

An analysis of the spatial distribution of urban public services in the districts of Tabriz metropolis, Iran

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ABSTRACT

This research aims to analyze the spatial distribution of urban public services in the metropolitan districts of Tabriz. This study is an applied research type and its method is descriptive-analytical. To analyze the data, the TOPSIS model as well as cluster analysis and SPSS and GIS software were used. The research results showed that there was no favorable spatial justice between the districts of Tabriz city in privileging public urban services. In other words, districts 2, 3, and 5 were on one level (first level), districts 6, 7, and 4 were on one level (second level) and districts 9, 8, 1, and 10 were on one level (third level). In deprived districts, nonconforming population growth with service needs, lack of green and recreational spaces, lack of suitable health-medical, commercial, and sports services, increase in population growth rate, lack of educational and cultural facilities, low employment, low-income strata and immigrants' residence, construction of unlicensed buildings and indiscriminate expansion in these districts have intensified the level of instability. Therefore, for the optimal distribution of public services between districts of Tabriz city, first of all, the approach of social justice should be placed on the agenda of the managers and decision-makers of Tabriz city so that the distribution of services and facilities between the districts of Tabriz city is balanced according to population needs.

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1. Introduction

According to the UN foresight, more than 60% of the world's population will live in cities by 2030. It is clear that in the near future, the world will depend on cities and urbanization (Sarvar et al., 2018). Therefore, the expansion of urbanization led to the first United Nations' Conference on Human Settlements in 1976, as well as the establishment of the United Nations Center for Human Settlements, which is now known as the United Nations Human Settlements (Navabakhsh, 2012). Such a rapid increase in urbanization has not been accompanied by the development of economic, health-medical, urban and social-cultural facilities (Naghdi and Babaei, 2015).

Nowadays, cities have faced an adverse cycle of socio-economic and environmental inequalities as a result of political and economic structures as well as inefficient spatial policies. Unprecedented challenges such as poverty, suburbanite and informal settlement, the reduction of quality of life, income gap, social disintegration and injustice in the distribution of urban services have been formed in cities, which has challenged the health and well-being of the urban community. The disproportion of these three elements (urban man, its resources such as facilities and services, and the environment) has caused the formation of imbalance and injustice in the urban space and undesirable consequences (Abdi et al., 2020).



In Iran, the growth of urbanization has had two major leaps in the past fifty years. The first leap occurred after the land reforms of the 1960s, during which, with the decline of the agricultural sector in the country's economy and the strengthening of the industry and service sectors in the cities, many immigrants moved from villages to the metropolises, including the city of Tabriz. Most of these immigrants have been residing in the northern and southern parts of Tabriz. The second leap in the growth of urbanization dates back to the era after the Islamic Revolution, when a large number of people migrated from villages and small towns to the cities due to extensive national construction operations in cities, especially metropolises; causing inequality and imbalance in the availability of facilities and services among the intracity districts of Tabriz (Mobaraki and Ahmadi, 2022). Although in the past half century, various development programs have been utilized to resolve these inequalities, but due to various reasons such as incomplete implementation of inappropriate development patterns, inequality between cities and within cities is still evident. In addition, the distribution of urban public services in Iran has been studied mostly in the form of land use plans and per capita consumption criteria, and less importance has been given to the usability and access of residents to urban public services. In this regard, urban uses and services are among the factors that can establish social, economic and spatial justice in city districts by satisfying population needs, increasing public benefits and paying attention to the rights of people. On the other hand, the lack of proper distribution of these facilities, which are influential factors in inequality at the level of urban districts, ends up with disturbing the balance and instability of urban districts. Tabriz is one of the five great metropolises of Iran that in the past years, due to the concentration of industrial, service and administrative uses, it has always been one of the metropolises that accepts immigrants (Mirzazadeh et al., 2023). In this city, unplanned immigration causes urban spiral pattern, imbalance between population and urban services, increase in municipal costs, lack of housing, increase in suburbanite, increase in urban traffic and air pollution, increase in urban poverty, gap and imbalance between urban districts while enjoying public services. Such a vision is inappropriate for achieving spatial justice as

one of the main concepts of sustainable urban development. Therefore, paying attention to the state of Tabriz city districts in terms of urban services index from the point of view of spatial justice and identifying its strengths and weaknesses can be helpful in planning and politicizing the future of urban development. In the following, we will refer to studies in this field: Ghasemi et al. (2018) in paper concluded that, in addition to increasing the attractiveness of urban environment, the advancement of living conditions in this environment provides a good basis for achieving the major goals of sustainable development. Nevertheless, the rapid growth of urbanization and other issues related to urban development have raised and augmented problems in these settlements. This situation is well understood in many Iranian cities in which the consequences of rapid urban growth and insufficient financial and human resources in the management process are obviously felt. The findings of this research show that different districts of Tehran Metropolitan do not have similar conditions of livability regarding their access to biological services and these services have not been distributed among them equitably. The present study introduces the spatial districts which are high on the list of priorities and which require greater attention so as to promote just distribution of biological services in Tehran. (Young, 1990). Yong believes services distribution is a key element in achieving social justice in cities; He emphasizes that every move to achieve social justice in cities must begin with the assumption that urban planning is designed to fulfill the basic needs of the people, the comfortable living environment and the desirable experiences of citizens. So, if social justice is considered in all urban dimensions of a city, it can be claimed that city is a humane city. And urban development can be sustained to provide specific solutions for the satisfaction of the residents' service needs; therefore, unbalanced distribution of facilities and services challenges the concept of a sustainable city. Shahraki et al. (2016) in a paper illustrates needs for revisions on educational land use policy in developing cities. It discusses the importance of educational spaces when they give services to many people and cover considerable areas of cities. It also states that present urban educational sites faced to problems such as lack of lands, disproportionate distribution in views of family needs, not

consistent with other urban functions and lack of accessibility. This research uses an integrated spatial equity evaluation method, which is analytic and descriptive. It uses the Moran's I index to classify and analyze the collected data. This research uses ArcGIS and AHP (analytic hierarchy process) soft wares as well. The contribution of this research to the problem is twofold. One is highlighting the problems of the existing non-optimal distribution of the schools throughout the city. In addition, this paper proves the need for changes in the land use policy and for allocating adequate and suitable lands to educational spaces aiming at optimal schools' distribution in the developing cities. Abdi et al. (2020) spatial justice is one of the topics that have gained special importance among planners and geographers in recent years. Since urban public services structure the shape and physical, social and spatial nature of the city, the injustice in its distribution has an irreparable impact on the structure, nature of the city and the class separation of the city's neighborhoods, and urban management is faced with challenges. has faced a serious by examining the extent of inequalities in the distribution of services and identifying the spatial pattern of injustice at the city level, it is possible to find out which services are in a worse condition and in which part of the city and neighborhood the injustice is concentrated, so that urban management can be done in this way. By consciously acting in the spatial distribution of public services and social benefits, reduce spatial inequalities and improve the quality of life. Zhang et al. (2019) they choose Nanjing city, China, as the study case in which to evaluate differences in public park access with respect to gated and open communities using improved model. Moreover, gated communities have been further divided into three categories, which represent differences in a community's ability to provide daily physical activities, to more deeply explore disparities in public park services. The results show that (1) the spatial accessibility of parks in Nanjing city is not evenly distributed, with communities located north of the Yangtze River having inferior park accessibility; (2) residents who live in open communities are more restricted with regard to access to parks than those in gated communities, although they experience relatively small differences under the walking mode; (3) gated communities with no internal park ("club park") enjoy better

public park services; and (4) residents living in 105 open communities and 167 gated communities without a club park can be regarded as the most vulnerable groups based on the lack of park services. The results of this study can provide a scientific basis for policy makers to target specific communities of vulnerable groups for further urban park development. Amanpour et al. (2021) in study for the purpose of assessment and evaluation of areas inequality in terms of possessing having combined development Indicators (case study: Ahvaz metropolis) concluded that, Recognition of spatial inequality and regional imbalances in the context of different geographical areas and policy-making to eliminate and reduce item is one of the most important categories of urban and regional planning. The dimensions of spatial inequality in various economic, social, medical, and other fields are debatable. Therefore, achieving comprehensive progress and development in the future requires. This study tries to determine rating and measuring of inequalities among the regions of Ahvaz city using 54 variables and applying the ELECTRE model. The results of this study show that the distribution of development is unbalanced and there is inequality and gap between regions in terms of development and this inequality appears to be in different sectors of social, economic, service, health, and physical. Therefore, to reduce the level of development inequalities in Ahvaz'based on the research findings, it is suggested that the distribution of development indicators should be directed towards balanced growth.

2. Material and Methods

This study was applied research using descriptive-analytical method. The data had been collected using library-field studies and the spatial data of the study area. TOPSIS model and GIS software were used for data analysis. The variables utilized to rank the districts of Tabriz city using the TOPSIS model eight criteria, including: educational, health care services, urban equipment, fire station, social-cultural, religious, sports, tourism and recreational factors.

2.1. TOPSIS Model

The Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS) is a

multi-criteria decision analysis method, which was originally developed by Ching-Lai Hwang and Yoon in 1981 with further developments by Yoon in 1987, and Hwang, Lai and Liu in 1993. TOPSIS is based on the concept that the chosen alternative should have the shortest geometric distance from the positive ideal solution (PIS) and the longest geometric distance from the negative perfect solution. It is a method of compensatory aggregation that compares a set of alternatives, normalizing scores for each criterion and calculating the geometric distance between each alternative and the ideal alternative, which is the best score in each criterion. Criteria weight in the TOPSIS method can be calculated using the Ordinal Priority Approach, Analytic hierarchy process, etc. (Mobaraki, 2023). A TOPSIS assume is that the criteria are monotonically increasing or decreasing. Normalization is usually required as the parameters or criteria are often of inconsistent dimensions in multi-criteria problems. Compensatory methods such as TOPSIS allow trade-offs between criteria, where a poor effect in one criterion can be negated by a good result in another criterion. This provides a more realistic form of modeling than non-compensatory methods, which including or excluding alternative solutions based on hard cut-offs. TOPSIS methods require the independence of criteria for being utilized real-life. However, independence of criteria is hard to guarantee in real applications as such, TOPSIS methods might produce biased rankings. TOPSIS is based on the premise that the best solution has the shortest distance from the positive-ideal solution, and the longest distance from the negative-ideal one. Alternatives are ranked using an overall index calculated based on the distances from the ideal solutions. The TOPSIS method can be explained as a set of stages shown below:

Step 1: data matrix

$$\begin{matrix}
 & C_1 & C_2 & \dots & \dots & \dots & C_n \\
 A_1 & \begin{bmatrix} X_1 & X_2 & \dots & \dots & \dots & X_n \end{bmatrix} \\
 A_2 & \begin{bmatrix} X_1 & X_2 & \dots & \dots & \dots & X_n \end{bmatrix} \\
 A_3 & \begin{bmatrix} X_1 & X_2 & \dots & \dots & \dots & X_n \end{bmatrix} \\
 \dots & \dots & \dots & \dots & \dots & \dots & \dots \\
 A_M & \begin{bmatrix} X_1 & X_2 & \dots & \dots & \dots & X_n \end{bmatrix}
 \end{matrix}$$

Step 2: The data matrix is de-scaling using the following relation (Eq. 1):

$$n_{ij} = \frac{x_{ij}}{\sum x_{ij}} \tag{1}$$

Step 3: Calculation of the entropy: The entropy of each index is calculated using the following relationship (Eq. 2):

$$E_j = -K \sum_{i=1}^n (n_{ij} \ln(n_{ij})) \tag{2}$$

$$K = \frac{1}{\ln(m)}$$

The entropy value of the indices is a value between zero and one:

$$0 \leq E_j \leq 1 \rightarrow (\forall j = 1, 2, \dots, n)$$

Step 4: Calculation of the degree of standard deviation: The standard deviation of each index is calculated using the entropy value of that index through the following equation (Eq. 3).

$$D_j = 1 - E_j \tag{3}$$

Step 5: Calculating the weight of each indicator: Using the following relationship, the weight of each of the indicators can be calculated (Eq. 4):

$$W_j = \frac{D_j}{\sum D_j} \tag{4}$$

Step 6: Balance the de-scaling matrix:

$$\begin{bmatrix} n_{11} & n_{12} & \dots & \dots & \dots & n_{1n} \\ n_{21} & n_{22} & \dots & \dots & \dots & n_{2n} \\ \dots & \dots & \dots & \dots & \dots & \dots \\ \dots & \dots & \dots & \dots & \dots & \dots \\ n_{m1} & n_{m2} & \dots & \dots & \dots & n_{mn} \end{bmatrix}
 \begin{bmatrix} w_1 & \dots & \dots & \dots & \dots & \dots \\ \dots & w_2 & \dots & \dots & \dots & \dots \\ \dots & \dots & \dots & \dots & \dots & \dots \\ \dots & \dots & \dots & \dots & \dots & \dots \\ \dots & \dots & \dots & \dots & \dots & \dots \end{bmatrix}
 =
 \begin{bmatrix} v_{11} & v_{12} & \dots & \dots & \dots & v_{1n} \\ v_{21} & v_{22} & \dots & \dots & \dots & v_{2n} \\ \dots & \dots & \dots & \dots & \dots & \dots \\ \dots & \dots & \dots & \dots & \dots & \dots \\ v_{m1} & v_{m2} & \dots & \dots & \dots & v_{mn} \end{bmatrix}$$

Step 7: Find positive and negative ideal solutions (Eq. 5).

$$A^+ = [v_1, v_2, \dots, v_n] = [\max v_i \mid j \in J^+], (\min v_i \mid j \in J^-) \quad i = 1, 2, \dots, m$$

$$A^- = [v_1, v_2, \dots, v_n] = [\min v_i \mid j \in J^+], (\max v_i \mid j \in J^-) \quad i = 1, 2, \dots, m \tag{5}$$

Step 8: Obtain the separation values: The separation measure is the distance of each alternative rating from both the positive and negative ideal solutions which is obtained by applying the Euclidean distance theory. Eqs. Show the process for positive and negative separation calculations respectively (Eq. 6).

$$D^+ = \sqrt{\sum (V_{ij} - V_j^+)^2} \tag{6}$$

$$D^- = \sqrt{\sum (V_{ij} - V_j^-)^2}$$

Step 9: Calculate the general preference score. The overall preference score CL_i for each alternative A_i is obtained as shown in the following equation (Hekmatnia and Mousavi, 2015) (Eq. 7).

$$CL_i = \frac{D^-}{D^- + D^+} \tag{7}$$

2.2. Cluster Analysis Method

Cluster analysis is a statistical method for determining homogenous groups or clusters (Asayesh and Estelaji, 2013). It includes a wide set of techniques designed to find a group of similar items in a data set (Holland, 2006). The purpose of cluster analysis to divide the observations into homogeneous groups in which the observations of each group are similar and the observations of different groups are not that similar to each other (Hekmatifarid, 2003). In other words, cluster analysis is a multivariate analysis that seeks to organize the information related to variables in which the components of each cluster are similar to each other and the members of each cluster are not similar to the members of other clusters (Hajipour and Zabardast, 2005; Kalantari, 2008). Accordingly, areas having the most similarities in terms of factor scores are grouped in one cluster (Maleki and Sheikhi, 2009). In other words, cluster analysis divides the observations into homogeneous groups so that the observations of each group are similar to each other and the observations of different groups not are that much similar to each other (Goldasteh et al., 2010). The purpose of cluster analysis to divide a set of data into discrete clusters with common characteristics (Vermunt and Madison, 2002). Classifying homogeneous areas of this method is done in different ways. Determining the correlation coefficient and measuring the distance, especially the Euclidean distance, are among the most important methods of determining homogeneous regions (Bayat, 2018). Therefore, there are different methods for combining components in clusters, including hierarchical cluster analysis. Hierarchical analysis is performed using condensing or discriminating method (Salehi et al., 2007). The steps of cluster analysis can be summarized as follows:

1. Collecting the data matrix in which the regions are placed in a column and are subjected

to cluster analysis. Its rows are also made up of attributes that the desired areas are zoned on this basis;

2. Standardizing the data;

3. Calculating the similarity between the pairs of original data matrix areas and standardized data;

4. Using a cluster method for categorizing the similarities and forming a tree diagram or dendrogram. This diagram shows the similarity between all people both in pairs and hierarchically.

2.3. Study area

The city of Tabriz, one of the most ancient cities in Iran, is the capital of the East Azerbaijan Province. Tabriz city, located in the northwest of Iran, is in a mountainous area at an altitude of 1,350 meters at the junction of the Aji River and Quri River and is surrounded by mountains from the north to the south. This city with a population of 1,612,000 people in 2020 and an area of 237 km² is the fourth largest city in the country after Tehran, Mashhad and Isfahan. Like other populated cities in Iran, Tabriz city has experienced the phenomenon of rapid urban growth leading to the formation of urban sprawl growth, an increase in the area of the worn-out texture, informal and slum settlements in peripheral areas of the city. During recent years, due to high numbers of immigrants and a high population growth rate, Tabriz city has undergone an irregular and rapid growth and has experienced incredible population and spatial change. This city has a strategic position in Iran, acts as a connection point between Iran and Europe and has always been considered to be one of the major cultural, political and economic poles of Iran (Rahimi, 2016) (Fig. 1). Tabriz is divided into 10 districts according to the municipality regulations and the comprehensive plan (Table 1).

Table 1. Population and Area of Districts of Tabriz City

Districts	Population	area(hectare)
1	218647	1564
2	196507	2095
3	229474	2798
4	315183	2550
5	126124	3229
6	98910	7196
7	49419	2882
8	29384	386
9	2250	762
10	187958	1050

(Source: Tabriz municipality, 2022)

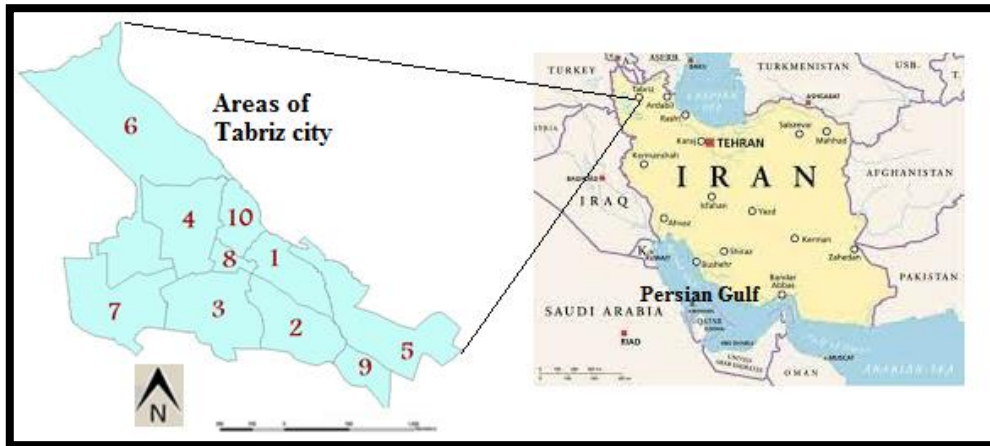


Fig. 1. Location of study area

3. Results and discussion

3.1. Distribution of Land Use and their Per Capita in the Districts of Tabriz City

One of the most important issues of land use at the level of cities is the per capita amount of land use based on the population. Examining the distribution of land use and their per capita rate

in ten districts of Tabriz metropolis shows that in most districts, residential use has had the highest per capita, followed by barren land use, communication network, roads and gardens use. The lowest per capita is related to religious, recreational-tourist, cultural-artistic and therapeutic uses. Details of users` per capita have been provided in detail in Table 2.

Table 2. Per Capita Uses in Ten Districts of Tabriz

Uses	1	2	3	4	5	6	7	8	9	10
Residential	28.2	33.7	23.9	27.4	30.9	51.3	30.8	44.6	87.7	22.7
Commercial	2.1	1.7	1.6	1.9	3.4	2.9	4	19.3	32.7	1.3
Religious	0.1	0.1	0.1	0.2	0.1	0.2	0.1	2.8	0.8	0.2
Educational	1.2	1.6	1.7	1.5	3.4	3.1	1.2	2.7	3.3	1
Administrative	2.1	3.1	2.7	0.6	0.4	2	0.8	4.3	4.6	0.4
Sanitation	0.5	1.7	0.7	0.2	0.2	0.4	0.1	0.3	0.2	0.6
Cultural	0.6	1.5	0.1	0.2	0.1	0.1	0.6	0.3	0	0.1
Recreational-touristic	0.6	0.5	0.1	0	0.2	0	0	0.2	0	0
Urban equipment	0.2	0.3	0.8	0.2	3.3	1	4.3	0.2	4.6	0.3
Infrastructures	0.2	0.5	0.6	0.1	0.8	1.8	0.3	0.2	2.8	0
Industry	0.2	0.9	1.1	1.7	21.6	59.1	25.2	0.5	45.5	0.3
sports	0.5	0.3	11.6	0.5	0.5	1.7	0.5	0.2	1	0.3
Military	0	0.4	22.6	0	0	36.8	4.5	0	0	0
Green spaces and gardens	6.9	11.2	4.2	17.5	29.2	14.1	33	2	36.12	21
Barren	6.7	21.5	10.9	4.9	158	146	72.3	4.8	286	2.2
Transportation	17.7	29.2	16.3	16.1	61.4	45.7	30.5	26	456	12.5

(Source: Mirzazadeh et al., 2023; Author)

The urban development of Tabriz and its land use changes have been faster and more intense compared to the population growth of this city; so that the area of the city has increased from 1770 hectares in 1956 to 27939 hectares in 2020 (Tabriz Municipality, 2021). In comprehensive and detailed plan, this city has been divided into 10 districts. Districts 1, 2, 3, 4, and 5 of Tabriz have the dense urban fabric; district 7 has been known as an industrial area, district 9 has been known as a transportation area, and district has been known 8 as an expanding area which would be one of the residential districts of the city in next years. Despite the vertical development of Tabriz city in recent years, the

increase in the area of the city has been nearly three times the increase in the urban population. Improper management of urban land and constant change of uses in recent decades has caused unreasonable and unbalanced growth of the city as well as the destruction of lands and gardens in Tabriz. Improper planning in the city has led to much inefficiency, such as changing public uses and their reduction against the increase in population.

3.2. Population Growth and Density of Tabriz City

Tabriz city is the capital of east Azerbaijan province, and due to the political, and

administrative centrality and the concentration of industrial, economic and academic activities, it has provided high levels of expertise and

services as the growth pole and dominant city of the region.

Table 3. Periodic Growth of Population and Area of Tabriz Metropolitan

Years	Area of Tabriz (hectare)	Population	Annual growth of Tabriz city	Annual population growth rate	Population density
1956	1170	289996	-	-	247
1966	2127	403413	6.1%	3.3%	189
1969	2520	471000	4.3%	3.9%	186
1980	4019	692000	4.7%	3.9%	172
1986	6440	971482	8.1%	5.8%	151
1991	7965	1089000	3.4%	3.2%	136
1996	10500	1191043	5.7%	1.8%	113
2006	17686	1398060	6.5%	2.4%	79
2011	25213	1414425	6.3%	1.6%	56
2016	26745	1593373	2.8%	1.3%	59
2020	27314	1612000	2.4%	.98%	57

(Source: Zali et al., 2014; Tabriz municipality, 2018; Abdollahzadeh et al., 2020)

Population growth and expansion in Tabriz city has started since 1960. The area of Tabriz was 1176 hectares during 1956, with an annual growth of 6.1% in 1966, it increased to 2127 hectares, and in 1969, the area of the this city reached an annual growth of 4.3% and increased to 2520 hectares; during an increasing trend, the area of Tabriz increased to 4019 hectares in 1980 with an annual growth of 4.7%. The highest annual growth of Tabriz city is related to 1980-1986 since the area of Tabriz city with an annual growth of 8.1% in 1986 increased to 6440 hectares; during 1991, the area of this city increased to 7965 hectares and in 1996, it increased to 10500 hectares, in 2006, the area of Tabriz city increased to 17986 hectares and in 2016, it increased to 26745 hectares. In addition to the area of the city, population is also one of

the factors influencing urban density. The population of Tabriz city has been 289996 people during 1956; however, in 1966, with an annual growth of 3.3%, it increased to 403413 people, then in 1970, population of this city having an annual growth of 3.9%, increased to 471000 people, and finally the population of Tabriz increased to 692000 in 1980. The highest population growth belongs to 1980-1986, so that the annual population growth was 5.8% and the population of Tabriz increased to 971482 people in 1986. Then with an annual growth of 3.2% in 1991, the population of the city increased to 1089000 people; finally, the population of Tabriz city during 1996, 2011, 2016 and 2020 increased respectively to 1191043, 1398060, 1593373 and 1612000 people (Table 3 and Fig. 2).

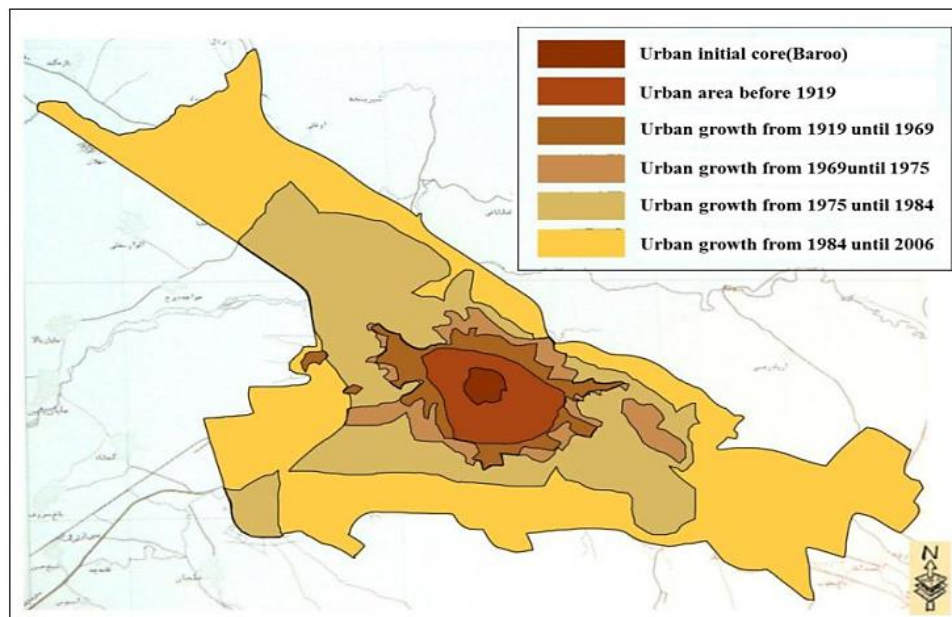


Fig. 2. Growth of Tabriz metropolis since the formation of initial core until 2006 (source: kheyrodini, et al., 2013).

3.3. Ranking of Tabriz city Districts in Terms of having Public Urban Services Using TOPSIS Model

As Table 4 shows, in terms of having public services, district 2 having a TOPSIS score of 751/ was in the first rank; district 3 having TOPSIS score of 728/ was in the second rank; district 5 having a TOPSIS score of 711/ was in the third rank; district 6 having a TOPSIS score

of 680/ was in the fourth rank, district 7 having a TOPSIS score of 630/ was in the fifth rank, district 4 having a TOPSIS score of 591/ was in the sixth rank, district 1 having a TOPSIS score of 490/ was in the seventh rank, and district 9 having a TOPSIS score of 421/ was in the eighth rank, district 8 having a TOPSIS score 381/ was in the 9th rank and district 10 having a TOPSIS score of 322/ was in the 10th rank.

Table 4. Ranking of Tabriz City Districts in Terms of Having Urban Services Using TOPSIS Model

Districts	Topsis score	Rank
1	0.490	7
2	0.751	1
3	0.728	2
4	0.591	6
5	0.711	3
6	0.680	4
7	0.630	5
8	0.381	9
9	0.421	8
10	0.322	10

(Source: Author)

District 2 of Tabriz had the most urban facilities and services. The existence of scientific and research centers on a national and transnational scale including the University of Tabriz, the existence of healthcare centers on a national and transnational scale including the specialized hospitals of Shahid Madani, Razi, Tabatabai and Imam Reza, the high economic power of the residents of this district, the high degree of excellence education among the residents of this district, the presence of a suitable microclimate, low air pollution, per capita use of green space and high recreational use compared to other districts, the presence of suitable and favorable infrastructure, suitable geographical location, the presence of natural elements such as the Sahand mountain range as an Constituent Element of the Space Organization, the creation of new activity cores such as the newly established commercial and service centers especially in El Gholi appropriate to the extent and direction of the city's development in order to create a spatial balance as well as dozens of other strengths and opportunities has led this district enjoy favorable conditions and status compared to have other areas. District 10 has the lowest rank among the districts of Tabriz city in terms of having public urban services. The economic weakness of households, the district's strong acceptance of immigrants due to low land and housing prices, the informal jobs of most of the residents in this area, the high unemployment rate of this area, the populated households, low

level of education of the residents of this area, the existence of suburbanite and non-residential settlements in this area, the neighborhood of this area with the northern fault of Tabriz city and its high risk, the high occupancy level of buildings, non-observance of urban planning and climate comfort considerations, lack of open space, the existence of informal settlements, the existence of urban decay, unwillingness to investment in this area and many other factors have made the tenth area to have the last rank among districts of Tabriz city in terms of having public services. Besides, using the cluster analysis model, we stratified the districts of Tabriz city in terms of having public urban services. As shown in map 3; districts 2, 3, and 5 were at one level, that is, privileged; districts 6, 7, and 4 were at an average level, and districts 10, 9, 8, and 1 were at one level, that is, deprived and weak in terms of having urban facilities and services.

3.4. The Main Reasons for the Lack of Services in Some Districts of Tabriz

The land market and increase in the price of urban land as well as the Article 14 of the Urban Land Law and its instructions, which has provided a legal basis for changing the use of agricultural lands and urban gardens, made the city management and related institutions lack the necessary financial capacity to acquire the lands allocated for public service uses. Moreover, the lack of attention to sustainable urban incomes and also the lack of financing of

urban management from the government caused the city management to take action to compensate for financial deficiencies through receiving a share of the property allocated for public uses and has changed the use of public services to urban commercial uses such as residential and commercial, however, the shortage of public service uses is increasing daily. Improper land and housing policies have affected the uneven development of the city. The lands allocated for public uses within the city limits have been converted into residential constructions, which is evidenced by the expansion of the city of Tabriz towards the east. In the master plan of Tabriz city, the eastern part

of Tabriz was allocated for public service uses, but land and housing allocation policies have caused settlements such as Marzadaran, Mosala, Omidiyeh, Fajr, etc. to be established in this area. In most of these settlements, the required uses have not been provided, which has added to the lack of public uses. In addition, the expansion of informal settlements in the north and south of the city, especially on the lands dedicated to the use of green spaces of the city with a very high population density without providing the minimum public services required by the residents, are other effective factors of the lack of public services in the areas of Tabriz city.

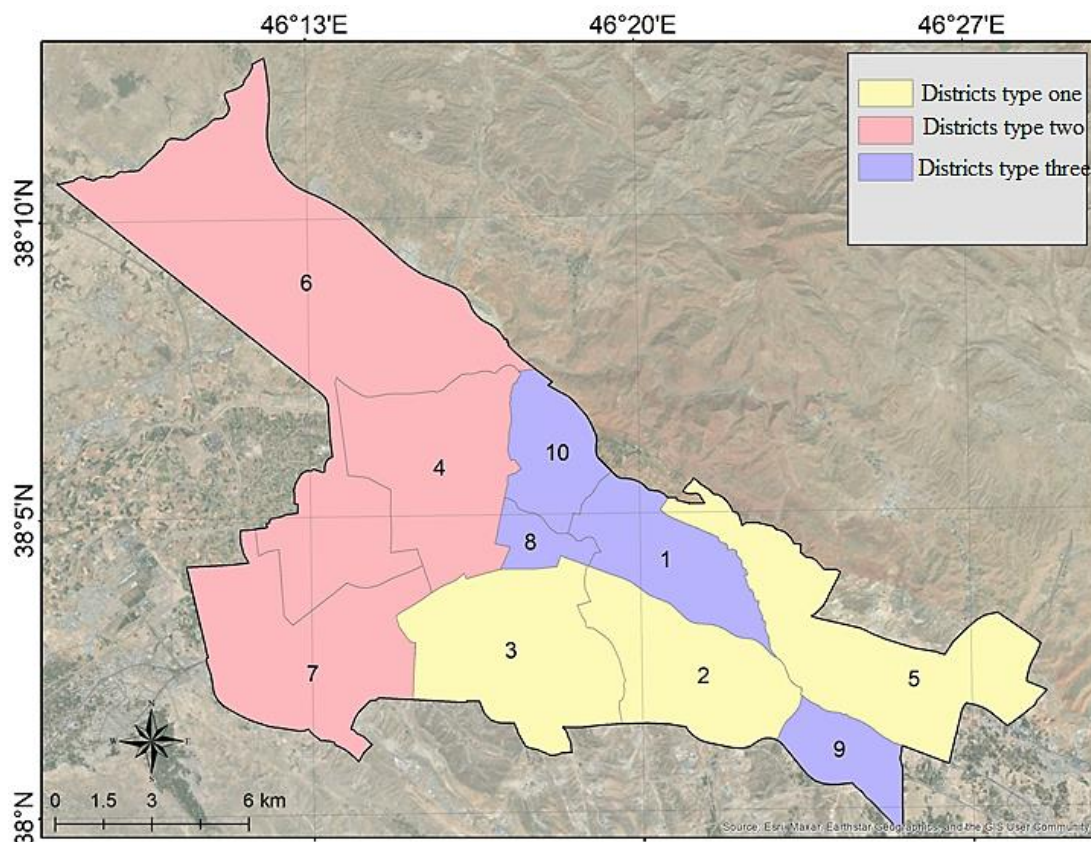


Fig. 3. Map indicating the type of Tabriz districts in terms of having urban public services

4. Conclusion

Any geographic analysis of spatial justice in the distribution of urban services depends on the extent of access to those services and uses. If there is no justice in a society, it is unlikely that there will be peace, adequate protection of the environment, support for work and growth. In fact, one of the most essential urban elements to increase the level of social well-being of citizens is the existence of urban services. Nowadays, the problems caused by the

improper distribution of urban services such as population densities, environmental pollution, population displacement, etc. have caused the distribution of urban services be one of the most important issues facing great cities in developing countries. In Iran, like other developing countries, the inappropriate distribution of urban services, especially in the country's metropolises, has become a national challenge. In fact, the issue of spatial inequality in cities and the need to establish social justice for citizens in having access to urban public

services is one of the serious issues of urban planners and managers. Tabriz city, as one of the great metropolises of Iran, has major problems in the distribution of public services among urban areas. In order to solve these shortcomings and organize facilities and services properly, the first step is to recognize the inequalities and gaps between districts. The current research showed that the districts of Tabriz city were not at the same level in terms of having public services, and there were spatial and physical inequalities between the districts of Tabriz metropolis, so that districts 2, 3, 5, and 6 were ranked first to fourth, and districts 7, 1, 4, and 10 were ranked seventh to tenth. In fact, this situation indicated the weakness and inefficiency of planning systems in urban management and the lack of a justice-oriented approach in allocating budgets for urban construction and renovation as well as per capita provision of public services in urban areas. Therefore, the result of the 1996 Habitat II Istanbul Conference in the field of sustainable urban development based on the weakness of management structures and the lack of definition of the position of local governments and the absence of a monitoring mechanism such as non-governmental organizations, and associations to monitor the allocation of construction budgets is approved. Therefore, it is necessary to review the distribution of services and population in the districts of Tabriz city. Moreover, the urban management of Tabriz should undertake a planning schedule appropriate to the current situation of Tabriz city so that the districts achieve a proportional scatter in the distribution of urban services in a certain period of time. Finally, according to the results of this research, the following suggestions can be made for Tabriz metropolis: 1) Paying more attention to the deprived areas of Tabriz metropolis, especially areas 10, 9, 8 and 1; 2) The distribution of urban services based on the population changes of the districts and the radius of service delivery as well as service efficiency should be considered as an influential factor in measuring justice; 3) Paying attention to the associativity capacity of the districts and providing services to the districts accordingly; 4) Compilation of a comprehensive spatial social justice program of Tabriz metropolis and understanding the situation and position of each district with the aim of implementing social justice programs; 5) Identifying the potentials and capacities of the

districts in order to use these potentials for the development of the districts; 6) Renovation of urban decay and inefficient urban fabrics at the level of the Tabriz metropolis; 7) Making effort for an integrated urban management in Tabriz; 8- Paving the ground for increasing citizens' participation in Municipal services projects.

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