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INTERNAL MIGRATION IN NEPAL: NATIONAL GROWTH RATE METHOD AND ITS IMPROVEMENT

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Abstract: The place of birth approach has been used to measure the internal migration since past three censuses in Nepal.The census results indicate that over the past 40 years the volume of internal migration has been increasedmassively. Indirect techniques are recommended by the United Nationsto measure the internal migration for the developing countries like Nepal where there is no efficient data collection system, even if it exists, their performance is so poor.

This study is initiated to evaluate the internal migration by using one of such indirect techniques. The national growth rate method (NGRM) and the improved method over NGRM has been used to estimate the volume of internal migration across different migration defining areas. The migration rates computed in the study reveal that urban areas are the major destination of out-migrants and people are out-migrated from rural areas. Mountain and Hilly areas are not able to hold their population whereasTarai is the region which gain the population. Likewise people from Eastern and Western development region are moving outward while Central, Mid-Western and Far-Western development region receives the population during the study period. Migration volume calculated according to eco-development regions show that people from Mountain and Hilly areas of each development region are moving outward except from Mid-Western and Far-Western development regions. Meanwhile the Tarai of each development region has been receiving the people from Mountain and Hill. The results of the study also exhibit that the migration calculated using improved method over NGRM provide lower number of movers than NGRM due to the exclusion of natural growth of migrated people. The swiftly growing migration trend shows that it is imperative to mitigate the tendency of internal migration from Mountain and Hill areas to Tarai with some amicable solutions in order to sustain the population in these regions.

Key words: Indirect method, Internal migration, National growth rate method (NGRM), Net migration rate

1. Introduction

Migration is defined as a movement of population from a migration defining area to another during a given interval of time that involves a change of usual place of residence. Internal migration is associated with the moves from one place to another within a particular country or national boundary. Migration is one of such important demographic component that may change the population's composition with respect to age, sex, race, ethnicity, religion, income, education and other socio-economic characteristics. The study of migration of population is the subject of interest to the researchers of human affairs because it has direct effects upon the distribution of population and its interaction with other demographic forces along with other aspects of social and economic change and differentiation [3].

The review of internal migration of Nepal shows that it has experienced three different waves of internal migration during the various point of time. The first wave of internal migration was taken under the compulsory labor services imposed by the rulers during the unification of Nepal by king Prithivi Narayan Shah and his successors until the early eighteenth century. During that period youths were used for multiple purposes like construction of temples, palaces, bridges, transport of military and other suppliers etc. Such mandatory labor services compelled people to migrate from their usual place of residence to another part of the country.

During the mid-50's government had implemented the state sponsored resettlement program especially for Hill people to Tarai with the objectives of land colonization of Tarai and to increase the agriculture production. This resettlement program continued until the late 80s. Under this program significant number of households from Hilly region migrated to the Tarai districts. This activity created the second wave of internal migration.

Likewise the third wave internal migration emerged with the advent of democracy in 1951. After that period the country move onwards with the planned socio-economic development. However due to the paucity of resources the country witnessed the unequal distribution of investment in the various sectors of economy such as expansion of roads and transport, development of agriculture, education, health and sanitation, industrial development etc. Such disparity in development plans forced the rural people to migrate in urban areas for the search of better education, health facility, and economic opportunities etc. It has been observed that the internal migration in Nepal mainly from Mountain and Hill to urban and Tarai region is the only alternative of the people living in these areas due to the lack of employment, infrastructure for self-development, poor health and education facility, low agriculture production etc. [1].

Nepal has a long history of conducting census and it has celebrated hundred years of its journey in the year 2011. However the census conducted only after 1961 onwards consists the migration data. For the purpose of measurement of internal migration a common approach used in the previous three censuses (1991, 2001 and 2011) was the place of birth. The later censuses conducted in 2001 and 2011 consists the multiple

approaches and they are place of birth, duration of residence and residence at fixed prior date.

In addition to direct estimate of migration from census data there are various indirect techniques to measure the internal migration. The key strength of indirect techniques is that they do not require any specialized data. Among the different indirect methods used to measure migration, national growth rate is one of them. This method is more suggested by the researcher if detailed data is not available. It require minimum and simple data. The data on total population is sufficient to measure the internal migration using this method. Although this is a user friendly method, it is not free from the criticism. This method fails to separate the pure migration from the natural increase of migrated people. To overcome such limitation of this method an improvement on this method has been suggested by MD. Mizanur Rahman. The method developed over the correction on NGRM is supposed to segregate the pure migration from the natural increase of migrated people [2].

1.1 Objectives of the Study

The general objective of this study is to measure the internal migration in Nepal based on 2011 census data using indirect method. The specific objectives of the study is to examine the trends and volume of internal migration in Nepal by ecological belts, development regions, eco-development regions and rural-urban residence.

2. Literature Review

For the purpose of measurement of internal migration the major source of information are the censuses, sample surveys and population registers. Censuses are only the best alternative for such countries to examine the trend and pattern of internal migration who are not capable to establish the efficient system of population registration. The common questions asked in the censuses to access the information on internal migration are about place of birth, place of last residence, duration of residence and place of residence on a specific date before the census.

Regardless the direct questions asked in censuses about the migration there are alternative ways to estimate the intercensal migration on the basis of census counts of the population. Such information is easily available from the censuses or from other population surveys. The increment of population between any two points of time for any geographical area is attributed due to the result of natural increase and migration. If we are concern on population growth for a closed country, then the net migratory movement for a given geographic area is due to the result internal migration [3].

In the demographic studies indirect methods have prominent role if the data collected from the censuses and surveys are inaccurate and insufficient. In absence of direct estimate of migration from the data gathered from censuses or surveys indirect methods are used. The indirect methods do not require any specialized data. The NGRM is one of the commonly used method to estimate internal migration. Rahman (1987) used NGRM and in tandem suggested an improvement over the same method.

He has applied NGRM and his improved method over the NGRM simultaneously to measure the internal migration in four distinct places of Bangladesh using the census population in the years 1961, 1974 and 1981. The estimated values of migration rates shows that the NGRM provide over estimate of the true migration rate as compared to the migration rate estimated using improved model over NGRM. It was inferred that this result happens because the NGRM fails to segregate an effect due to natural increase of the migrants in the process of estimation of the migration rate.

3. Materials and Methods

3.1 Data Source

The indirect methods used in this study to analyze the internal migration across different migration defining areas in Nepal requires the population of ith geographical subdivision and total population of country at intercensal period.

The data for ith geographical subdivision and for the whole country were taken from the population census 2011 conducted by central bureau of statistics (CBS).

3.2 Indirect Techniques and National Growth Rate Method

The demographic estimation of population parameter is more efficient if the data collection system like census or surveys or vital registration are strengthen with the periodic counts of the population. If the data generated from such surveys or registrations are perfect, then it would be possible to estimate the demographic parameters directly from reported data. In such condition the indirect estimation does not required. But in many countries till the date they do not have efficient data collection system or if they have, their performance is so poor. Hence the demographic estimates made directly from such data consists severe flaw. The main deficiency in the vital registration is failure to record all vital events where as the data collected from the census mainly suffers from two types of errors; one is failure to enumerate all the members of relevant population and the next is poor age-reporting [4].

To overcome such shortcomings remaining in the reported data, indirect techniques are developed for demographic estimation. For the study of movement of people from their usual place of residence, there are various indirect techniques. NGRM is one of such indirect method. This is a crude method to measure the internal migration. By this method the migration rate for an area i is estimated from the following relation.

$$m_i = \left\{ \left[\frac{({P_i}^1 - {P_i}^0)}{{P_i}^0} \right] - \left[\frac{(P^1 - P^0)}{P^0} \right] \right\} * k \qquad \ldots\ldots\ldots\ldots\ldots \quad (1)$$

Where ${P_i}^1$ and ${P_i}^0$ represents the populations of the ith geographical subdivisions at the later and previous census respectively. P^1andP^0 represents the national population at the later and previous census, k is a constant which can be taken to be 100 or 1000. This method has some underlying assumptions. The net international migration is assume to be zero and a geographical subdivision is assumed to have experienced the same rate of natural increase as the whole nation.

Although the NGRM is simple, commonly used and does not require detailed data for application, the estimated migration rate obtained by this method is found to be over estimate of true migration rate. This method lacks to separate the effect due to natural increase of the migrants while estimating the migration rate. In other word this method include both the migrants and the natural increase of the migrated people to measure the net migration. This inclusion of natural increase of the migrated people with the migrants for the measurement of net migration yields the estimate over estimate than true migration rate.

In order to segregate the component of natural increase of the migrants from net migration an improvement over NGRM has been suggested by MD. Mizanur Rahman in 1993. The improved model well estimate the net migration by excluding the natural increase of the migrated people from pure migration. This model to estimate the number of person who actually migrated into the geographical subdivision is given below.

$$M_0 = (lnP^1 - lnP^0)\left(P_i{}^1 - \frac{P_i{}^0 P^1}{P^0}\right) / \left(\frac{P^1}{P^0} - 1\right) \ldots\ldots\ldots\ldots\ldots\ldots \quad (2)$$

Where $P_i{}^1$ and $P_i{}^0$ denote the population of the ith geographical subdivisions at the later and previous census respectively. P^1andP^0 represents the national population at the later and previous census respectively.

4. Results and Discussion

In this study attempts has been made to analyze the internal migration in Nepal across various migration streams like rural-urban area, development regions, ecological belts, and eco-development regions. The NGRM has been applied to measure the migration rate. Further to overcome the limitation of NGRM, an improved method over NGRM is also used. The improved method is assume to provide more accurate estimate of migration volume than NGRM because it consider the number of new birth from migrated people as non-migrants for the migrated area. The result obtained from this study might be helpful for the assessment of internal migration. It will also reveal the significance of how indirect methods could be applied to measure internal migration.

The migration rates across different migration defining areas are computed by using equation (1) for NGRM and by equation (2) for the improved method over NGRM as presented below.

Table 1: Migration rates according to rural-urban areas

Area	Population		Migration rate by NGRM per 1000 during 2001-2011 (m_i) (3)	Pure migration by improved method in thousand during 2001-2011 (M_o) (4)	Migration rate by improved method in thousand per year (5)
	2001 (1)	2011 (2)			
Rural	19,923,544	21,970,684	-41.65	-775.126	-77.512
Urban	3,227,897	4,523,820	257.08	775.107	77.510

The migration rate calculated in column (3) in Table 1 for the intercensal period 2001-2011 using NGRM in rural and urban areas of Nepal reveals that the net migration rate for rural areas is -41.56 and for urban areas is 257.08. This result shows that the net migration rate for rural and urban areas of Nepal is 41.65 and 257.08 per 1000 people during 2001-2011. This means that for every 1000 people residing in rural and urban areas at the beginning of the period 41.65 will have out migrated from rural areas and 257.08 in-migrated to urban areas by the end of the period per 1000 people.

Likewise, the value calculated in column (5) in Table 1 using improved method over NGRM indicates that during the period 2001-2011, the migration rate for rural Nepal is -77.512 thousand people per year. This is the number of out-migrated people. While for the urban areas the migration rate is 77.510 thousand per year. This figure is in-migrated people during the period. Obviously, the migration rate calculated from the improved method shows the lower figures than that obtained from NGRM.

Table 2: Migration rates according to ecological belts

Area	Population		Migration rate by NGRM per 1000 during 2001-2011 (m_i) (3)	Pure migration by improved method in thousand during 2001-2011 (M_o) (4)	Migration rate by improved method in thousand per year (5)
	2001 (1)	2011 (2)			
Mountain	16,878,59	17,817,92	-88.75	-139.919	-13.991
Hill	10,251,111	11,394,007	-32.91	-315.130	-31.513
Tarai	11,212,453	13,318,705	43.45	455.049	45.504

Table 2 shows the migration rates across ecological belts of Nepal viz. Mountain, Hill and Tarai. The migration rates calculated in column (3) by using NGRM presents that the out-migration rate is high in Mountain than in Hill. In Mountain for every 1000 people at the beginning of the period 88.75 will have out-migrated by the end of the period 2001-2011. Similarly the migration rate for Hill is -32.91. The Tarai region experienced the migration rate 43.45. That is for every 1000 people 43.45 people in-migrated to Tarai during 2001-2011.

Whereas the migration volume calculated in column (5) as shown inTable 2 using improved model over NGRM shows that 13.991 and 31.513 thousand people out-migrated per year during 2001-2011 from Mountain and Hill respectively. While 45.504 thousand people per year in-migrated in Tarai region during the same period.

Table 3: Migration rates according to development regions

Area	Population		Migration rate by NGRM per 1000 during 2001-2011 (m_i) (3)	Pure migration by improved method in thousand during 2001-2011 (M_o) (4)	Migration rate by improved method in thousand per year (5)
	2001 (1)	2011 (2)			
Eastern Dev. Reg.	5,344,476	5,811,555	-57.01	-284.582	-28.458
Central Dev. Reg.	8,031,629	9,656,985	57.97	434.890	43.489
Western Dev. Reg.	4,571,013	4,926,765	-66.57	-284.244	-28.424
Mid-western Dev. Reg.	3,012,975	3,546,682	32.74	92.129	9.212
Far-western Dev.Reg.	2,191,330	2,552,517	20.42	41.806	4.180

Development regions are the major administrative division in Nepal. There are five such development regions. Table 3 illustrates that the net out-migration rate is highest for Western development region (-66.57) followed by Eastern development region (-57.01) according to NGRM. This result shows that for every 1000 people in Western and Eastern development regions at the beginning of the period 66.57 and 57.01 people will have out-migrated from these regions by the end of the period. Also for every 1000 people in Central, Mid-western & Far-western development region receives 57.97, 32.74 and 20.42 people during the period 2001-2011. Being the capital city Kathmandu at Central development region, it has highest in-migration rate.

Similarly the migration ratecalculated using improved model in column (5) shows that the Western and Eastern development region has out migration rate 28.424 and 28.458 thousands per year respectively. While during the same period, the in-migration rates for Central, Mid-western & Far-western development region is observed to be 43.489, 9.212 and 4.180 thousand per year respectively.

Table 4: Migration rates according to eco-development regions

Area	Population		Migration rate by NGRM per 1000 during 2001-2011 (m_i) (3)	Pure migration by improved method in thousand during 2001-2011 (M_o) (4)	Migration rate by improved method in thousand per year (5)
	2001 (1)	2011 (2)			
Eastern Mountain	401587	392089	-168.05	-63.038	-6.303
Eastern Hill	1643246	1601347	-169.90	-260.779	-26.077
Eastern Tarai	3299643	3818119	12.73	39.236	3.923
Central Mountain	554817	517655	-211.38	-109.546	-10.954
Central Hill	3542732	4431813	106.56	352.620	35.262
Central Tarai	3934080	4707517	52.20	191.815	19.181
Western Mountain	24568	19990	-330.74	-7.589	-0.758
Western Hill	2793180	2811135	-137.97	-359.975	-35.997
Western Tarai	1753265	2095460	50.88	83.321	8.332
Mid-western Mountain	309084	388713	113.23	32.689	3.268
Mid-western Hill	1473022	1687497	1.20	1.652	0.165
Mid –western Tarai	1230869	1470472	50.26	57.686	5.768

Far-western Mountain	397803	463345	20.36	7.565	0.756
Far-western Hill	798931	862215	-65.19	-48.648	-4.864
Far-western Tarai	994596	1226957	89.22	82.890	8.289

Table 4 shows that the net migration rates for Mountain in Eastern, Central, Western, Mid-western & Far-western development region is calculated as -168.05, -211.38, -330.74, 113.23 and 20.36 respectively. Similarly for Hilly region the net migration rates are -169.90, 106.56, -137.97, 1.20 and -65.19 for Eastern, Central, Western, Mid-western & Far-western development regions respectively. But in case of Tarai region of each development region shows in-migration. For every 1000 people in the Tarai region of Eastern, Central, Western, Mid-western & Far-western development regions 12.73, 52.20, 50.88, 50.26 & 89.22 people in-migrated by the end of the period 2001-2011.

In the similar manner during the period 2001-2011, the migration rates for 15 different eco-development regions using improved model over NGRM is shown in the 5th column of the table 4. It displays that the migration rates in thousand per year. The migration rate calculated for Mid-western mountain region might be different due to the inappropriate recording of population count in the census 2001. The problem occurred during the data collection period has mentioned in the population monograph of Nepal published by CBS.

5. Conclusion

Internal migration is the movement of people within national boundaries. This study exhibits that the internal migration in Nepal occurs from Mountain and Hill to Tarai and from rural to urban areas. The calculation of internal migration using NGRM shows that per 1000 people from rural areas 41.65 people are out-migrated and 257.08 people are in-migrated to urban areas during 2001-2010. The improved method over NGRM also indicates that during the same period the net out-migration and in-migration rates for rural and urban area is 77.512 and 77.51 thousand per year respectively.

On the basis of ecological belts, high proportion of people are migrated from Mountain and Hill to Tarai. According to NGRM for every 1000 people 88.75 and 32.91 people are out-migrated from Mountain and Hill to Tarai whereas for every 1000 people 43.45 people in-migrated to Tarai. The migration rates computed using improved method over NGRM shows different figures. It shows that 13.991 and 31.513 thousand people out-migrated per year respectively from Mountain and Hill respectively while 45.504 thousand people per year in-migrated to Tarai during 2001-2011. The migration volume calculated across different development regions displays that Eastern and Western development region lose their population whereas rest of the development regions Central, Mid-western and Far-western development region gains the population. According to improved method over NGRM the out-migration rates for Eastern and Western development region is almost same as 28.458 and 28.489 thousand per year respectively. The in-migration rate of Central development region is highest among the population receiver development regions. It has in-migration rate 43.489 thousand per

year during 2001-2011. It happened due to the capital city Kathmandu and being the center of economic, education, health and other activities in this region.

The eco-development regions are another migration defining areas. The results of the study helps to conclude that the people from almost all Mountain and Hilly area of each development regions are out-migrated in a significant number. The Tarai of all development region is the major destination of these people. This region has high in-migration rate during the study period.

The previous study conducted regarding internal migration of Nepal at different period shows almost similar results about reasons behind migration and migration streams. The major reasons behind internal migration are mainly due to the regional disparities in the distribution of resources, lack of opportunities for self-development, services, poverty, unemployment, difficult livelihoods, food scarcity of households etc. This study with the aim of observing the status and streams of internal migration using indirect techniques conclude that significant number of people are migrated from rural to urban, Mountain and Hill to Tarai. People are also migrated from one development region to another for their own needs and desires. This study also obtained the volume of internal migration in different migration defining area by excluding the natural increase of migrated people using improved method over NGRM. These results are assumed to be more appropriate than obtained from NGRM.

6. References

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