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[ijirset@gmail.com](mailto:ijirset@gmail.com)

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# An Analysis of Occupational Disparity and Work Participation in Ajmer District, Rajasthan

Dinesh Kumar Sharma<sup>1</sup>, Dr. Sandeep Yadav<sup>2</sup>, Dr. Sant Kumar Meena<sup>3</sup>

Assistant Professor, Department of Geography, Government College, Bundi (Raj.), India<sup>1</sup>

Professor, Department of Geography, Government Girls College, Bundi (Raj.), India<sup>2</sup>

Assistant Professor, EAFM, Government College, Bundi (Raj.), India<sup>3</sup>

**ABSTRACT:** The distribution or division of a nation's people into various occupations is referred to as the country's occupational structure. Social scientists can measure the degree of social and economic growth that a region has attained as well as create plans for utilising its labour force by conducting an analysis of the working population.

The profession you choose has a significant impact on your income and job performance. The person's work is a good indicator of their socioeconomic situation. The paper examines the occupational structure and examines how various traits enable people to access the jobs of their choosing. The empirical findings demonstrate that people with good educational attainments favour high-ranking positions. Additionally, it is acknowledged that gender plays a part in the job market and that males are sorted into high-paying professions. The factors affecting human capital have a greater impact on career decision than do individual traits. Education is the human capital factor that most strongly influences choosing a profession.

In terms of occupational structure, one can observe the difference between the labour participation rates of men and women in society, which illustrates the involvement of both genders in economic activities. The current study tries to comprehend the male and work participation rates in the Ajmer region along with the spatial pattern of occupational structure. The complete research project is based on secondary data sources, including the Indian census, the primary census abstract, and statistical handbooks.

**KEYWORDS:** Occupation, occupational structure, work force, Duncan index, Gender ratio.

## I. INTRODUCTION

The use of human resources for a country's socioeconomic development through industrial and occupational framework, labour force involvement, and other factors is of utmost significance. The percentage of workers who work in different occupations provides a picture of a region's socioeconomic development. The unequal growth of various regions of India is explained by the distribution of workers among various occupational categories as well as regional differences in the occupational structure. The profession and industry are unmistakably two different perspectives from which the economic activity of the population may be viewed; the first focuses on what a person does, and the second reveals their place in the nation's economic structure. A person's line of work is their occupation, and the sector of the economy to which they are linked is their industry. Regardless of how jobs are distributed, gender segregation in the workplace is said to occur when women and men are distributed differently across occupations [Jonung, 1984].

The reference time for identifying a person as a worker or non-worker is one year prior to the date of enumeration, according to the 2011 Indian census. Following that, employees are divided into main and marginal workers. Main workers are those who put in more than six months' worth of work (183 days) during the reference era. The marginal workers are those who worked for less than six months (183 days) during the reference era. According to their line of work, employees are divided into four general categories: cultivators, agricultural labourers, household industrial workers, and other workers. A person is considered a cultivator if they cultivate land that they own or have leased from the government, a private person, or an institution in exchange for payment in cash or a share of the



harvest. A person is considered an agricultural labourer if they labour on someone else's property for salary in cash, kind, or a share of the profits. In rural or urban settings, household industry is described as a business operated by one or more members of the household only within the confines of the residence where the household resides. Other workers are defined as all employees who do not fall into one of the afore mentioned groups.

## II REVIEW OF LITERATURE

The relationship between the rate of labour force participation and the standard of economic growth was examined by G. Parthasarthy in 1995. He noted that areas with low economic growth have a disproportionately higher percentage of labour force participation. In addition, child labour rates are greater in underdeveloped areas. His research led him to the conclusion that the extent of poverty forces people to labour.

Amitabh Kundu (1997) described some factors influencing employment rates and determining the work participation rate in a specific industry and noted a substantial increase in the working population, especially in the age range of 40-59 years during 1990. In 1999, Ajit, K. Ghore drew attention to the present problems with India's work participation rate, employment policies, and economic development policies and noted that a few socio-cultural factors are to blame for the disparities in employment levels and work participation rates. He added that the general state of employment had neither improved nor declined.

Gandhi, S. and Banerjee, Guha, S. (2008) explored the historical context of women workers' marginalisation in India. They have made it clear that women experience salary discrimination in comparison to their male counterparts. Ratan Kumar Ghosal (2006) noted that the workforce structure in the state of West Bengal had undergone a rapid transition from farm to non-farm activities as a supplemental source of revenue. The participation of women in the workforce in a middle-sized city has been described by Kranti Kapoor (2006). Sabana Talwar (2005) examined the problems and concerns surrounding female employment. She has highlighted the prevalence and issues facing Indian women workers in her research. An analysis of the pre- and post-reform periods of female employment in India has been done. Khan, Z. and Yadav, S. (2021) analysed the spatial patterns of occupational structure in Hadauti region of Rajasthan. They worked on tehsil level taking the 2011 census data.

## III OBJECTIVES OF THE STUDY

The paper's main objectives are to analyse the district's current occupational structure at the tehsil level and to comprehend the occupational disparities between men and women in the district at different tehsils.

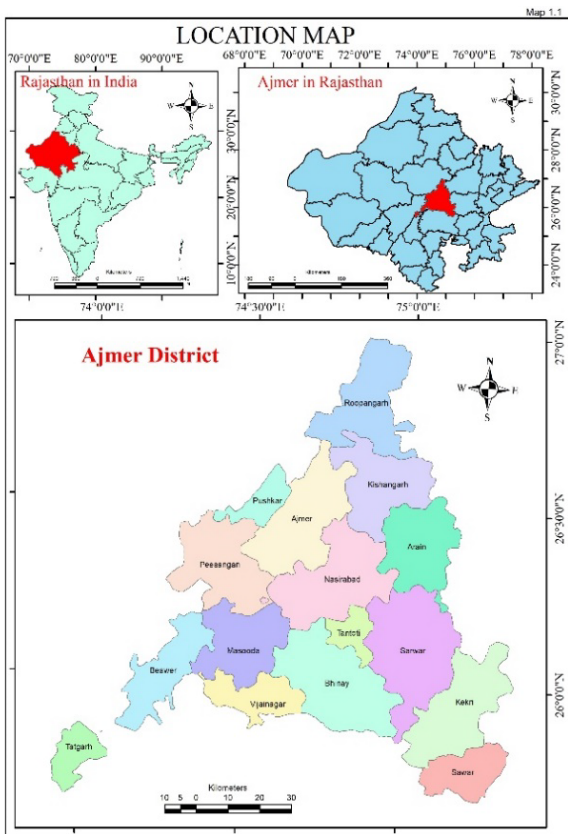
## IV METHODOLOGY

The present study is based on secondary data. Data has been collected through various statistical handbook of Ajmer, Census of India, Primary census abstract etc. For the current research, secondary sources of data from the 2001 and 2011 censuses were used. 16 tehsils are included in the analysis because the current paper's emphasis is on the district's occupational structure at the tehsil level. The study concentrates on measuring the disparity of the working distinction between men and women in the district while analysing the occupational structure of the district at its tehsil level. The degree of segregation has been measured for this purpose using the Duncan index. The index determines the percentage of occupational disparity between men and women and what percentage is required to close the gap. Dissimilarity index [D] was proposed by Duncan and Duncan. This type of measure is most prevalent. It calculates the proportion of men (or women) who would need to switch careers to attain perfect integration. D has a range of values between 0 (perfect integration) and 100 (perfect segregation).

$$[D] = \frac{1}{2} * \sum_1^n \left| \left( \frac{W_i}{W} \right) - \left( \frac{M_i}{M} \right) \right|$$

Where 'i' is the number of occupations,  $W_i$  and  $M_i$  refer to the number of women and men in the  $i$ th occupation respectively.  $W$  and  $M$  refer to the total women and men respectively in all occupations. The Karmel and MacLachlan index is a measure of gender-based occupational segregation that has been calculated by the following formula.

$$[I_p] = \left(\frac{1}{T}\right) \sum_1^n |(F_i - a(F_i + M_i))|$$



where a (=F/(M+F)) represents the female participation in the labour force and T = M + F.

### V. STUDY AREA

Ajmer district is situated in the centre of Rajasthan and surrounded by Jaipur and Tonk district in the East and Pali in the West. Nagaur district touches its north boundary while Bhilwara district is in the South. The shape of the district is triangular. The district lies between 26°25' North to 26°29' North latitudes and 74°03' East to 74°42' East longitudes. Total area of Ajmer district is 8481.40sq. Kms. Ajmer district is sub divided into 13 sub-divisions and comprises of 16 tehsils Ajmer, Masuda, Tatgarh, Pushkar, Nasirabad, Bhinay, Sarwar, Tantoti, Peesangan, Kekri, Sawar, Arain, Vijainagar, Beawar, Roopangarh and Kishangarh. Overall population of Ajmer district is 2,583,052 in 2011. Rural and urban population of the district is 1,547,642 and 1,035,410 people. The literacy rate of Ajmer district as per 2011 census is 69.33 percent while male literacy is 83.93 percent and that of female is 56.42 percent.

### VI. OCCUPATIONAL STRUCTURE OF THE DISTRICT

The economic growth of a specific area and the level of education attained by a group of people are closely related to occupational structure. A place's employment structure and rate are influenced by several variables, including economic, technological, and geographic aspects. As a result, the picture of the labour force participation in each area differs. In case of Ajmer district, in 2011 it is recorded 40.79 percent of population. Out of this total working population, male participation rate in the district is 51.82 percent and female participation only 29.2 percent. From 2001 to 2011, a change was seen in the district's percentage of the total working population. According to the census data in 2001, the total working population was 39.27 percent, which has increased to 40.79 percent during 2011. The percentage of male and female working population in 2001 was 49.79 percent and 27.97 percent respectively which has increased to 51.82 percent in case of male working population and 29.2 percent in female working population (table 1).

**Table 1: Working Population of Ajmer District**

Year	% of working population	% of male working population	% of female working population
2001	40.79	51.82	29.2
2011	39.27	49.79	27.97

Source: Calculated from Primary Census Abstract, Ajmer 2001 and 2011

Table 2 shows the occupational structure of Ajmer district according to 2011 census. 13 tehsils out of 16 tehsils have more than 50 percent of its population as non-workers. The 3 tehsils of Arain, Bhinay and Sarwar have more working population. Highest working population is in Sarwar tehsil, while Ajmer tehsil has the lowest number of working populations. Arain, Bhinay, Tantoti, Sarwar and Sawar have maximum workers engaged in agriculture directly



as cultivators or as agricultural labourers. Whereas maximum population of Kishangarh, Ajmer, Beawer, and Nasirabad are engaged in services and tertiary sector (Map 2).

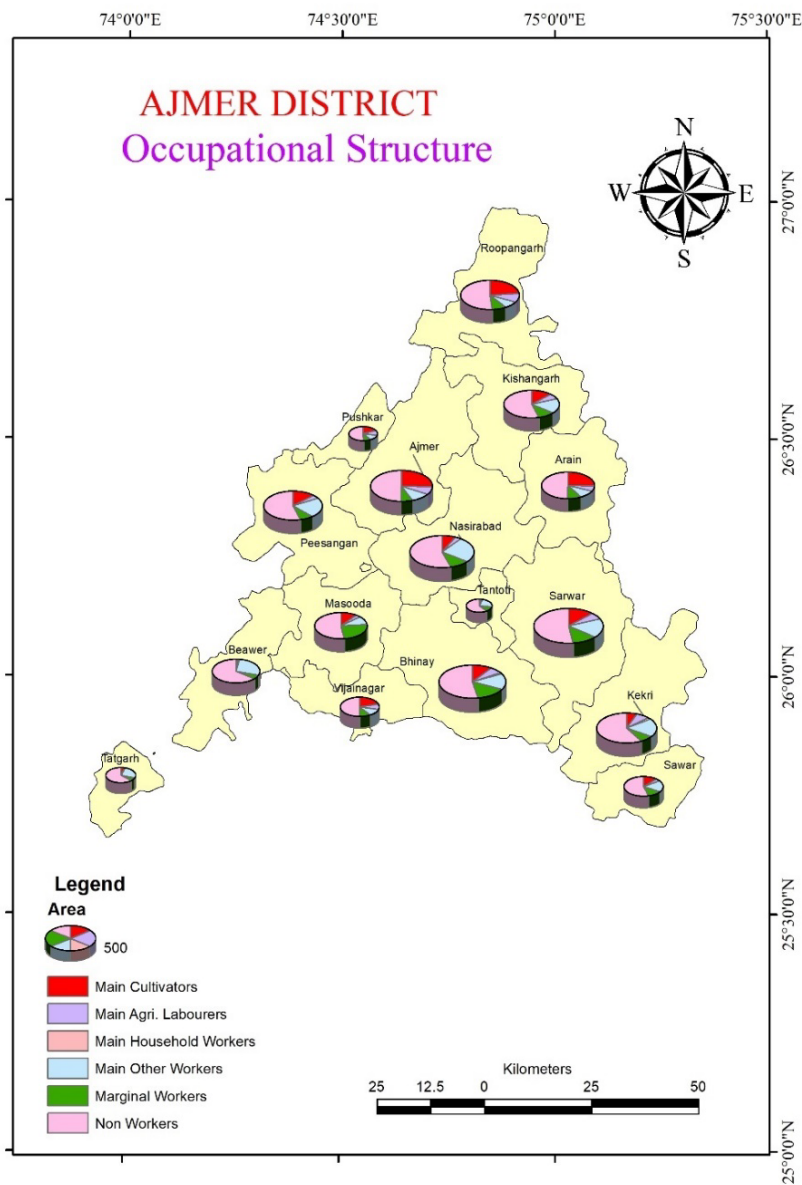


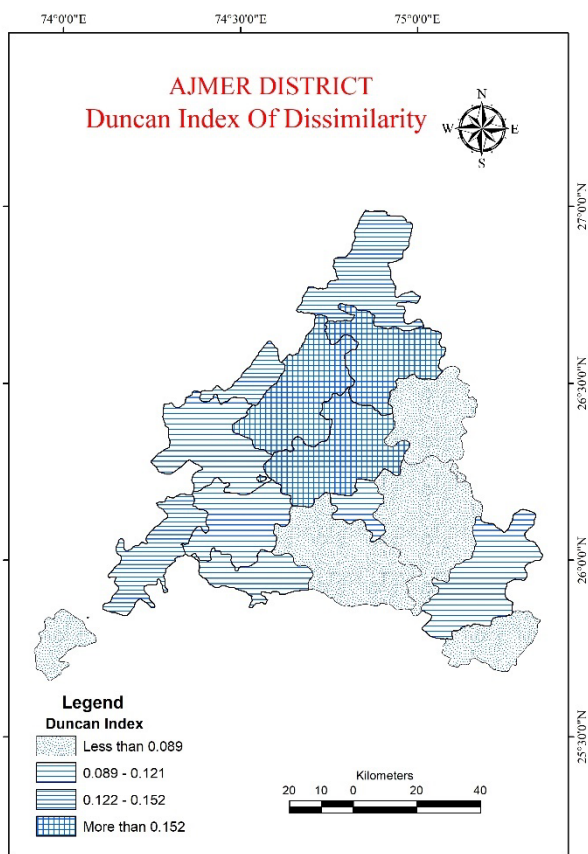
Table 2: Occupational Structure of Ajmer District 2011

S.No.	Tehsil	Cultivators	Agri. Labourers	Household workers	Other workers	Marginal workers	Non workers
1	Roopangarh	13.79	3.46	0.44	14.23	12.29	55.7
2	Kishangarh	5.02	0.98	1.07	22.74	5.97	64.22
3	Arain	21.31	6.33	0.71	9.97	11.92	49.76
4	Pushkar	7.61	8.08	1.52	14.99	7.05	60.75



5	Ajmer	1.81	0.74	1.3	25.52	4.35	66.28
6	Peesangan	12.31	5.92	1.07	11.15	15.51	54.04
7	Beawer	3.16	1.25	1.56	20.69	10.24	63.1
8	Tatgarh	12.39	3.14	0.2	8.1	23.38	52.79
9	Masooda	14.64	5.27	0.73	13.26	13.65	52.45
10	Vijainagar	15.11	3.31	0.93	16.86	8.6	55.19
11	Nasirabad	9.07	3.36	0.97	20.31	10.76	55.53
12	Bhinay	25.41	4.57	0.7	9.03	11.08	49.21
13	Tantoti	19.6	7.81	0.43	10.76	10.5	50.9
14	Sarwar	25.2	6.13	0.99	10.28	8.27	49.13
15	Kekri	14.74	5.29	0.87	13.06	10.46	55.58
16	Sawar	23.64	7.16	0.41	7.38	9.83	51.58

Source: Calculated from Primary Census Abstract, Ajmer 2011



The most popular metric for measuring occupation gender segregation is the Duncan Index of Dissimilarity. Otis Dudley Duncan came up with the concept in 1955. The Duncan Segregation Index is the most accurate tool for determining how much of a difference there is in the region's workforce between males and women. It figures out how much of a percentage is needed to close the gender difference in terms of occupational disparity between men and women. D numbers range from 0 (Perfect integration) to 100. (Perfect segregation).

When women make up the same percentage of the workforce in all occupations as they do overall, the Duncan Segregation Index number is 0. Perfect gender integration is represented by a value of 0, and total gender segregation is represented by a value of 1. In 2011, the value of D (table 3) is 0.227 which indicates that 22.7 percent of women need to change their occupations to equate the occupational distribution between men and women in the district. Less than 10 percent women needs to change their occupation in Arain, Tatgarh, Masooda, Bhinay, Tantoti, Sarwar and Sawar. Some factors like unequal treatment of people based on gender and looks of a person are responsible for such dissimilarities.



**Table 3: Duncan Index of Dissimilarity and Gender ratio values for Ajmer District 2011**

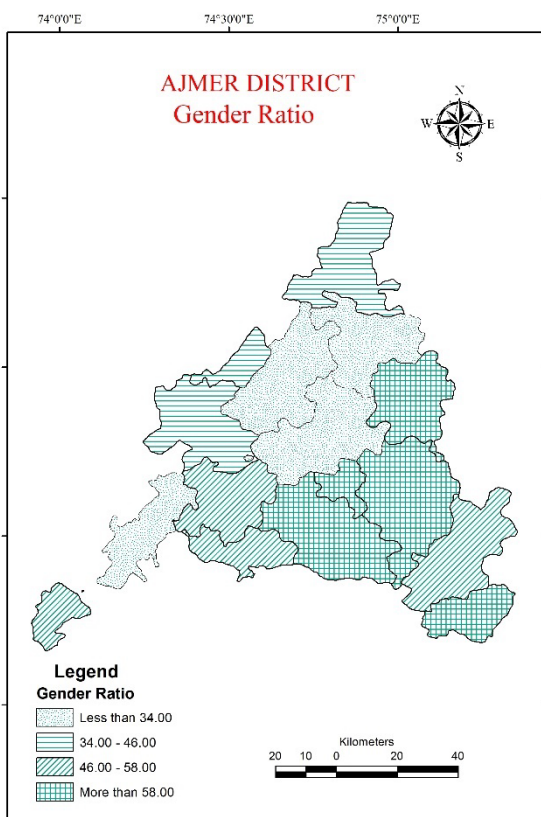
S.No.	Name	Female Fraction	Male Fraction	Abs. (Fi-Mi)	D=1/2(Abs. (Fi-Mi))	Gender Ratio
1	Roopangarh	0.190	0.441	0.251	0.126	40.49
2	Kishangarh	0.110	0.476	0.366	0.183	21.65
3	Arain	0.292	0.470	0.178	0.089	59.69
4	Pushkar	0.170	0.462	0.292	0.146	34.09
5	Ajmer	0.111	0.467	0.356	0.178	22.45
6	Peesangan	0.191	0.414	0.223	0.112	44.43
7	Beawer	0.118	0.410	0.293	0.146	27.68
8	Tatgarh	0.155	0.323	0.169	0.084	48.62
9	Masooda	0.244	0.429	0.186	0.093	53.66
10	Vijainagar	0.253	0.467	0.214	0.107	52.23
11	Nasirabad	0.175	0.484	0.308	0.154	32.73
12	Bhinay	0.323	0.469	0.146	0.073	66.83
13	Tantoti	0.290	0.478	0.188	0.094	58.59
14	Sarwar	0.357	0.493	0.136	0.068	69.97
15	Kekri	0.229	0.447	0.218	0.109	49.73
16	Sawar	0.327	0.443	0.116	0.058	71.60
Ajmer District			0.455	0.455	0.227	37.59

Source: Calculated from Primary Census Abstract, Ajmer 2011

The Duncan Index of Dissimilarity is a statistical measure used to assess the level of occupational segregation or diversity within different geographic areas. In the context of Ajmer district, the index has been calculated for various tehsils, providing insights into the occupational composition and diversity in each tehsil. The values of the Duncan Index of Dissimilarity for different tehsils in Ajmer district vary, ranging from 0.058 to 0.183. A lower value of the index indicates a lower level of dissimilarity or greater similarity in occupational distribution, whereas a higher value indicates a higher level of dissimilarity or greater diversity in occupational distribution.

Among the tehsils with available data, Sarwar has the lowest Duncan Index of Dissimilarity at 0.068, indicating a relatively higher similarity in the occupational distribution within the tehsil. Bhinay, Tatgarh, and Sawar also have relatively low values of 0.073, 0.084, and 0.058 respectively, suggesting a relatively higher similarity in occupational distribution within these tehsils. On the other hand, Kishangarh has the highest Duncan Index of Dissimilarity at 0.183, indicating a higher level of dissimilarity or diversity in occupational distribution within the tehsil. Ajmer, Pushkar, and Nasirabad also have relatively higher values of 0.178, 0.146, and 0.154 respectively, indicating a relatively higher diversity in occupational distribution within these tehsils.

It is important to note that the interpretation of the Duncan Index of Dissimilarity depends on various factors such as the size of the population, the number of different occupations, and the specific characteristics of the tehsils being compared. The gender ratio conveys the proportional strength of female and male employees. It is also employed as a measure of gender inequality. The gender ratio (table 3) in Ajmer was 37.59 in 2011, indicating a decline in the proportion of female employees to male employees. The gender ratio of occupation in Ajmer district provides insights into the representation of different genders in various tehsils, and how it relates to the previously analyzed Duncan Index of Dissimilarity.



Based on the data calculations, it appears that there is considerable variation in the gender ratio (table 3) of occupation among the different tehsils in Ajmer district. Sarwar has the highest gender ratio at 69.97, followed by Sawar at 71.60, Bhinay at 66.83, and Arain at 59.69, indicating a higher representation of males in occupational distribution in these tehsils. On the other hand, Kishangarh has the lowest gender ratio at 21.65, followed by Ajmer at 22.45, Beawer at 27.68, and Nasirabad at 32.73, indicating a higher representation of females in occupational distribution in these tehsils.

It is interesting to note that some tehsils with higher gender ratios, such as Sawar, Sarwar, Bhinay, and Arain, also have higher values of the Duncan Index of Dissimilarity, indicating a higher level of dissimilarity or diversity in occupational distribution. This may suggest that these tehsils have a higher degree of gender-based occupational segregation, with certain occupations being predominantly male-dominated and others being predominantly female-dominated. On the other hand, tehsils with lower gender ratios, such as Kishangarh, Ajmer, Beawer, and Nasirabad, also have lower values of the Duncan Index of Dissimilarity, indicating a lower level of dissimilarity or diversity in occupational distribution. This may suggest a lower degree of gender-based occupational segregation in these tehsils, with a more balanced representation of genders across different occupations.

It is important to note that gender ratios and the Duncan Index of Dissimilarity are separate measures that capture different aspects of occupational dynamics. Gender ratio measures the representation of different genders in occupations, while the Duncan Index of Dissimilarity measures the dissimilarity or diversity in occupational distribution. However, when used together, these measures can provide a more comprehensive understanding of the gender dynamics in occupational distribution within Ajmer district. Occupational disparity has an impact on a region's socioeconomic standing, which is linked to their ability to obtain work and meet other basic requirements.

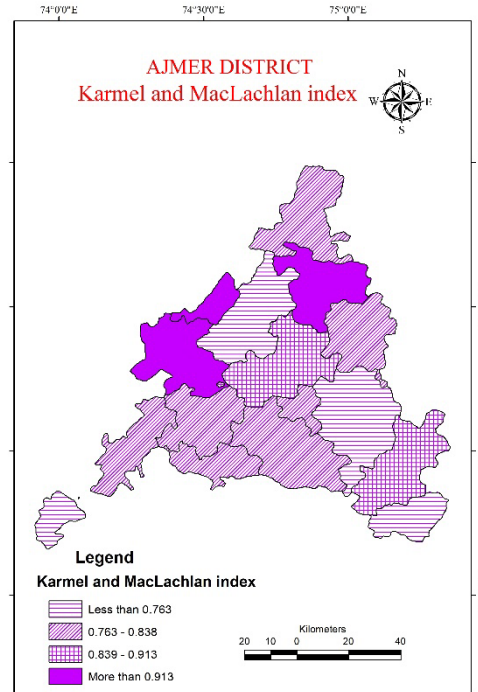
The Karmel and MacLachlan index is a measure of gender-based occupational segregation, with a value of 0 indicating perfect integration (equal distribution of men and women across all occupations) and a value of 1 indicating complete segregation (no overlap between men and women in any occupation). The Karmel and MacLachlan index ranges from 0 to 1, with a higher value indicating a greater degree of gender parity in terms of occupational distribution.

Among the tehsils (table 4) in Ajmer district, Peesangan has the highest Karmel and MacLachlan index value of 0.988, indicating that there is a very high degree of gender parity in terms of occupational distribution in that tehsil. This suggests that men and women in Peesangan are working in a similar range of occupations. Kishangarh and Pushkar also have high index values of 0.932 and 0.951, respectively, indicating a relatively high degree of gender parity in terms of occupational distribution in these tehsils.



**Table 4: Karmel and MacLachlan index**

S.No.	Tehsil	Karmel and MacLachlan index
1	Roopangarh	0.824
2	Kishangarh	0.932
3	Arain	0.787
4	Pushkar	0.951
5	Ajmer	0.704
6	Peesangan	0.988
7	Beawer	0.802
8	Tatgarh	0.711
9	Masooda	0.830
10	Vijainagar	0.827
11	Nasirabad	0.856
12	Bhinay	0.825
13	Tantoti	0.788
14	Sarwar	0.687
15	Kekri	0.875
16	Sawar	0.730



Source: Calculated from Primary Census Abstract, Ajmer 2011

On the other hand, Sarwar and Ajmer have relatively low index values of 0.687 and 0.704, respectively, suggesting that there is a greater degree of gender imbalance in terms of occupational distribution in these tehsils. This may indicate that men and women in these tehsils tend to work in different types of occupations. Overall, while there is some variation in the degree of gender parity in occupational distribution among the tehsils in Ajmer district, most of the tehsils have index values in the range of 0.7 to 0.9, indicating a moderate to high degree of gender parity in terms of occupational distribution.

It is important to note that this index only considers the distribution of men and women across different occupations and does not capture other factors that may contribute to gender inequality in the labour market, such as differences in pay, working conditions, and career advancement opportunities.

**VII. CONCLUSIONS**

Economic and social ramifications of labour force involvement are significant. Even after automation, labour-intensive practises are still important in some economic activities. Male employees outnumber female workers across all of Ajmer's tehsils, but each tehsil has a nearly equal distribution of the two sexes when it comes to population. Women's life expectancy and educational levels significantly increased in Ajmer. However, women tend to work in more traditional jobs, and some parts of the district are still developing slowly. The district's economic output is therefore largely underrepresented by women. The analysis concluded that gender segregation in the workplace continues to persist in the Ajmer district even after 75 years of the introduction of Five-Year Plans with emphasis on various economic sectors. Overall, the Duncan Index of Dissimilarity provides a valuable quantitative measure for assessing occupational diversity and segregation in different tehsils of Ajmer district, helping policymakers and researchers better understand the occupational dynamics and patterns of the region.

So, to increase economic growth, planners and policymakers should take steps to integrate more women into contemporary large enterprises.

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