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Spatial Pattern of Socio-Economic Well-Being in Hadauti

Dr Sandeep Yadav^{1*}, Dr Zuber Khan², Dinesh Kumar Sharma³

Associate Professor, Department of Geography, Government College, Bundi, India¹

Assistant Professor, Department of Geography, Government College, Bundi, India²

Assistant Professor, Department of Geography, Government College, Bundi, India³

ABSTRACT: The study examines the spatial patterns of socio-economic well-being in Hadauti by using the census data of 2011 as the data for 2021 has not been collected and published by the census department. Ten indicators including tap water for drinking, latrine facility, electricity supply, convenience of separate kitchen, LPG as cooking fuel, bathroom facility, proper drainage facility for wastewater, availing banking services, availability of television and mobile. Finally, this paper attempts to explain the relevance of the concept of social well-being in Geography by examining various published works of geographical research on the concept of social well-being, and it investigates how geographers have adopted this highly innovative area to develop one of their own. The region has been categorized into four categories using correlation matrix, factor analysis and composite index.

KEYWORDS: Social well-being, Welfare approach, Human advancement, Composite Index

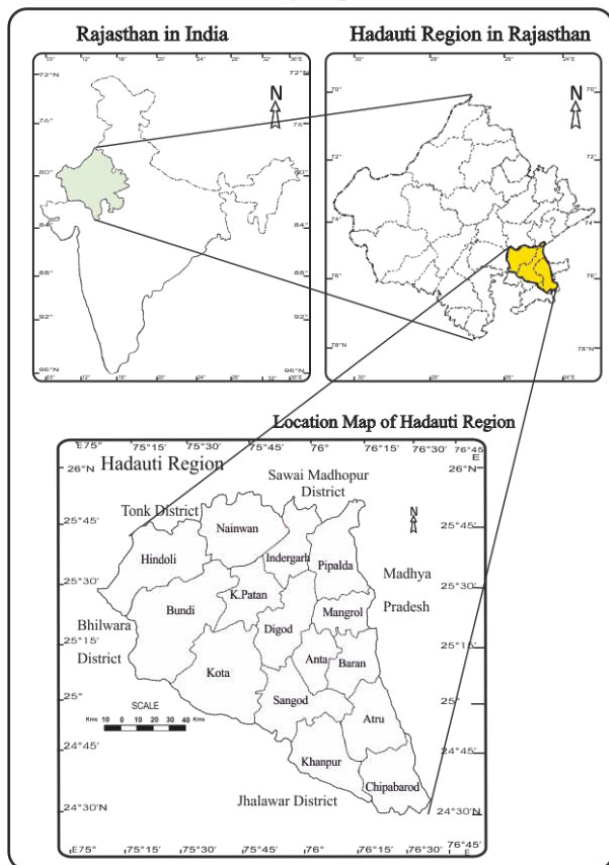
I. INTRODUCTION

The study of social well-being in geography is an inherent consequence of the relevance movement that began in the 1970s. Its goal was to address the human problems that were haunting society. It was created to promote geography as a socially relevant discipline. As a result, geography began to address welfare issues, providing a new framework for micro-level research. Microlevel spatial analysis has expanded geography's role in development planning. Advancements in the study of social well-being occurred in the West. The intellectual desire to solve social ills should go through several levels. It is not uniformly practised geographically. As a result, developing countries such as India are falling far behind in tackling this issue through cognitive and academic interests. These studies are primarily focused on two major themes. First, appropriate indicators reflecting the totality of social well-being must be chosen, followed by appropriate geographical units for generalisation (Kulkarni, 1990). In terms of categorization, the use of a geographical scale influences both the selection of indicators and patterns of social well-being. The smaller the unit of study for social well-being, the greater accuracy is produced. Whereas at the meso and macro levels, micro differences are merged, resulting in a different level of categorization. As a result, studies of social well-being at the micro level are more realistic (Kulkarni, 1990).

There is a long history of social and spatial discriminatory treatment in Indian society. The reasons could be disproportionate economic asset as well as an unjust social structure based on religious, cultural, and social hierarchy principles. Within a social system, social injustice and economic disparity are inextricably linked with the manifestation of a socially unjust spatial structure. The concept of social well-being is traditional in certain ways. Its formulation is based on the assumptions of needs and desires. A need is defined as anything that is both positive and conceptual in character. According to Paul Knox, well-being is the satisfaction of the population's needs and desires, and the needs related with various elements of well-being may be rectified in numerous ways. Social well-being is associated to the overall state of an individual's and community's life. The level of material possession or access has a large impact on social well-being because it supports all other aspects of life and maintains social position. The fundamental question now is whether there is a relationship or link between well-being and social well-being. Individual and social well-being are strongly intertwined.

II. REVIEW OF LITERATURE

Key Map



Much work on the topic has been done in developed countries but in India this is comparatively a new area of research. In modern society, changing social values are integrally linked to technological progress at the local, regional, national, and international levels. In the Indian context, only a few studies on social well-being have been conducted. In India, the majority of work on social indicators is done under the aegis of the Planning Commission, the Central Statistical Organization, the Indian Council of Social Science Research, and the Indian Statistical Institute.

Dube, RS (1982), in his pioneering work titled "Social Well-being in Madhya Pradesh," highlighted the various components of Madhya Pradesh's social well-being while taking territorial variables into account. In his research paper titled "Differential Perception of Residents to Environmental Quality of the Urban Area: The Case of Ahmedabad," A. Desai (1985) describes how the perception and human behaviour of residents and neighbourhoods toward the quality of environment in Ahmedabad City is influenced by individual and community characteristics and their interaction with time and space in terms of caste, religion, language, occupation, and so on. In his book "The Quality-of-Life Variation in Social Research," R. Mukherjee (1989) takes a close look

at the qualitative and quantitative measurement of quality of life and describes the relationships within and across subjects and objects in the light of a successive relation that creates pure knowledge. K.M. Kulkarni (1990) describes the spatial pattern of social well-being in Gujarat in his study "Geographical Patterns of Social Wellbeing with Special Reference to Gujarat" with three basic objectives:

- i. Measure the levels of social well-being at the micro level using "Knox's Index."
- ii. Examining the disparities in social well-being between districts and talukas.
- iii. Examine the degree of similarity and contrast in urbanisation patterns.

S.N. Ahmad and M. Shamim (1998) describe regional variations in the socioeconomic conditions of Bihar in their study "Spatial Dimensions of Social and Economic Inequalities in Bihar." They created a composite index by combining income indexes. Out of 31 districts, nearly half had only a medium standard of living. The Bihar Plain's north-eastern and north-western regions had the least development. In his study "Multivariate Analysis of Quality of Life in Indian Cities," K. Mazumdar (2001) stated that the concept of quality of life is a multidimensional phenomenon. He used five sets of quality-of-life indicators and proposed a methodology, which was described in his paper in length, to reduce the disparity problem among Indian cities, and he assumed that all cities could be mapped on multidimensional space and presented by a vector. A. Baghel, S.K.N. Ahmed and G. Sahu (2018) took nine indicators to study the spatial pattern of socio-economic well-being in Chhattisgarh.

III. OBJECTIVES OF THE STUDY

The major objectives of the present study are:

- To explain the significance of the idea of social well-being in Geographical research and explores how Geographers have adopted this idea to make one of its own.
- Study inter-tehsil socio-economic differentials in Hadauti, and
- Identify the factors responsible for spatial variations in Hadauti

IV. METHODOLOGY

The study examines the spatial patterns of socio-economic well-being in Hadauti by using the census data of 2011 as the data for 2021 has not been collected and published by the census department. Ten indicators including tap water for drinking, latrine facility, electricity supply, convenience of separate kitchen, LPG as cooking fuel, bathroom facility, proper drainage facility for wastewater, availing banking services, availability of television and mobile. The method of *First Principal Component* has been used to develop the composite index required for the study. The first principal component (P_1) is the linear combination of the original variables (X_j 's) and explains the maximum variation in the data matrix.

The original variables (X_j 's) are converted into standard comparable units so that the initial scale chosen for measuring them does not bias the results. To standardize the variables following method is adopted:

$$Z_i = \frac{x_i - \bar{x}}{\sigma}$$

Where Z_i is the scale free observation, x_i is the original observation, $\bar{x}$ is the mean value, and σ is the standard deviation of X_i 's. Using these standardized variables (Z_i 's), the first principal component is computed as:

$$P_1 = a_{11}X_1 + a_{12}X_2 + \dots + a_{1k}X_k = \sum_{j=1}^k a_{1j}X_j$$

V. STUDY AREA

Study area is located in the south-eastern part of Hadouti Plateau in Rajasthan, between $24^{\circ}25'$ to $25^{\circ}51'$ North latitudes and $75^{\circ}15'$ to $76^{\circ}45'$ East longitudes. The total geographical area of this region is 14481.6 square kilometres. This region includes the entire Bundi district, the entire Kota district except Ramganj Mandi tehsil, the entire Baran district except Chhabra Kishanganj and Shahbad tehsils and Khanpur tehsil of Jhalawar district. There are 15 tehsils in this region, in which there are 2278 inhabited villages and 19 towns. The main ever flowing river of this region is Chambal, whose tributaries are Kali Sindh, Parvan, Parvati and Mej. The climate here is semi-arid and subarid. Agriculture is the main occupation of the population here.

VI. RESULTS

We have used coefficient of variation to observe the level of disparity regarding selected indicators. As may be seen from Table 1.

Drinking water sources: Human survival and a country's socioeconomic development are heavily reliant on the availability and accessibility of safe drinking water facilities. It is thought that drinking water is more than just an economic commodity; it is also a socio-cultural good. It is a significant determinant of quality of life.

Table 1 : Percentage of Households by availability of functions

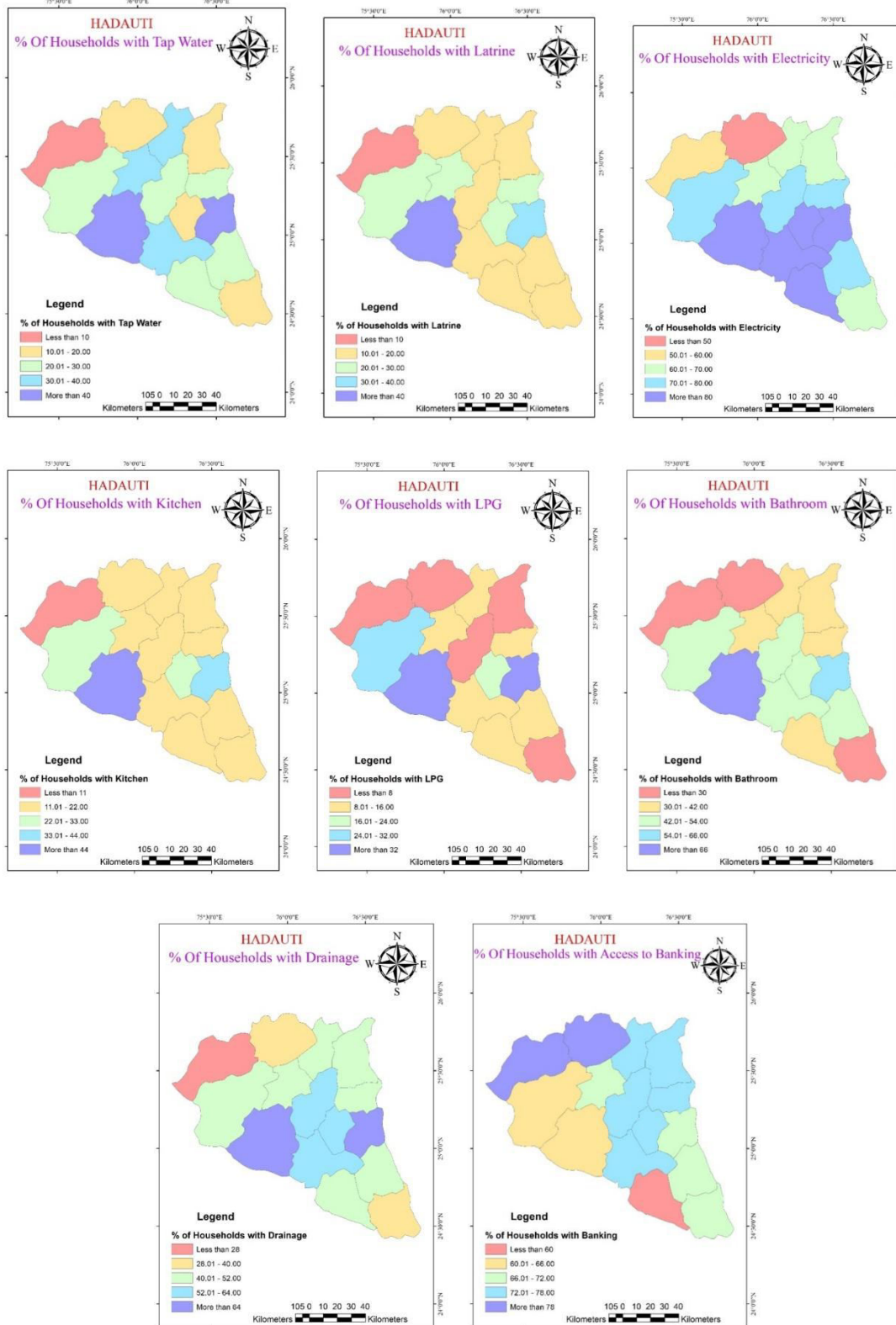
S.N o.	Name of the Unit	% of households with									
		Availabili ty of Drinking Water from taps	Latrin e	Electrici ty	Kitche n	LPG	BathRoo m	Drai n	Acce ss to Bank	TV	Mobil e
1	Hindoli	8.34	8.83	50.99	10.49	5.35	25.04	22.3	82.7	21.4	53.04
2	Nainwa	15.88	10.48	44.54	12.33	7.69	26.49	28.4	83.76	21.6	60.3
3	Indragarh	30.94	19.67	60.21	19.49	15.2	39.46	44.4	73.09	34.5	61.97
4		33.62	21.37	65.69	16.46	14.4	36.23	41.6	69.18	41.9	64.85
5	Bundi	28.85	28.32	76.96	27.98	24.8	43.81	40.7	65.74	49.0	60.22
6	Pipalda	19.45	11.76	68.2	12.13	6.52	33.6	40.8	75.32	34.5	65.84
7	Digod	20.64	15.03	79.84	14.09	7.88	42.53	58.5	73.15	45.4	62.09
8	Ladpura	75.85	75.05	95.83	60.37	64.8	86.2	87.7	65.91	73.8	66.36
9	Sangod	32.79	16.88	81.25	18.41	11.1	46.14	54.5	75.07	46.9	65.74
10	Mangrol	24.41	20.75	76.1	16.54	13.7	41.38	44.9	72.27	42.5	67.21
11	Antah	18.43	22.89	84.22	22.07	17.5	47.39	59.8	74.34	49.5	67.4
12	Baran	47.64	37.05	87	34.9	34.5	61.6	67.0	67.94	56.6	67.67
13	Atru	23.92	15.34	73.27	18.04	10.8	43.33	44.3	69.1	41.4	67.87
14		17.95	10.03	67.57	11.45	7.82	29.73	37.2	69.65	25.3	49.95
Average		28.41	22.01	73.11	20.94	16.9	42.99	48.2	71.7	42	63.11
Std. Deviation		16.08	16.45	13.87	12.7	15.2	15.03	16	6.45	13.6	5.41
Coeff. Of Variation		0.57	0.75	0.19	0.61	0.9	0.35	0.33	0.09	0.32	0.09

In Hadauti most households, which is more than 50 percent use handpumps for drinking water. Access of tap water is available to only 28.41 percent of households. There is wide variation among the tehsils of Hadauti as in Ladpura more than 75 percent household use tap water for drinking water while at the same time in Hindoli 8 percent household have access to tap water.

Availability of Latrine facility: Sanitation is one of the very important aspects of social development. It influences health status of environment in general and individuals in particular. In Hadauti most households, that is more than 75 percent use open fields or public toilets to defecate. Access of latrine is available to only 22.01 percent of households. There is wide variation among the tehsils of Hadauti as in Ladpura more than 75 percent household have latrine facility while at the same time in Hindoli nearly 8 percent household have access to personal latrines. Governments claim of hundred percent open defecation free tehsils, the reality is far from data on papers.

Availability of Electricity : The role of electricity in this internet age and highly connected world is critical. Its significance stems from the fact that when the supply of electricity is cut for even a small period of time, many normal activities come to a halt, and soon an ocean of darkness, both visual darkness and the darkness of ignorance, engulfs us for a period of time. Lack of electricity has become a basic need of modern life as well as an indicator of development. 73 percent of the households in the study area has access to electricity. 95 percent households in Ladpura are electrified while only 45 percent households in Nainwa are having electricity. Government claims of hundred percent electrification is far from reality. People rely on kerosene, and solar lights to lighten their houses.

Availability of separate kitchen: Most households in Hadauti (nearly 79 percent) do not have a separate kitchen to cook food. Only 21 percent households have a separate kitchen. The majority of



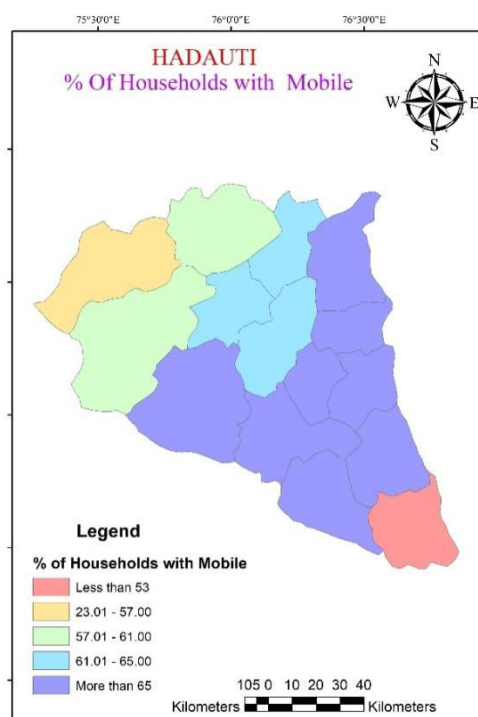
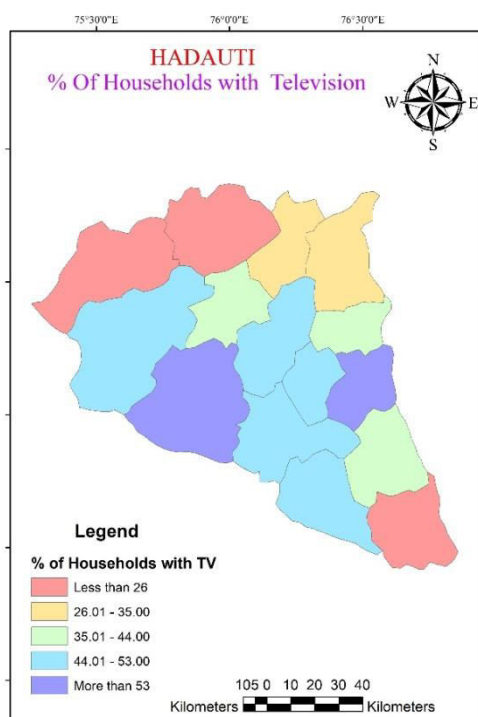
households cook food either in the living room or outside the house or on roof top. Ladpura tehsil in the region has the maximum percentage of households (60.37 percent) with separate kitchen facility.

LPG as cooking Fuel: Only 17 percent of the households in the region use LPG as the main cooking fuel. The wood is the most common fuel used for cooking food in Hadauti region. However, there are wide disparities within the region on use of LPG. Ladpura tehsil has LPG gas for cooking in nearly 65 percent of households while Hindoli tehsil has only 5 percent. Though this is the published data for 2011 census but after the present government at the centre, Ujjwala yojna of the government has changed the picture that too on papers. The rising prices of domestic gas cylinder is hindering the common men from using LPG and people are still dependent on wood and kerosene for cooking food.

Availability of bathing facility: Only about two-fifth households (42 percent) have the bathing facility in Hadauti region. Of these, 70 percent households have the bathroom without roof. However, there are wide inter tehsil disparities in the region. Ladpura has 86 percent households with bathroom facility but in Hindoli only 25 percent households have bathroom facility.

Drainage connectivity for wastewater: On average, only 48.26 percent households in Hadauti region have the drainage facility for wastewater outlet either in form of closed drainage or in the form of open drainage. Only 8 percent of such households have closed drainage connectivity for wastewater outlet. Ladpura has 87 percent households with drainage facility but in Hindoli only 22 percent households have drainage facility.

Availability of banking services: Nearly 72 percent households in Hadauti region use banking services. More than 80 percent households in Nainwa and Hindoli tehsil use banking services. These are leading here while in other indicators these tehsils were lagging, the reason for this is that government is directly transferring subsidies in beneficiary account holders' account.



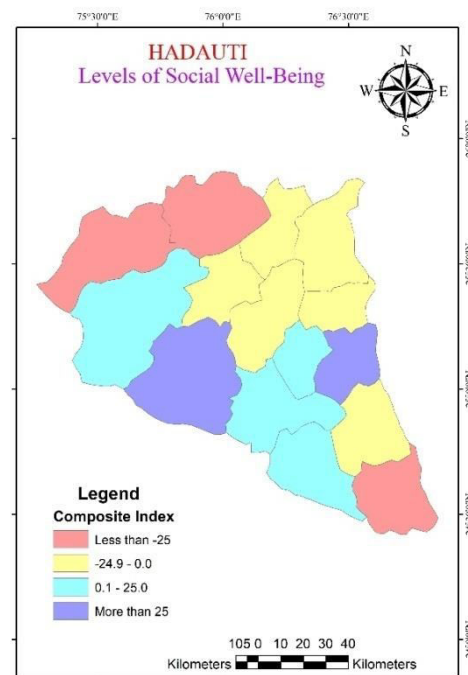
Availability of Television and Mobile: In Hadauti region, only 42 percent households have the television. The percent is low as the region is not hundred percent electrified. Ladpura tehsil has Television in 74 percent households while only 21 percent households in Nainwa and Hindoli tehsil enjoy televisions. 63 percent households in the region have mobile facility while less than 50 percent households in Chhipabarod tehsil have mobiles with them, all the remaining tehsils have a uniform picture in terms of mobile connection.

Levels of socio-economic well-being at tehsil level

Using the above ten indicators discussed above, correlation matrix was calculated and thereafter, eigen values of all indicators were calculated. From the eigen values the composite index of socio-economic well-being has been worked out in table 2.

Table 2: Composite Index of socio-economic well-being

Tehsil	Composite Index (in '00)
Hindoli	-41
Nainwa	-35
Indragarh	-8
Keshoraipatan	-4
Bundi	7
Pipalda	-16
Digod	-4
Ladpura	81
Sangod	3
Mangrol	-2
Antah	8
Baran	34
Atru	-3
Chhipabarod	-26
Khanpur	6



With the purpose of delineating backward blocks of Hadauti region, all 15 tehsils of the region considered for the study have been classified into four categories-

Areas of high well-being:

In Hadauti region, two tehsils, having composite index value more than 25 fall in the category of high well-being. These tehsils are Ladpura (81) and Baran (34). Both these tehsils seat the district headquarters of Kota and Baran respectively and are highly urbanised with fertile soils and good transport connectivity. Literacy rates and household income of these tehsils are also high, giving a boost to their purchasing power, thus increasing their well-being.

Areas of moderate well-being:

In Hadauti region, four tehsils, having composite index value ranging between 0 and 25 fall in the category of moderate well-being. These include Antah (8), Bundi (7), Khanpur (6) and Sangod (3). All these lie in the western and southern parts of the region. The area is fertile and the literacy rate is comparatively better than other tehsils of the region.

Areas of low well-being:

In Hadauti region, six tehsils, having composite index value ranging between 0 and -25 fall in the category of low well-being. These tehsils are Keshoraipatan (-4), Indargarh (-8), Pipalda (-16), Digod (-4), Mangrol (-2) and Atru (-3). Most of these tehsils are located in the northern parts of the region. The density of population is low and two tehsils Pipalda and Digod are totally rural in nature and the literacy rate in them is comparatively low which makes them fall in the category of low level of socio-economic well-being.



Areas of very low well-being:

The remaining three tehsils of Hadauti region have composite index value of less than -25. These include Hindoli (-41), Nainwa (-35) and Chhipabarod (-26). All these tehsils have peripheral location with very low levels of literacy, undulating terrain, high level of people engaged in primary activities. Hindoli is backward in almost all the indicators considered for the study.

VII CONCLUSIONS

Individuals cannot evaluate in general the quality of services they require because in most of the cases types available in the market and money available is more accountable for their choice rather than their own desire. In today's urban life people wish more due to competitiveness, advertisement, marketing than their needs and creating a confused criteria of assessing subjective well-being. Subjective evaluation is frequently influenced by a person's personality and financial resources, therefore it might vary for no apparent reason. It is important to remember that the social, economic, and political structures all contribute to the generation of social 'goods' and 'bads.'

The region has 9 tehsils falling under low levels of socio-economic well-being which poses a big challenge to the policy makers for formulating a policy for their upliftment.

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