

Estimation of Internal Migration in Gandaki Province Using Indirect Techniques

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ABSTRACT

This study is to measure the internal migration rate among various territories of Gandaki province of western Nepal. Direct measurement for migration is not systematic and effective for the developing country, hence the indirect method is to be used. The main objective of this study is to measure the internal migration growth rate concerning urban-rural differential, district-wise, ecological belt-wise, and urban area-wise in Gandaki province based on 2001, 2011 census data and the recently published preliminary data of the 2021 census. The tool to measure internal migration is the national growth rate method (NGRM) and improved NGRM using the total population of the region and the specified territory during the intercensal period. The migration rate computed from this method reveals that migration is concentrated to the highly developed district and district of the plain region. Out migrated population from the mountain and hill region make the Tarai region over-populated. Urban areas are overcrowded while rural areas are suffered from extensive out-migration which causes an imbalance distribution of natural and human resources. Among urban municipalities, the in-migrated population creates maximum pressure in Province headquarters followed by Nawalpur on Gandaki province.

Keywords: Growth rate, indirect technique, internal migration, census

INTRODUCTION

Migration is generally defined as a geographical form of population movement that involves a change of usual place of residence. Haas (2010), defined migration as a complex process and declares that a single theory cannot explain and predict all migration events (de Haas, 2010). It is an important demographic process that can transform the size, distribution, and composition of the national population. Migration is an important livelihood strategy for poor groups across the world and not just a response to shocks. It is the principal agent of regional demographic change along with fertility and mortality. Internal migration is associated with the moves from one place to another within a particular country or national boundary

(Suwal, 2014)

Internal migration can lead to the accumulation of household wealth as well as positive changes in both sending and receiving areas, it continues to be viewed as an economically, socially, and politically destabilizing process by policymakers, bureaucrats, academics, and even NGOs. One reason is that migration is an administrative and legislative nightmare: it crosses physical and departmental boundaries. Another reason is that many researchers and NGOs continue to take an old-fashioned position that migration through intermediaries for work in the informal sector cannot be anything but exploitative and impoverishing; they are thereby further perpetuating myths about the causes and effects of migration (K.C., 2003).

Historically, the internal migration in Nepal can be categorized into three waves during different periods. The first wave came during the unification of Nepal by King Prithivi Narayan Shah and his successors till the early eighteenth century. In that period the youth people were engaged in compulsory labor services (known as Jhara labor) imposed by the then rulers. Jhara labor was a kind of forced and generally unpaid labor who were frequently required to leave their villages to provide different services in different parts of the country (Regmi, 1999) (Shrestha, 1990).

The second wave of internal migration emerged in the mid-50s. During that period the government had implemented the state-sponsored resettlement program especially for Hill people to Tarai with the objective of land colonization of Tarai to increase agriculture production. The program continued until the late 80s in Chitwan, Nawalparasi, and Rupandehi district (Shrestha, 1990; Regmi, 1999). The third wave of internal migration emerged with the socio-economic transformation of the country due to the advent of democracy in 1951. After that period the country embarked upon the planned economic development of the country, which required increasing investment in various sectors like an expansion of roads and transport, development of agriculture, health, education, and industrial development. People from less developed areas started to migrate to more developed areas to gain various facilities. The volume of internal migration has increased rapidly after the restoration of democracy in 1991. The rise in internal migration is largely associated with the expansion of employment opportunities in informal sectors (Gartaula & Niehof, 2013). In the context of Nepal, internal migration is considered to be a survival strategy of people in mountains and hills to cope with the hardships of their lives arising from lack of employment, poor infrastructural development, and low agricultural productivity (KC, 2003; Suwal, 2014).

The ultimate goal behind migration whether it is evaluated using any theory or model

is to improve one's present condition. Hence the statement of Ravenstein (1889) in his well-known article 'The Laws of Migration' as "Migration means life and progress" represents the core concept of migration. Various theories differ from one another only in terms of the emphasis they put on various variables they employ. In Nepal, the Tarai is considered to be a frontier land for promising agricultural livelihood opportunities. For hill-to-terai migration, the fertile land, plain topography, easy access, and improved infrastructure are pull factors while the uneven topography, lack of arable land, and the miserable lives in the hills are the push factors (Shrestha et al., 1993). The objective of this paper is to measure the internal migration growth rate concerning urban-rural differential, district wise, ecological belt wise, and urban area wise in Gandaki province. This study also examines the volume and rate of internal migration in Gandaki province.

DATA AND METHODS

The indirect method is used to measure the volume and growth rate of internal migration in Gandaki province of Nepal based on National Population and Housing Census 2001, 2011 and preliminary data of 2021 census conducted by Central Bureau of Statistics (CBS) and the district profile of Nawalpur district. In the absence of a direct estimate of migration from the data gathered from census or surveys, indirect method is used. The national growth rate method (NGRM) is based on the population of the beginning and the end of the intercensal period respectively. It is the indirect method that is applicable to estimate the internal migration of the particular area where the demographic registration system is not perfectly efficient. The data collection system like census and survey for the developing countries like Nepal to estimate the various population parameters are also not efficient and strong. For such conditions, the indirect method like the national growth rate method (NGRM) is more applicable. If P_0 and P_1 represent the total population of Gandaki province at the beginning and end of the intercensal period; and P_{i0} and P_{i1} represent the population of the particular place within the given territory.

The migration rate in the i^{th} territory using NGRM is estimated by using the relation:

$$M_i = \left\{ \left[\frac{P_{i1} - P_{i0}}{P_{i0}} - \frac{P_1 - P_0}{P_0} \right] \right\} \times k \dots\dots\dots(1)$$

Where k is a constant generally used as 100 or 1000.

This technique is based on the assumption that net international migration is zero and the territory, as well as the region, has experienced the same rate of natural increase so that the territory growth rate is greater than the regional growth rate is explained as net in-migration

and the territorial rate less than the regional as net out-migration. NGRM is simple and does not require detailed data except the total population of region and territory of census period for application. The method is unable to separate the effect due to the natural increase of the migrants thus yields overestimate the migration rate than the true migration. To separate the natural increase of the migrants from net migration, MD. Mizanur Rahman in 1993, has suggested the improved model of NGRM estimate the pure migrants in the particular territory by using the relation:

$$M_i = (\ln P_1 - \ln P_0) (P_{i1} - P_{i0} \times \frac{P_1}{P_0}) / (\frac{P_1}{P_0} - 1) \dots\dots\dots(2)$$

Where P_1 and P_0 represent the total population of the region at the later and previous census respectively. P_{i1} and P_{i0} denote the population of the i^{th} geographical territory at the later and previous census respectively.

RESULTS AND DISCUSSION

This study deals to analyze the internal migration among the eleven districts of the Gandaki Province. It also cover the internal migration stream between ecological belts as well as rural-urban movement and urban-urban movement. The indirect measurement tool NGRM has been applied to measure the migration rate. The improved method over NGRM is also used to overcome the limitations of traditional NGRM. The improved method has assumed to provide a more accurate volume of migration which considers the new birth from the migrated people as non-migrants for the migrated region. The internal migration rates across different areas of Gandaki province on reference to the population of the census years 2001, 2011 and preliminary report of 2021 census. The volume of migration is estimated with considering two intercensal periods namely 2001-2011 and 2011-2021 using NGRM and improved NGRM are presented below.

Table 1*Inter-district Migration of Gandaki Province*

District	Population			Annual			Annual		
	2001	2011	2021	NGRM-i1 (2001-011)	Improved NGRM-o1	Improved NGRM-1	NGRM-i2 (2011-021)	Improved NGRM-o2	Improved NGRM-2
Manang	9,587	6,538	5,645	-355.612	-3346.76	-334.676	-168.198	-1082.66	-108.266
Mustang	14,981	13,452	14,596	-139.64	-2053.6	-205.36	53.43094	707.6262	70.76262
Gorkha	288,134	271,061	252,201	-96.8308	-27388.8	-2738.88	-101.191	-27004.2	-2700.42
Lamjung	177,149	167,724	153,480	-90.7809	-15787	-1578.7	-116.537	-19243.5	-1924.35
Tanahu	315,237	323,288	327,620	-12.0376	-3725.14	-372.514	-18.2124	-5796.69	-579.669
Kaski	380,527	492,098	599,504	255.6241	95488.82	9548.882	186.6492	90427.81	9042.781
Syangja	317,320	289,148	254,965	-126.358	-39361	-3936.1	-149.832	-42652.9	-4265.29
Parbat	157,826	146,590	132,703	-108.769	-16852	-1685.2	-126.346	-18234.3	-1823.43
Baglung	268,937	268,613	250,554	-38.7819	-10238.7	-1023.87	-98.8427	-26139.4	-2613.94
Myagdi	114,447	113,641	107,372	-44.6197	-5012.98	-501.298	-86.7771	-9708.78	-970.878
Nawalpur	272,557	311,604	381,105	105.6847	28277.07	2827.707	191.4305	58727.09	5872.709
Total	2,316,702	2,403,757	2,479,745						

Table 1 shows the internal migration situation on various districts of Gandaki province of Nepal in the two intercensal periods 2001-2011 and 2011-2021. The migration rate calculated for the period 2001-2011 using NGRM in different districts reveals that in-migration trends are observed in the districts Kaski and Nawalpur while out-migration trends are observed in Manang, Mustang, Gorkha, Lamjung, Tanahu, Syangja, Myagdi, Parbat, and Baglung district. The number with positive sign indicates the addition of people per thousand to that territory from other places during the period 2001 to 2011. The negative sign indicates the number of out-migrants per thousand from that territory to other places of the region. Similarly, the improved method of measuring NGRM reflects the pure net migration rate per thousand people in a decade and per year indicates that in-migration flow is seen in Kaski and Nawalpur districts while Other districts face out-migration flow from 2001 to 2011. During this period Manang has the largest flow of out-migration (356 per each of thousand) followed by Mustang (140 per thousand) and Syangja (126 per thousand) whereas Kaski and Nawalpur have the largest in-migration flow from other areas of the region with the values of two hundred fifty six and one hundred six per thousand respectively. The improved NGRM value indicates the total migration rate of the districts in the intercensal period and the annual improved NGRM value indicates the total migration rate in particular district for a year. For the first intercensal period 2001-2011, 9549 new people in average added in kaski district and 2828 people added in Nawalpur district annually. Annually 3936 people of Syangja and 2739 people of Gorkha district shifted to other place in that period within the Gandaki province.

For the second intercensal period of 2011-2021, the flow of outmigration trend is

highest in Manang(160 per each thousand) followed by Syangja(150 per thousand) and Parbat districts(126 per thousand). In second intercensal period in-migration flow is maximum in Nawalpur with the value of one hundred ninety one per each thousand followed by Kaski with the value one hundred eighty seven per thousand and Mustang district with the value of fifty three per each thousand. The out-migration volume and in-migration volume are also increased rapidly in almost all districts of Gandaki Province in the second intercensal period as compared to first intercensal period. The improved NGRM and annual NGRM value reveals that annually 9043 new people are added to the population of Kaski in this period that is followed by 5873 immigration to Nawalpur and 71 to Mustang district. Out-migration flow are observed in other districts. The maximum annual out-migration is observed in Syangja(4265 people) followed by Gorkha(2700 people) and Baglung(2614 people) district. The internal migration is fluctuating differently according to ecological regions which are presented in table 2 given below.

Table 2

Internal Migration According to Ecological Belt in Gandaki Province

Ecological belt wise Internal migration in Gandaki province				Annual			Annual		
			NGRM-i1	Improved	Improved	NGRM-i2	Improved	Improved	
Region	Pop.2001	Pop.2011	Pop.2021	(2001-011)	NGRM-o1	NGRM-1	(2011-021)	NGRM-o2	NGRM-2
Mountain	24,568	19,990	20,241	-223.917	-30189	-3018.9	-19.0559	-375.03	-37.503
Hill	2,019,577	2,072,163	2,078,399	-11.539	-15941.2	-1594.12	-28.6028	-58352.1	-5835.21
Tarai	272,557	311,604	381,105	105.6847	102631.1	10263.11	191.4305	58727.09	5872.709
Total	2,316,702	2,403,757	2,479,745						

The Tarai region is a major receiver whereas the mountain and hill region are the sender for migrants. The indirect measure of internal migration NGRM for the intercensal period of 2001-2011 reveals that 106 people per each of thousand are in-migrated to Tarai region while 224 per each of thousand are out-migrated from mountain region and 12 per each of thousand people are out-migrated from hill region of Gandaki Province during the first intercensal period. The improved measure of NGRM indicates that the volume of out-migration in mountain and hill region are 3019 and 1594 per year while volume of in-migration to tarai is 10263 people per year during that period. For the second intercensal period 2011-2021 using NGRM the number of out-migration is maximum in Hill region (29 per thousand) followed by mountain region(19 per thousand) and in-migrated to Tarai region(191 per thousand). The value of improved annual NGRM of three ecological regions for second intercensal period indicate that 5835 people from hill and 38 people from mountain region are out-migrated to other place while 5873 people are added(in-migrated) to terai region annually during the period 2011-

2021. The result exactly supports Gurung's claim, "The lowlands are undergoing significant changes in demographic character, social composition, land use, and economic development" (Gurung, 1989).

The migration in almost all geographical area is dominated by rural to urban migration. People are shifted from rural areas to urban areas to get more facilities. The rate of internal migration of Gandaki Province using indirect method is presented in table 3.

Table 3

Internal Migration According to Place of Residence

Rural urban wise internal migration				Annual			Annual			
	Area	2001	2011	2021	NGRM-i1	Improved	Improved	NGRM-i2	Improved	Improved
Area	2001	2011	2021	2001-2011	NGRM-01	NGRM-1	2011-2021	NGRM-02	NGRM-2	
Rural	1,994,060	1,915,488	850,290	-76.98015	-150689	-15068.9	-587.71	-1108323	-110832	
Urban	322,642	488,269	1,629,455	475.7689	150689.2	15068.92	2305.595	1108323	110832.3	
Total	2,316,702	2,403,757	2,479,745							

Table 3 reveals with the value of NGRM that 77 in each of thousand people are out-migrated from rural areas while 476 in each of thousand people are in-migrated (received) to urban areas for the first intercensal period 2001 to 2011. Improved NGRM value indicates that annually 15,069 people migrated from rural area to urban area in first intercensal period. For the second intercensal period, 2011 to 2021 the value of NGRM indicates that 588 people in each of thousand shifted from rural areas of Gandaki province to other areas and 2306 people are added with each of thousand people of urban areas. The annual rate of improved NGRM value indicates that 110,832 people are migrated from rural area to urban area of Gandaki province in each year for the second intercensal period. The number of out-migration from rural areas in Gandaki province in the intercensal period 2011 to 2021 is more than seven times that of the figure of the first intercensal period. The data indicates that the urban areas of Gandaki province becoming over-crowded while rural areas are suffering from human scarcity.

Gandaki province has one metropolitan, twenty-six urban municipalities, and fifty-eight rural municipalities. The trend of in-migration to urban areas is also not homogeneous. The pattern and volume of in-migration for various urban areas of Gandaki province using the total population of 2001 and 2011 census using national growth rate method (NGRM) are presented in table 4.

Table 4*Internal Migration According to Urban Area in Gandaki Province*

Municipality	Population 2001	Population 2011	NGRM	Improved NGRM	Improved NGRM/year
Gorkha	25783	33865	235.6345	5850.541	585.0541
Byas	28245	43615	466.3393	12684.32	1268.432
Putalibazar	29667	31338	-21.5026	-614.311	-61.4311
Waling	20414	24199	107.5841	2114.95	211.495
Lekhnath	41369	59498	360.3989	14357.61	1435.761
Pokhara	156312	264991	617.4419	92942.01	9294.201
Baglung	20852	30763	397.4743	7981.425	798.1425

Table 4 reveals that almost all urban municipalities (except Putalibazar) welcome in-migrants from other places. Out of the municipalities, the flow of in-migrants is maximum in Pokhara (617 per each thousand) followed by Byas (466 per each thousand) during the intercensal period 2001-2011. Putali-Bazar of Syangja is the only municipality where there is out-migration with the NGRM value of 21.5 per thousand during that period. The improved NGRM value and annual improved NGRM per thousand urban municipalities of the Gandaki province are presented in the fourth and fifth columns of table 4.

CONCLUSION

For the first intercensal period, Kaski from the hill region and Nawalpur from the Tarai region have positive NGRM values indicating the pressure of in-migration in these districts from other areas and remaining districts face with out-migration phenomena. In the second intercensal period, 2011-2021 net in-migration flow concentrated to two districts namely Kaski, Nawalpur whereas the remaining nine districts of Gandaki Province faced with out-migration. Based on the ecological belt only Tarai is the receiver while hill and mountain are the senders of internal migration for the first and second intercensal period. For the first intercensal period the high flow of in-migrants towards the developed urban municipality. For both intercensal periods the massive internal migration flow is from rural to urban areas in the province.

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