Functional Pattern of the Central Business District (CBD) of Jammu City: A Regional Analysis

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Abstract: *One of the basis lineaments of the Central Business District (CBD) is the frequency of functions and diversity of functions in a limited space. Concentration of smaller number of functions gives rise to functional intensity and conversely, large number of different functions creates functional diversity or low functional intensity. The purpose of the current paper is to calculate the patterns of functional intensity and diversity in the Central Business District (CBD) of Jammu city, as the city shows the variety and multiplicity of functional elements imparting it a structural diversity which results from its spatial - functional organization. As many as 69 different types of functions in retail business were recorded in 3769 commercial establishments and this fact signifies an enormously wide functional range in Jammu city. In Jammu city, high functional intensities are seen over considerable part of the Central Business District (CBD) space. It is seen that about 26.58% of the establishments with 16.76% of area of establishments and having 23.09% of workers shows the high functional intensities. However, in case of functional diversity Kanak Mandi, Gandhi Nagar, Rajinder Bazar, Raghunath Bazar, Patel Bazar, Residency Road and Old Hospital Road performed different types of functions as the result they indicate functional diversity.*

Keywords: Frequency, Diversity, Functions, Establishments, Workers

1. Introduction

Central Business District (CBD) is the commercial heart of the city where there is a maximum concentration of retail and service activities, highest land values and tallest buildings (Murphy and Vance, 1951). It is the area where the economic life of the city reaches its maximum intensity (Johnson, 1941). The attraction which draws people into the Central Business District (CBD) is the complex of functions performed there consisting of social, cultural, political and service functions as well as administrative and trade activities (Hartman, 1950). The Central Business District embodies an area which has the highest intensity and concentration of commercial functions within the metropolitan area. It is at the very heart of the urban system, the commercial hub about which the rest of the city is structured (Carter, 1976).

The functional pattern of the Central Business District (CBD) received only limited interest in the past, even though Central Business District (CBD) was typically defined and admit as a functional location. It is in fact the functional pattern of the Central Business District (CBD) i. e. its functional composition and functional spatial organization that exemplify the body and character of a Central Business District (CBD). A Central Business District (CBD) is a functional complex with large number of retail trade functions that are ideal and take the benefit of the Central Business District (CBD) location. Among these numerous functions, a group of selected functions tends to dominate and occupy considerable part of the Central Business District (CBD) space. This group of dominant or strong functions defines the functional character of the Central Business District (CBD) and represents the functional

pattern (Hussain, 1990). This functional group is major indicator of the functional spatial organization in the Central Business District (CBD).

2. Objective

Major objective of the study are:
To evaluate the patterns of functional intensity and functional diversity in the Central Business District (CBD) of Jammu city.

3. Study Area

Jammu city occupies a position of central importance in the entire region of Jammu, not only because the city is the winter capital of UT of Jammu and Kashmir, but because of its role as the regional centre to its hinterland. Jammu city actually took shape in 1962 and its municipal limits extended on both banks of Tawi River over an area of 16.87 sq. km. Presently the old city constitutes the Central Business District (CBD) which lies between 32° 43′ 30″ and 32° 44′ 30″ N latitude to 74° 51′ 0″ and 74° 52′ 30″ E longitude and stretches over an area of 404.1 hectare. Most of the activities relating to trade, commerce, government offices, educational institutions, health facilities and recreation are concentrated and growing rapidly in this area. It attracts and generates large volume of traffic from and to the residential colonies located in the south and west directions. Jammu city has undergone rapid changes in terms of urbanization in the last 50 yrs. Raghunath Bazar, Kanak Mandi, Moti Bazar, Pacca Danga, Jain Bazar, Link Road, Purani Mandi, City Chowk and Hari market are the important Shopping Centers. Thus old city is the centre of Economic, Social and Cultural activities which also provides

large market to the surplus products of the neighboring towns and better education facilities.
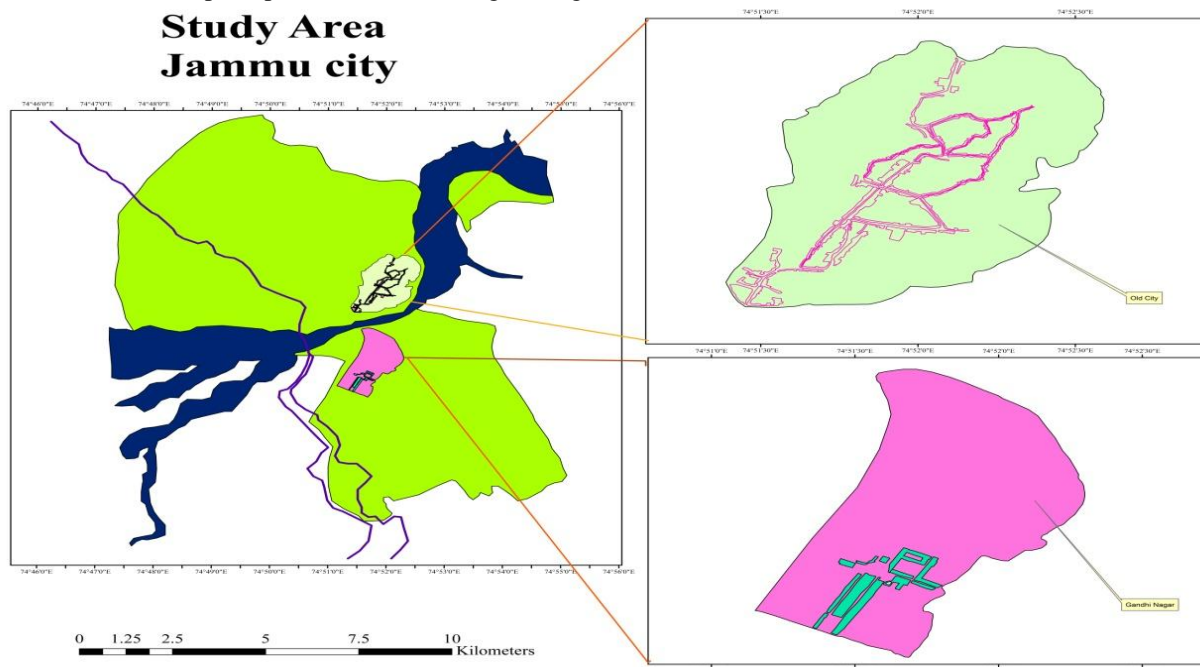

Figure 1

4. Database and Methodology

The present study is based on primary data. A set of two variables namely Functional Intensity Index (FII) and Functional Diversity Index (FDI) were selected to ascertain concentration level or categories block by block in the study area. The information regarding number of establishments in a block, number of functions in the block and number of workers in a block was sought through a questionnaire. These variables can be calculated as follows: -

$$\text{Functional Intensity Index (FII)} = \frac{\text{Number of Establishments in the Block}}{\text{Number of Functions in the Block}}$$

$$\text{Functional Diversity Index (FDI)} = \frac{\text{Number of Workers per Establishments in the Block}}{\text{Number of Establishments per Functions in the Block}}$$

As many as 69 different types of functions in retail business were recorded in 3769 commercial establishments and this fact signifies an enormously wide functional range in the study area. Thus, the data gathered after field survey is analyzed in the form of concentration levels or categories. The study area i. e. Jammu city has been analyzed in terms of four concentration levels or categories i. e. High, Medium, Low and Very low. Finally, the results of functional pattern are depicted with the help of tables, maps and diagrams.

5. Results and Discussions

5.1 Identification of Market Centers and Different Types of Functions in Jammu City

A variety of goods are sold in the different markets of Jammu city. However, some goods are sold in some markets. This leads to functional specialization of the different market centers. The number of establishments present and the types of goods sold, help in determining the intra - city hierarchy of markets. Firstly, identification of different types of functions is done and then the functional intensity index and functional diversity index is calculated which shows the frequency of occurrence of different types function in a particular market center in Jammu city.

Table 1: Identified Market Centres and Different Types of Functions in Jammu city

S. No	Market Centres	No. of Establishments	No. of Functions	Type of Functions
1	Gandhi Nagar	705	50	Readymade garments, clothing, footwear's, banks, ATMs, restaurants, dhabas, cinema halls, chemists and druggists, auto spare parts, wild bird dealer, juice corner, sweet shops, beer and wine shops, optician, glass dealer, toys, crockery, heavy electronic goods (T. V, fridge etc.), cyber cafes, fruits and vegetables, bags, book shop, gift house, florist, private clinics and labs, mats and carpets, watches, coaching institutes

				and tutorials, cosmetic shops, property dealers, karyana stores, jewellery and gems, furniture's, photo galleries, mutton and chicken dressing, car washing, hardware's, tailors, pan shop, ice dealer, gas dealer, driving schools, electric cable dealer, courier service, embroidery, dry cleaners, welding, Bedsheet, curtain and cushion shops and light electronic goods (mobiles etc.)
2	Raghunath Bazar	254	22	Hotels, dhabas, chemists and druggists, handlooms and handicrafts, sweet shops, readymade garments, cinema hall, heavy electronic goods (T. V, fridge etc.), toys, crockery, footwear's, advocates chambers, clinics and labs, karyana stores, juice corner, cosmetics, banks, ATMs, wine and beer shop, light electronic goods (mobiles etc.), mutton and chicken dressing shops and Bedsheet, curtain and cushion shops.
3	Lakhdata Bazar	154	13	Jewellery and gems, karyana, readymade garments, clothing, hotels, dhabas, handlooms and handicrafts, hardware, chemists and druggists, wine and beer shops, sweet shops, light electronic goods (mobiles etc.) and mutton and chicken dressing.
4	Gummat Bazar	219	21	Readymade garments, clothing, footwear's, bags, gift house, crockery, hardware, video halls, hotels, dhabas, newspapers, wine and beer shop, heavy electronic goods (T. V, fridge etc.), auto spare parts, photo gallery, bicycle, sports, karyana, sweet shops, light electronic goods (mobiles etc.) and mutton and chicken dressing.
5	Kacchi Chawni	227	18	Book shops, hotels, restaurants, dhabas, coaching institutes and tutorials, karyana stores, chemists and druggists, photostat and lamination, light electronic goods (mobiles etc.), cyber cafes, private clinics and labs, photo galleries, meat and chicken shops, wine and beer shops, readymade garments, clothing, cosmetic and footwear's.
6	Residency Road	133	12	Hotels, restaurants, readymade garments, footwear's, handloom and handicrafts, banks and ATMs, karyana stores, light electronic goods (mobiles etc.), sports, furniture's, sweet shops and mutton and chicken dressing.
7	Jewel Bazar	131	21	Hotels, restaurants, dhabas, karyana stores, wine and beer shops, cinema hall, heavy electronic goods (T. V, fridge etc.), courier services, readymade garments, hardware, fish market, photostat and lamination, sweets shops, car washing, fruits and vegetables, auto spare parts, sports, chemists and druggists, mat and carpet shops, footwear's, light electronic goods shops (mobile etc.)
8	Old Hospital Road	204	7	Readymade garments, clothing, handloom and handicraft, footwear's, parking, cosmetic shops and Bedsheet, curtain and cushion shops.
9	Pahari Market	156	6	Readymade garments, clothing, tailor's, footwear's, chemists and druggists and bags shops
10	Raj Tilak Road	109	8	Readymade garments, sweet shops, footwear's, bank and ATMs, cosmetic shops, crockery, karyana shops and light electronic goods (mobiles etc.)
11	Jain Bazar	193	10	Jewellery and gems, readymade garments, electronic goods, wine and beer, bank and ATMs, foot wear's, dhabas, karyana, sweet shops and chicken dressing shops.
12	Pacca Danga	155	13	Books, chemists and druggists, restaurants, dhabas, watches, printing press, sweet shops, readymade garments, clothing, photo galleries, light electronic goods (mobiles etc.), wedding cards shops and chicken dressing shops
13	Patel Bazar	189	10	Readymade garments, cosmetic, leather bags, tailors, embroidery, karyana, sweet shops, soda, bakers and footwear's
14	Moti Bazar	147	15	Hardware, karyana, bank and ATMs, sabzi mandi, cosmetics, readymade garments, clothing, models and charts, dhabas, hotel, restaurants, kites, light electronic goods (mobiles etc.), gift house, chemists and druggists
15	Peer Mitha	154	8	Jewellery and gems, karyana, sweet shops, bank and ATMs, readymade garments, clothing, dhabas and footwear shops.
16	Kanak Mandi	113	7	Karyana, rice and flour, dhabas, hotels, cosmetic shops, hardware and sweet shops.
17	Shalimar Bazar	127	12	Chemists and druggists, light electronic goods (mobiles etc.), readymade garments, parking, private clinics and labs, gift house, crockery, dhabas, hotels, watches, karyana stores and Bedsheet, curtains and cushions shops.
18	Rajinder Bazar	87	11	Karyana, rice and flour, chemists and druggists, sweet shops, hotels, dhabas, cosmetics, hardware, readymade garments, clothing and chicken dressing shops.
19	Purani Mandi	97	8	Footwear's, handloom and handicraft shops, readymade garments, clothing, wine and beer shops, restaurants, karyana shops and bedsheet. curtain and cushion shops.
20	Prade Ground	77	11	Dhabas, hotels, restaurants, readymade garments, clothing, karyana, photo galleries, cyber cafes, photostat and laminations, light electronic goods (mobiles etc.) and wine and beer shops.
21	Link Road	106	5	Readymade garments, clothing, footwear's, cosmetics and bedsheet, curtain and cushion shops.
22	Mubarak Mandi	32	4	Photostat and lamination shops, typists, books and karyana stores.
Total		**3769**	**69**	

Source: Field Work and Compiled by the Authors

5.2 Functional Intensity Index (FII)

Functional - structural diversity and spatial functional organization are both characterized by functional intensity. Essentially, functional intensity is defined as the frequency at which a function occurs. The presence of a function that occurs often causes spatial patterns that indicate functional intensity. Functional pattern of the Central Business District (CBD) of Jammu city has been calculated as the city shows the mixture and large quantity of functional aspects imparting it a structural diversity which results from its spatial - functional organization. As many as 69 types of functions in retail business were recorded in 3769 commercial establishments and this fact signifies a lot of functional range in Jammu city. To identify Central Business District (CBD) functions broadly there are readymade garments, clothing, footwear's, banks and ATMs, restaurants, hotels, cinema halls, chemists and druggist, auto spare parts, juice corners, sweet shops, toys, gift houses, crockery, heavy electronic goods (T. V, Fridge etc.), light electronic goods (mobiles etc.), cyber cafes, fruits and vegetables, bags, leather bags, books, florist, private clinics and labs, mats and carpets, watches, coaching institutes and tutorials, driving schools, ticket booking counters, cosmetics, property dealers, karyana stores, jewellery and gems, furniture's, tailors, hardware, pan shops, palmist/ astrologer, car parking's, mutton and chicken dressing, photo galleries, gas dealer, wedding card dealer, advocates chambers, embroidery, video halls, newspapers, wine and beer shops, dhabas, bicycles, sports goods, printing press, courier services, fish market, photostat and laminations, soda, bakers, rice and flour, models and charts, ice dealer, kites, handlooms and handicrafts, welding, dry cleaners and bedsheet, curtain and cushion shops. By applying functional intensity formula (FII) to the Central Business District (CBD) space, the functional intensity pattern has been analyzed and shown in table no.2.

It has been observed that the high and medium functional intensity level together has the maximum number of blocks i. e.69 among which 32 blocks are under high functional intensity level whereas 37 blocks are under medium intensity level. However, medium functional intensity level whose intensity level is low as compare to that of high intensity level shows remarkable changes in terms of number of blocks and number of establishments. These variables show high values as compared to that of high functional intensity level. The number of establishments in the block is 1474 which is relatively maximum among all the categories. In case of low and very low categories the functional intensity level ranges between 10.6 - 15 and <10.5 respectively. Low and very low categories together has 44 blocks with 1293 business establishments. Apart from this, a total of 46 different types of functions are performed in 1002 business establishments among the high functional intensity level. Medium functional intensity level has the maximum number of different types of functions among all the categories i. e.114 in 1474 business establishments. Among the different areas in medium functional intensity level, a total of 50 different types of functions are performed only in the central business district (CBD) space of Gandhi Nagar in Jammu city.

In relation to the different types of functions performed in low functional intensity level the data shows wide variations in the functions performed. A total of 63 different types of function are performed in 706 business establishments. Gummat Bazar has the maximum number of different types of functions i. e.21 which is followed by Kacchi Chawni which has 18 different types of functions. As far as the different types of functions are concerned in very low functional intensity index a total of 69 functions are performed in 587 business establishments. Jewel Bazar has the maximum concentration of different types of functions i. e.21, which include hotels and restaurants, dhabas etc. This area is most dominant by hotels and restaurants and is close to general bus stand. As the result, this area is overcrowded by outsiders visiting the city and by the dominance of hotels in this area visitors prefer to stay in this area.

Table 2: Spatial Pattern of Functional Intensity Index (FII) in Jammu City

Functional Intensity Level	Name of the Market Center	No. of Blocks	No. of Establishments in the Block	No. of Functions in the Block
High (>21)	Link Road	3	106	05
	Old Hosp. Road	6	204	07
	Pahari Market	5	156	06
	Peer Mitha	6	154	08
	Jain Bazar	6	193	10
	Patel Bazar	6	189	10
	Total	**32**	**1002**	**46**
Medium (15.1 - 20)	Gandhi Nagar	13	705	50
	Pacca Danga	5	155	13
	Lakhdata Bazar	4	154	13
	Purani Mandi	3	97	08
	Raghunath Bazar	8	254	22
	Raj Tilak Road	4	109	08
	Total	**37**	**1474**	**114**
Low (10.6 - 15)	Shalimar Bazar	4	127	12
	Kacchi Chawni	6	227	18
	Residency Road	5	133	12
	Gummat Bazar	6	219	21
	Total	**21**	**706**	**63**
Very Low	Moti Bazar	5	147	15

(<10.5)	Kanak Mandi	5	113	07
	Rajinder Bazar	4	87	11
	Prade Ground	3	77	11
	Mubarak Mandi	2	32	04
	Jewel Bazar	4	131	21
	Total	**23**	**587**	**69**

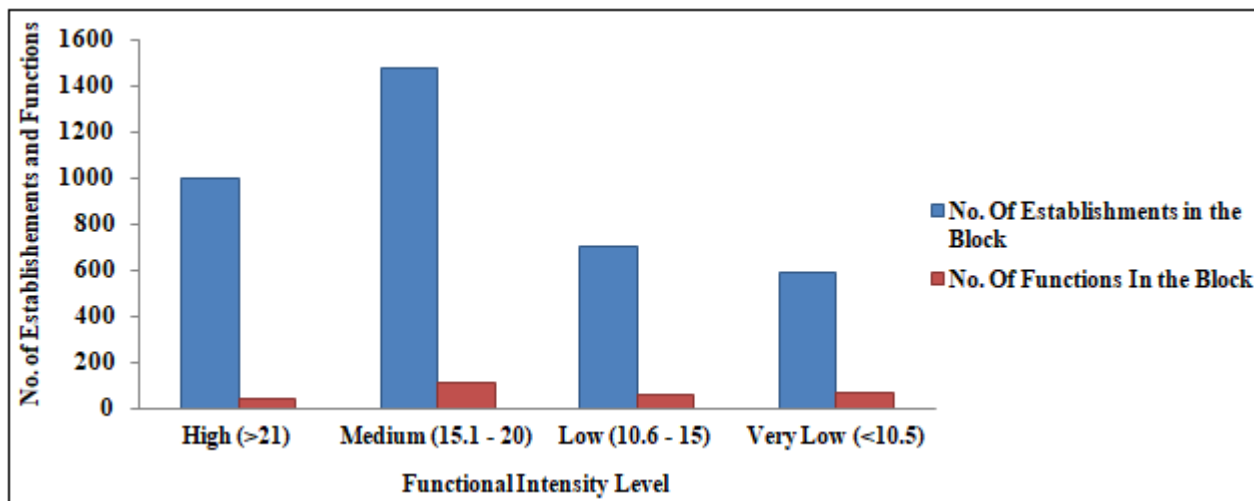Source: Field Work and Compiled by the Authors

Figure 2: Functional Intensity Index (FII) Jammu City

5.3 Functional Diversity Index (FDI)

A function that occurs infrequently indicates functional diversification in the Central Business District (CBD) space. It is based on two ratios i. e. number of workers per establishments in the block and number of establishments per functions in the block. Though average employment of establishments may have a remote connection with the nature or type of function, the quantitative relationship with employment has been taken advantage of so as to indicate functional multiplicity as shown by the number of functional establishments in the block. Functional diversity index has been analyzed and shown in table no.3. It is seen that the high and medium functional diversity level together has the maximum number of blocks i. e.69 blocks, among which 47 blocks are under high diversity level whereas, 22 blocks are under medium diversity level. Whereas, the number of establishments under high functional diversity level are 1685 and about 4539 workers are employed in these establishments. However, medium diversity level shows remarkable changes in terms of number of blocks, number of establishments and number of workers in the Central Business District (CBD) space. There are 695 business establishments and about 1176 workers are working in these business establishments among the medium functional diversity category.

In case of low and very low categories the functional diversity level ranges between 1.2 - 1.4 and <1.2 respectively. Low and very low functional diversity level together have 44 blocks with 1389 business establishments and 1818 numbers of workers employed in these business establishments as compared to medium diversity level. It is observed that high diversity level have 119 different types of functions and Gandhi Nagar market centre have the maximum different types of function i. e.50 and that occurs infrequently and gives the clue of functional diversification in the Central Business District (CBD) space. A total of 73 different types of functions are performed in the different market centers under medium diversity level. Jewel Bazar has shown the maximum diversification with 21 different types of function within the Central Business District (CBD) OF Jammu city. Under low functional diversity level a total of 63 different types of functions are performed in 983 business establishments employing about 1377 workers. Among the market centers under low diversity level Gummat Bazar has the maximum number of different types of functions i. e.21, which is followed by Pacca Danga which performed 13 different types of functions whereas, the rest of the areas i. e. Jain Bazar, Peer Mitha, Pahari Market and Link Road performed 10, 8, 6 and 5 different types of functions respectively. As far as the different types of functions under very low functional diversity level are concerned a total of 37 different types of functions are observed under 406 business establishments with 441 number of workers. Among the different market centers under very low functional diversity level Kacchi Chawni has the maximum number of different types of functions i. e.18 which is followed by Moti Bazar and Mubarak Mandi. Among all the market centers in the Central Business District (CBD) of Jammu city Mubarak Mandi has the least number of different types of functions i. e. only 4. The reason behind this is that the area is mostly dominated by the residential population as there are least number of business establishments hence the functions too are performed are least in number. It is seen that in the past this area is known to be the commercial as well as the functional hub of the city because the palace of the ruler is in this area and like all medieval towns, the ruler's palace continued to be the hub of the town, and the area around (a big enclosed rectangular block) came to be known as Raja - ki - Mandi, used also by the Maharaja for attending to the public but in the recent times the southward shifting trend of the functional hub of the urban activities from Mubarak Mandi to Jain Bazar

continued and reached Raghunath Bazar in the beginning of the thirties which leads this area to less importance in terms of functions as well as establishments.

Table 3: Spatial Pattern of Functional Diversity Index (FDI) in Jammu City

Functional Diversity Level	Name of the Market Centre	No. of Blocks	No. of Establishments Per Functions in the Block	No. of Workers Per Establishments in the Block
High (>1.9)	Kanak Mandi	5	113	387
	Gandhi Nagar	13	705	2127
	Rajinder Bazar	4	87	214
	Raghunath Bazar	8	254	615
	Patel Bazar	6	189	452
	Residency Road	5	133	298
	Old Hosp. Road	6	204	446
	Total	**47**	**1685**	**4539**
Medium (1.5 - 1.8)	Prade Ground	3	77	140
	Jewel Bazar	4	131	235
	Purani Mandi	3	97	174
	Raj Tilak Road	4	109	187
	Lakhdata Bazar	4	154	243
	Shalimar Bazar	4	127	197
	Total	**22**	**695**	**1176**
Low (1.2 - 1.4)	Gummat Bazar	6	219	324
	Link Road	3	106	148
	Pahari Market	5	156	217
	Jain Bazar	6	193	268
	Pacca Danga	5	155	211
	Peer Mitha	6	154	209
	Total	**31**	**983**	**1377**
Very Low (<1.2)	Moti Bazar	5	147	188
	Kacchi Chawni	6	227	230
	Mubarak Mandi	2	32	23
	Total	**13**	**406**	**441**

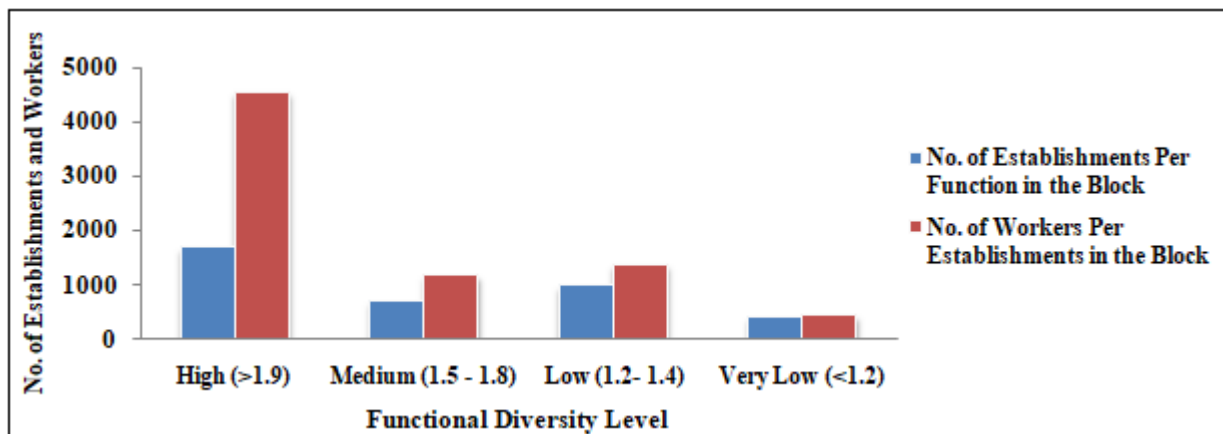Source: Field Work and Compiled by the Authors

Figure 3: Functional Diversity Index (FDI) Jammu City

6. Conclusion

Presently, the old city constitutes the Central Business District (CBD) in Jammu city where most of the activities relating to trade, commerce, government, work centres, education, health and recreation facilities are concentrated and further growing rapidly. Below are the broad conclusion reached as a result of the study: -

- The Spatial pattern of the Central Business District (CBD) of Jammu city both as a geographical region and a functional complex is characterized by visible perplexity of business functions and their remarkable intensities.

- The variables selected to calculate the functions frequency and diversification are Functional Intensity Index (FII) AND Functional Diversity Index (FDI). These variables expressed as categories (of intensities) or concentration levels yielded the basic pattern differentiating the Central Business District (CBD) space in terms of the variables.

- The Jammu city Central Business District (CBD), defined in terms of retail business functions is endowed with stupendous variety of functional elements. The retail district was found of 69 different functions or types of retail business. It is seen that about 50 different types of are performed in Gandhi Nagar which are highest whereas least number of functions i. e.4 are

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performed in Mubarak Mandi. It is evident from the analysis that functions such as Readymade Garments, Footwear's, Electronic Goods and Karyana Stores are available almost everywhere in the Central Business District (CBD) of Jammu city.

- The spatial functional pattern of Jammu city was dominated by high functional intensities over considerable part of the Central Business District (CBD) space. It is seen that about 26.58% of the establishments with 16.76% of area of establishments and having 23.09% of workers shows the high functional intensities. However, in case of functional diversity Kanak Mandi, Gandhi Nagar, Rajinder Bazar, Raghunath Bazar, Patel Bazar, Residency Road and Old Hospital Road performed different types of functions as the result they indicate functional diversity.

7. Acknowledgments

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