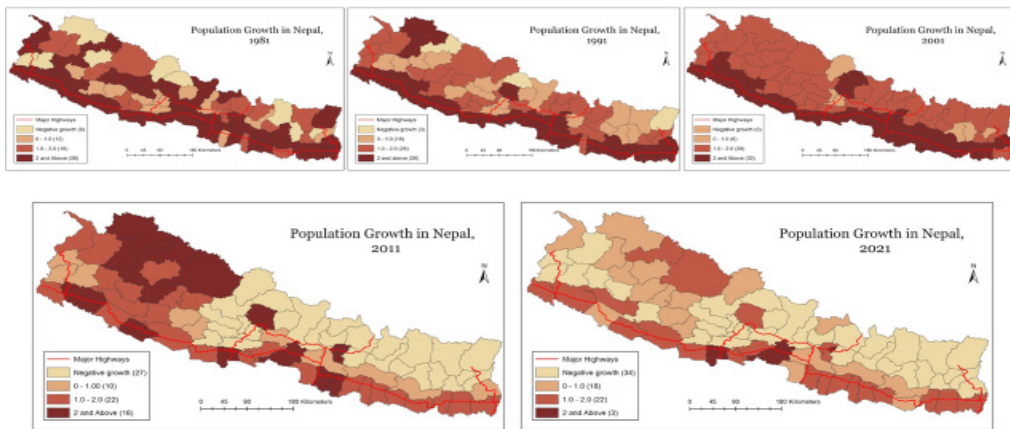


Figure 1: Spatial pattern of population growth rate, 1981-2021.

Note: It has considered 77 districts for mapping population growth although the 77 districts came in existence in 2015. The growth rate of Nawalparasi and Rukum district has been considered for Nawalparasi East & West, and Rukum East & West respectively for the census before 2021.

Conclusion

Nepal's population growth has rapidly increased until 2001. It has started declining thereafter and reached to 0.92 % in 2021 census. Together with slower growth, there is also a trend of rural to urban, and Mountain and Hill to Tarai

migration in the country. This has caused increasing population in capital city and other major cities and increasing population at the Tarai region especially at the cost of declining population in Hill and Mountain regions. Importantly, a large number of labour migration of young people has been taking place. In

addition, young high school graduates and under graduates students are in the rush to join foreign universities with aspiration of higher education thereafter job and settlement in those country.

The slow population growth has a long term consequences to the country like Nepal. Nepal is agricultural based country. Due to lack of labour, agricultural land in Mountain and Hill districts in Nepal has already been abandoned that affect on food security problem in the country. Forest succession has taken place in the abandoned land and wild animals such as monkey, deer, wild-boar have severely damaged crops and made the farming difficult in many parts of Nepal. Problem has also noticed in farmland management, infrastructure development and resource utilization that may cause slower economic growth.

The observed tendency of low population growth and outside migration reinforce to revisit our population policy and the social welfare and support to the young people so that they can easily take care their children. Supports are essential in health, education and more public funding and support on these aspects. Furthermore, specific program in agriculture sector, farmer support programs, market and infrastructure development along with better health and education facilities are needed in rural areas. Above all, the employment opportunities and the hope of future are to be created among the young people of the country.

References

- CBS. (1987). Geographical distribution and growth of population. *Population Monograph of Nepal* (PP 17-39). Kathmandu: Central Bureau of Statistics. <https://microdata.nsonepal.gov.np/index.php/catalog/23/related-materials>
- Chapagain, P.S. (2075 BS). *Spatial aspects of population, migration and urbanization in Nepal*. Kathmandu: Highland Publication.
- Singh, M.L. (1995). Population distribution and growth. *Population Monograph of Nepal* (PP 25-60). <https://censusnepal.cbs.gov.np/Home/Details?tpid=5&dcid=5138be27-c c 4 c - 4 0 8 a - b f c 7 - 552d247e6462&tfsid=32>
- Pantha, R. and Sharma, B.R. (2003). Population size, growth and distribution. *Population Monograph of Nepal, vol. I* (PP 37-86). Kathmandu: Central Bureau of Statistics. <https://censusnepal.cbs.gov.np/Home/Details?tpid=5&dcid=5db0e1c6-5 c 6 9 - 4 1 8 3 - 8 8 c c - 6f18ac5ec838&tfsid=26>
- Pathak, R.S. and Lamichhane, K. (2014). Population size, growth and distribution. In *Population Monograph of Nepal, Vol. I* (pp 15-37). Kathmandu: Central Bureau of Statistics. <https://nepal.unfpa.org/sites/default/files/pub-pdf/PopulationMonograph2014Volume1.pdf>

National Statistics Office (NSO)
(2024). *National Population and
Housing Census 2021: Population
Composition of Nepal*. Kathmandu:
National Statistics Office.

[https://censusnepal.cbs.gov.np/results/
files/result-folder/Final_Population_
composition_12_2.pdf](https://censusnepal.cbs.gov.np/results/files/result-folder/Final_Population_composition_12_2.pdf)

Annex 1: Annual population growth rate by district in different census (1981-2021)

SN	District	Population growth rate by census year				
		1981	1991	2001	2011	2021
1	Taplejung	3.55	-0.06	1.15	-0.55	-0.53
2	Panchthar	0.53	1.31	1.43	-0.52	-1.02
3	Ilam	2.45	2.51	2.1	0.26	-0.36
4	Jhapa	6.61	2.13	1.48	1.66	1.97
5	Morang	5.73	2.33	2.23	1.35	1.66
6	Sunsari	4.33	2.96	3.00	1.99	1.86
7	Dhankuta	1.87	1.2	1.29	-0.19	-0.78
8	Terhathum	-2.5	1.07	0.95	-1.08	-1.30
9	Sankhuwasabha	1.24	0.92	1.15	-0.03	-0.04
10	Bhojpur	-0.09	0.31	0.21	-1.07	-1.39
11	Solukhumbu	-1.77	0.97	1.02	-0.17	-0.09
12	Okhaldhunga	1.14	0.13	1.17	-0.57	-0.56
13	Khotang	2.64	0.16	0.69	-1.15	-1.56
14	Udayapur	3.5	3.25	2.63	0.99	0.68
15	Saptari	1.93	2.06	2.03	1.14	0.96
16	Siraha	2.16	2.05	2.17	1.07	1.43
17	Dhanusha	2.69	2.28	2.11	1.17	1.34
18	Mahottari	1.06	1.98	2.29	1.26	1.14
19	Sarlahi	8.2	2.12	2.55	1.91	1.09
20	Rautahat	0.38	2.19	2.75	2.31	1.63
21	Bara	3.13	2.64	2.96	2.07	1.00
22	Parsa	3.41	2.7	2.89	1.9	0.82
23	Sindhuli	2.2	1.98	2.23	0.57	0.12
24	Ramechhap	0.26	1.53	1.22	-0.47	-1.67
25	Dolakha	1.47	1.4	1.65	-0.91	-0.74
26	Sindhupalchowk	1.18	1.16	1.59	-0.61	-0.88
27	Kavre	2.25	0.54	1.73	-0.1	-0.46
28	Lalitpur	1.73	3.32	2.73	3.26	1.58
29	Bhaktapur	3.72	0.79	2.65	3.01	3.35
30	Kathmandu	1.77	4.7	4.71	4.78	1.51
31	Nuwakot	1.61	1.89	1.62	-0.39	-0.50
32	Rasuwa	5.46	1.95	1.97	-0.33	0.72
33	Dhading	0.3	1.33	1.97	-0.08	-0.30
34	Makawanpur	3.96	2.56	2.22	0.69	0.99

35	Chitwan	3.46	3.11	2.86	2.06	2.07
36	Gorkha	2.6	0.8	1.32	-0.61	-0.74
37	Lamjung	0.85	0.06	1.42	-0.55	-0.70
38	Tanahu	3.46	1.82	1.62	0.25	-0.06
39	Syangja	0.12	0.77	0.78	-0.93	-1.28
40	Kaski	3.77	2.81	2.62	2.57	1.90
41	Manang	-0.57	-2.69	5.81	-3.83	-1.39
42	Mustang	-7.34	1	0.47	-1.08	0.69
43	Myagdi	5.14	0.37	1.29	-0.07	-0.57
44	Parbat	0.79	1.12	0.95	-0.74	-1.09
45	Baglung	2.2	0.77	1.46	-0.01	-0.72
46	Nawalparasi East	7.45	3.45	2.55	1.34	1.86
47	Gulmi	0.45	1.12	1.08	-0.57	-1.23
48	Palpa	0.08	0.97	1.28	-0.28	-0.61
49	Nawalparasi West	7.45	3.45	2.55	1.34	1.47
50	Rupandehi	4.43	3.2	3.05	2.17	2.33
51	Kapilbastu	2.75	3.2	2.6	1.71	1.70
52	Arghakhanchi	1.89	1.4	1.42	-0.53	-1.05
53	Pyuthan	1.38	1.07	1.91	0.71	0.16
54	Rolpa	0.31	0.66	1.56	0.67	0.43
55	Rukum East	3.19	1.61	1.92	1.01	0.63
56	Dang	4.62	2.85	2.66	1.78	1.92
57	Banke	4.91	3.3	3.01	2.42	1.97
58	Bardiya	6.71	3.77	2.76	1.09	0.72
59	Salyan	0.72	1.78	1.61	1.27	-0.16
60	Rukum West	3.19	1.61	1.92	1.01	0.68
61	Surkhet	4.6	3.06	2.45	1.95	1.62
62	Dailekh	0.65	1.18	1.84	1.5	-0.35
63	Jajarkot	1.37	1.38	1.68	2.39	0.96
64	Dolpa	1.43	1.26	1.67	2.17	1.47
65	Jumla	-5.79	0.99	1.63	1.97	0.80
66	Kalikot	21.69	0.13	1.73	2.6	0.57
67	Mugu	5.30	-1.84	1.89	2.3	1.49
68	Humla	-3.74	5.27	1.66	2.25	0.82
69	Bajura	1.96	2	1.67	2.15	0.25
70	Bajhang	1.32	1.15	1.83	1.56	-0.30
71	Accham	3.37	0.68	1.54	1.07	-1.13

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72	Doti	-0.81	0.88	2.14	0.22	-0.32
73	Kailali	6.94	4.83	3.89	2.29	1.48
74	Kanchanpur	8.98	4.23	3.82	1.77	1.25
75	Dadeldhura	-0.86	1.86	1.87	0.88	-0.17
76	Baitadi	3.31	1.14	1.55	0.68	-0.34
77	Darchula	2.70	1.20	1.82	1.19	0.00

Source: CBS. (1987), Singh (1995), Pantha, and Sharma (2003), Pathak and Lamichhane (2014), and NSO (2024).