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Migration Patterns, Stability, and Socio-Economic Impacts in Himachal Pradesh: A Geo-Spatial Analysis

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Abstract

This study analyzes district-level migration patterns in Himachal Pradesh, with particular attention to migrant volume, gender composition, duration of residence, and reasons for migration. Drawing on census data, Kangra and Shimla are identified as major destination districts, whereas remote mountainous districts such as Lahul and Spiti and Kinnaur record minimal inflows. The analysis shows that marriage is the predominant reason for female migration, accounting for nearly half of all moves, followed by employment and household relocation, while most migrants settle in rural areas and more than 50% reside for ten years or longer, indicating substantial community integration. Temporal and spatial comparisons across districts reveal considerable diversity in migrant profiles and settlement stability. The study introduces a Migration Stability Index to assess migrant permanence, providing a quantifiable measure that can inform policy design. Overall, the findings underscore the need for gender-sensitive social services and district-specific economic development programs that reflect local migration dynamics, thereby contributing to more balanced regional planning and inclusive growth in Himalayan contexts.

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Keywords: Internal Migration; Himachal Pradesh; Spatial Patterns; Migration Stability Index; Regional Planning

INTRODUCTION

Migration refers to the movement of people from one place to another, often across national or regional borders. This movement can be voluntary or involuntary and driven by several factors, including social, economic, political, and environmental reasons (Ram, C., 2022). Migration is undertaken for employment, better livelihoods and by poor people (Bodvarsson and Berg, 2009; Usher, 2005; Van Dalem et al., 2005; Zakaria and Rajan, 2004; GoI, 2008). Internal migration profoundly impacts demographic structures, economic development, and social mobility across regions. In India, district-level migration shapes urbanisation patterns and labour markets, necessitating localised analysis to inform policy interventions (Singh & Sharma, 2019). Himachal Pradesh, known for its rugged Himalayan terrain and dispersed rural communities, exhibits distinctive migration flows due to marriage customs, employment opportunities, education and household relocation (Census of India, 2011). Marriage emerges as the leading motive for migration in the state, accounting for 44.3% of all movements. This dominance reflects prevailing patrilocal traditions, whereby women relocate to their husband's household upon marriage, significantly shaping the gender composition of migrant populations (Bhardwaj & Rana, 2023). Employment and household relocation together drive approximately one-quarter of migration, highlighting the economic magnetism of districts such as Kangra, Shimla, and Solan, which host major administrative centres, industrial zones, and service-sector hubs (Deshpande, 2020). Spatial patterns clearly reflect district-wise disparities. Kangra (22.29%) and Shimla (14.89%) lead in absolute migration volumes, driven by strong economic and administrative activity. In contrast, remote high-altitude districts such as Lahaul and Spiti (0.37%) and Kinnaur (1.28%) record the lowest migration, hindered by geographic isolation and limited infrastructure (Thakur & Gupta, 2021). Notably, over 80% of migrants settle in rural areas, underscoring the resilience of village economies and kinship networks despite urban attractions (Joshi & Kaur, 2019). Temporal analysis further enriches this understanding: approximately half of migrants in most districts have resided for ten years or more, indicating stable settlement patterns, whereas newer mobility trends

appear in less accessible districts where improved connectivity and emerging tourism drive recent inflows (Mehta et al., 2022). Education and business account for smaller shares of migration but remain vital for youth and entrepreneurial communities (World Bank, 2018). Understanding these multifaceted migration dynamics at the district level is essential for tailoring regional planning and development initiatives. Gender-sensitive housing and healthcare services must address marriage-driven migration patterns (Kumar & Verma, 2021), while skill development and employment programs should target rapidly growing districts. Rural infrastructure investments—transportation, water supply, and digital connectivity—are critical for sustaining rural livelihoods and reducing distress migration (UNDESA, 2020). This study presents an in-depth analysis of population migration to provide actionable insights for policymakers and planners seeking balanced and inclusive development in Himachal Pradesh.

Objectives

1. To analyse the spatial and gender-wise patterns of migration across the districts of Himachal Pradesh.
2. To identify and evaluate the major reasons for migration such as marriage, employment, household relocation, and education, and their relative importance in different districts.
3. To assess migration permanence in Himachal Pradesh through the Migration Stability Index.

Study Area

Himachal Pradesh is a Himalayan state in the northern part of India, located between 30°22'40" North to 33°12'40" North latitude and 75°45'55" East to 79°04'20" East longitude (Fig.1). The state has a significant variation in altitude, ranging from 198 metres to 6,558 metres above mean sea level, resulting in diverse climatic conditions and a rich mix of ecosystems.

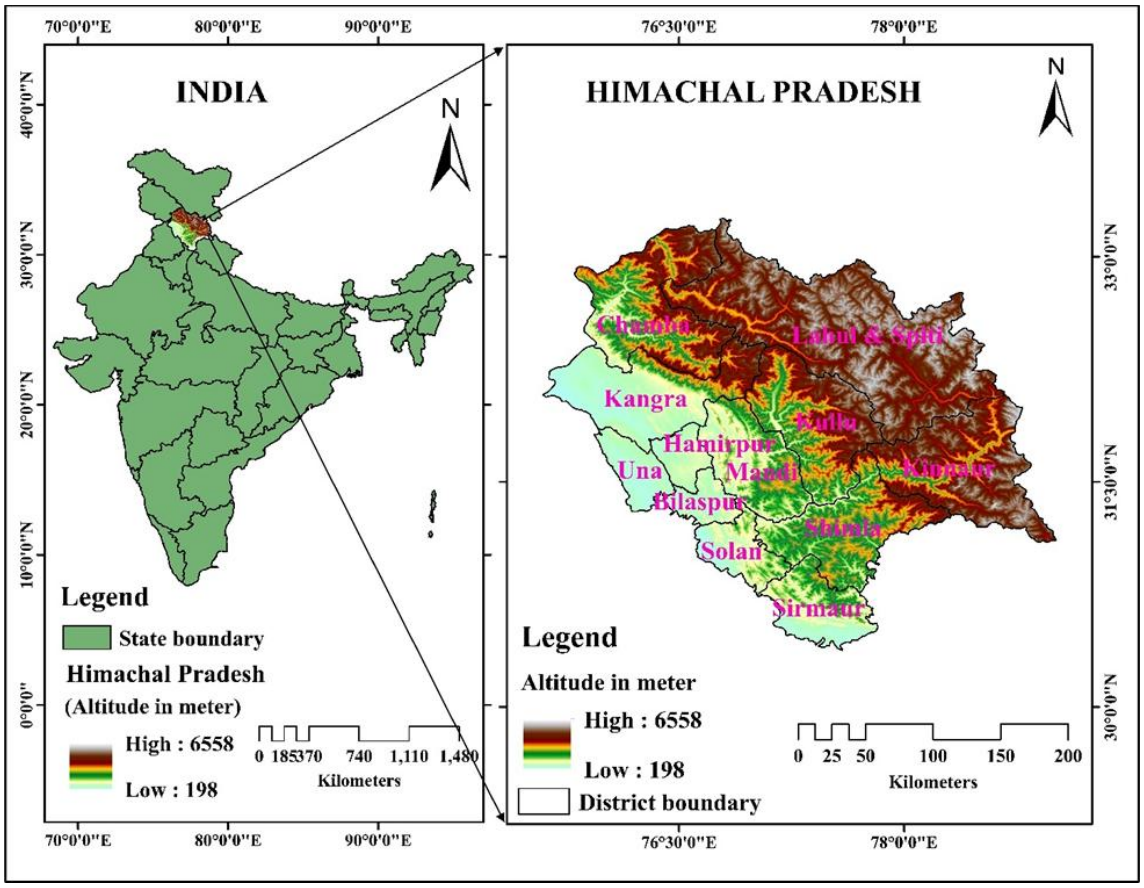


Fig. 1 Location map of the study area

According to the 2011 census, Himachal Pradesh has a population of 6,864,602, comprising 3,481,873 males and 3,382,729 females, reflecting a balanced gender distribution. Covering a geographical area of 55,673 square kilometres, the state is characterised by its mountainous terrain, deep valleys, and river systems, which significantly influence its socio-economic and demographic patterns. The state's unique topography and altitude range play a significant role in shaping settlement patterns, resource access, and migration dynamics. The combination of urban centres, remote villages, and high-altitude areas creates diverse opportunities and challenges for economic activities, education, healthcare, and mobility. Consequently, Himachal Pradesh presents an interesting case for studies on migration, demographic trends, and the spatial distribution of population.

METHODOLOGY

This research is entirely based on secondary data. Secondary data was obtained from various government sources, such as the Office of the Registrar General and Census Commissioner of India (ORGI) Excel sheet titled D-05: Migrants by Last Residence, Age,

Sex, Reason for Migration and Duration of Residence, Himachal Pradesh - 2011. Apart from this, the spatial data of the digital elevation model is taken from the Bhuvan portal. After data collection, data analysis was performed through maps and diagrams. Data analysis was performed using Microsoft Excel software, and mapping was performed using Q-GIS software. This research paper relied on Uttarakhand government reports, books, and research papers. In this study, the researcher has used the Stability Index to study the stability of migrants.

The stability index can be reported on two equivalent scales: as a proportion (0–1) or as a percentage (0–100%). A stability index of 0 indicates that no migrants have lived in a district for ten years or more, indicating complete population change, while an index of 1 (100%) indicates that all migrants have lived in the district for at least ten years, indicating total stability. To assess spatial variation in migration stability, a district-level stability index was developed using residence duration data from the 2011 Census. The index quantifies the proportion of migrants with ≥10 years of residence, which represents the integrated population within local geographic contexts. Calculated as SI = (Long-term migrants / Total migrants) × 100, districts were classified into stability categories (highly stable ≥52%, stable 48-52%, moderately stable 46-48%, dynamic <46%) to support geographical analysis of the sustainability of settlements in diverse topographic and accessibility contexts in Himachal Pradesh.

RESULTS AND DISCUSSION

1. Spatial Pattern of Migration

The district-wise distribution of migrants shows clear demographic and spatial disparities. Out of a total of 2,647,067 migrants, the largest share is from Kangra 589,935 (22.29%), followed by Shimla 393,915 (14.89%) and Mandi 328,350 (12.40%)**,** whereas peripheral districts like Kinnaur 33,858 (1.28%) and Lahaul & Spiti 9,906 (0.37%) contribute marginally due to sparse population and geographical constraints. A distinct gender imbalance is observed, with male migrants 6,67,133 (25.2%) and female migrants 1,979,934 (74.8%), indicating that marriage-related migration is the dominant factor. Rural migrants constitute the overwhelming majority with 2,174,135 (82.2%), while urban migrants account for only 472,932 (17.8%)**.** Among rural migrants, the largest numbers are from Kangra (475,148, 21.86%), Shimla (305,279, 14.05%), and Mandi (275,554, 12.67%).

Table 1 District-wise Spatial Pattern of Migration

District	Total Migrants	Percentage	Male Migrants	Percentage	Female Migrants	Percentage	Rural Migrants	Percentage	Urban Migrants	Percentage
Bilaspur	**143148**	**5.41**	**21614**	**3.24**	**121534**	**6.14**	**124567**	**5.73**	**18581**	**3.93**
Chamba	160035	6.05	30747	4.61	129288	6.52	136192	6.26	23843	5.04
Hamirpur	195857	7.4	34565	5.18	161292	8.15	173258	7.96	22599	4.77
Kangra	589935	22.29	127913	19.18	462022	23.33	475148	21.86	114787	24.28
Kinnaur	33858	1.28	15658	2.34	18200	0.92	28952	1.34	4906	1.04
Kullu	151504	5.72	43958	6.59	107546	5.43	120811	5.56	30693	6.49
Lahul & Spiti	9906	0.37	3508	0.53	6398	0.33	8953	0.42	953	0.21
Mandi	328350	12.4	56227	8.43	272123	13.75	275554	12.67	52796	11.15
Shimla	393915	14.89	147085	22.04	246830	12.46	305279	14.05	88636	18.75
Sirmaur	177191	6.69	43993	6.6	133198	6.73	150847	6.92	26344	5.57
Solan	258650	9.77	94351	14.14	164299	8.3	200338	9.21	58312	12.32
Una	204718	7.73	47514	7.12	157204	7.94	174236	8.02	30482	6.45
Total	2647067	100	667133	100	1979934	100	2174135	100	472932	100

Source - Office of the Registrar General and Census Commissioner of India (ORGI), 2011

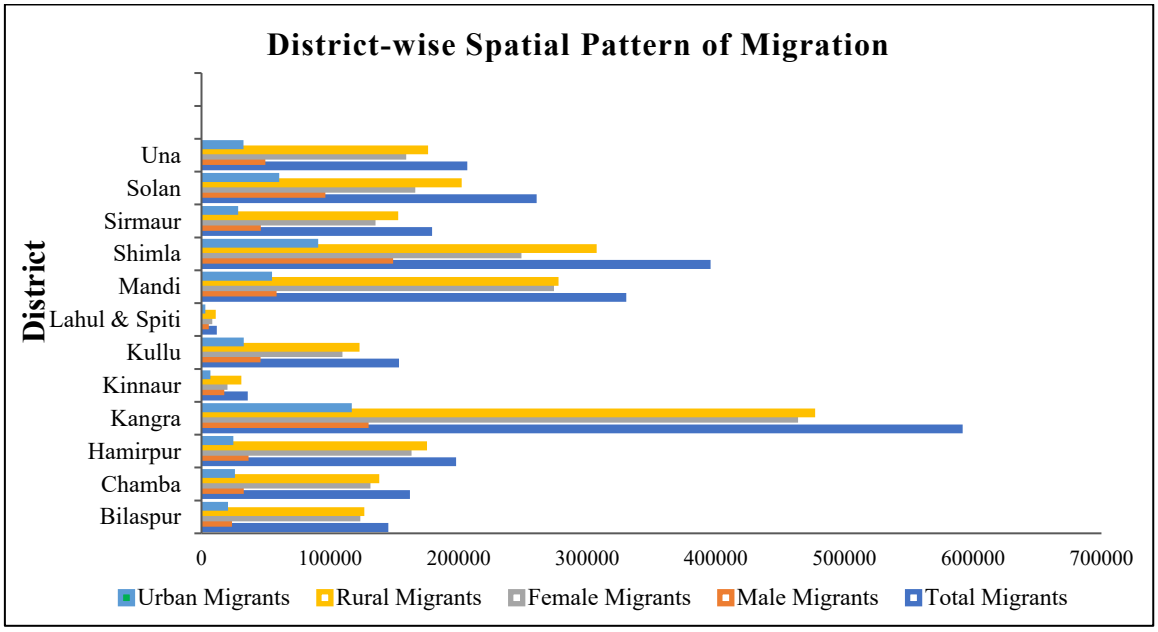


Fig. 2 District-wise Spatial Pattern of Migration

In the case of urban migrants, the highest proportions are observed in Kangra (114,787, 24.28%), Shimla (88,636, 18.75%), and Solan (58,312, 12.32%) (Table 1 and Figs. 2 and 3). Thus, migration in the state is predominantly female-driven, rural-based, and concentrated in a few key districts, with Kangra emerging as the principal contributor across all categories.

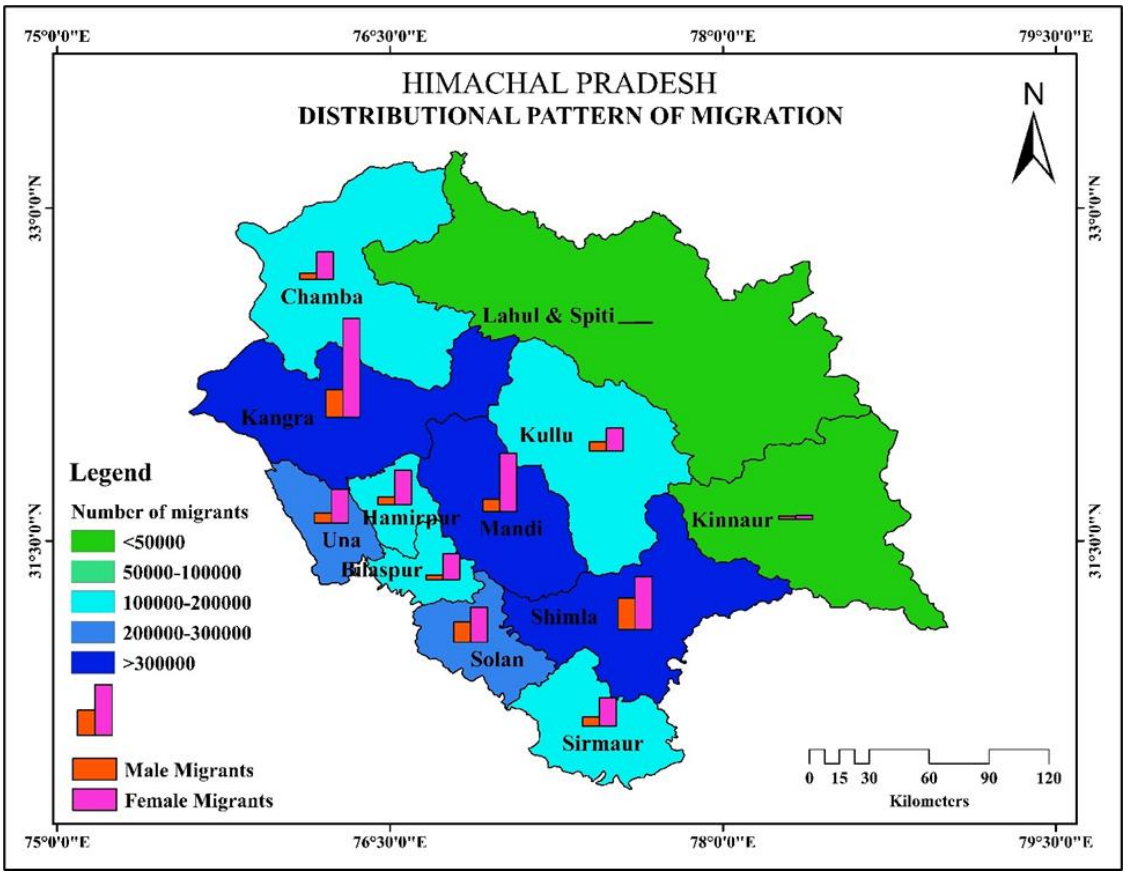


Fig.3 Distributional Pattern of Migration

2. Duration of migrants

The analysis of migrant duration across Himachal Pradesh reveals a clear pattern of long-term settlement. In Bilaspur, of the total 143,148 migrants, 68,198 (47.6%) have resided for 10 years or more, while only 8,950 (6.3%) represent short-term migration of less than one year. Similarly, Chamba exhibits a pronounced trend toward long-term migration, with 87,085 (54.4%) of 160,035 migrants residing for a decade or longer, and a minimal 6,849 (5.6%) staying less than one year. These figures indicate a strong preference among migrants for permanent or semi-permanent settlement in these districts.

Smaller and geographically remote districts such as Kinnaur and Lahul & Spiti display slightly elevated proportions of short-term migrants, at 8.3% and 9%, respectively. Nevertheless, long-term migrants still constitute a substantial share, with 45.4% in Kinnaur and 44.3% in Lahul & Spiti. Other districts, including Hamirpur**,** Kangra, and Kullu**,** show consistent patterns of long-term residence, with 48%, 50.4%, and 46.5% of migrants, respectively, staying for 10 years or more.

Table 2: Duration of migration

District	Less than 1 Year	Percentage	1-4 Years	Percentage	5-9 Years	Percentage	10 Years and Above	Percentage	Total Migrants
Bilaspur	**8950**	**6.3**	**30200**	**21.1**	**35800**	**25**	**68198**	**47.6**	**143148**
Chamba	6,849	5.6	28800	18	35200	22	87085	54.4	160035
Hamirpur	11750	6	41200	21	48900	25	94007	48	195857
Kangra	26040	4.4	118870	20.1	147630	25	297395	50.4	589935
Kinnaur	2800	8.3	7200	21.3	8500	25.1	15358	45.4	33858
Kullu	9800	6.5	32500	21.5	38700	25.5	70504	46.5	151504
Lahul& Spiti	890	9	2180	22	2450	24.7	4386	44.3	9906
Mandi	18200	5.5	65670	20	82100	25	162380	49.5	328350
Shimla	28800	7.3	78950	20	98700	25.1	187465	47.6	393915
Sirmaur	11200	6.3	37800	21.3	44300	25	83891	47.3	177191
Solan	16850	6.5	52200	20.2	64800	25.1	124800	48.3	258650
Una	12800	6.3	43950	21.5	51200	25	96768	47.3	204718

Source - Office of the Registrar General and Census Commissioner of India (ORGI), 2011

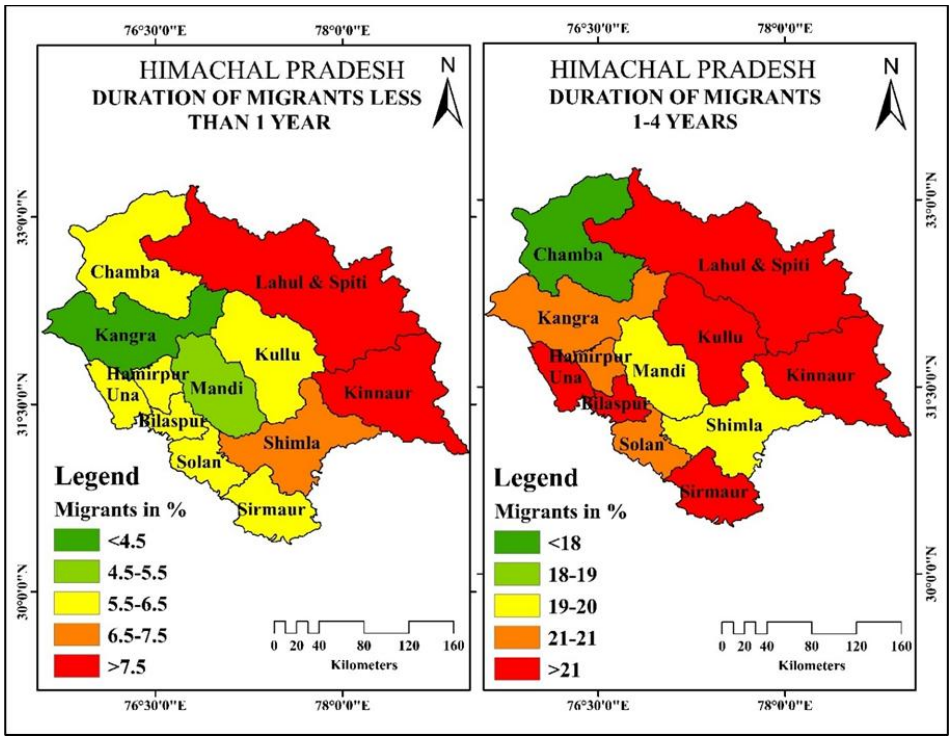


Fig.4 Duration of migrants less than one year and 1-4 years

Migrants residing for intermediate periods of 1–9 years account for approximately 40–50% across most districts, reflecting gradual settlement trends over time.

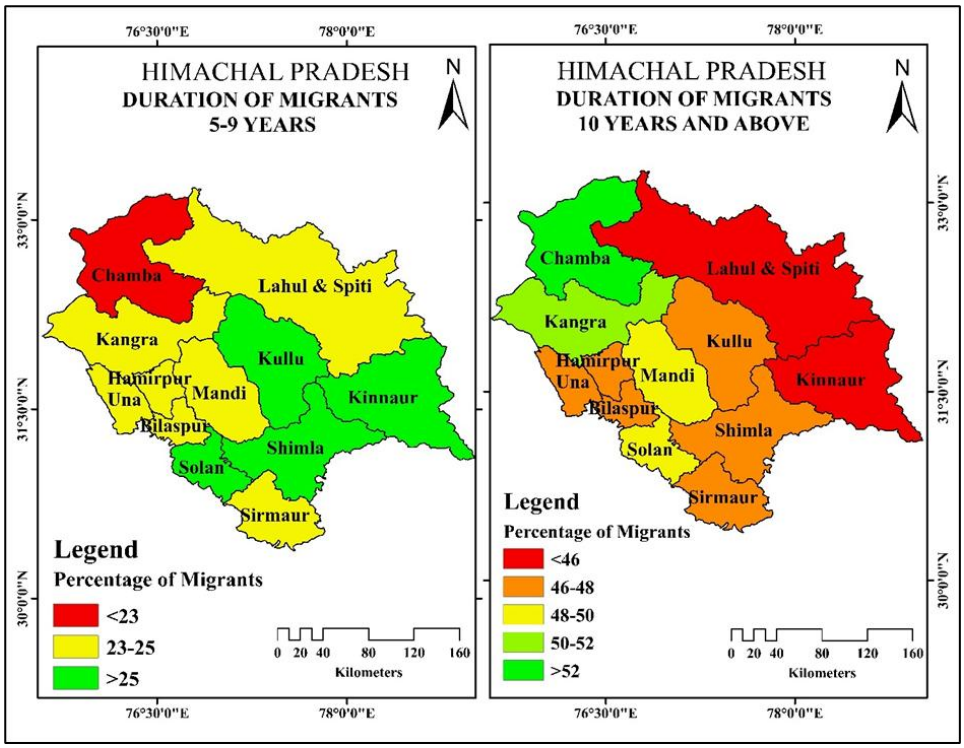


Fig.5 Duration of migrants 5-9 years, 10 years and above

Districts such as Mandi**,** Shimla**,** Sirmaur**,** Solan, and Una further corroborate the dominance of long-term migration, with nearly half of the migrant population in each district residing for 10 years or longer. Short-term migration remains relatively low, generally ranging from 5.5% to 7.3%, indicating limited transient movement (Table 2 and Fig. 4,5). Overall, the data suggest that migration in Himachal Pradesh is predominantly characterised by permanent or semi-permanent relocation, with short-term migration representing a minor component of population mobility, emphasising the stability and enduring nature of settlement patterns within the state.

3. Reasons for Migration

Unemployment

Economic opportunities, local infrastructure, and topographical constraints primarily influence employment-related migration. Remote and hilly districts like Kinnaur have the highest migration at 12,394 (36.61%), due to limited local jobs and difficult terrain that hinders industrial development. Urbanised districts like Solan (52,737) (20.39%), Shimla (77,589) (19.7%), and Kullu (21,159) (13.97%) attract migrants for service-oriented jobs, tourism, and industrial work with better connectivity.

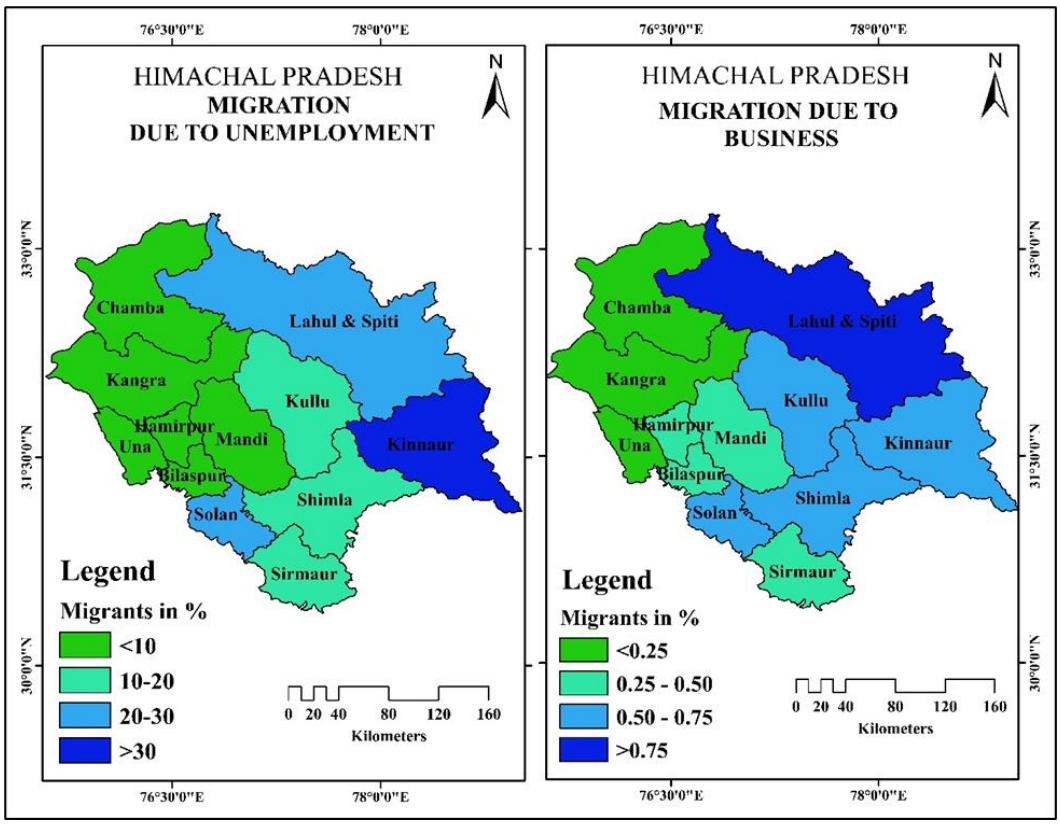


Fig.6 Migration due to unemployment and business

Moderately developed districts such as Una (17,970) (8.78%), Kangra (41,636) (7.06%), Bilaspur (9,478) (6.62%), Chamba (10,108) (6.32%), Mandi (18,817) (5.73%), and Hamirpur (11,417) (5.83%) also witnessed employment-driven migration, reflecting limited local opportunities and urban attractions. In Lahaul and Spiti, 2,253 (22.74%) people migrated for work, primarily driven by seasonal employment and harsh high-altitude conditions (Table 3 and Fig.6).

Business

Business-related migration is generally low across the state, limited by mountainous terrain and scarce flat land for enterprises. Kullu 1,075 (0.71%) and Shimla 2,810 (0.71%) show slightly higher proportions, largely driven by tourism and small-scale trade. Solan 1,317 (0.51%), Kinnaur 199 (0.59%), Hamirpur 530 (0.27%), Kangra 1,405 (0.24%), Bilaspur 416 (0.29%), Chamba 365 (0.23%), Mandi 1,252 (0.38%), Una 374 (0.18%), and Lahul & Spiti 78 (0.79%) indicate minimal business migration, showing that steep slopes, limited urban markets, and geographical isolation restrict commercial mobility (Table 3 and Fig.6).

Table 3: Reasons for migration

District	Total Migrants	Employment	Percentage	Business	Percentage	Education	Percentage	Marriage	Percentage	Moved After Birth	Percentage	Moved with Household	Percentage	Others	Others %
Bilaspur	143148	9478	6.62	416	0.29	1014	0.71	103825	72.53	5046	3.53	10129	7.08	13240	9.25
Chamba	160035	10108	6.32	365	0.23	1929	1.21	110805	69.24	2267	1.42	15085	9.43	19476	12.17
Hamirpur	195857	11417	5.83	530	0.27	3441	1.76	136528	69.71	4910	2.51	17549	8.96	21482	10.97
Kangra	589935	41636	7.06	1405	0.24	6035	1.02	367052	62.22	26379	4.47	72145	12.23	75283	12.76
Kinnaur	33858	12394	36.61	199	0.59	956	2.82	11498	33.96	491	1.45	4593	13.57	3727	11.01
Kullu	151504	21159	13.97	1075	0.71	1539	1.02	82779	54.64	2433	1.61	24802	16.37	17717	11.69
Lahul & Spiti	9906	2253	22.74	78	0.79	323	3.26	4773	48.18	106	1.07	790	7.97	1583	15.98
Mandi	328350	18817	5.73	1252	0.38	3072	0.94	241401	73.52	8643	2.63	28663	8.73	26502	8.07
Shimla	393915	77589	19.7	2810	0.71	17378	4.41	150046	38.09	5673	1.44	76362	19.39	64057	16.26
Sirmaur	177191	20710	11.69	718	0.41	4394	2.48	102327	57.75	4766	2.69	24485	13.82	19791	11.17
Solan	258650	52737	20.39	1317	0.51	4570	1.77	108547	41.97	9874	3.82	52996	20.49	28609	11.06
Una	204718	17970	8.78	374	0.18	1080	0.53	122263	59.72	17212	8.41	26472	12.93	19347	9.45

Source - Office of the Registrar General and Census Commissioner of India (ORGI), 2011

Education

Educational migration is closely linked to accessibility, topography, and concentration of institutions. Shimla attracts 17,378 (4.41%) students from surrounding districts due to its concentration of colleges and professional institutions. Lahaul and Spiti (323) (3.26%) and Sirmaur (4,394) (2.48%) also show educational migration, but rugged terrain and limited infrastructure force students to relocate to cities with better connectivity. Other districts, such as Hamirpur (3,441) (1.76%), Kullu (1,539) (1.02%), Kangra (6,035) (1.02%), Bilaspur (1,014) (0.71%), Chamba (1,929) (1.21%), Mandi (3,072) (0.94%), and Solan (4,570) (1.77%), show moderate migration for education (Table 3 and Fig.7).

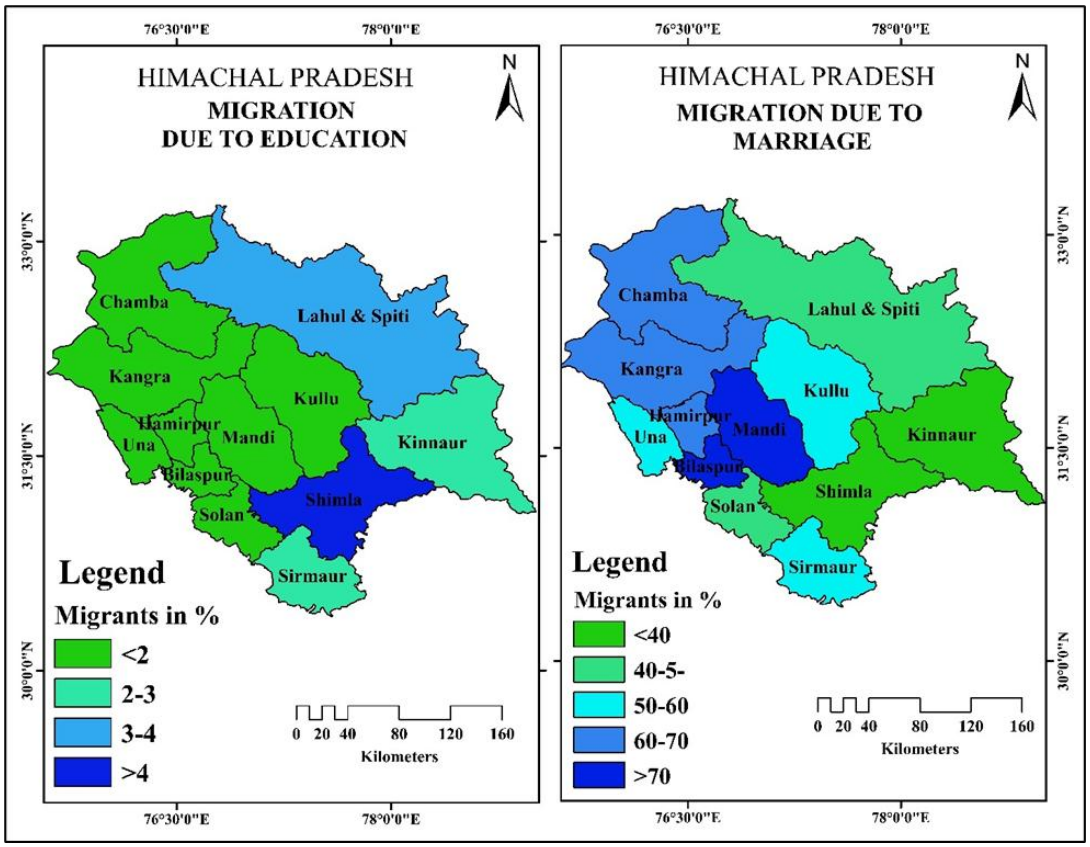


Fig.7 Migration due to education and marriage

Marriage

Marriage is the dominant migration driver across all districts, shaped by cultural norms and geographical mobility. Bilaspur 103,825 (72.53%), Chamba 110,805 (69.24%), Hamirpur 136,528 (69.71%), Mandi 241,401 (73.52%), Kullu 82,779 (54.64%), Sirmaur

102,327 (57.75%), Lahul & Spiti 4,773 (48.18%), Kangra 367,052 (62.22%), Shimla 150,046 (38.09%), and Solan 108,547 (41.97%) indicate that social customs heavily dictate migration. In mountainous areas, moving after marriage often involves relocating to more accessible plains or valleys, reflecting how topography and settlement patterns shape marital migration (Table 3 and Fig.7).

Moved After Birth

Migration after birth reflects access to healthcare, climatic conditions, and family support. Una 17,212 (8.41%) and Kangra 26,379 (4.47%) lead, followed by Solan 9,874 (3.82%), Bilaspur 5,046 (3.53%), Hamirpur 4,910 (2.51%), Chamba 2,267 (1.42%), Mandi 8,643 (2.63%), Kullu 2,433 (1.61%), Sirmaur 4,766 (2.69%), and Lahul & Spiti 106 (1.07%) (Table 3). Remote or high-altitude districts often see families moving to areas with better medical facilities and milder climates, showing the influence of geographic and environmental factors.

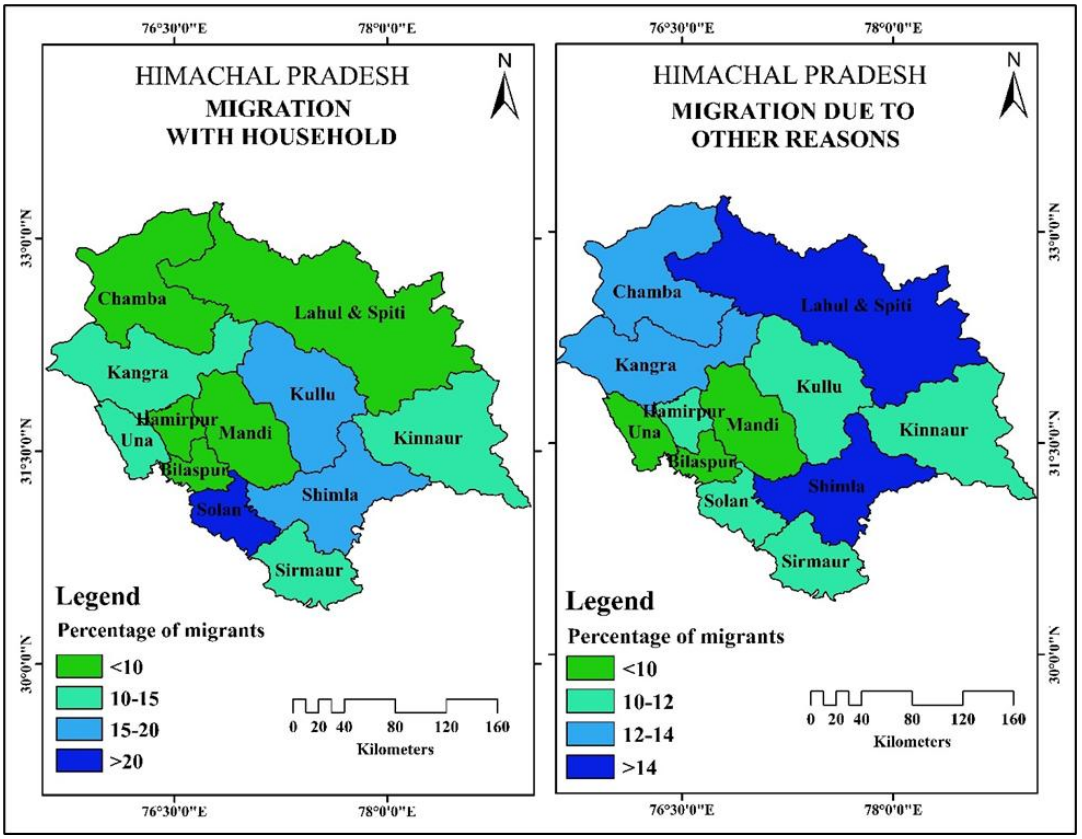


Fig.8 Migration influenced by household and other reasons

Moved with Household

Family migration reflects family dynamics influenced by land use, agriculture, and environmental constraints. Shimla 76,362 (19.39%), Kullu 24,802 (16.37%), Sirmaur 24,485 (13.82%), Kangra 72,145 (12.23%), Una 26,472 (12.93%), Lahaul and Spiti 790 (7.97%), Chamba 15,085 (9.43%), Hamirpur 17,549 (8.96%), Mandi 28,663 (8.73%), and Bilaspur 5,046 (3.53%) highlight how topography, agricultural conditions, and family land inheritance shape mass migration. Families often migrate together to more fertile or accessible areas (Table 3 and Fig.8).

Other Reasons

"Other" reasons include environmental, lifestyle, and socio-economic factors shaped by geography. Shimla 64,057 (16.26%), Solan 28,609 (11.06%), Kangra 75,283 (12.76%), Lahul & Spiti 1,583 (15.98%), Kullu 17,717 (11.69%), Sirmaur 19,791 (11.17%), Chamba 19,476 (12.17%), Hamirpur 21,482 (10.97%), Mandi 26,502 (8.07%), and Bilaspur 13,240 (9.25%) reflect migration due to harsh winters, landslides, lack of basic amenities, or lifestyle aspirations. Mountainous topography and environmental risks strongly influence this category (Table 3 and Fig.8).

4. Age-wise migration

The age-wise migration pattern in Himachal Pradesh reflects a complex interplay of social, economic, and geographical factors. Migration among young adults (15–29 years) is significant, driven primarily by education, employment, and early marriage. For instance, Kullu records 42,592 (28.11%) and Solan 75,618 (29.24%) in this age group, while Shimla has 104,426 (26.51%) and Sirmaur 47,737 (26.94%). The working-age group (30–44 years)

Table 4: Age-wise migration

District Name	0-14	Percentage	15-29	Percentage	30-44	Percentage	45-59	Percentage	60+	Percentage	Age not stated	Percentage
Bilaspur	**8663**	**6.05**	**32010**	**22.36**	**45843**	**32.02**	**31562**	**22.05**	**24960**	**17.44**	**110**	**0.08**
Chamba	12065	7.54	41862	26.16	51323	32.07	34028	21.26	20661	12.91	96	0.06
Hamirpur	12913	6.59	42701	21.8	59363	30.31	43109	22.01	37731	19.26	40	0.02
Kangra	46446	7.87	124497	21.1	182838	30.99	132914	22.53	101935	17.28	1305	0.22
Kinnaur	3890	11.49	10846	32.03	10860	32.08	5538	16.36	2700	7.97	24	0.07
Kullu	12938	8.54	42592	28.11	49097	32.41	29449	19.44	17296	11.42	132	0.09
Lahul & Spiti	1246	12.58	2412	24.35	2998	30.26	1950	19.69	1195	12.06	105	1.06
Mandi	18171	5.53	80424	24.49	106744	32.51	71187	21.68	51364	15.64	460	0.14
Shimla	48898	12.41	104426	26.51	120353	30.55	78224	19.86	41665	10.58	349	0.09
Sirmaur	16404	9.26	47737	26.94	56447	31.86	35375	19.96	21143	11.93	85	0.05
Solan	32850	12.7	75618	29.24	79345	30.68	44544	17.22	25946	10.03	347	0.13
Una	21794	10.65	47194	23.05	62137	30.35	40668	19.87	32851	16.05	74	0.04

Source - Office of the Registrar General and Census Commissioner of India (ORGI), 2011

dominates migration across all districts, as individuals relocate for jobs, business, and household responsibilities. Mandi 106,744 (32.51%), Bilaspur 45,843 (32.02%), and Kangra 182,838 (30.99%) exemplify this trend. Migration among children (0–14 years) is largely associated with family movements due to parental employment or household relocation, with Solan 32,850 (12.7%), Shimla 48,898 (12.41%), and Lahul & Spiti 1,246 (12.58%) showing higher proportions.

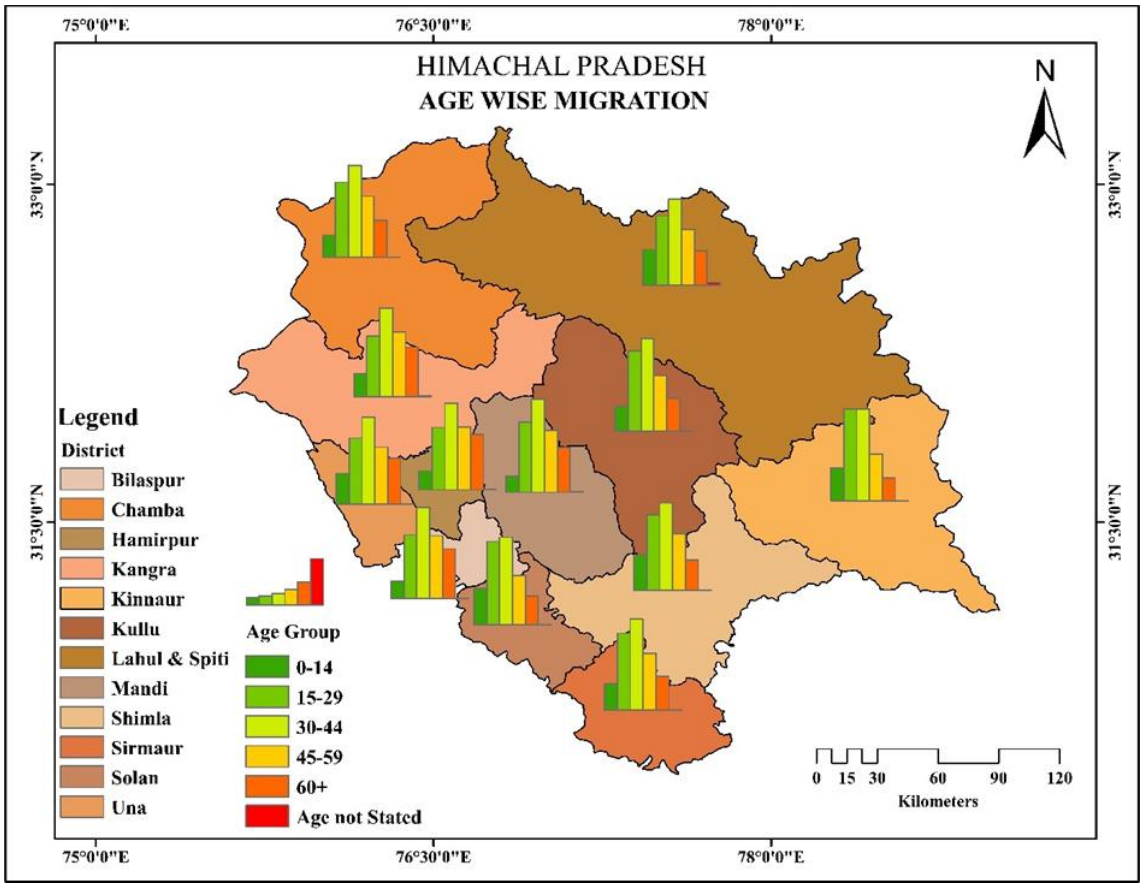


Fig.9 Age-wise migration

Middle-aged adults (45-59 years) also migrate primarily due to household management, business continuity, or environmental conditions, with 132,914 (22.53%) in Kangra, 31,562 (22.05%) in Bilaspur, and 43,109 (22.01%) in Hamirpur. Senior citizens (60+) migrate primarily for family support, retirement, or healthcare access, with a high proportion of 37,731 (19.26%) in Hamirpur, 24,960 (17.44%) in Bilaspur, and 101,935 (17.28%) in Kangra. Geographical and topographical factors significantly influence these trends. Remote and hilly districts such as Kinnaur (0-14 years 3,890; 11.49%; 30-44 years 10,860; 32.08%) and Lahaul and Spiti (0-14 years 1,246; 12.58%; 30-44 years 2,998; 30.26%) have high migration among working age groups due to limited local employment, harsh climatic conditions, and sparse educational and health care facilities, forcing migration to accessible towns and valleys (Table 4 and Fig.9). In contrast, urbanized and well-connected districts such as Shimla, Solan, and Kullu attract migrants from almost all age groups for employment, education, marriage, and family relocation. Overall, age-wise migration in Himachal Pradesh is shaped by a combination of demographic factors, socio-economic needs, and the constraints and opportunities presented by the state's rugged topography and geographical diversity.

5. Stability analysis of Migration

Highly Stable Migration

The highly stable category represents districts where more than half of migrants are long-term residents, indicating stable and well-established migration patterns. In Himachal Pradesh, Chamba has an SI value of 0.544 (54.4%), placing it in this category. This suggests that most migrants have settled for a long time, likely due to favourable socio-economic conditions, established communities, and better accessibility compared to more remote areas (Table 5 and Fig.10).

Table 5: Stability Index of migration

District	Long-term Migrants	Total Migrants	SI value	SI value (%)	Stability category
Bilaspur	68198	143148	0.476	47.6	Moderately Stable
Chamba	87085	160035	0.544	54.4	Highly Stable
Hamirpur	94007	195857	0.48	48	Stable
Kangra	297395	589935	0.504	50.4	Stable
Kinnaur	15358	33858	0.454	45.4	Dynamic
Kullu	70504	151504	0.465	46.5	Moderately Stable
Lahul & Spiti	4386	9906	0.443	44.3	Dynamic
Mandi	162380	328350	0.495	49.5	Stable
Shimla	187465	393915	0.476	47.6	Moderately Stable
Sirmaur	83891	177191	0.473	47.3	Moderately Stable
Solan	124800	258650	0.483	48.3	Stable
Una	96768	204718	0.473	47.3	Moderately Stable

Stable Migration

Districts with SI values around 49–50% are classified as stable, meaning nearly half of the migrant population resides long-term. This category includes Kangra 0.504 (50.4%), Mandi 0.495 (49.5%), and Solan 0.483 (48.3%). These districts attract migrants primarily due to employment opportunities, business prospects, and household settlement. Their relatively good connectivity and economic development contribute to sustained residence among migrants (Table 5 and Fig.10).

Moderately Stable Migration

Districts in the moderately stable category have SI values between approximately 46–48%, indicating that while a significant portion of migrants are long-term residents, a large proportion remains mobile. This includes Hamirpur 0.48 (48%), Bilaspur 0.476 (47.6%),

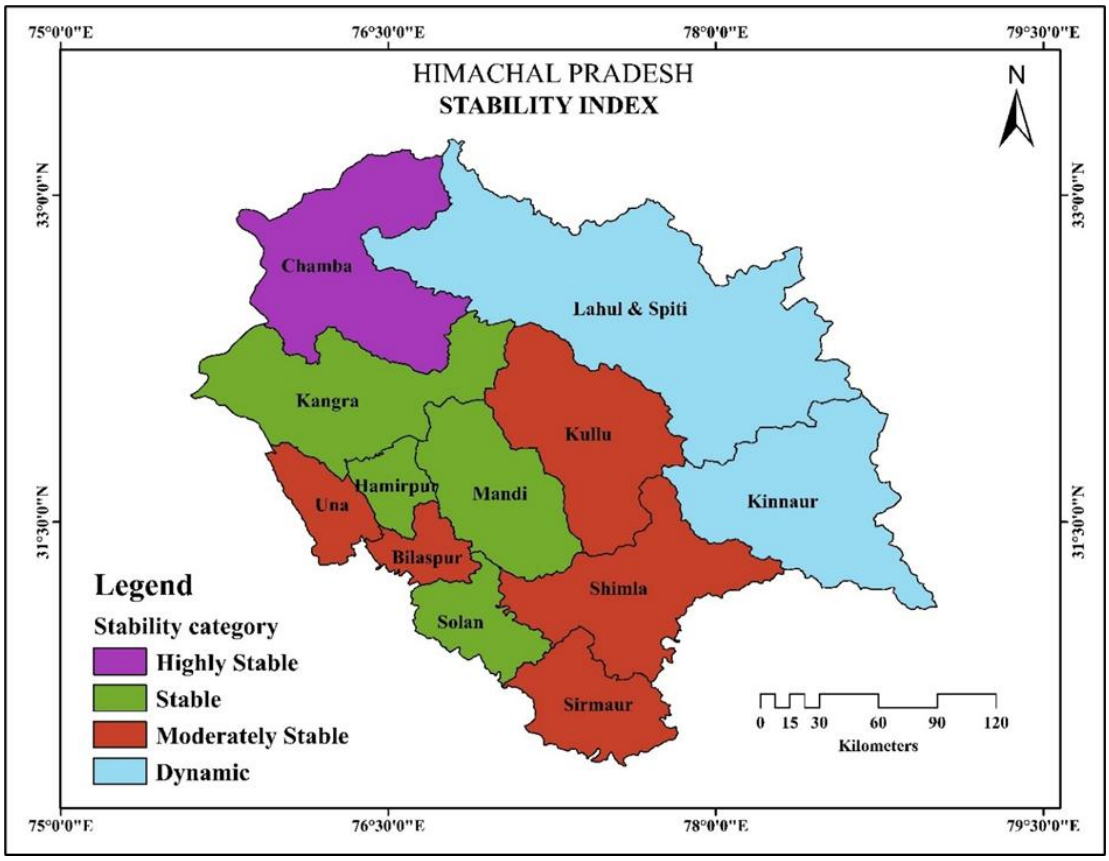


Fig.10 Stability index of migration

Shimla 0.476 (47.6%), Sirmaur 0.473 (47.3%), Una 0.473 (47.3%), and Kullu 0.465 (46.5%). In these districts, migration is influenced by employment, education, marriage, and household mobility. Urban centres and accessible towns support moderate stability, whereas some migrants still move seasonally or temporarily (Table 5 and Fig.10).

Dynamic Migration

The dynamic category represents districts where less than 46% of migrants are long-term residents, indicating high mobility and seasonal or short-term migration. Kinnaur 0.454 (45.4%) and Lahul & Spiti 0.443 (44.3%) fall under this category. Geographic isolation, steep terrain, harsh climatic conditions, and limited economic opportunities contribute to dynamic migration patterns. Many migrants in these areas move temporarily

for work, education, or environmental reasons, with fewer establishing permanent residence (Table 5 and Fig.10).

6. Impacts of Migration

Migration contributes significantly to the economic development of both source and destination regions. Migrants provide a steady supply of labour to sectors such as agriculture, tourism, and small industries, which are crucial in hilly states like Himachal Pradesh. Their active participation in the workforce strengthens local economies and boosts productivity. Another positive aspect is cultural enrichment. Migrants bring with them diverse traditions, customs, and lifestyles, which promote cultural exchange and broaden the social fabric of the host community. Over time, this diversity fosters tolerance and social integration. Economically, migration also leads to higher household incomes. Families benefit from remittances and improved access to employment opportunities, which enhances their standard of living. This often translates into better education for children, improved housing conditions, and greater access to healthcare facilities. Migration is also a driver of skill development. Individuals exposed to urban areas or new industries acquire new skills and knowledge, which they can later transfer back to their native places, promoting local development. Population redistribution is another positive effect. Migration helps reduce demographic pressure in densely populated regions and revitalizes areas with declining populations, thereby balancing regional development. Furthermore, long-term settlement of migrants, as shown in your study where many have lived for over ten years, contributes to strong community integration. Migrants become permanent members of society, creating lasting social and economic ties that strengthen local stability. Finally, migration can act as a catalyst for modernization. It introduces new ideas, technologies, and practices into traditional societies, helping them adapt to changing times and remain competitive in the broader economy.

Despite its benefits, migration also creates challenges. One of the most pressing concerns is the problem of brain drain. Educated and skilled youth often migrate out of rural and remote districts in search of better opportunities, leaving their native areas with a shortage of talent and leadership. Destination areas, on the other hand, experience rising pressure on infrastructure and resources. The influx of migrants leads to overcrowding in towns, placing additional stress on housing, healthcare, transportation, and water supply

systems. Gender imbalance is another negative outcome, particularly in Himachal Pradesh where marriage-related migration dominates. This creates a demographic skew in many districts, affecting social structures and sometimes leading to unequal opportunities for women. The outflow of working-age people also weakens agricultural productivity in source villages. With fewer hands available to till the land, farming activities decline, forcing greater reliance on external food supplies and reducing local self-sufficiency. Cultural tensions may also arise. Migrants, with their distinct practices, sometimes face discrimination or social exclusion from locals, leading to conflicts and weakening social cohesion. Environmental degradation is another critical issue. As more people migrate into towns and valleys, deforestation, waste generation, and pollution increase, threatening the fragile Himalayan ecosystem. Finally, migration can disrupt family structures. Seasonal or temporary migration often forces men or women to live away from their families, leaving children and the elderly without adequate care, which has long-term social and emotional consequences.

CONCLUSION

District-level migration analysis in Himachal Pradesh reveals that marriage remains the dominant driver of internal movement, accounting for nearly half of all migration. Employment and domestic relocations are the next most important reasons, especially in economically vibrant districts like Kangra, Shimla, and Solan. Spatially, districts with administrative and commercial centres attract the highest migrant volumes, while remote, high-altitude areas like Lahaul and Spiti and Kinnaur record minimal inflows due to geographical constraints. Temporal patterns reveal that more than 50% of migrants in most districts have been living for ten years or more, indicating strong community integration and stability, while new mobility trends are emerging in less accessible areas with recent infrastructure improvements. District-level migration analysis in Himachal Pradesh reveals that marriage remains the dominant driver of internal movement. Spatially, districts with administrative and commercial centres attract the highest migrant volumes, while remote, high-altitude areas like Lahaul and Spiti and Kinnaur record minimal inflows due to geographical constraints. Time patterns show that in most districts, more than 50% of migrants have lived for 10 years or more, indicating strong community integration and

stability, while new mobility trends are emerging in less accessible areas with recent infrastructure improvements.

These findings have important policy implications. First, gender-sensitive social services—especially housing and healthcare—should prioritise districts with high rates of marriage-induced migration. Second, skill development and employment programs should target rapidly growing urban and semi-urban centres to harness labour potential and reduce distress migration. Third, sustained investment in transportation, water supply, and digital connectivity is needed to sustain rural livelihoods, as rural areas absorb the majority of migrants. Finally, the proposed Migration Sustainability Index provides a valuable tool for monitoring settlement sustainability and guiding resource allocation. By intervening according to district-specific migration profiles, policymakers can promote balanced, inclusive development in Himachal Pradesh.

Suggestions

Several measures can be taken to maximise the benefits of migration while mitigating its challenges. First, creating local employment opportunities by promoting small-scale industries, eco-tourism, and agriculture-based enterprises can reduce the pressure of outward migration. When people have access to dignified work near their homes, they are less likely to migrate in times of crisis. Skill development programs for rural youth, women, and marginalised groups are equally important. By equipping them with modern skills, states like Himachal Pradesh can ensure that migration becomes a choice for better opportunities rather than a compulsion. Furthermore, strengthening rural infrastructure—including roads, healthcare, education, and digital connectivity—will make villages more sustainable and attractive for long-term settlement. Women's empowerment needs special attention, especially since marriage is a major driver of migration in Himachal Pradesh. Providing gender-sensitive services such as maternal healthcare, safe housing, and educational opportunities can help women integrate more easily and actively contribute to the local economy. Urban areas attracting large numbers of migrants should also adopt balanced planning strategies. Appropriate housing plans, regulated urban expansion, and efficient public transportation systems are essential to control population growth without putting excessive pressure on resources. Migrants should also benefit from social security measures such as health insurance, pension plans, and affordable housing, ensuring their dignity and well-being. Expanding educational centres in semi-urban and rural districts can

reduce the need for students to migrate long distances for schooling or higher education. This will not only strengthen local communities but also promote balanced regional development. At the policy level, establishing district-level migration monitoring cells can help governments monitor migration flows, assess sustainability using tools like the Migration Sustainability Index, and design context-specific interventions. Promoting community integration is equally important. Organising cultural festivals, self-help groups, and cooperatives can bridge the gap between locals and migrants and ensure harmonious social relations. Finally, environmentally sensitive development policies should be implemented, taking into account the fragile Himalayan ecosystem. Urban expansion, industrial development, and tourism should adhere to environmental safeguards to avoid overburdening natural resources. By adopting these measures, migration can be transformed from a challenge to an opportunity, promoting balanced regional development, social harmony, and sustainable growth.

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