Bhutan Insights Journal
https://bhutaninsights.com/

RESEARCH ARTICLE

OPEN ACCESS

Drivers, Trajectories and Policy Implications of Rural-Urban Migration in Bhutan

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ABSTRACT

Globally, there has been an increase in urbanisation, which is primarily caused by the rising trend of rural-urban migration. One such country is Bhutan, where 38% of its population migrated from rural to urban areas between the period 2005 to 2017. Based on data from Bhutan's second population and housing census conducted in 2017, this study determines that a majority of the migrants are educated and belong to the productive age group (19-30 years). A macro/district level analysis of socio-economic variables such as income, economic activity, education, health, agriculture and infrastructure reveals that, except for the difference in the length of roads (that is, an increase in the road length was associated with reduced migration), none of the other socio-economic variables were statistically significant. The findings of this study provide insight into the characteristics and the underlying drivers of internal migration in Bhutan.

Keywords: *rural-urban migration, urbanisation, rural development, Bhutan*

INTRODUCTION

Urbanisation is increasing at a rapid pace across the world, primarily, caused due to internal migration. The number of internal migrants worldwide in 2015 was 740 million, and by 2050, it is projected that two in every three persons will live in urban areas (IOM, 2021). An increase in urbanisation or the urban share of the total population can be explained by natural growth, reclassification of areas from rural to urban and rural-urban migration. Of these numerous factors, the rural-urban migration explanation has been identified as the most important contributor to urban growth in many developing countries (Buhaug & Urdal, 2013). Determining the factors that influence the scale, direction, and demographic characteristics of internal migration is fundamental to an understanding of the urbanisation process. Historically, in Bhutan, the practice of subsistence farming was the dominant form of economic activity for its people. With rapid economic development, there has been a shift from the traditional agricultural sector to the industrial and services sector (Kamei, et al., 2021). Therefore, people leave their villages to pursue economic opportunities in the urban areas. The government, through its policy of Gross National Happiness, strives to balance economic with other developmental goals, which include a focus on improving community vitality and balanced living standards across the country (Ura et al., 2012; Thinley, 2017; Thinley & Hartz-Karp, 2019; Ugyel et al., 2023). Nevertheless, rural to urban migration continues to feature as a prominent problem in Bhutan, with the numbers increasing over the years (Gosai & Sulewski, 2020).

Our study seeks to understand the process and implications of rural to urban migration in Bhutan and focuses on two major interrelated components. The first part examines the characteristics and trends of internal migration in Bhutan. In the second part, we analyse the factors that influence rural-urban migration in Bhutan. Currently, more than half (62%) of Bhutan's population lives in rural areas (NSB, 2017). In our study that compares the years 2005 and 2017, we determined that Bhutan has a high rate of internal migration at 38.6%. We also observe that most migrants (that is, 33.8% of the total migrants) belonged to the age group 19-30 years and had a qualification of a high school degree. The combination of a high internal migration rate of a productive and skilled cohort of migrants has major demographic and policy implications for Bhutan. This paper analyses the socio-economic factors that influence internal migration, such as income, economic activity, education, health, agriculture and infrastructure (particularly roads). Although there are some studies that examine patterns and trends of rural

to urban migration in Bhutan (for e.g., Chophel, 2020; Gosai & Sulewski, 2014), there is a paucity of information examining the drivers that influence internal migration in the country. Given the increasing trend of rural to urban migration in Bhutan, we seek to determine if it is sensible for the government to continue the pursuit of its policy of ensuring "balanced regional development" within the country. Or if it might be better off pursuing targeted policy interventions that best suit its demographic and economic contexts.

Bhutan is still a small lower-middle-income country with a GDP per capita income of just US$3,839 in 2023 (World Bank, 2025). Bhutan is administratively divided into 20 *dzongkhags* (districts) (refer to Figure 1) and 205 *gewogs* (sub-districts) with an area of 38,394 square kilometres. As of 2019, there were 756,129 people with a sex ratio of 110 males to 100 females. The overall life expectancy is 70.3 years with a median age of 26.5 years, and more than half (62%) of the population lives in rural areas (NSB, 2017). With increasing trends of internal migration constrained by finite human and financial resources, the Bhutanese government needs to ensure that its investments are optimally utilised. Therefore, an understanding of the dynamics of rural to urban migration in Bhutan and the factors that lead to internal migration is important. The findings of this study will be important for other similar developing countries that are also facing a trend of high internal migration rates. As the world has entered "the age of migration", the number of migrants reached 1 billion in 2015, including 740 million internal migrants worldwide (IOM, 2021). With rapid economic development, internal migration has increased significantly globally. The increase is visible within Bhutan's neighbourhood. There were 42 million economic internal migrants in India in 2011 (Rajan & Bhagat, 2021), 2.4 million internal migrants in Nepal during the same period (Suwal, 2014), and China reported 245 million internal migrants in 2017 (Shi et al., 2020).

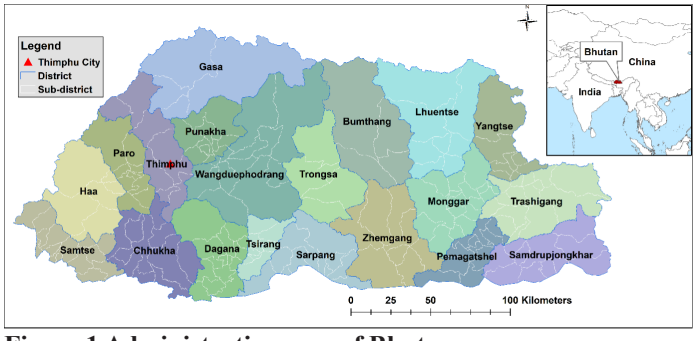

Figure 1 Administrative map of Bhutan

Nature and Characteristics of Internal Migration

Rural and urban populations are often defined by 'residence in settlements above or below a certain size', and the principal activities of the rural population is agriculture and urban population engage in industrial and service activities (Tacoli, 1998: 147). There are differences in how countries interpret rural and urban areas depending on the settlement boundaries, population movement and economic activities. The definitions also differ based on the stage of development and urbanization of countries. A "rural" area can have multiple interpretations ranging from: peripheral villages that are located outside of the influence of the metropolitan region to intermediate rural regions surrounding the metropolitan regions that are closely integrated with each other (Li et al., 2019). Internal migration can be understood as the movement of population from rural to urban areas. In the context of study and in relation to Bhutan, "internal migration" will be defined as people residing in districts other than their birth district for ≥6 months. It will be important here to clarify that in Bhutan although people may be born or residing in one particular district, their civil and census registration is often registered in the district of their ancestral origin. Based on this clarification, we calculate the net internal migration in Bhutan by subtracting those living in the residence district from the district of birth.

Rural-urban migration can be explained through two approaches, the structuralist and neo-classical approaches. According to Tacoli (1998), the structuralist approach to migration portrays migrants as 'victims rather than rational decision makers' and movements are determined by social, historical and dialectic processes. In such circumstances, rural to urban migration can be seen as survival strategies due to civil conflicts and impacts of climate change (such as, drought, soil quality deterioration and deforestation) (Barrios et al. 2006). The structuralist approach differs from the neo-classical perspective where decisions are made rationally in response to certain "push" factors in source areas to perceived "pull" factors in the destination areas. In such instances, individuals act 'rationally' to choose to migrate because of the gaps in economic and other opportunities that urban areas provide compared to the rural areas (Tacoli, 1998). In our study, we take a neo-classical approach to rural-urban migration, and examine the demand pull and supply push factors in Bhutan. It is generally assumed that modern sectors of production which are located in urban areas have higher rates of productivity and monetary rewards than rural agricultural areas (Barrios et al. 2006).

The key factor that rural-urban migration responds to are economic incentives and better economic opportunities in the cities are a major pull factor for internal migration (Brueckner & Lall, 2015). Supply push factors of internal migration point to factors other than productivity improvements that influence population movements to cities. Some of the common supply push factors are due to: increase in population pressure in the rural areas (Buhaug & Urdal, 2013); displacement of population due to civil conflicts (Barrios et al. 2016); and climate change (Brueckner & Lall, 2015). Such forms of supply push factors lead to deterioration of livelihoods and scarcity of resources, such as freshwater and cropland, in the rural areas. One of the most obvious reasons for migration from rural to urban areas is for economic reasons. As wage rates in the urban areas increase relative to the rural areas, people will move to the urban areas in search for better economic opportunities. These better economic opportunities are a result of location of people and firms in cities and industrial clusters and are a major pull factor that provides the main motivation for internal migration (Brueckner & Lall, 2015). Economic factors, such as, market access, cost of communication, job opportunities, better education and health care, social services and infrastructure act as major pull factors of rural populace into the cities and urban centres (Buhaug & Urdal, 2013). Furthermore, changes in the economy with the applications of new knowledge-intense technologies has altered the rural development space, and such forms of capital-intense technology have replaced the need of local labour force (Li et al., 2019). On the other hand, some of the economic push factors are friction in land markets as a lack of land titling and weak property rights, personal insecurity, poverty and declines in agriculture (Buhaug & Urdal, 2013; Brueckner & Lall, 2015; Lagakos, 2020). An interesting dynamic as a result of rural-urban migration is the crucial role that gender and generation plays. It is commonly assumed that the number of men migrate more than women, and as a result women take over traditionally male tasks in agricultural production increasing their workload (Brauw et al., 2021).

METHODS

This study uses the second Population and Housing Census of Bhutan (PHCB 2017) provided by the National Statistical Bureau (NSB) of Bhutan. PHCB 2017 was conducted throughout the country in June 2017 by following the international statistical standard procedures and practices. During the census enumeration, many government officials were involved to support and achieve the enumeration within the stipulated reference period. NSB, upon the completion of census enumeration, conducted post census activities such as data entry, editing, processing, tabulation, analysis and evaluation of data for several months. The census results were disseminated through publication of an official report. A series of many other auxiliary publications based on the results of main census were made available both through hard and electronic media for wider use by planners, policy makers, international organizations and researchers (including data for this study). From a total population of 735,553 in 2017, 92.7% (681,720) were Bhutanese and 7.3% (53,833) were other nationals living in the country. The district of birth was missing for 2,012 people which was removed from the analysis leaving a total of 679,708 individual records. The outcome of interest was rural-urban migration is defined as people residing in districts other than their birth district for ≥6 months. The district of birth is hence described as the origin district. We calculated net internal migration by subtracting those living in the residence district from the district of birth. All socio-demographic variables including age, sex, marital status, education, and district of origin were entered in the full model. Multivariable logistic regression was undertaken and adjusted odds ratios (AOR) with 95% CI were used to determine the correlates of each independent variable. A value of $p \leq 0.05$ was considered statistically significant for the multivariable model. All explanatory variables in the multivariable model were tested for multicollinearity using a variance inflation factor (VIF). VIF <10 was considered a good fit for regression analysis.

We examined a number of area level socio-economic variables to anlayse the factors that influence rural urban migration in Bhutan. To make consistent comparisons, we sought information from the statistical yearbook released by NSB each year. Except for those factors specifically mentioned below, all data were based on the Statistical Yearbook 2005 (SYB, 2005) and Statistical Yearbook 2017 (SYB, 2017): for health, we compared the number of health facilities (for e.g., number of hospitals, basic health units), family planning (for e.g., items such as vasectomy, condoms distributed); for education, we compared the number of education facilities; for agriculture, we examined the area of land holding; for economic activity, we compared the number of firms (both by type and by size of firms); and for roads, we compared the length of roads (in this case we had to use data from SYB 2020 as there was no district level data in SYB, 2017; SYB, 2018; and SYB, 2019). For the variables on finance and poverty, we had to use different sources of information. Based on the government' five-year plan document (9th Five-Year Plan (2002-2007) and 11th Five-Year Plan (2013-2018), we compared the five-year plan outlay for each district (only capital expenditure outlay was considered as the current expenditure outlay was not possible to

calculate). To compare the poverty rates, the poverty gap index for the years 2007 and 2017 from the Poverty Analysis Report for those years published by NSB were used. While all efforts were made to have similar data for the years 2005 and 2017 (that is, the years when the two population censuses were conducted) data was always not available. In such instances, we used the closest year that similar data was available. For instance, for poverty gap index we used the years 2007 and 2017 data, for firm type and size data we used 2003 and 2017 data, for length of roads and educational facilities we used 2005 and 2020 data, for number of health facilities we used 2004 and 2016 data, for landholdings we used the 1995 and 2010 data and for the capital expenditure outlay we used the 9th Five-Year Plan (2002-07) and 11th Five-Year Plan (2013-18) data. The area level drivers of rural urban migration were assessed using a linear regression. All analysis were conducted in STATA Version 16.1 (Stata Corporation, Stata Statistical Software). The study map was created with ArcMap 10.5.1 (ESRI, Redlands, CA).

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RESULT

The findings from our study reveal that 262,641 people (38.6% of the population) migrated during the period 2005 - 2017. There were nearly an equal number of males (51.4%, 135,059) and females (48.6%, 127,582) migrants (n=262,641). Most migrants belonged to the 19-30 years age group category (33.8%, 88,703), followed by the 0-18 years age group (22.6%, 59,287) category. Persons in the 41-50 years age group migrated the least (10.8%, 28,304). Fifty-three percent (139,627) of the migrants were married or living together, and 42.0% (110,277) were single. More than one-third (86,403) of the migrants had an education up to higher secondary. Twenty percent (53,210) and 28.5% (74,943) were educated up to primary school and no formal education,

Table 1 Descriptive table of total and migrated population

Variables		Total (N= 679,708)		Migrated (n=262,641)	
		Frequency	Percent	Frequency	Percent
Sex					
	Female	338,861	49.9	127,582	48.6
	Male	340,847	50.1	135,059	51.4
Age					
	0-18	240,999	35.5	59,287	22.6
	19-30	161,698	23.8	88,703	33.8
	31-40	104,666	15.4	53,990	20.6
	41-50	66,817	9.8	28,304	10.8
	51-112	105,528	15.5	32,357	12.3
Marital status					
	Single	337,572	49.7	110,277	42.0
	Married/living together	310,228	45.7	139,627	53.2
	Divorced/separated	16,638	2.5	7,432	2.8
	Widow/er	15,135	2.2	5,197	2.0
Education					
	No education	270,822	39.8	74,943	28.5
	Primary	163,838	24.1	53,210	20.3
	Up to higher secondary	164,222	24.2	86,403	32.9
	VTI	3,759	0.6	2,992	1.1
	Diploma	8,426	1.2	6,545	2.5
	Bachelor and higher	46,478	6.8	31,744	12.1
	Others	22,163	3.3	6,804	2.6

respectively (refer to Table 1).

The destination of most migrants was Thimphu (30.2%, 79,313), Chhukha (10.6%, 27,758), Paro (8.2%, 21,574) and Sarpang (7.9%, 20,723), respectively. The origin of most migrants was Trashigang (12.1%, 31,869), Thimphu (7.8%, 20,463), Monggar (7.5%, 19,778) and Samtse (7.1%, 18,645) (refer to Figure 1 which shows the administrative map of Bhutan and Figure 2 which shows the proportion of origin and destination of migrants by districts in Bhutan).

The main drivers of migration were: family reasons (37.2%, 125,089), education (17.5%, 58,656), employment (18.0%,

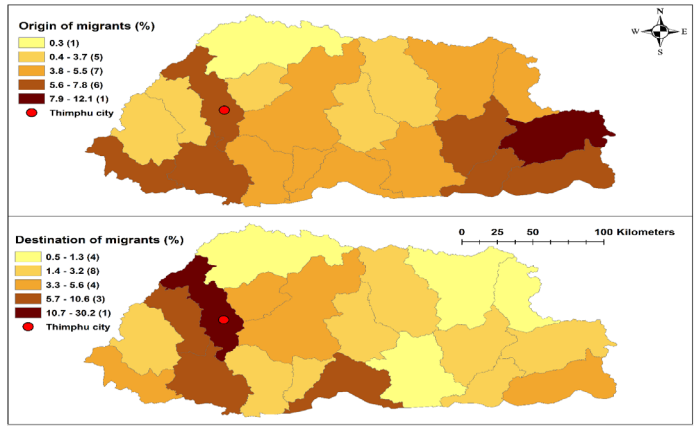

Figure 2 Proportion of origin and destination of migrants by districts in Bhutan

Table 2 Migration reasons by age group

Reason for migration	Age groups (years)				
	0-18	**19-30**	**31-40**	**50**	**51-112**
Never moved	139,246 (45.3)	46256 (15.0)	34,200 (11.1)	28777 (9.4)	59,208 (19.2)
Employment	888 (0.3)	30,077 (9.8)	17,274 (5.6)	7,187 (2.3)	4,675 (1.5)
Education	33,480 (10.9)	21,280 (6.9)	2,485 (0.8)	739 (0.2)	519 (0.2)
Training	369 (0.1)	3,740 (1.2)	378 (0.1)	103 (0.0)	57 (0.0)
Marriage	226 (0.1)	11,555 (3.8)	9,451 (3.1)	4,969 (1.6)	5,549 (1.8)
Family reasons	59,429 (19.3)	26,316 (8.6)	16,117 (5.2)	9,090 (3.0)	13,708 (4.5)
Transfer of workplace	329 (0.1)	7,758 (2.5)	13,699 (4.5)	8,184 (2.7)	3,932 (1.3)
Resettlement	346 (0.1)	1,400 (0.5)	1,917 (0.6)	2,035 (0.7)	5,600 (1.8)
Natural Calamities	47 (0.0)	99 (0.0)	94 (0.0)	91 (0.0)	216 (0.1)
Security	40 (0.0)	160 (0.1)	172 (0.1)	123 (0.0)	194 (0.1)
Health	408 (0.1)	828 (0.3)	559 (0.2)	446 (0.1)	1,857 (0.6)
Business/official tour	73 (0.0)	2,098 (0.7)	2,332 (0.8)	1318 (0.4)	1,027 (0.3)
Retirement	20 (0.0)	273 (0.1)	550 (0.2)	685 (0.2)	3,062 (1.0)
Tourist	3 (0.0)	29 (0.0)	20 (0.0)	7 (0.0)	14 (0.0)
Visiting only	3,179 (1.0)	4,971 (1.6)	2,210 (0.7)	1179 (0.4)	2,597 (0.8)
Other	636 (0.2)	2193 (0.7)	1,494 (0.5)	865 (0.3)	15,92 (0.5)
Don't know	171 (0.1)	337 (0.1)	214 (0.1)	132 (0.0)	315 (0.1)

60,369), transferred for work (10.1%, 33,980), and marriage (9.5%, 32,069) (refer to Table 2).

Table 3 shows the multivariable logistic regression of migration with the socio-demographic drivers. In this table, males were 1% (adjusted odds ratio [AOR]= 1.01, 95% confidence interval [CI] 0.997, 1.018) more likely to migrate compared to females but was not statistically significant. People in the age groups of 19-30 years (AOR=2.29, 95% CI 2.251, 2.333), 31-40 years (AOR=2.47, 95% CI 2.414, 2.529), 41-50 years (AOR=2.09,

Table 3 Multivariable logistic regression of migration with the socio-demographic drivers

Variables	Adjusted multivariable logistic regression		
	AOR	95%CI	p-value
Sex			
Female	Ref		
Male	1.01	0.997, 1.018	0.186
Age groups (years)			
0-18	Ref		
19-30	2.29	2.251, 2.333	<0.001
31-40	2.47	2.414, 2.529	<0.001
41-50	2.09	2.032, 2.139	<0.001
51-112	1.50	1.461, 1.537	<0.001
Marital status			
Single	Ref		
Married/living together	1.27	1.246, 1.292	<0.001
Divorced/separated	1.25	1.207, 1.298	<0.001
Widow/er	1.48	1.426, 1.546	<0.001
Education			
No education	Ref		
Primary	1.88	1.848, 1.906	<0.001
Up to higher secondary	3.38	3.333, 3.437	<0.001
VTI	7.95	7.333, 8.625	<0.001
Diploma	7.61	7.218, 8.029	<0.001
Bachelor and higher	5.01	4.894, 5.132	<0.001
Others	1.09	1.057, 1.125	<0.001
Districts			
Thimphu	Ref		
Bumthang	1.37	1.317, 1.424	<0.001
Chhukha	1.24	1.208, 1.275	<0.001
Dagana	1.80	1.742, 1.851	<0.001
Gasa	0.81	0.743, 0.890	<0.001
Haa	2.24	2.148, 2.331	<0.001
Lhuentse	2.46	2.380, 2.544	<0.001
Monggar	1.91	1.863, 1.965	<0.001
Paro	1.08	1.048, 1.116	<0.001
Pema Gatshel	2.27	2.203, 2.337	<0.001
Punakha	1.68	1.623, 1.736	<0.001
Samdrup Jongkhar	1.74	1.693, 1.792	<0.001
Samtse	1.06	1.031, 1.085	<0.001
Sarpang	1.44	1.399, 1.485	<0.001
Trashigang	2.41	2.350, 2.469	<0.001
Trashi Yangtse	2.41	2.334, 2.488	<0.001
Trongsa	2.15	2.067, 2.231	<0.001
Tsirang	2.24	2.169, 2.311	<0.001
Wangdue Phodrang	1.59	1.547, 1.643	<0.001
Zhemgang	2.89	2.798, 2.978	<0.001

AOR- adjusted odds ratio; CI- confidence interval
VTI- Vocational Training Institute

95% CI 2.032, 2.139) and >50 years (AOR=1.5, 95% CI 1.461, 1.537) were more likely to migrate compared to children <19 years. Those who were married or living together were 27% (AOR=1.27, 95% CI 1.246, 1.292) more likely to migrate compared to those who were single. Similarly, divorced/ or separated and widow or /widowers was 25% (AOR=1.25, 95% CI 1.207, 1.298) and 48% (AOR=1.48, 95% CI 1.426, 1.546) respectively, more likely to migrate. All levels of education were associated with higher migration compared to those who did not receive formal education. Those with a vocational training (that is, VTI trained), diploma, bachelor and higher degrees and those educated up to higher secondary were nearly 8 times (AOR=7.95, 95% CI 7.333, 8.625), 8 (AOR=7.61, 95% CI 7.218, 8.029), 5 (AOR=5.39, 95% CI 5.257, 5.530) and 5 times (AOR=5.01, 95% CI 4.894, 5.132), respectively, more likely to migrate compared to those without formal education. People from all 18 districts migrated to Thimphu District except for Gasa District. The migration was highest from Zhemgang (AOR=2.89, 95% CI 2.798, 2.978), followed by Lhuentse (AOR=2.46, 95% CI 2.380, 2.544), Trashigang (AOR=2.41, 95% CI 2.350, 2.469) and Trashi Yangtse (AOR=2.41, 95% CI 2.334, 2.488), respectively. There was out-migration from Thimphu District to Gasa District (AOR=0.81, 95% CI 0.743, 0.890).

In Table 4, we show the summary of the key socio-economic factors that influence rural to urban migration in Bhutan. Comparing the total changes over the period 2005 and 2017, there has been a decrease in the average poverty gap index for all 20 districts from 6.04 to 1.96. While there was a reduction in the number of firms by type (that is, whether it is sole proprietorship, partnership or company) from 9,080 in 2003 to 3,440 in 2017, the number of firms by size (that is, whether it is small, medium or large) has doubled from 4,036 to 4,392 during the same period. There was also a reduction in the size of land holdings by one-third over the fifteen years from 1995 to 2010. Although the total financial outlay increased from Nu 70 billion in the 9th Five-Year Plan (2002 – 2007) to Nu 213 billion in the 11th Five-Year Plan (2013 – 2018), the capital expenditure outlay decreased, there was a decrease in the five-year plan capital outlay for the dzongkhags from Nu.9.3 billion to Nu.9 billion. Other increases were in the number of educational institutes (from 619 in 2005 to 877 in 2020), the number of health facilities (from 681 in 2004 to 901 in 2016) and the length of roads in the districts (from 4,392

Table 4 Summary main socio-economic changes over different time period

Characteristics	Year	Total	Std. dev.	95% CI	
Average poverty gap index in each district£	2007	6.04	20.93965	76.87281	164.5272
	2017	1.96	9.459498	19.40104	58.99896
Number of firms (by type) in each districtф	2003	9080	3378.101	2009.554	16150.45
	2017	3440	1325.083	666.57	6213.43
Number of firms (by size) in each districtф	2003	4036	574.1535	2812.221	5259.779
	2017	8172	945.536	6156.638	10187.36
Length of roads in each district¥	2005	4392.504	519.4862	3305.207	5479.801
	2020	18264.2	1807.988	14480.04	22048.36
Number of educational institutes in each district*	2005	619	61.08622	491.1451	746.8549
	2020	877	92.51202	683.3701	1070.63
Number of health facilities in each district*	2004	681	90.11659	492.3838	869.6162
	2016	901	94.82921	702.5202	1099.48
Size of landholdings in each district in hectares**	1995	314282.8	48832.21	212075.8	416489.8
	2010	112550.6	15792.64	79496.23	145605
Difference in the five-year capital budget outlay for each district	2002-07	9318.32	862.2384	7513.634	11123.01
	2013-18	9000	381.7816	8200.922	9799.078

CI- confidence interval
£ difference between 2017 and 2007 (in absolute numbers)
ф difference between 2017 and 2003
¥ difference between 2020 and 2005
* difference between 2016 and 2004
** difference between 2010 and 1995

in 2005 to 18,264 km in 2020).

Using the information from Table 4, we ran a regression analysis of these socio-economic variables to identify the macro drivers of migration. There were positive correlations between migration, on the one hand, and on the other hand: poverty level, number of educational institutes and health facilities and size of landholdings under agriculture. And, there were negative correlations between migration, on the one hvand, and on the other hand: the number of firms (both by type and size), lengths of road and capital budget outlay. However, the only variable that was a significant factor was the length of roads, which could be inferred as the increase in the length of roads leads to a reduction in migration (Coef= -0.56, 95% CI -1.056, -0.144).

Table 5 Regression results of migration with socio-economic variables

Net migration	Coef.	Std. Err.	t	p-value	95% CI	
Poverty gap in each district£	0.027	0.156	0.17	0.865	-0.316	0.371
Number of firms (by type) in each district	-0.004	0.028	-0.16	0.874	-0.065	0.056
Number of firms (by size) in each district ф	-0.195	0.219	-0.89	0.393	-0.677	0.287
Length of roads in each district ф	-0.617	0.250	-2.47	0.031	-1.168	-0.067
Number of educational institutes in each district¥	0.081	0.071	1.14	0.278	-0.075	0.238
Number of health facilities in each district ¥	0.010	0.072	0.15	0.887	-0.148	0.169
Size of landholdings in each district*	0.014	0.018	0.78	0.45	-0.025	0.053
Difference in the five-year capital budget outlay for each district **	-0.029	0.074	-0.39	0.701	-0.191	0.133
Constant	115.751	34.950	3.31	0.007	38.827	192.676

CI- confidence interval
£ difference between 2017 and 2007 (in percentage change with 2007 as base)
ф difference between 2017 and 2003
¥ difference between 2020 and 2005
* difference between 2016 and 2004
** difference between 2010 and 1995

Trends in Rural-Urban Migration in Bhutan

Bhutan is experiencing a high rate of internal migration due to rapid urbanization and economic development. Almost one-third of the population migrated during the study period. Globally migration has been driven by pull factors (Castelli, 2018). One of the pull factors in Bhutan seems to be the demand for jobs. Historically, the rural population in Bhutan mostly engaged in subsistence farming. With the introduction of modern education in Bhutan, the younger age groups generally aspire to get employment elsewhere rather than take up farming. There are a number of plausible reasons for this drive. First, farming in Bhutan has not changed over the years and is mostly done manually with little or no mechanisation (Chhogyel & Kumar, 2018). The introduction of mechanisation is unsuccessful partly due to difficult terrain presented by Bhutan's mountainous topography. Second, except for a few western districts (such as Thimphu, Paro and Chhukha), access to the market to sell farm produce is limited. As a result, farming is not a financially viable option in other districts.

The origin of most of the migrations was from the eastern part of Bhutan and the destination was Thimphu District where the capital city is located. More than 17.8% of the population in Thimphu were living there for employment purposes. Even though there was migration from western districts to Thimphu, the number of migrants was smaller compared to districts in eastern Bhutan. Trashigang and Monggar reported the highest migration numbers. This is similar to the finding reported by Gosai & Sulewski (2020), and the pattern of migration has not changed since 2005. This is probably driven by employment opportunities in Thimphu and neighbouring districts where most government institutions and other financial organizations are located.

Compared to age group <19 years, older people are more likely to migrate. Other main drivers of migration were education-related factors with those with higher education and,

vocationally trained more likely to migrate. In this study, we find education was associated with migration, which is in concordance with other studies related to internal migration (Li et al., 2019; Marchetta & Sim, 2021). People with a university degree or higher are likely to migrate to other districts for employment because there are limited work opportunities commensurate to the education and skills in most districts except for Thimphu, Paro and Chhukha. However, the effect size of migration was highest among those with vocational and diploma qualifications.

Thimphu, Chhukha, Paro and Sarpang districts were the most common destinations while most migrants originated from Trashigang, Thimphu, Monggar and Samtse districts. Interestingly, we also find there was out-migration from Thimphu District to Gasa District, which could be those people from the part of rural Thimphu migrating to Gasa. There was an increasing trend of migration with age but most migrants were reported in the age group of 19-30 years. The pull factor could be the easy accessibility of job in the destination district (Thimphu). However, negative effect on the origin district is the loss of workforce particularly in the agricultural sector. As Bhutan government is pursuing a national goal of food self-sufficiency (GNHC, 2019), large number of migrants in this economically productive age group are unlikely to support this national goal. Despite the extension of modern amenities including roads, electricity, and mobile network, there are little signs of slowing the trend of migration in the economically productive age groups (Gosai & Sulewski, 2020).

An interesting result from this study is the migration from Thimphu to Gasa districts. This could be due to improved economic opportunities in Gasa. Cordyceps, or the caterpillar fungus, a restricted species was legalized for collection in 2004 and has become a major source of income for the high-altitude communities in western Bhutan including Gasa (Wangmo & Wangchuk, 2008; Wangchuk & Wangdi, 2015). The collection and sale of Cordyceps is a lucrative business with households fetching an annual income of up to US$24,500 (Wangchuk et al., 2012). This economic opportunity is a probable reason for people moving from Thimphu to Gasa.

Drivers of Rural-Urban Migration

Unbalanced regional development has led to internal migration around the world (Li et al., 2019). A similar phenomenon is responsible for internal migration in Bhutan. Generally, there is no record of disparity of welfare resources for migrants in Bhutan unlike in other countries, such as in China where resources are allocated to individuals based on the household registration system (hukou) (Chan & Buckingham, 2008). Nevertheless, there are other social consequences due to migration. The origin districts face an acute shortage of workforce leading to most farms remaining fallow, which has been continuing for some time now (FAO, 2022). Wild animals living in these fallow lands are encroaching on other nearby farms and often destroying crops. Furthermore, destination districts for migrants are crowded with enormous social pressure including affordable housing, health and education. Affordable housing in the capital city Thimphu (destination district) continues to be a challenge (Dendup, 2016). In addition, migrant related health issues as a result of movement of the population have been documented (Green et al., 2015; Johnson & Taylor, 2019; Thapa et al., 2019; Liao et al., 2020; Groene & Kristiansen, 2021). Therefore, it is important to get a proper understanding of some of the key drivers that influence internal migration in Bhutan.

There continues to be a debate about the causes or drivers of migration (Black et al., 2022). This could be because the decision to migrate is often multifaceted and a response to various factors (Selod & Shilpi, 2021). Some of the common factors are improved income, education quality or health services available in the city or negative income shocks in the rural areas (Selod & Shilpi, 2021). Other factors that influence internal migration are lack of adequate services in rural areas, such as location of schools, health care centres and other public amenities (Brueckner & Lall, 2015). We examine some of these factors in the context of whether or not they influence rural-urban migration in Bhutan. The factors that we considered to determine their effect on whether or not people migrated from rural to urban areas in Bhutan were: income (poverty gap index of the districts), economic opportunities (land holdings and the number of firms by type and size), infrastructure (number of educational institutes and health centres and length of road in each district) and government investment (five-year capital budget outlay).

Table 4 shows the results of the regression results of the analysis. Interestingly, none of the variables except for difference in the length of roads in each district was statistically significant. The length of roads in 2005 was 4,393 km and increased by almost four times to 18,264 km in 2020. However, the increase in the road length was associated with reduced migration. Two conclusions can be drawn from these findings. Firstly, it does not matter for rural-urban migration in Bhutan, whether or not, more or less educational institutes, health facilities, economic establishments or government investments are built and set up. Secondly, in a situation where there are more roads built, there is a decrease in the rate of rural to urban migration taking place in Bhutan. One could assume that with wider road connectivity, rural livelihoods are enhanced as it provides access to the market

as well as to services. In a study examining the impact of roads to wealth in Bhutan, Nidup (2016) finds that access to road benefited the poorer sections of the rural societies, possibly due to increased opportunities for employment and trade. However, the same study also concludes that the impact of road connectivity is not the same for other income categories. In fact, road connectivity had a detrimental impact of the highest income category. These findings have significant policy implications for Bhutan. One of Bhutan's development goals is to achieve a balanced regional development across Bhutan. With the introduction of democracy in Bhutan in 2008, governments ensure that funds reach all areas of the country, with an emphasis on farm roads which forms an important part of the manifesto of most political parties in Bhutan. The findings of a special audit conducted by the Royal Audit Authority on farm roads in Bhutan note that the government has consistently sought to increase road connectivity, particularly to enhance rural livelihood (RAA, 2010). However, the same study concludes that construction and maintenance of roads are difficult and costly. In a more recent report by the Royal Audit Authority, it was found that there are several cases of wastages and abandonment of farm roads due to inadequate assessment of needs (RAA, 2022). For instance, it was reported that 19 farm roads in 13 districts that cost approximately Nu 41 million to construct have remained unutilised (RAA, 2022). Perhaps to a lesser extent, but similar conclusions could be drawn for other facilities, such as education institutes and health centres.

Our findings have several significant and inter-related set of policy implications given the context of ongoing and increasing rural-urban migration in Bhutan. Firstly, if the government does decide to continue along the path of ensuring balanced regional development and enhancing rural livelihood the government's limited financial resources may not be optimally utilised. The continued increase in the construction of roads is a good example. Furthermore, this could be subject to manipulation. As a case in point, Wangchuk et al. (2023) found in their study of rural depopulation and empty rural houses in Bhutan that local government officials manipulated the number of gungtongs (although Wangchuk et al. (2023) point to various understanding and meaning of the term, it can be closely associated with empty houses and farmland abandonment) by either underreporting or overreporting so that they were not questioned by the government or to secure more funds as the case may be. Wangchuk et al. (2023) also make an important point regarding the danger of rural depopulation, not just in Bhutan but also in neighbouring mountainous countries such as India, Nepal and China where farmlands are increasingly being abandoned can lead to vulnerability of food security. Secondly, can or should rural-urban migration be reduced in Bhutan? While it is in the government's best interest to develop the country in a balanced manner, according to Black et al. (2022:15), whether people migrate or not is often 'not exactly a choice'. As such, public policies that try and widen choice often do not succeed because they do not account for the uncertainties and unpredictability of life trajectories (Black et al., 2022).

Bhutan's rural-urban migration experiences present insights to the broader migration literature. For instance, the finding that road length negatively correlates with migration provides an interesting departure from conventional assumptions that infrastructure enhances mobility. This could, perhaps, provide evidence of how connectivity moderates rural dependency rather than simply enabling migration. While our paper focused on the neo-classical approaches to examining migration, there is certainly, the space and the need to take a nuanced structuralist approach to examine rural-urban migration in Bhutan. Typical structuralist features that explain migration, such as, survival strategies due to civil conflicts and impacts of climate change may not be relevant for Bhutan. Nevertheless, a deeper (a qualitative study, which is beyond the scope of this paper, will be appropriate) analysis why a country that pursues inclusive policies (such as, its holistic Gross National Happiness development paradigm) continues to experience out-migration—not only to urban areas in Bhutan, but also to international destinations (Tobden et al., 2024). Clearly, the government is making all attempts to minimise rural-urban migration by continuously funding development activities in the rural areas. However, our study shows that such policies and strategies are not working, and people are mostly responding to economic incentives, both at the national and international levels. It is precisely, why, a mega project, such as the Gelephu Mindfulness City, is attempting to address: firstly, to create sufficient economic opportunities to retain its people from leaving the country; and secondly, to create competitive opportunities to attract Bhutanese who have left the country to return.

CONCLUSION

This study is one of the few detailed studies that presents the characteristics of internal migration and provides an analysis of the factors that influence the rural to urban migration in Bhutan. The high rate of internal migration of close to 40% from 2005 to 2017 is likely to have an impact on the majority of Bhutan's population living in rural areas (currently estimated at close to 60%). As the more educated, particularly those with vocational training and diplomas, and the productive age group (that is, those belonging

to the 19-30 years age group), comprising the main migrants, there are major socio-demographic and socio-economic impacts for the country. An obvious challenge is the capacity of the urban areas to absorb the increase in migrants. The main destination district for 18 districts (except for Gasa) was the capital city of Thimphu. Our study also contributes significantly to the policy-making process in Bhutan in relation to rural-urban migration. The high rate of rural to urban migration and the continuing increase in this rate raise the important question of how the scarce resources are benefiting the people. A better understanding of the trends of the number and characteristics of internal migration flows and driving factors may help policymakers plan for local development to mitigate it.

The findings have to be interpreted in light of a few limitations of the study. Firstly, the migration was based on the household registration system. Second, inter-district migration was not included in this analysis, and it could be useful for future policy development. However, such a study is being undertaken by the same authors of this paper. Despite these limitations, with increasing trends of internal migration constrained by finite human and financial resources, the government needs to ensure that its investments are not optimally utilised. Therefore, an understanding of the dynamics of rural to urban migration in Bhutan and the factors that lead to internal migration is important. The findings of this study will be important for other similar developing countries that are also facing a trend of high internal migration rates.

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