

Spatial Features of Socio-Economic Push-Pull Determinants of Migration in Sahabad Plain (Bihar): An Empirical Case Study of Bhojpur

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Abstract

Migration as a change of place residence is manifestation of various push and pull factors. Push factors of migration are factor of centrifugal nature which propel out-migration from the place of origin. Pull factors of migration generates centripetal force so that flow of in-migrants occurs to the place destination. The push-pull determinants in a study region are result of physical, social, economic, and political factors. Even the role of an individual push-pull factor for different individuals don't remain the same. However, when the comprehensive broader picture of migrants due to push and pull of factors from a region is built, they reveal being driven by some common strands. The research paper aims at analysing the spatial features of push-pull determinants of migration in the study area. The study area for the research work is Sahabad plain of Bihar. The research design of the paper is cross-sectional empirical for which primary data has been collected using schedule. The sample design for the research work is stratified random sampling and sample size is 400 respondents. The intensity of push-pull factors of different factor has been calculated using 5-point Likert scale. Among social push-pull factors, marriage is dominant as both push and pull factors. Among economic push factor unemployment is dominant and for economic pull factor employment is dominant but with moderate effectiveness.

Keywords: Migration, Push-Pull Determinants, Centripetal, Centrifugal, Likert scale, Social, Economic

1. Introduction

Human have always on the move with sometimes change in place of residence. The flow of human resource from one place to another is brought under the influence of either compulsion or will of upliftment and ease of living. The factor which compels people to leave their place of residence and choose another are known as push factors while the factor which attracts people to come and reside are known as pull factors. Push factors generate centrifugality while pull factors generates centripetality of masses. The push and pull factors of migration can be broadly categorised based on their nature of belonging as physical, social, economic and

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political. In the present research work, the study is restricted to socio-economic push-pull determinants of migration. The social push factor under consideration are social insecurity, social oppression (communal or religious), and marriage. The social pull factors under consideration are social security, communal harmony, and marriage. The economic push factor under consideration are unemployment, low wages, and bad working conditions. The economic pull factors under consideration are employment, higher wages, and good working conditions. Push and Pull factors of migration is an evolving concept whose transformation have spatial and temporal connotation. The study pertains to Sahabad region of Bihar which is endemic to migration since colonial times. Process of migration can be viewed as phenomenon which always exist among humans but undergoes continual changes. They are sometimes sharp and evident but sometimes opaque. The role of push-pull factors while primary data collection is determined by level of information individuals withhold about his socio-economic environment. Push and pull factor seems to be identically opposite at place of origin and destination. Thus, at the aggregate level migration can be said to be resultant achieved after establishment of dynamic equilibrium between push and pull factors.

2. Literature review

Lee (1966) elaborated the push-pull dynamics of migration under ambit of negative factors of migration which are push factors, positive factors of migration which are pull full factors and indifferent factors. Kumar & Bhagat (2012) based on secondary data attributed employment as the dominant factor of migration followed by family in the state of Bihar. Roy, et al., (2020) reiterated that migration is chosen at the household level as decision for survival in deprived socio-economic conditions. Roy, et al., (2021) while analysing out-migration from middle Gangetic contested the view that migration plays dominant role in poverty reduction and economic mobility. Khan, et al., (2023) revealed that economic factors of migration prevails over social factors of migration from India. Kumar & Shekhawat (2024) analysed the gender dichotomy of migration and reiterated that female migration is predominantly due to marriage and male migration due to employment.

3. Objectives

The presented research aims to fulfil the following objectives:

- i. To find out the spatial variation of social push-pull determinants of migration.
- ii. To find out the spatial variation of economic push-pull determinants of migration.
- iii. To find out spatial pattern of differences among socio-economic push-pull factors of migration.

4. Research Questions

The research work seeks to find out the answer to following research questions:

- i. What is the spatial variability of social push-pull determinants of migration?
- ii. What is the spatial variability of economic push-pull determinants of migration?
- iii. What is the spatial pattern of differences among socio-economic push-pull factors of migration?

5. Methodology

This section on methodology deals with methodological triangulation of research work.

4.1 Study area

The study area for the research work is Sahabad plain of Bihar. It is located in south-west corner of Bihar. The Sahabad plain form the homogenous fertile plain bounded by Kaimur hills in south, river Ganga in north, river Son in East and river Karmanasa in west. The Sahabad plain is administratively composed by Bhojpur, Buxar, Rohtas and Kaimur district. Bhojpur district being the core region of the plain has been taken as the study area for empirical evidences. The areal extent of Bhojpur district has been limited to longitudinal coordinates of 83°45' and 84°45' East while latitudinal coordinates of 25°10' and 25°40' North. The district is well connected to whole country by transport routes such as road, trains and flight.

4.2 Sampling design and sample size

The sampling design for the research work is stratified random sampling. The sample size for the research work is calculated using Slovin's formula which gives sample size of 399.9 respondents at 95% confidence level and 5% margin of error. The total sample size of respondents is rounded to 400.

4.3 Data source and collection

The research work uses primary source of data. The data has been collected during field survey by using schedule as tool for data collection. Due to cross-sectional nature of research, data has been empirically collected at a single point in time.

4.4 Data analysis

The data analysis for the research work is both qualitative and quantitative. The statistical tool used for the research work is percentage, mean, and standard deviation. The score of intensity is calculated based on 5-point Likert scale.

4.5 Data representation

Data analysed are tabulated using multivariate tabulation. The map has been used especially choropleth map for representing data. The use of bar graph in map gives categorical view of the individual block of the district. The map has been made using Arc GIS software 10.2.

5 Discussions and analysis

The analysis of research work uses cumulative effectiveness intensity index average for analysis of push-pull differential across block of district.

5.1 Social Push-Pull determinants of migration and its spatial features

Based on Table:1 and illustrated Figure: 1 (A), social push factor of migration shows heterogenous intensity. In Sahpur block of the district social insecurity have moderate intensity with intensity score of 2.90, social oppression have low intensity with intensity score of 2.50 while marriage is the factor with very high density. Arrah block of the district have moderate

intensity of social insecurity with intensity score of 2.47, social oppression have low intensity with score of 2.12 while marriage have high intensity with score of 4.59. In Barahara block of the district, social insecurity have moderate intensity with score of 3.18, social oppression also have moderate intensity with score of 2.66 while that for marriage it is very high intensity with score of 4.26. Koilwar block of the district have social insecurity and social oppression under moderate intensity category with score of 2.81 and 3.39 while marriage have very high density with score of 4.45. Sandesh block of the district have both social insecurity and social oppression under low intensity category with same score of 2.59 while marriage have very high intensity with score of 4.29. Udwananagar block of the district have social insecurity under moderate intensity with score of 3.00, social oppression lies under low intensity category with intensity score of 2.31 while marriage have score of 4.29 making it under very high intensity category. Behea block of the district have social insecurity and social oppression as push factor under moderate intensity with score of 2.80 and 3.16 while marriage have very high intensity with score of 4.64. Jagdishpur block of the district have social insecurity and social oppression under low intensity category with score of 2.36 and 2.54 while marriage have very high intensity with score of 4.26. Piro block of the district have social insecurity under moderate intensity category with score of 3.00, social oppression have low intensity with intensity score of 2.39 while marriage have high intensity with score of 3.92. Charpokhari block of the district lies under low intensity category for social insecurity and social oppression with score of 2.40 and 2.47 and marriage lies under high intensity category with score of 4.00. Garhani block of the district have low intensity for social insecurity and social oppression with same score of 2.56 while that for marriage it is high intensity with score of 3.88. Agiaon block of the district have social insecurity and social oppression under moderate intensity category with score of 2.68 and 2.86 respectively while for marriage it is very high intensity with score of 4.36. Tarari block have social insecurity and social oppression with low intensity having score of 2.56 and 2.54 respectively while marriage under high intensity category with score of 4.11. Sahar block have social insecurity under moderate intensity category with score of 2.83, social oppression under low intensity with score of 2.56 while marriage under very high intensity category with score of 4.50.

At the district level, for social push factor social insecurity have moderate intensity with score of 2.72, social oppression have low intensity with score of 2.58 while marriage have very high intensity with score of 4.33.

Table: 1

Spatial pattern of intensity of social push factor in Bhojpur district

Block	Social Insecurity	Social Oppression	Marriage
Shahpur	2.90	2.50	4.52
Arrah	2.47	2.12	4.59
Barahara	3.18	2.66	4.26
Koilwar	2.81	3.39	4.45

Sandesh	2.59	2.59	4.29
Udwanthnagar	3.00	2.31	4.29
Behea	2.80	3.16	4.64
Jagdishpur	2.36	2.54	4.26
Piro	3.00	2.39	3.92
Charpokhari	2.40	2.47	4.00
Garhani	2.56	2.56	3.88
Agiaon	2.68	2.86	4.36
Tarari	2.56	2.54	4.11
Sahar	2.83	2.56	4.50
Bhojpur	2.72	2.58	4.33

Source: Primary field survey (2025) and calculated by the research scholar

Based on Table: 2 and illustrated Figure: 1 (B), social pull factors of migration show non-uniform intensity in Bhojpur district. Shahpur blocks of the district have low intensity of social security with score of 2.52, very low intensity of communal harmony with score of 1.16 while marriage have very high intensity with score of 4.90. Arrah block of the district have low intensity of social security and communal harmony with intensity score of 2.56 and 2.30 respectively while marriage have very high intensity. Barahara block of the district have high intensity of social security with intensity score of 3.41, communal harmony with very low intensity with score of 1.18 and marriage have very high intensity with score of 4.76. Koilwar block of the district have low intensity score of 2.13 for social security, communal harmony have very low intensity with score of 1.87 while marriage have very high intensity of 4.58. Sandesh block of the district have low intensity for social security and communal harmony with score of 1.94 and 1.91, while marriage have very high intensity with score of 4.53. Udwanthnagar block of the district have low intensity for social security and communal harmony with intensity score of 2.38 and 2.23 respectively while marriage have very high intensity with intensity score of 4.29. Behea block of the district have social security with very low intensity score of 1.88, communal harmony have moderate intensity score of 2.56 while for marriage have high intensity of 4.12. Jagdishpur block of the district have social security with moderate intensity score of 2.62, communal harmony with low intensity score of 1.81 while marriage have very high intensity with score of 4.82. Piro block of the district have low intensity for social security and communal harmony with intensity score of 2.00 each while marriage have very high intensity with intensity score of 4.75. Charpokhari block of the district have moderate intensity with score of 3.20, communal harmony have low intensity with score of 2.40 while marriage have high intensity with score 3.87. Garhani block of the district have social security with moderate intensity score of 3.00, communal harmony have low intensity with score of 3.94 while marriage have high intensity with score of 3.94. Agiaon block of the district have

social security as factor of moderate intensity with score of 2.64, communal harmony with very low intensity score of 1.55, while marriage have high intensity with score of 4.23. Tarari block of the district have social security with moderate intensity score of 2.67, communal harmony with low intensity score of 1.85 and marriage with very high intensity score of 4.48. Sahar block of the district have low intensity of social security and communal harmony with score of 2.50 and 2.19 respectively while marriage have very high intensity with score of 4.50.

At the district level for social pull factor, social security and communal harmony have moderate intensity with score of 2.52 and 1.92 while marriage have very high intensity with score of 4.52.

Table: 2

Spatial pattern of intensity of Social pull factors in Bhojpur district

Block	Social Security	Communal Harmony	Marriage
Shahpur	2.52	1.16	4.90
Arrah	2.56	2.30	4.53
Barahara	3.41	1.18	4.76
Koilwar	2.13	1.87	4.58
Sandesh	1.94	1.91	4.53
Udwantnagar	2.38	2.23	4.29
Behea	1.88	2.56	4.12
Jagdishpur	2.62	1.81	4.82
Piro	2.00	2.00	4.75
Charpokhari	3.20	2.40	3.87
Garhani	3.00	1.97	3.94
Agiaon	2.64	1.55	4.23
Tarari	2.67	1.85	4.48
Sahar	2.50	2.19	4.50
Bhojpur	2.52	1.92	4.52

Source: Primary field survey (2025) and calculated by the research scholar

5.2 Economic push-pull determinants of migration and its spatial features

Based on Table: 3 and illustrated Figure: 1 (C), it is evident that intensity of economic push factor across blocks is not uniform. Shahpur block of the district have very high intensity of unemployment with intensity score of 4.41, high intensity of low wage with score of 3.79 and

moderate intensity of bad work conditions with score of 3.17. Arrah block of the district have very high intensity of unemployment with score of 4.27, high intensity of low wage with score of 3.89 and moderate intensity of bad work condition with score of 3.03. Barahara block of the district have very high intensity of unemployment with score of 4.47, high intensity of low wage with score of 4.12 and bad work condition with intensity score of 4.41. Koilwar block of the district have very high intensity of unemployment with score of 4.48, high intensity of low wage with intensity score of 3.10 and moderate intensity of bad work condition with score of 3.10. Sandesh block of the district have very high intensity of unemployment with score of 4.47, high intensity of low wage and bad work condition with intensity score of 4.06 and 3.53 respectively. Udwantanagar block of the district have high density of unemployment and low wage with intensity score of 3.83 and 3.50 while bad work condition have moderate intensity with intensity score of 2.88. Behea block of the district have high intensity of unemployment with score of 4.12, moderate intensity of low wage with score of 3.16 and high intensity bad work conditions with score of 3.68. Jagdishpur block of the district have high intensity of unemployment and low wage with score of 4.03, and 3.90 respectively, while bad work condition have moderate intensity with score of 2.79. Piro block of the district high intensity of unemployment and low wage with score of 3.67 and 3.58 respectively while bad work condition have moderate intensity with score of 2.86. Charpokhari block of the district have high intensity of unemployment and low wage with score of 3.93 and 3.73 while bad work condition have moderate intensity with score of 2.67. Garhani block of the district have unemployment and low wage under high intensity category with score of 3.69 and 3.50 respectively while bad work condition have low intensity with score of 3.50. Agiaon block of the district have very high intensity of unemployment and low wage with score of 4.23 and 4.27 respectively while bad work condition have moderate intensity with score of 2.68. Tarari block of the district have very high intensity for unemployment with score of 4.56, low wage have moderate intensity with score of 3.00 while, bad work condition have moderate intensity with score of 2.96. Sahar block of the district have high intensity of unemployment with score of 4.56, low wage and bad work condition have moderate intensity with score of 3.83 and 3.00 respectively.

At the district level, unemployment and low wage have high intensity with score of 4.20 and 3.73 respectively while bad work condition have moderate intensity with score of 3.11.

Table: 3

Spatial pattern of intensity of economic push factor of Bhojpur district

Block	Unemployment	Low Wage	Bad Work Condition
Shahpur	4.41	3.79	3.17
Arrah	4.27	3.89	3.03
Barahara	4.47	4.12	4.41
Koilwar	4.48	3.65	3.10

Sandesh	4.47	4.06	3.53
Udwantnagar	3.83	3.50	2.88
Behea	4.12	3.16	3.68
Jagdishpur	4.03	3.90	2.79
Piro	3.67	3.58	2.86
Charpokhari	3.93	3.73	2.67
Garhani	3.69	3.50	2.44
Agiaon	4.23	4.27	2.68
Tarari	4.56	3.00	2.96
Sahar	4.50	3.83	3.00
Bhojpur	4.20	3.73	3.11

Source: Primary field survey (2025) and calculated by the research scholar

Based on Table: 4 and illustrated Figure: 1 (D), across blocks of the district intensity of economic pull factor shows variation. Shahpur block of the district have low intensity of employment, high wage and good work condition with intensity score of 2.07, 1.90 and 1.86. Arrah block of the district have moderate intensity of employment with score of 3.52, high wage and good work condition have moderate intensity with score of 2.73 each. Barahara block have low intensity for employment, high wage and good work condition with score of 2.03, 1.85 and 1.88 respectively. Koilwar block of the district have employment with moderate intensity, while high wage and good work condition have low intensity with score of 2.39 and 2.13 respectively. Sandesh block of the district have moderate intensity of employment and high wage with score of 2.76 and 2.88 respectively while good work condition have low intensity with score of 2.53 respectively. Udwantnagar block of the district have moderate intensity of employment with score of 2.63, high wage and good work condition have low intensity with score of 2.54 and 2.13 respectively. Behea block of the district have high intensity of employment with score of 3.68, moderate intensity of high wage with score of 2.60 and low intensity of good work condition with score of 2.12. Jagdishpur block of the district have low intensity for employment with score of 2.59, low intensity of high wage and good work condition with score of 2.36 and 2.41 respectively. Piro block of the district have low intensity for employment and high wage with score of 2.44 and 2.56 respectively, moderate intensity for good work condition with score of 2.83 respectively. Charpokhari block of the district have low intensity for employment, high wage and good work condition with score of 2.53, 2.47 and 2.40 respectively. Garhani block of the district have low intensity of employment, high wage and good work condition with score of 1.94, 1.94 and 2.25 respectively. Agiaon block of the district low intensity for employment, high wage and good work condition with score of 2.05, 2.41 and 2.18 respectively. Tarari block of the district have low intensity for employment, high wage and good work condition with intensity score of 2.48, 2.56 and 2.41 respectively. Sahar

block have very low intensity for employment with score of 1.67, low intensity for high wage with score of 2.00 and moderate intensity for good work condition with score of 2.61.

At the district level, employment have moderate intensity with score of 2.63, while high wage and good work condition have low intensity with score of 2.39 and 2.35 respectively.

Table:4

Spatial pattern of intensity of economic pull factor of Bhojpur district

Block	Employment	High Wage	Good Work Condition
Shahpur	2.07	1.90	1.86
Arrah	3.52	2.73	2.73
Barahara	2.03	1.85	1.88
Koilwar	2.84	2.39	2.16
Sandesh	2.76	2.88	2.53
Udwanthnagar	2.63	2.54	2.13
Behea	3.68	2.60	2.12
Jagdishpur	2.59	2.36	2.41
Piro	2.44	2.56	2.83
Charpokhari	2.53	2.47	2.40
Garhani	1.94	1.94	2.25
Agiaon	2.05	2.41	2.18
Tarari	2.48	2.56	2.41
Sahar	1.67	2.00	2.61
Bhojpur	2.63	2.39	2.35

Source: Primary field survey (2025) and calculated by the research scholar

5.3 Spatial distribution of push-pull determinants differential

From Table:5 and illustrated Figure: 1 (E), it is evident that for all the blocks and district at aggregate socio-economic push factor of migration are more prominent than socio-economic pull factors. 14.29% of blocks in the district such as Arrah and Charpokhari have least differences in terms of push pull intensity. 71.43% of blocks in the district such as Piro, Jagdishpur, Tarari, Garhani, Udwanthnagar, Behea, Sandesh, Sahar, Koilwar and Agiaon have medium differences in terms of push-pull intensity. 14.29% of the block such as Shahpur and Barahara have highest differences for push-pull intensity of socio-economic factors.

Table: 5

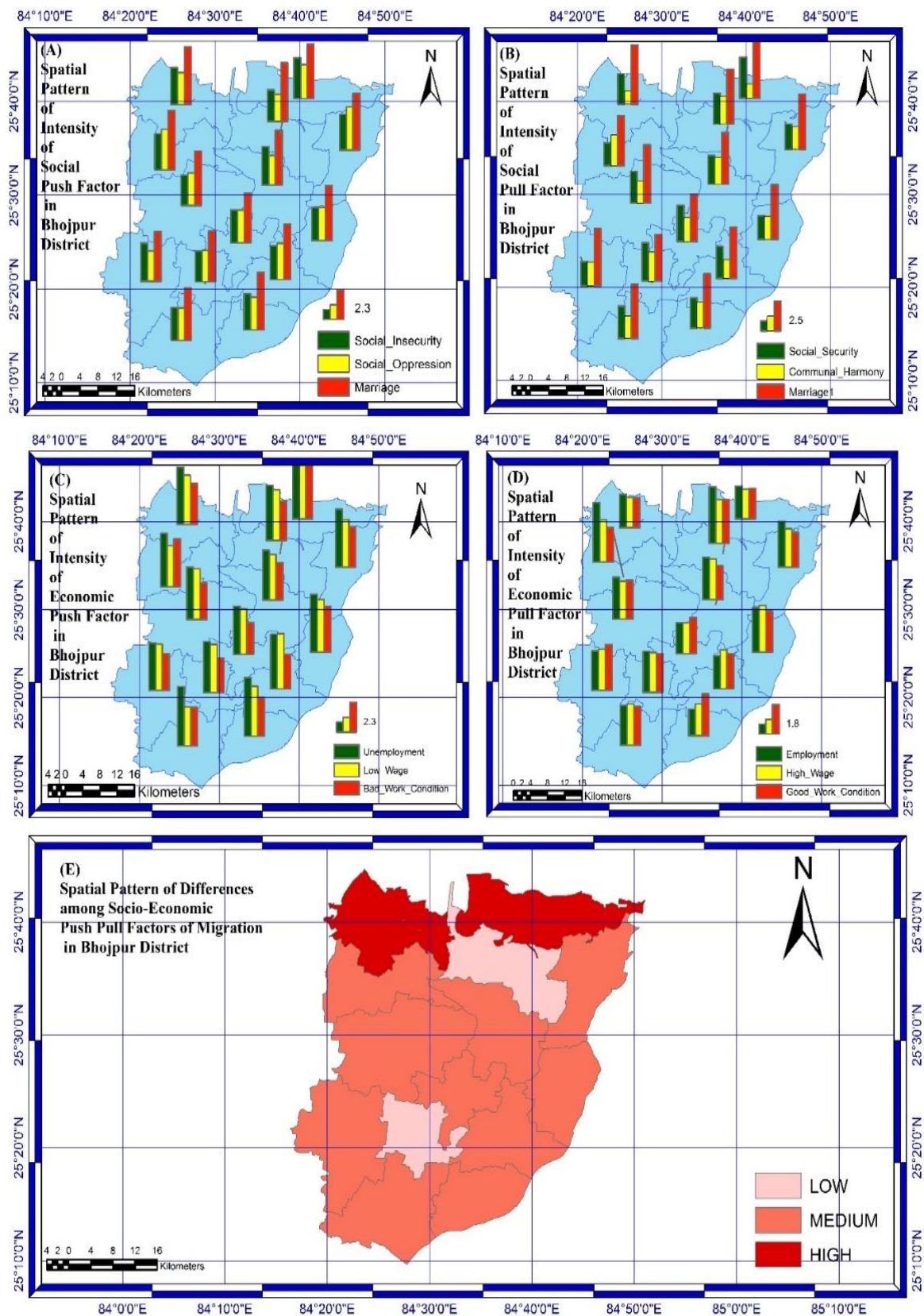
Spatial pattern of differences among socio-economic push pull factors of migration in Bhojpur district

Category	Block	Push-Pull Differential	% Of Blocks
Low	Arrah	2.02	14.29
	Charpokhari	2.33	
	Piro	2.83	
Medium	Jagdishpur	3.27	71.43
	Tarari	3.28	
	Garhani	3.59	
	Udwantnagar	3.63	
	Behea	4.60	
	Sandesh	4.97	
	Sahar	5.75	
	Koilwar	5.90	
High	Agiaon	6.05	14.29
	Shahpur	6.90	
	Barahara	7.99	

Source: Primary field survey (2025) and calculated by the research scholar

Figure: 1

Spatial features of Socio-economic determinants of Migration in Bhojpur district



6. Conclusion

From above discussed statistical analysis heterogenous variability of intensity of push-pull factors based on social and economic variables is revealed. Across all region marriage as both push and pull factors of migration have higher intensity, which is due to traditional nature of society where female have to migrate to their spouse place after marriage. The intensity of economic factors is more dominant than social push necessitating need of employment generation, and rationalisation of wage. The overall dominance of push factor gives the region a characteristics example of out-migration.

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