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A SURVEY OF THE IMPORTANCE OF SOCIAL DIVERSITY IN URBAN RENOVATIONS (CASE STUDY: FAKHAR PIT IN MASHHAD)

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ABSTRACT

Spatial separation consists of human groups' concentration in different urban places due to the performance of various economic, social, cultural, and political forces. Certainly, all societies and regions are somehow involved in these separations, but what is important is the identification of this separation's manner with scientific method, utilizing proper indexes. In planning replaced housing for renovation of urban distressed areas, it is considered one of the most important today cities' stability necessities. In this article, similarity amount of population dwelling in Mashhad, Fakhar pit with an area of 5000sqm and population of 1085 people, are measured by depth descriptive research method. Social physical characteristics of pit dwellers were collected on 2007 by cell to cell examination of the place. Segregation indexes are prepared via Entropy coefficient and compared by total urban average. It is confirmed that the dwellers of this neighborhood are not similar to urban collection from two physical and social aspects by proving segregation. These studies can be considered in the process of neighborhoods and urban distressed areas' empowerment for planning replaced housing for other dwellers.

 Keywords: Segregation, Dissimilarity, Spatial Pattern, Urban Space, Entropy Coefficient

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INTRODUCTION

As told by Robert Park, we face a mosaic of quite different groups in the city, each of which having their special culture, record, and profits and entering economic competitions for possessing the space by special processes. Burgess believes that separation of social and economic groups gives them a special place in the city and the outcome of this process is characterization of special zones in the city, for the reason which attracts or repels special people and activities. People fit in the city according to according to economic division of occupations, social classes, and cultural groups and they may be in contrast to each other. In urban environments, work's economic division overlaps social class, cultural and ethical differences and special segregation patterns (Tonkiss, 2005). Networks of social relations are initially transferred to individuals by kinship patterns. But individuals start to select more actively by themselves since maturity. Not only network should be built and selected, but also it should be maintained, and of course any society transfers certain patterns to individuals which are quite effective in their selections.

Cities make it more possible for individuals to become closer and forming communities by abundant facilities they create for sharing favorites and finding different taste ranges. The following parameters operate as fundamental backgrounds in forming urban communities and changing individual's tastes:

Education, income (of family), age and gender, marriage, children, religion, ethnicity (Fischer, 1984)

According to studies performed in large cities, these factors are involved in building spatial patterns:

1- The social-economic base gives sector shape to the city. It means urban sectors form based on individuals' amount of income and education.

2- Familial base; familial status affects regional forming more than sectional forming.

3- Ethical base; ethical-racial bases shape the cities in a cluster form. Each of these urban clusters belong to a or followers of a religion, like cluster part of different religions' followers in Middle-Eastern cities or Black, Chinese, and Italians in American neighborhoods, called Ghetto in Urban Ecology.

4- City's mosaic texture; each of mentioned three patterns can help to create mosaic pattern of the city (separate sections), otherwise, each urban section will have familial

characteristics. Although consistency and uniformity is seen inside these sections, they are completely different from each other in terms of economic, ethical, and familial status (Shekuee, Social Geography of Cities, 1980)

One of the considerable regions in Mashhad is Sajjadieh alley and pits 3-6m deep with area of 5000sqm to more than two hectares in eastern part of Mashhad, is used as residence. These pits are wholly gradually excavated by brick kilns and after closure of these kilns on 1952 were left unused. Later, these places were bought or occupied and constructed by workers majorly immigrants, then by gradual invasion of some urban immigrants and Mashhad dwellers[3] (Studies of Councilors, 2007). In this article, social, economic, and physical similarities of these regions' dwellers are studied aiming to know the characteristics and planning for reconstruction and empowerment of distressed areas inside pits.

Research Background

In the article of Mashhad old areas segregation, two coefficients of segregation and dissimilarity in urban units are used, by which the level of Mashhad old neighborhoods' similarity is examined from social perspective[4] (Rahnama). In this article, ecological segregation is divided into two types of obligatory (irreversible), like defect systems and optional and reversible, free systems and Islamic system. Finally, while examining occupational segregation in two different historical eras, no considerable difference was observed in this index. In this article, in this article, also social inequalities in Mashhad urban space, Gini Coefficient and Lorenz Curve are used to examine the level of inequalities in urban areas of Mashhad by using two indexes of education and financial income[5] (Yusefi, 2011). This research acknowledges social inequalities generally have spatial display in the city (Yusefi, 2011, p. 25)

In the article, "Urban Decadence and New Racial and Social Divisions in Central Cores of Italian Industrial Cities", published on 1997, has engaged to professional and occupational divisions of residents in economic terms and examining non-Italian residents from social and racial aspect. In this article, three indexes of dissimilarity, segregation, and analytical index are used. In the first image, professional divisions and in the second image, the regions of non-Italian dwellers in

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[3] Mashhad Municipal, Studies of Councilors, 2007

[4] Rahnama, M. Urban Spacial-Local Segregation, case of Mashhad Old Areas. Mashhad Literature and Human Sciences Magazine. No. 1

5 Yusefi, A. Social Inequalities is Mashhad Urban Space. Iran Social Studies Magazine. 2011

Genoa are marked. We have used analytical index[6]. (Petsimeris, Urban Decline and the New Social Divisions in the Cities, Urban Studies, 1998).
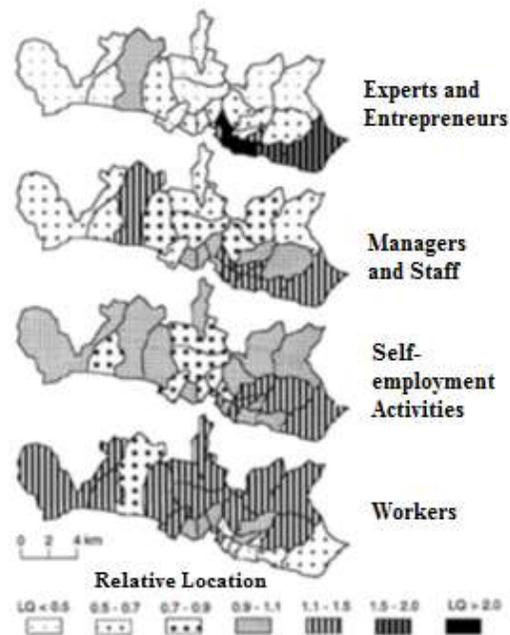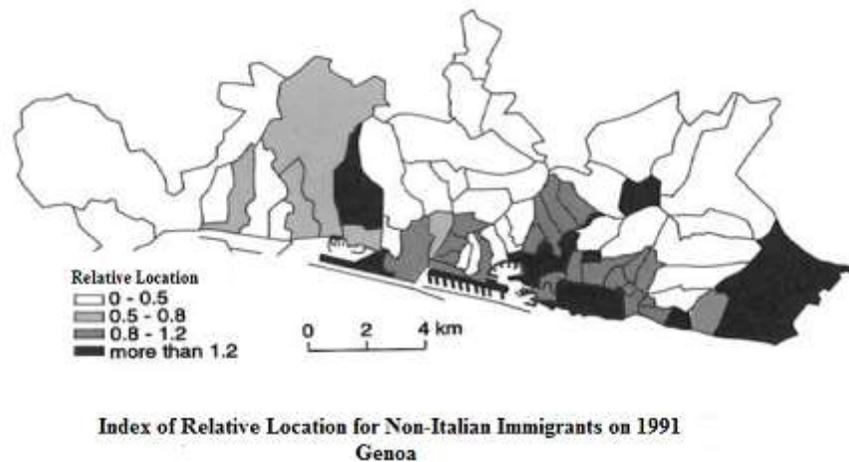

Figure 1: Diagram of occupational relative location in Genoa, Italy, 1991

The article, "Sydney, Australia, a Universal City? Testing Social Polarity) examines the subject of social polarity and location of universal cities about Sydney. The initial purpose of this article is analyzing universal city and social polarity inside it and discussion based on extending this theory to all universal cities. Two key points are created here. First, we should accept that

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[6] Petsimeris. Petros, Urban Decline and the New Social Divisions in the Cities, Urban Studies,1998

similarities in social polarity can be proved with authentic analytical methods in every single city, but there will be no spontaneous dependence between two cities. In universal cities' and social polarity, each subject should be analyzed separately. Secondly, to completely understand the relation the status of universal cities and social polarity, a multi-factor approach should be taken into account for considering universal and local impact[7] (Baum, 1997).

In the article, "Diversity Duality and Cities' Renovation Policy: Case Study of Youngsters Dwelling in Central Portland" the main subject was proposing Portland for building a prosperous and livable city and promoting urban diversity. In spite of this, diversity and livability and urban reconstruction were unsolvedly tied to Portland strategic plan. Due to urban reconstruction promotion, they have attempted to leave modernism urban functionality and replace with a diverse or eclectic city. Boyer pictures this subject as a single-zone spatial replacement with an indirect, multi-zone space like work-play, play-life, and life-work (Elin, 1996). These heterogeneous zones participated widely in free planning discussions as more vitality, livability, and urban unity (Liz, 2003). Nowadays, Portland city center plan imagines diversity a virtual synonym to city center vitality. This labeling is because of city center multi-dimensional diversity. During an economic, functional, cultural, and spatial diversity of city center and life in city center, thus livability of metropolitan regions dependent on it, is promoted and protected. Complexity, or if you would rather conceptual chaos, urban diversity is more tangible in recent urban planning documents. A rich diversity of architecture type can encourage and facilitate diverse activities of city center and is the protector and increaser of their cosmopolitan characteristics. Urban diversity has considered a symbolic situation in Portland plan on 1991 and other urban planning documents. The two pages draft of 2001 housing plan by citation to diversity for five times describe 4 different dimensions of social life including: job opportunities diversity, coastal commercial activities diversity, services of a large city, art, culture, and presenting diverse educations. City center livability is adjusted due to residential, commercial, educational, and cultural combinational and mixed applications. A diverse urban society and a diverse racial community the value of which is in their common history, boast for their cultural diversity and joint cooperation for a coherent society.

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[7] Baum. Scott, Sydney, Australia: Testing the Social Polarisation Urban Studies.1997

Theoretical Basis

Each of urban neighborhoods takes special characteristics and follows a definite social context different from other urban neighborhoods in line with ecological segregation. In urban ecology, definitions and functions are presented from invasion and ecological definitions as follows (Shekuee, Social Geography of Cities, 1980):

A: local and regional invasion and dominance of a group of people with similar social economic base to location of another group having characteristics other than invasive group.

B: A group of people or professions and institutes' replacement with families and institutes already existing in that location.

Social Relations in Cities

Community longevity in modern city, withstanding against search and separation of urban life flows, is achieved through local spaces, identity, and dependency. Yet, it is important to emphasize that modernization processes Wirth et al. viewed as attenuator of community in the city, were not only social, but also spatial and achieved a deep material expression in physical change of urban environments since mid-twentieth century. Local closed domains were vulnerable to urban reconstruction, mostly in low-price internal regions. Since 1950, a number of urban interpreters analyzed life changes of a community going forward with redevelopment of the city. In this field, the key subject was anthropological work of Herbert Gonz in Boston on 1962. Gonz's study was done when the city's was evolving. Even when he scattered urban villagers on 1962, the older Boston traces had faded away in slum clearance and urban reconstruction (Tonkis, 2009). Wilmot and Young analysis of community forms' durance manner contrasted to urban and suburban development collapsing impacts. Immigrants lamented for losing community, older neighborhood acquaintance, and the more private world due to losing community in new development, while they were happy for getting rid of the slums. Their stories were a revision on the balance between urban improvement and original location which is such a prevalent subject describing urban reconstructions.

Definition of Urban Spaces

Jane Jacobs emphasizes on border's active characteristic in cities. Physical borders do not simply show space divisions, but they help creating them. She additionally points to border's (railways, highways) inherent tendency to create vacancy. These borders divide the space and create new space: middle scopes of applications and their meanings mostly remain indefinite. Separation of

urban spaces has a vital role in creating urban concepts while they provide practical objectives. Two neighborhoods may be placed beside each other in the map, but they are divided in city's supposal from the moment they acquire two different contents (Barthez, 1997).

If modern city can be considered as a machine producing difference between people, this subject can be realized in the framework of cultural and social diversity and in separation framework. Actually, two processes are working beside each other. The preliminary impacts of Chicago School showed how cultural identity is protected and propagated through spatial separation. As Simmel declared, in social relations like spatial relations, communication is impossible without separation. Creating borders means forming objects, that creates confrontation sites and inclusion regions simultaneous with drawing segregation lines and social deprivation (Tonkis, 2009)

The Necessity of Observing Social Relations and Local Identities in Urban Reconstruction

Residential strategies of internal city development have become an important part of local policies and planning in urban contexts, but it can be used for evicting or discrediting replacing applications or other populations. A level of general application or a proportion of housing for low income can mostly provide the conditions for jerry builders who search for taking license for major-scale projects. But the heavier weights are on more profiting applications, especially on property investment market. Additionally, in cities like London, San Francisco, or Sydney, market flows tend not only towards rejecting low income population from central city, but also they tend to reject dwellers with average income.   In advanced mode has become a key method through which makes part of the city invariant (Jacobs, 1964).

Reconstruction of a neighborhood should be done regarding its native identity, discipline, and culture, so that such a plan does not finally lead to forced migration of present dwellers, because under such a condition, distressed, marginal, and slum areas will occur in another part of the city. Therefore, one should cause the major part of neighborhood dwellers to engage in reconstruction of their neighborhood by presenting proper policies, providing standard capitations, and physical and spiritual supports, so that the neighborhood's context and social system is not detached. The other group forced to leave the neighborhood after reconstruction in the neighborhood, should be supported in a planned way and dwelled as near to the same region as possible (Andalib, 2007).

The problem of recognition and determining the values in cities' physical context and old neighborhoods has the most importance. Evaluation of spaces applied after doing topologic examinations on them is one by one the determiner of old neighborhoods and cities' destination (

(Falamaki, 2008). We should regard that if the dwellers of older neighborhoods and cities are not encouraged to participate and accept responsibilities in doing reconstruction plans, they will practically create obstacles for reconstruction scattered plans, or in the best place remain indifferent to it (Falamaki, 2008). Reconstruction of distressed areas is a modeling proceeding more than a case proceeding. Modeling in design production, capital and funds production, building and construction production, and in other words, topic modeling. On the other hand, every context requires its special pattern, so localized patterns are essential in different geographical conditions (Andalib, 2007).

Different methods are used to study local indexes and patterns and urban neighborhood's segregation, here we point to some known methods:

1- Index of Dissimilarity

Index of Dissimilarity is the most common coefficient for measuring segregation. Also this coefficient includes limitations and is for simple calculation and application. This coefficient operates like this for two groups of black and white:

$$D = \frac{1}{2} \sum_{i=1}^{n} \left| \frac{w_i}{W_T} - \frac{b_i}{B_T} \right|$$

n=	The number of sample neighborhoods or
w_i=	The number of first population samples (for example whites)
W_T=	Total number of first population in the city (all whites)
B_i=	The number of second population samples (for example blacks)
B_T=	Total number of second population in the city (all blacks)

D is maximum. If each sample population includes only one group, minimum is zero if properties of each sample are like the distribution of sample in the total city (White M. , 1986).

2- Using interaction coefficient: some indexes help sociologists in evaluating the impacts of segregation. In other words, they measure not segregation, but individuality, and operate based on one to one correspondence. As an example for black and white groups:

$$B_{bw} = \sum \left(\frac{n_{ib}}{N_b} \right) \left(\frac{n_{iw}}{n_i} \right)$$

n_{ib}=	The number of blacks in the collection
n_{iw}=	The number of whites in the collection
N_b=	the number of blacks in the whole city
N_i=	the number of whites in the whole city

The index of interaction is not symmetrical; it means the probability of a black's confrontation with a white is not equal to the probability of a white's confrontation with a black. The maximum of this coefficient amount depends on both cases of ethical distribution and minorities' ratio in dependent city. Generally, this coefficient's amount is maximum when two groups have equal numbers and are distributed equally (White M. , 1986)

   3- Segregation measurement with multiple factors, entropy index:

Both indexes of dissimilarity and interactions can compare the distance of two group's separation, but entropy index has the benefit to measure different group's spatial distribution simultaneously. Entropy index for a distinct group is calculated in this way:

k   The number of ethical groups

Pij   Ratio of j population ethic in i distinct group

$$h_i = -\sum_{i=1}^{k} p_{ij} \ln(p_{ij})$$

nij   the number of j group population ratio to i distinct

group

ni   The total number of population in i distinct group

The groups with larger entropy index indicate more scattering. A group with entropy index of 1.1 (for collections with three groups) indicates 0.33 equal ratios in each group (maximum scattering) the group with zero entropy indexes indicates the content of one group only with a special group (maximum correlation) (White M. , 1986).

   4- Segregation index:

IS Segregation index represents the amount of difference between a social group and total of other groups of the society.

$$IS = 1/2 \sum_{i=1}^{n} [x_i - y_i]100$$

x_i presents social group percentage, i and y_i present total percentage of other social groups in i and n regions and the number of considered regions. The amount of segregation coefficient is graded between 1 and 100, the reagent of which is respectively complete social distribution and

maximum segregation of social groups (Petsimeris, Urban Decline and the New Social Divisions in the Cities, Urban Studies, 1998).

5- Dissimilarity index:

ID dissimilarity index is the amount of conformity or disconformity with two social groups in a residential location. The amount of this index is graded between 0 and 100; the reagent is respectively complete similarity and maximum dissimilarity.

$$ID = 1/2 \sum_{i=1}^{n} [x_i - z_i]100$$

x_i represents percentage of x social group in i region, and z_i represents percentage of z social groups in i region and n is the number of considered regions. (Petsimeris, Urban Decline and the New Social Divisions in the Cities, Urban Studies, 1998)

6- Analytical Indexes

Analytical indexes are the indexes measuring relative focus of social or ethical groups in urban subgroups. In present analyses LQ coefficient is used:

$$LQ = x_i/x_j$$

LQ represents relative focus of x social group in a region, and xi is the percentage of the same group in a vaster urban region. The amounts of LQ are all positive and their amount of less than 1 represents that social group in considered region is less than relative limit. The amount of this index is Larger than 1 and this indicates that the social group is higher than relative limit in the considered range (Petsimeris, Urban Decline and the New Social Divisions in the Cities, Urban Studies, 1998).

Examination of Fakhar Pit

One of the impacts of physical indexes in Mashhad is the existence of the largest pit in urban zone (Sajjadieh alley), at the same time the deepest pit called Fakhar Pit, located between 10 and 14 Mirza Kuchik Khan.

This pit is actually divided to two parts by Mirza Kuchik Khan Boulevard and its northern part is still known as Fakhar Pit. This pit is relatively 6 meters deep in the floor. The pit located in the southern part of this pit, somehow considered the extension of Fakhar Pit, is also known as Shahid Esmati Pit, located between 9 and 7 Mirza Kuchik Khan and in north-eastern side of urban zone of Sajjadieh Alley. Both Fakhar Pit located north of Mirza Kuchik Khan Boulevard and Shahid Esmati Pit located south of Mirza Kuchik Khan Boulevard are actually the outcome

of excavation for brick production on 1950s in Mohammad Ali Fakhar's brick kilns, are now resided and mostly oppressed and poor social and economic groups reside in these pits, who are mostly immigrants, especially Afghans (Studies of Councilors, 2007).

Mashhad municipal studies implemented by councilors, based on cell to cell survey of pits on 2007, indicates that near 1085 people equivalent to 174 households live in Fakhar pit. Out of the total of 174 units, 142 units are residential and others are commercial and in service of the pit and neighboring places. Studies about functional behavior of Sajjadieh Alley show that active units are servicing the residents of Sajjadieh Alley and two pits of Fakhar and Shahid Esmati. These units contain 4 shoemakers, 21 car workshops, 1 plumber shop, 2 bakeries, and few servicing units like barry glass, women tailor, dentistry, bike building, etc.[8]

According to taken statistics, some social economic characteristics like monthly income of the families residing in the pit, the number of people in residential units, as well as some physical characteristics of residential units, including the area of the land, building infrastructure, and the number of stories was registered. Implemented field studies on 2007, include part of the population residing in these pits, which is analyzed as sample population. If the real representative of the society is not studied, the sample will have a skew. In other words, the acquired sample will have voluntary and conscious mistakes, so correct prediction and generalization of the results of statistics to society parameters will not be possible[9]. There are different methods for determining sample volume. The first method is total estimation, apprized by research type and experimental recommendation of researchers. In this type of estimation in Human Sciences Methodology book by Dr. Hafiznia, the minimum sample of each category is

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[8] Mashhad Municipal Studies of Councilor, 2007
[9] HasaniMehr, S. (2012). Statistics and Probabilities in Geography, p. 186

between 20 and 50 people in researches needing society categorization for sampling[10] (Hafiznia, 2006).

In the second method which is codified according to confidence level of normal distribution curve, Cochran Formula is used:

n = T2* pq / (1/4q) 2

With confidence level of 95% the amount of T is equal to 1.96, and by determining the percentage of attribute distribution (every four cases of physical, social, and economic characteristics) for 50%, we can calculate the sample volume. n = 61---------------□ 82 > 61

Statistics taken from Fakhar Pit (including all physical, social, and economic characteristics) contain a complete neighborhood block including 82 residential households that is provided from 174 families living in the pit; it is more than above minimums, so it is accepted.

Research Findings

In this article, the main objective is to study the physical and social characteristics of the pit and comparing it to urban averages. We use 2 indexes of field area and the number of stories in each residential collection for physical characteristics, while for social characteristics, the index of education level and household head's occupational status is used.

The first index for studying physical characteristics is the area of the land, or residential units' field in Mashhad Fakhar Pit. Statistics of fields located in Fakhar pit in two states of total number of data and percentage of data is collected and registered in below table. Above statistics are registered cell to cell through field impression. Statistics of Mashhad area fields is issued according to building licenses of all Iranian municipals other than Tehran, which a proper average of different sort's normal distribution in cities including Mashhad.

According to information taken from residential units of pits and urban statistics according to issued licenses on 2006, a comparative table is prepared about the number of Mashhad building stories and buildings located in the pit, registered as divided by **Table 2**:

Table 1: Statistics of Urban Fields' number and percentage

Field Area	More than 500	301-500	251-300	201-250	151-200	101-150	Less than 100	total
Mashhad percentage	4.4	11.9	12.3	21.7	31.9	13.6	4.2	100
Fakhar Number	0	0	0	3	1	24	63	91
Fakhar Percentage	0	0	0	0.033	0.011	0264	0.692	1

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[10] Hafiznia, M. (2006). Human Sciences Methodology. p.138

Table 2: Statistics of urban fields located in the pit according to the number of building stories

Statistics of buildings stories' numbers	5 stories and more	4 stories	3 stories	2 stories	1 story	Total
Mashhad	991	854	776	203	121	2935
Fakhar Pit (Total)	0	1	1	35	48	85

Table 3: Statistics of educational level in Fakhar pit and Urban Statistics (percentage)

Population more than 6 years old		illiterate	Under Diploma	Diploma	Higher education
Urban	100	14	38	31	16
Fakhar	100	27	64	4	5

Table 4: Statistics and status of occupation in Sajjadieh Alley and Mashhad (gross percentage)

	Employed	Unemployed	Student	Housekeeper
Mashhad	30.97	20.02	31.37	27.73
Fakhar Pit	30.53	18.33	19.23	24.93

We use a social property (the level of dwellers' education) and a physical property (the number of buildings' stories) to determine segregation variables. These variables are evaluated by Entropy formula and the final judgment about the level of dissimilarity to Entropy index results interpretation is implemented.

In order to make sure about interpretation results, we use total urban population other than pit sample population Entropy index.

Interpretation of entropy index for physical property (field area or fine- grained pieces) according to **Table 1**:

Fakhar Entropy	0.77
Urban Entropy	1.748

So in Mashhad, Entropy index of h=1.748 indicates scattering and in Fakhar pit the index 0.77 indicates high correlation and segregation of this sample collection from total Mashhad collection about physical property of fine-grained pieces, with relatively long distance.

Interpretation of entropy index for physical property (number of stories) according to **Table 2**:

Fakhar Entropy	0.78
Urban Entropy	1.39

Therefore, in Mashhad Entropy index of h=1.39 indicates scattering and in Fakhar pit the index 0.78 indicates high correlation and segregation of this sample collection from total Mashhad collection about physical property of stories' number, with relatively long distance.

Interpretation of entropy index for social property (education level) according to **Table 3**:

Fakhar Entropy	0.92
Urban Entropy	1.3

In Mashhad Entropy index of h=1.30 indicates scattering and in Fakhar pit the index 0.78 indicates high correlation and segregation of this sample collection from total Mashhad collection about social property of education level, with relatively long distance.

Interpretation of entropy index for social property (occupational status) according to **Table 4**:

Fakhar Entropy	0.3
Urban Entropy	1.4

In Mashhad Entropy index of h=1.4 indicates scattering and in Fakhar pit the index 0.3 indicates high correlation and segregation of this sample collection from total Mashhad collection about social property of occupational status of heads of household, with relatively long distance.

CONCLUSION

We can conclude from the acquired results, Entropy index in above tables, that the dwellers of Fakhar pit, separated from other neighboring regions with a definite natural operation, have index characteristics in physical status including fine-grained pieces and number of stories, as well as an index in social status compared to other parts of the city including level of education, but their distribution is similar to other urban regions. These indexes should be considered by planners in empowerment plans of Sajjadieh Alley distressed areas. Every context requires its special pattern proportional to different conditions in the region. Thus, it is essential to have local patterns in different geographical situations. Special social and physical indexes in different residential regions prove that the contexts have definite patterns for plan of replacing housing for special neighborhoods.

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