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Article

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Spatial Ranking of Public Services and their Shortage in Cities (Case Study: Noorabad Mamsani City)

Ali Shamsoddini
Assistant Professor, Department of Human Geography, Marvdasht Branch, Islamic Azad University, Marvdasht, Iran
Mohammad Reza Amiri Fahlyiani*
Ph.D. Student in Geography and Urban Planning, Faculty of Earth Sciences, Shahid Chamran University, Ahwaz, Iran

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Abstract: One of the criteria of social justice and urban sustainable development is considering balanced distribution of infrastructures and urban facilities; therefore, the distribution of the services should be in such a way that not only it creates spatial justice in the areas, but it also prepare the ground for urban development. This research has descriptive-analytical approach and tries to recognize and rank the rate of existing services in 13 neighborhoods of Noorabad Mamsani City in Fars Province using education, health, and culture, sport, office, green space, and facility indexes. For this purpose, initially the prosperity of services in these areas was examined by using models of the coefficient of variation and statistical techniques and then, the rate of prosperity of urban services in these neighborhoods was evaluated and analyzed by using multiple criteria decision making (MCDM) model based on TOPSIS approach. The results show that there are significant discrepancies regarding the rate of prosperity of services among 13 neighborhoods of Noorabad so that central neighborhoods of the city i.e. neighborhoods 1 and 2 in district 2, are prosperous and nomadic areas are prosper less. Eventually, there is imbalance and inequality among different areas in this city regarding concentration of population and access in terms of spatial distribution of services.

Keywords: urban services, urban sustainable development, urban management, TOPSIS model, Noorabad Mamsani
JEL classification: N95, C30, R10, Q01, G20

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*Corresponding Author: mreza_amiri@yahoo.com

1- Introduction

Currently, more than half of the world population lives in urban areas (United Nations, 2009) these areas are only 4% of the earth. The world population is growing worryingly. Its annual growth rate is more than 8.1 percent. It is predicted that urban population will reach to 84 percent in the world by 2050. More than 95 percent of this growth will occur in the developing countries (Yar Khan et al., 2011). In this regard, rapid growth of population has created many problems along with urbanization extension in different countries particularly in the third world countries. Exogenous urbanization has emerged in Iran with entering oil revenues in pre-industrial society and its growth has surpassed on its development (or quantity on quality) (Rafieyan & Shali, 2012). Polarization of spatial structure of cities has leaded to increase poor quality of the land and create urban deprived spaces due to management policies in rating to a specific environment in absorbing facilities and services. The deprived area challenges the concept of legibility of urban area and it results in city's poor interpretation. A space that not only leads people to find themselves in it, but it also challenges the characteristic of urban residents (Tirbandi & Azani, 2012). Therefore, balanced spatial organization in cities is a kind of urban sustainability and it will be achieved when logical harmony and compatibility create among population and urban service distributions, but distribution of services in cities which is an obvious result of ecological segregation has influenced on spatial distribution of services in urban areas in some cities in developing countries. As a result, proper and optimal distribution of social, economic, cultural, and sanitary facilities among areas is one of the most important factors avoiding inequalities and proper spatial distribution of population in land area (Zakeriyan et.al., 2010).

In Iran, urban centralization process started after land reform in 1960s. It increased with the outbreak of imposed war and it has leaded the shortage of facilities and urban infrastructures to be doubled by urban increase and different urban groups proportional to the quality of life have different access to these facilities (Hataminejad et.al., 2011). In fact, the amount and the quality of distribution of urban services can have an influential role in spatial displacement of population and social changes and it is considered as one of the criteria of urban sustainable development and urban social justice (Taqvayi & Kiyoumarsi, 2011). Thus, the most important criterion for the situational analysis of spatial justice and urban growth is the quality of distribution of urban facilities. Also, optimal distribution of facilities and services required for citizens in city, in such a way that all citizens to have appropriate access to it, results in saving time and costs for citizens spontaneously because of providing citizens' needs appropriately and also avoiding unnecessary movement. It will provide the necessity of urban sustainability (Hataminejad et.al, 2008). In this regard, In this regard, establishing each urban element in particular spatial-physical situation of the city follows

special principles, rules, and mechanisms. It will lead to success and functional efficiency of that element in that specific place in case of observing them; otherwise the possibility of problems in urban areas is very high (Zarrabi & Mousavi, 2010). Thus, it is necessary to have balance and coordination among different areas of the city in the enjoyment of the benefits and impacts of the development along with observing progress goals in urban society. If they are not to be observed, accomplished planning and investment in these centers neither will result in development, nor may intensify the imbalances and may lead to uncoordinated growth of urban spaces. Therefore, optimal distribution of services and facilities should be accomplished in a way that in addition to creating spatial justice in the cities, it would contain the interests of all social groups in the city.

Since the center area in Mamsani transferred from Fahliyan village to Noorabad in 1962, the expansion of construction in the surrounding lands and changing them into urban land use increased and physical dimensions of the city have been added gradually by presenting urban facilities and changing Noorabad into a host city. In this regard, the rate of population growth of the city increased relatively so that the number doubled in each decade compared to the previous one (Sajjadi & Shamsoddini, 2011). In the meantime, one of the most important problems of population growth and development of Noorabad is inadequacy of urban facilities for their increasing population's needs. Also, this city has heterogeneous combination in distribution of urban land uses. This has leaded to have difficulty for residents to obtain required facilities and services. For this purpose, it has been tried in this research the amount of prosperity of 13 neighborhoods of Noorabad regarding utilities and urban services to be specified and evaluated by using TOPSIS model with the goal of identification and ranking the neighborhoods based on different economic, social, cultural, and physical criteria. So, the questions and hypotheses of the research are:

1- Is there any difference among different neighborhoods in Noorabad in terms of prosperity?

2- Is there any relation between the population of neighborhoods and distribution of urban services?

Hypothesis:

1- The neighborhoods in Noorabad have different and unequal level of services.

2- There is a direct relationship between the population and ranking of the neighborhoods of Noorabad in terms of prosperity.

2- Literature Review

In order to investigate spatial distribution of services in the cities in the country, several researches have been done that some of them are summarized in table 1.

Table1- Accomplished researches about the subject

Row	Researchers/ year	Research Title	Results
1	**Varesi et.al 2007**	The impacts of urban services distribution in spatial imbalance of population, case study: Isfahan districts	Population has not distributed equally in urban areas of Isfahan and this process became more unequal during 1994-1999 and 1999. Service distribution is unbalanced in Isfahan and this affected urban migration.
2	**Varesi et.al 2008**	A comparative study of urban public services distribution from social justice perspective, case study: Zahedan City	Service distribution and presentation is imbalanced in Zahedan. Balance can be achieved only by presenting equal and appropriate mechanism with population needs.
3	**Hatami et.al 2008**	The analysis of social imbalance for having urban service land uses, case study: Esfarayen City	A kind of spatial segregation governs socio-economic situation of residents in this city so that top economic groups have more desirable services.
4	**Khakpour & Bavanpour 2009**	The analysis of imbalance in development level of Mashhad districts	There is a difference and imbalance among different areas of Mashhad regarding population distribution and development levels according to the population and access.
5	**Zarabi & Mousavi 2010**	Spatial analysis of population distribution and service distribution in Yazd City	The relationship between population and service distribution is very slight based on Spearman method. There is a significance difference among population distribution and services which shows incompatibility between two mentioned variables.
6	**Nastaran et.al 2010**	The application of TOPSIS in the analysis and prioritizing sustainable development of urban areas, case study: Isfahan urban areas	Six deprived areas with priority coefficient of 0.22 to 0.34 are in the lowest level of prosperity. The second level includes four areas with priority coefficient of 0.42 to 0.47. The first level includes three areas regarding 21 indexes.
7	**Zakeriyan et.al. 2010**	An analysis to population distribution and service distribution in urban areas of Meybod from the perspective of sustainable development	There is a significant inverse relationship between the extent of the local area and the standard scores i.e. the extent of the area does not have any role in the optimum distribution of urban services. The correlation coefficient indicates that there is a weak relationship with the service distribution and population density in the Meybod city.
8	**Varesi et.al 2011**	Spatial analysis and planning of imperfections of urban service centers in Yasooj	Yasooj failed in physical development and population increase regarding urban services and as a result deviation from the standard of service indexes has occurred.
9	**Dadashpour & Rostami 2011**	The study and analysis of how urban public services distribute from the perspective of spatial justice, case study: Yasooj City	Services have not been distributed equally in Yasooj. Imbalance is evident regarding citizens' access to these facilities.
10	**Zarabi et.al 2012**	Determining the prosperity level of Isfahan urban areas from cultural indexes	Isfahan urban areas are not equal regarding prosperity from cultural indexes and there is an evident significance in the degree of prosperity of cultural spaces among the area.
11	**Ziyari et.al2013**	The study and measurement of spatial prosperity of urban public services based on population and distribution capability in Babolsar City	There is not an appropriate relationship between populations, as the most important and effective factor in presenting services. Most residents are not satisfied with access statues to mentioned services.
12	**Ahadnejad et.al. 2013**	An assessment of population distribution and service distribution in urban areas with the approach of sustainable development and social justice in Zanjan City	Spatial distribution is appropriate in Zanjan City, but the service distribution is not equal and suitable.
13	**Bozi & Abdollahi 2013**	An analysis of spatial distribution of urban services based on people's demand, case study: Estahban City	People did not participate enough in urban service distribution. Municipalities and other organizations did not do any survey of people regarding lack of urban services in the city. Urban services meet people's needs much less than standard level.

Source: (Library studies, 2013)

3- Theoretical Principles

Cities are bodies with complex and dynamic communities. As Robert Park says; city is not only an artifact object but it also is an organism. Its growth is basically natural, uncontrollable, and without design as a whole (Nam & Jun Yu, 2007). The context and structure of today's cities is the result of the process that has begun since many years ago. It has formed under the influence of different forces such as passage of time, administrative and political factors, and social force. The structure and context have been responsible for different historical periods. In fact, city has been the place for the expression of residents' needs and wills (Karam & Mohammadi, 2009). Also, city has a container and content relationship with space, natural environment, human being, and activity. Yet, it is a container for human being and its activities (Zarrabi et.al., 2012). In the meantime, the increase in cities' population has resulted in insufficiency and inequality in providing facilities and services for urban community. Also, inequality and spatial imbalance of facilities in the areas of a city is not a new phenomenon in any cities in the world, but spatial difference in the cities has been intensified in developing countries because of apparent socio-economic differences, inequality and imbalance in the distribution of urban services (Ahadnejad et.al, 2013). Thus, social justice should include distributive and allocative justice because public benefits, needs, and citizens' rights cannot be considered without distributive and allocative criteria (Garoosi & Shamsoddini Motlaq, 2013). Therefore, any urban planning based on social justice should be influential both in the distribution of needs, public benefits, rights, and also in their allocation. Hence, the use of "social justice" in urban spaces means maintaining different social groups' benefits in general, and target groups in particular through balanced extension of urban resources, revenues, and costs (Grary, 2002). Appropriate distribution of urban services and accurate use from spaces are the factors should be observed in implementing social justice along with spatial justice in urban planning, however. In this regard, land uses and urban services are influential factors that can establish socio-economic and spatial justice in urban areas by meeting population's needs, increasing in public benefits, and considering people's rights and competency (Varesi et.al., 2008). As a result, the process of urban development can only be sustainable when it can present specific and ordered solutions and measures for favorite provide and equalize urban residents' facilities and services (Khakpour et.al., 2009).

Therefore, in investigating urban issues in the form of sustainable development, it is assumed that if the cost, irrespective of equality mechanisms, spends to develop the infrastructure, equipment and urban services, it will lead to intensify inequality among different groups of urban population (Blory, 2005). Geographically, social justice in the city is equivalent to the fair distribution of resources among different areas of the city and equal access of citizens to them

since lack of equitable distribution may result in social crisis and complex spatial problems (Ziyari et.al, 2013). So, conscious performance of urban management in spatial distribution of economic resources and social benefits of growth and development process in city in order to reduce spatial inequalities and also improve citizens' quality of life (Mercier, 2009) requires accurate understanding from current situation. It tries to allocate resources to the most favorable possible combination for removing inequalities. In this case, ultimate goal of spatial justice is equitable distribution of basic needs and urban facilities in different areas of the city so that any neighborhoods or area does not have spatial superiority than other areas in terms of prosperity and the principle of equal access should be observed, also there should not be great difference regarding the per capita of prosperity considering population in each area of the city (Harvy, 2000). Therefore, ignoring supply and distribution of infrastructure and urban public services will result in occurring shortages and pressures on available facilities. It is obvious that each level of physical distribution of city based on citizens' needs requires different services and accordingly different services should also be distributed with regard to the threshold population needed in areas. This will lead to balanced development of areas based on social justice (Varesi et.al., 2007). Thus, imbalanced distribution of facilities and services would have unfavorable effect on citizens' life and consequently urban sustainable development. So, capability and simplicity of citizens' access to urban facilities, services, and activities or in another words balance in the situation of activities, facilities, and urban land uses are fundamental principles of sustainable development in cities (Iveson, 2011).

4- Research Method

In terms of objective, the research method is applied and based on descriptive-analytical approach. Data were collected from libraries such as Data Statistical Center of Iran (2011). In order to determine the prosperity degree of Noorabad neighborhoods from public services (table 2), 7 variables and 27 indices were used in the fields of services (educational, sanitary, sport, administrative, green space, cultural centers and urban facilities) (AMCO Consulting Engineers, 2000). Scientific techniques such as TOPSIS model, Shannon Entropy Technique, and Coefficient of Variation Model were utilized to identify the ranking of neighborhoods and areas based on the access to the facilities and urban services, and finally they were determined in the form of consolidated indices and the results were analyzed (Wheeler & Muller, 1986). For this purpose, the prosperity of the neighborhoods from the services was examined by using Coefficient of Variation Model and statistical techniques at first and then, they were evaluated by using TOPSIS model in 2013.

Table2 Used indexes for measuring the prosperity of areas from urban services

Educational	Kindergarten, elementary school, middle school, high school, vocational training centers, private schools in different fields
Sanitary	Public bathrooms, clinics, medical centers, dentistry, pharmacy, health centers
Sport	Indoor hall, soccer fields, swimming pools, sports facilities
Administrative	government departments, public institutions
Green Space	Parks, recreational spaces
Cultural and Religious Centers	Mosques, Hosseinieh, public libraries, other cultural sites
Municipal Facilities and Equipment	Utilities (water, electricity, telephone, sewer, gas) and urban equipment (including firefighting, garbage collection)

Source: (researchers' studies, 2013)

TOPSIS model

It is one of the conventional and widely used in multi-indices decision-making methods based on calculating the distance of alternatives from ideal positive or negative solution. The chosen alternative should have the least distance with ideal positive state (the best possible state) and the furthest distance with ideal negative solution (the worst possible state) (Opricovic and Tzeng, 2004). Today, this technique has a particular position in ranking different concepts in various sciences. The most important reason is its mathematical and transparent logic and also lack of administrative problems. In this method, decision-making matrix (numerical amounts of indices for alternatives) and the weight of indices are input data of the system and the output ones are ranking the alternatives (Chen & Tzeng, 2004). Definitely, the desirability of each index should be steadily increasing or decreasing. In this case, the best available value of an index shows positive ideal state and the worst available value specifies negative ideal one (Asqarpour, 2009).

This algorithm is as follows:

Step 1: Conversion of existing decision-making matrix to a scale-less matrix by means of the following relationship

$$n_{ij} = \frac{r_{ij}}{\sqrt{\sum_{i=1}^{m} r_{ij}^2}} \quad z$$

Step2: Determining the weight of each indicator: Shannon entropy can be used to weight the index (Hekmatniya & Mousavi, 2006). The method is based on the assumption that as dispersion in the values of an indicator is more, that index is of great importance (Amirhajlou et.al., 2013). The indexes with more importance have more weight. In order to weight with Shannon entropy, following stages should be implemented:

Stage 1: forming decision-making matrix

Stage 2: the decision-making matrix goes into quantitative form

Stage 3: standardizing decision-making matrix: elements of decision-making matrix get scale-less by the help of equation

Stage 4: calculating entropy of each index

$$E_J = -K\sum_{n}^{m}\left[n_{ij}Ln_{ij}\left(n_{ij}\right)\right]$$

$$\Rightarrow \left\{ \begin{matrix} \forall j=1,2,\ldots n \\ K=\frac{1}{Ln(m)} \end{matrix} \right\}$$

The entropy of each index is a number between zero and one.

Stage 5: calculating the degree of deviation of available data: for each index from the entropy of that index is calculated by this equation (Sudhira and Ramachandra, 2003).

Stage 6: calculating the weight of each index: the weight of each index is calculated in this way:

$$w_i = \frac{d_j}{\sum_{j=1}^{n} d_j} \rightarrow (\forall j = 1,2,...n)$$

It is noteworthy that the total of obtained weights for intended indexes of decision-maker should be equal to one. In other words:

$$\sum_{j=1}^{n} w = 1 \rightarrow (\forall j = 1,2,...n)_j$$

Step 3: specifying ideal positive (A+) and negative (A-) solutions

It is obvious that two options were defined and they show that the option with the highest priority is (the answer of positive ideal) and the option with the lowest priority is the worst one.

Step 4: calculating the distance criterion or separation of option i with positive ideal shown with di+ and negative ideal is shown with di- as follows:

$$d^{+} = \sqrt{\sum_{j=1}^{n} (v_i - v_j^{+})^2}, \forall i = 1,2,...,m$$

$$d_i^{-} = \sqrt{\sum_{i=1}^{n} (v_i - v_j^{-})^2}, \forall i = 1,2,...,m$$

Step 5: calculating relative proximity to ideal solution

Relative proximity is defined as follows:

$$C_i^{*} = \frac{d_i^{-}}{d_i^{-} + d_i^{+}}$$

As the option is closer to ideal solution, the value reaches to one.

Step 5: Sorting the order of options from the highest to the lowest for priority in choosing possible options. In this step, ranking is based on descending order (Asgharpour, 2009).

This method has been used largely for investigating the process of available inequalities in development of indexes among areas. High CV indicates more inequality in distribution of above index. This index helps to make more accurate decisions. In other words, CV indicates the distribution the per unit of the average.

Coefficient of Variation Model (CV)

CV, sometimes it is also called Williamson, is used for measuring the issue that to what extent the value of an index is distributed inequitably among areas. CV is calculated based on the following formula (Kalantari, 2012):

$$C.V. = \frac{\sigma}{\mu} \times 100$$

This method has been used for investigating the process of current imbalances of development indices among areas broadly. High amount of CV shows more imbalances in the distribution of mentioned index. This index helps to make decisions more exactly in planning process.

Introducing Studied Area

Noorabad in the center of Mamsani with more than 1789 hectares is located in 160 km north-west of Shiraz, in the position of 51 degrees and 32 minutes east longitude (map1). This city is formed by joining 29 villages in early 1960s and currently each of these places forms a neighborhood (AMCO Consulting

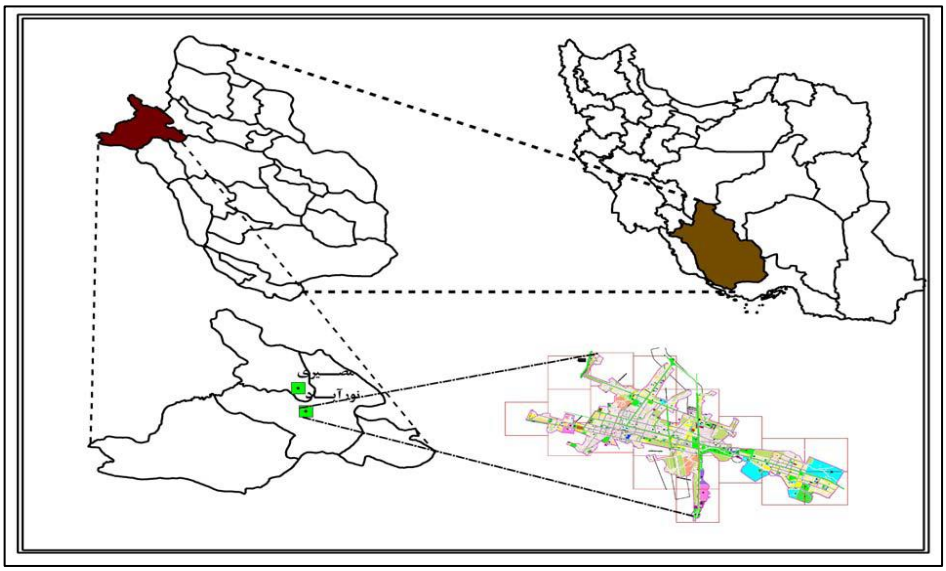
Engineers 2000). The first official statistics of population is related to 1966 with the estimated population of 5271 people. According to the censuses in 1976, 1986, 1996, and 2006 for Noorabad population is 10984, 25333, 42243, and 52597 people respectively. This shows that Noorabad had rapid growth of population. The number and family's dimension had fluctuations in these censuses. 1144 families lived in this city in 1966. Family's dimension was 4.60. The number of households in this city increased in 1976, 1986, 1996 into 2246, 4575, 7488, and 1227 people respectively. In other words, the number of households increased 10 times during 1966 to 2006 (table 3).

Table3. Changes in population and household of Noorabad City during 1966 to 2006

Statistical Years						The Growth Rate Percentage			
Demographic Characteristics	**1966**	**1976**	**1986**	**1996**	**2006**	**1966-1976 Decade**	**1976-1986 Decade**	**1986-1996 Decade**	**1996-2006 Decade**
Total Population	5271	10984	25333	42243	52597	7.6	8.07	5.2	2.12
Number of Households	1144	2246	4575	7488	12207	7.6	7.3	5	5
Family Size	4.6	4.09	5.35	5.46	4.3	0.8	1.1	0.1	-3
The Area of the City (Hectares)	123	160.25	515	641.75	870.37	2.68	12.38	2.23	3.1

Source: (Statistical Center of Iran, 1966 to 2006)

As it is seen in the above table, the population growth of Noorabad is 7.6, 8,7, 5.2, and 2.12 in 66-76, 76-86, 86-96, and 96-2006 decades respectively. The highest growth is during 1976 to 1986 and the lowest one is for 1996 to 2006.



Map1. Political situation of Noorabad in Mamsani and Fars Province
Source: (Citypedia)

5- Research Findings

The distribution of population in Noorabad: Physically, Noorabad with a population of 52,597 people and 871 hectares increased 3.1 percent compared to the previous period (diagram 1).

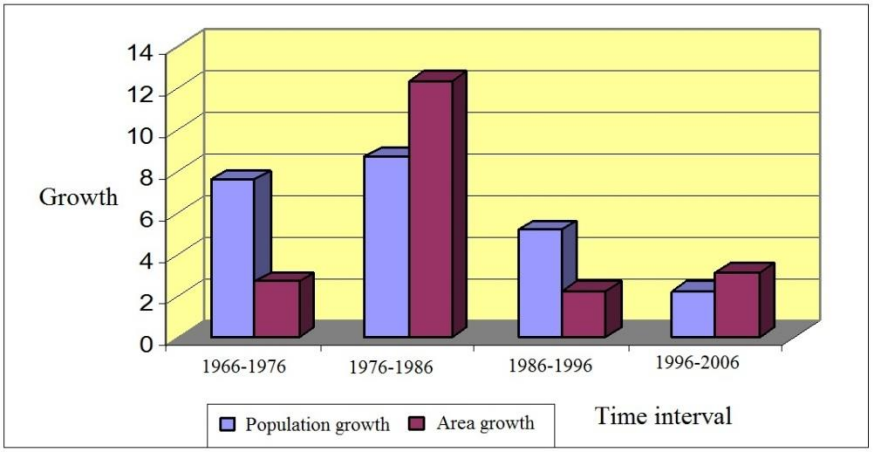


Diagram1. Population and area growth of Noorabad Maamsani 1966-2006
Source: (Researchers' calculations)

The increase of the city's area had considerable growth following the increase in population so that the growth of area in Noorabad has been 2.68, 12.38, and 3.1 during 1966-1976, 76-86, 86-96, and 1996-2006 decades respectively. The highest growth was for 1976-1986 because of rapid growth of population which it was 8.7. After this decade, almost the net growth of the city became slower. Unbridled and explosive growth of the city has been prevented with decreasing rural immigration and implementing population control policies (table4).

Table4. The population of neighborhoods and gross density of Noorabad Mamsani City in 2006 census

Urban divisions		Population	Area(Hectares)	Gross Density
Area 1	Neighborhood 1	7397	185.5	39.88
	Neighborhood 2	2553	167.4	15.22
	Neighborhood 3	1654	253.3	7.0
	Neighborhood 4	660	86.5	7.63
	Neighborhood 5	143	42.5	3.36
	total	12398	717	17.29
Area 2	Neighborhood 2	5438	127	42.82
	Neighborhood 3	5693	104.4	54.23
	Neighborhood 4	4619	126.2	36.60
	Neighborhood 5	4340	210.2	20.65
	total	20090	567.9	35.38
Area 3	Neighborhood 1	1703	97.7	17.43
	Neighborhood 2	5556	78.2	71.05
	Neighborhood 3	4009	79.3	50.55
	Neighborhood 4	8325	258.7	32.17
	total	19593	513.9	38.13
total	------	52081	1798.8	28.95

Source: (researchers' field studies, 2013)

Ranking Services in Urban Areas

In this step, the data obtained by the experts' scoring as well as field studies were used in related tables and matrices of TOPSIS model. The six steps are as follows:

Step1: standardized decision-making matrix was in this step by using non-scaling norm (table5).

Table5. Scaling matrix using Norm

Areas		Indexes					
		Education	**Health**	**Sport**	**Green Space**	**Cultural Centers**	**Facilities**
Area 1	Neighborhood 1	0.3367	0.4	0.3086	0.1936	0.1601	0.3003
	Neighborhood 2	0.2087	0.2254	0.1028	0.1383	0.1143	0.2730
	Neighborhood 3	0.3030	0.2472	0.3772	0.2047	0.1715	0.2730
	Neighborhood 4	0.3367	0.2327	0.1165	0.1328	0.0914	0.2730
	Neighborhood 5	0.2020	0.24	0.1234	0.1106	0.0953	0.2730
Area 2	Neighborhood 1	0.2693	0.2254	0.4458	0.3873	0.1994	0.2730
	Neighborhood 2	0.3703	0.5090	0.2057	0.4427	0.2096	0.3003
	Neighborhood 3	0.2828	0.2181	0.1714	0.4150	0.1868	0.2730
	Neighborhood 4	0.2020	0.1818	0.1577	0.1992	0.1791	0.2730
Area 3	Neighborhood 1	0.2087	0.1454	0.2400	0.1106	0.1677	0.2730
	Neighborhood 2	0.2693	0.3927	0.4801	0.2490	0.1892	0.2730
	Neighborhood 3	0.2491	0.1527	0.2126	0.2600	0.1753	0.2730
	Neighborhood 4	0.3030	0.1454	0.3086	0.4150	0.1715	0.2730

Source: (Analytical Research Findings, 2013)

Step2 (Entropy): As mentioned before, six main indices were considered for prioritizing urban services. Since the degree of importance of these indices is not equal, the weight of each index should be determined. Thus, Shannon Entropy model was used for determining the weight (Hekmatniya & Mousavi, 2006). Finally, data were calculated for EJ, dj, wj weights from existing indices as it is shown in table6. Indices for facilities and training have the maximum weight and indices of cultural and sport centers have the minimum weight.

Table 6. Qualitative result of standardized data in decision-making matrix in three areas of Noorabad

Option/index	Education	Health	Sport	Green space	Cultural centers	Facilities
EJ	1.677	1.578	1.531	1.534	1.396	1.709
d_j	0.677	0.578	0.531	0.534	0.396	0.709
w_j	0.197	0.168	0.155	0.156	0.115	0.207

Source: (Analytical research findings, 2013)

13 neighborhoods of Noorabad were ranked in different parts of services according to the priority index and the degree of development in 2006 (tables 7 and 8).

Table7. Ranking Noorabad based on TOPSIS model

Area/ Neighborhoods		Education		Health		Sport	
		Priority Index	Rank	Priority Index	Rank	Priority Index	Rank
Area 1	Neighborhood 1	0.0663	2	0.0672	2	0.0478	4
	Neighborhood 2	0.0411	8	0.0378	7	0.0159	12
	Neighborhood 3	0.0596	4	0.0415	4	0.0584	3
	Neighborhood 4	0.0663	2	0.0390	6	0.0180	11
	Neighborhood 5	0.0397	9	0.0403	5	0.0191	10
Area 2	Neighborhood 1	0.0530	6	0.0378	7	0.0690	2
	Neighborhood 2	0.0729	1	0.0855	1	0.0318	7
	Neighborhood 3	0.0557	5	0.0366	8	0.0256	8
	Neighborhood 4	0.0397	9	0.0305	9	0.0244	9
Area 3	Neighborhood 1	0.0411	8	0.0244	11	0.0372	6
	Neighborhood 2	0.0530	6	0.0659	3	0.0744	1
	Neighborhood 3	0.0491	7	0.0256	10	0.0392	5
	Neighborhood 4	0.0596	4	0.0244	11	0.0478	4

Source: (Analytical research findings, 2013)

Table8. Ranking Noorabad based on TOPSIS model

Area/ Neighborhoods		Green Space		Cultural centers		Facilities	
		Priority Index	Rank	Priority Index	Rank	Priority Index	Rank
Area 1	Neighborhood 1	0.0302	8	0.0184	9	0.0621	1
	Neighborhood 2	0.0215	9	0.131	10	0.0565	Deprived
	Neighborhood 3	0.0315	6	0.0197	7	0.0565	Deprived
	Neighborhood 4	0.0207	10	0.0105	12	0.0565	Deprived
	Neighborhood 5	0.0172	11	0.0109	11	0.0565	Deprived
Area 2	Neighborhood 1	0.0604	3	0.0223	2	0.0565	Deprived
	Neighborhood 2	0.0690	1	0.0241	1	0.0621	1
	Neighborhood 3	0.0647	2	0.0214	4	0.0565	Deprived
	Neighborhood 4	0.0310	7	0.0205	5	0.0565	Deprived
Area 3	Neighborhood 1	0.0172	11	0.0192	8	0.0565	Deprived
	Neighborhood 2	0.0388	5	0.0217	3	0.0565	Deprived
	Neighborhood 3	0.0405	4	0.0201	6	0.0565	Deprived
	Neighborhood 4	0.0647	2	0.0197	7	0.0565	Deprived

Source: (Analytical research findings, 2013)

According to the results of tables 7 and 8, it can be realized that the total three areas and 13 neighborhoods in Noorabad have intense imbalance and inequality in optimal distribution of urban services and citizens' access to these facilities so that the indices of facilities and training have the maximum weight

and they are priority index, and the index of cultural centers has the minimum priority. According to determining the ideal positive and negative solution in the studied area, it is specified that there is an obvious difference in terms of access to the services and the manner of spatial distribution in the areas of the city regarding the studied indices (table9).

Table9. Determining ideal positive and negative solutions

Option	X1	X2	X3	X4	X5	X6
A^+	0.0663	0.0855	0.0744	0.690	0.0241	0.0621
A^-	0.0397	0.0244	0.0159	0.0172	0.0109	0.0565

Source: (Analytical research findings, 2013)

Calculating Relative Proximity to the Ideal Solution

In TOPSIS model, the CL relative proximity to respond ideal is as follows:

Since the amount of CL is between zero and one, as CL is closer to one, the priority of (i) alternative is higher. Euclidean distance to the best and the worst states, the degree of closeness, and prioritization of different alternatives of city's areas have been shown in table10.

Table10. Ranking 13-Neighborhood (N) of Noorabad in consolidated index

	Area 1					**Area 2**				**Area 3**			
Option	**N 1**	**N 2**	**N 3**	**N 4**	**N 5**	**N 1**	**N 2**	**N 3**	**N 4**	**N 1**	**N 2**	**N 3**	**N 4**
d_i^+	0.0245	0.0402	0.0278	0.0381	0.0415	0.0243	0.0167	0.0314	0.0343	0.0326	0.0267	0.0239	0.0326
d_i^-	0.0243	0.0168	0.0263	0.0187	0.0152	0.0261	0.0175	0.0216	0.0201	0.0196	0.0241	0.0222	0.0207
CL^*	0.0488	0. 294	0.459	0.329	0.268	0.517	0.622	0.407	0.369	0.351	0.474	0.0431	0.388
Prioritizing	3	12	5	11	13	2	1	7	9	10	4	6	8

Source: (Analytical research findings, 2013)

According to the findings of the above table, the ranking of alternatives which is based on (CL*) criterion $0 \leq Ci^* \leq 1$ fluctuates. In this regard, $Ci^*=1$ with 0.622 shows the highest rank (area 2, neighborhood2) and $Ci^*=0$ with 0.268 (area 1, neighborhood 5) also shows the least rank. Therefore, it is evident that there is a kind of spatial imbalance between neighborhoods and different areas of Noorabad in terms of access to different services.

Calculating the Coefficient of Variations

According to the obtained rankings, the degree of prosperity is not equal in different parts of development in Noorabad and the Coefficient of Variations is less than 0.2 in training sector, CV is more than 0.2 in cultural and sanitary sectors, and it is more than 0.3 and 0.4 in other sectors of

development which it shows imbalance in different parts of development (table 11).

Table11. Calculating CV based on studied indexes in Noorabad

Indexes	Education	Health	Sport	Green space	Cultural centers	Facilities
CV	0.119	0.223	0.475	0.474	0.225	0.352

Source: (Analytical research findings, 2013)

6- Conclusion and suggestion

The analysis of the spatial distribution of service uses in the city shows significant difference in distributing the services and lack of logical and harmonious relationship among the areas in this research which it has been done in order to investigate and rank available services in 13 neighborhoods in Noorabad Mamasani. Central areas of the city; district 2, neighborhood 1 and 2 are prosperous, nomadic neighborhoods are non-prosperous from urban services and facilities. Also, the obtained Coefficient of Variation is less than 0.2 in training sector, more than 0.2 in sanitary and cultural sectors, and more than 0.3 and 0.4 in other development sectors which shows imbalance and inequality in studied sectors of Noorabad. Finally, the hypotheses were proved and there is imbalance between different areas of the city due to the population concentration and access factors in terms of the distribution of services. Also, the per capita of most areas is less than the per capita of desirable service land use which it shows lack of balance and equality in the distribution of public services in spatial areas of the city. This leads to deepen the gap between development level and areas' prosperity and make a difference in lower levels of the neighborhoods. Therefore, lack of spatial distribution of services in different neighborhoods of Noorabad has leaded to lack of social justice and spatial equality and inequality in the distribution of urban services leads to difference on the citizens' welfare and quality of life in each neighborhoods. According to the data analysis, it can be said that since there is a kind of imbalance and inequality among different neighborhoods in Noorabad in terms of spatial distribution services, the first hypothesis of this research is verified. The second hypothesis is approved since there is a kind of imbalance and inequality among different neighborhoods in Noorabad in terms of spatial distribution services. Therefore, following strategies are suggested:

- A necessity to have a systematic approach in physical planning and development of Noorabad
- Identification and need-assessment of facilities in the neighborhoods emphasizing on the citizens and urban authorities' approach
- Avoiding physical growth of the city out of the city's comprehensive plan
- Observing proportionality in population issue and presenting services to the different neighborhoods of Noorabad
- Observing urban development standards in providing facilities for the neighborhoods
- Applying the mechanism of equal distribution of land uses and services in

order to remove neighborhood inequalities in Noorabad

- Prioritizing cultural, sport, and sanitary services in the neighborhoods considering spatial justice

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