

# Economic Analysis of the Spatial Distribution of Urban Poverty in Ray City: A Case Study

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**Abstract:** This study aims to analyze the economic dimension of the spatial distribution of urban poverty in the twentieth district of Tehran city. The current study is practical in terms of the goal and analytical-descriptive in those of the component method. In this research, urban poverty has been investigated by census data of 2019 in the form of a social dimension with 8 indicators. Weighing indicators of this study has been done by the analytic hierarchy process (AHP) method. To present and analyze the urban poverty in the neighborhoods, the ARC-GIS software has been used. Eight indicators have been used to explore the economic dimension. The spatial representation of this dimension in the level of neighborhoods of Ray City depicted that in total and based on the available data for the economic dimension, there are five neighborhoods, i.e. 25%, which are in very high poverty (Sizdeh Aban, Shahid Beheshti, Alabin, Taqi-Abad, and Abbas-Abad); three of them, i.e. 15%, are in a high situation (Javanmard Qasab, Mansourieh, and Vali-Abad); six, that is to say, 30%, are in the medium level (Shahadat, Safaiyeh, Shahid Ghiori, Ibn Babawayh, Hashimabad, and Hamza Abad); three, that is, 15%, have a little poverty (Dillman, Firouzabadi, and Dolatabad), and eventually, two, i.e. 10%, have the better situation than the others.

**Keywords:** Urban Poverty, Economic Dimension of Poverty, Ray City

## Introduction

The increasing growth of the urbanized population and settlement of more than 60% of the world population in cities, and continuing this trend faces the future earth with urban prospects [1, 2]. These promising spaces will have more than 5 billion people by 2025 and more than 75% will be accommodated by them [3, 4]. On the other hand, this accelerated growth of population is mainly related to developing countries. Most of the Asian/African urban areas will cover the increased population between 2015 and 2050 [5]. Urbanization is one of the largest achievements of culture and civilization, and that of social comprehensive phenomena of the current era; Some consequences, including social inequalities; poverty; increasing corruption and crime; environmental crises; inequality and class difference; lack of social welfare; premature mortality of children and mothers; bad housing and homelessness; informal settlement, etc. can be investigated in this category. The fast urbanization is along with numerous problems and issue, one of which, that is to say the urban problem, is the formation of a phenomenon called urban poverty [6]. Urban poverty, especially in the developing countries, is spreading fast with a more impressive volume (UNFPA, 2007). Poverty and its impacts limit human development and most of the poors are vulnerable in the health and economic field, and now the urban managers and policy-makers have concluded that this originates from most social issues in the cities [7]. Damages from poverty are very extensive and it threatens urban stability in different dimensions. Malthus says indirectly that most of the poors participate at behaviors which are harmful for the environment [8].

The city needs to be supported by standards as it is the platform for urban life, and poverty not only is one of the most important world issues but also is that of internal problem of the whole community, who are either rich or poor (nevertheless, it is evident in most of the third world communities). The poverty, inequality, and differences in the life patterns of cities are because of the dual economy with free-market capitalism. Expanding cities with a

non-cohesive spatial structure and disorganized cause the facilities and services in various parts of the city to be concentrated irrationally and social and economic inequalities to be developed in them [9]. Social and economic evolution, the fast growth of the population, and its accelerated urbanization in the recent decades in Iran have caused urban poverty, social inequalities, and extreme class differences to be considered one of the life features of third-world cities in urban life so that fighting with it is one of the macro-policies of the national planning system in both short-term plans and long-term strategies.

Baniasad Kalate-seri (2016) analyzed the urban poverty dimensions and their spatial distribution in Sabzevar city [10]. The results of the study show that the education dimension is of importance in this city among the poverty dimensions. Ghasemian (2005) investigated the spread of urban poverty and the identification of informal settlements in terms of spatial justice in Nasimshahr in Tehran [11]. The results show that areas such as Hesarak, Vajhabad, southern Ahmedabad, and Kalam-e are the most vulnerable areas of Nasimshahr in terms of different indicators such as social, economic, and physical. Zebardast and Ramezani (2016) assessed urban poverty and its relationship with the help of access to urban services in Qazvin [12]. The results indicate that the urban poverty concentration exists in the southern and west-south parts of the city. The research findings show a significant rational relationship between urban poverty and access to urban services so that the urban poverty index is correlated with two factors of basic housing service and district level service that they have a meaningful relationship.

Despite the specific attention to the subject (urban poverty) in urban studies of the world, the place for such geographical research is empty in our country in terms of both theoretical and statistical, so this is felt to be a kind of gap. Of course, the category of urban poverty has had a great deal of attention in fields of social science. Since poverty has geographical features in the spatial-time dimension and, based on that, enhancing a sense of altruism and effort for improving human life is one of the most important educational goals of geography, it is essential to research and investigate this field. In this way, this study aims to analyze the economic dimension of the spatial distribution of urban poverty in Ray City.

### **The concept of poverty**

When poverty is explored in terms of conception, it is identified that it is a phenomenon along with social-economic dimensions. The simplest and most common definition of poverty is its economic definition [13]. Poverty is a multi-dimensional phenomenon beyond food deprivation [14]. Also, different dimensions of poverty interact with each other so that preventive factors, strengthening each other, make the poverty chains stronger and more impenetrable. The definition of poverty plays an important role in adopting policies to fight against it. So, the factors that are identified for poverty are efficient for adopting the policies to fight it.

In poverty literature, what is reminded as absolute poverty refers to the lowest level of life that the people or households are not able to access the minimum fundamental needs of their life. In other words, it refers to the state where a person faces a lack of necessary resources to survive. In simple words, we can conclude that people do not have the minimum essential income to continue their lives without comparing any person or household with others. In contrast, in the second kind of poverty, known as rational poverty, the people/household income is at the level of rational poverty; they are poor compared to others' income; it refers to a lack of a resource for a person or group who are compared with other members of the community or rational standard of life. In rational poverty, a person is poor compared to others [15]. Rational poverty refers to a lower income of a person than the average income of the community [16]. Currently, the rapid growth of the urban population has exacerbated the absolute and rational poverty of urban districts [17].

Extreme poverty can be defined as a killer: people who are deprived of access to the utilities which are essential for surviving vs. starvation, disease, and natural disasters. The criterion presented for extreme poverty is a criterion of daily income of less than a dollar. The degree of poverty impact is not always terrible and deadly; indeed, the situation of communities involved in non-extreme poverty is a little proper, however, they are still deplorable and need extensive attention, and almost half of people around the world are involved in this kind of poverty and suffer from it. The extensive level of this poverty depicts the amount of importance of defeating it. The criterion that has been presented for non-extreme poverty is less than 2 dollars daily.

### **The concept of the poverty line**

In Ravallion's view (1998), the poverty line is the cost of a person spending a certain time and place for access to a minimum level of welfare. The people who do not have access to this level are poor and those who have are not poor. To measure poverty and determine the poor and their distinction from the rich, a threshold or criterion named poverty line is required. This threshold means that the poverty line can be defined based on the currency unit and minimum expenses for continuing life. Some researchers define the minimum wage for continuing life in terms of energy and required protein for the body. In other words, the poverty line means the amount of resources required by a household to reach a certain level of welfare. This level of welfare is known as the poverty threshold and as a result, those with less welfare are the poor [18].

A rational poverty line is equivalent to the Rial expenses that a person needs to access a medium level of life in the community. To calculate the poverty line, first, the conception of rational poverty is required, then, proportionally, some indicators are used to show the medium level of consumption in society [18]. Also, it can be said that absolute poverty is a definition of survival or at least life. In other words, the sum of commodities and services that are critical for a family is considered as a border between the poor and the rich. Rational poverty is defined as income less than the average income of the community [16]. Sometimes, rational poverty is equivalent to income poverty and a conventional conception; it has different definitions in different societies.

### **The reasons for urban poverty**

The complexity of urban systems creates new issues in these eras that the poverty concentration is of significance. Poverty is created because of the community; in other words, it is the product of a community, because it is originated from a certain social production and organization and shown by different views. Due to the profound of this issue and the formation of spatial spreads of urban poverty, different schools and views have been explained to identify its origins, one of the most important of which can be liberalism, spatial political-economic view, socialists' new view, non-liberalism, ecologic, and radical [6]. Different school mining identifies that the various fields, mechanisms, and processes are involved in forming spatial dimensions of urban poverty and that the practical mechanism of its formation and incidence also appeared differently based on the public and private conditions governing each place [8]. The extent of poverty, inequality, and differences in environmental patterns in metropolitans are the results of the dual economy with free-market capitalism. The expansion of cities with an incohesive and nonorganized structure causes the utilities and services to concentrate in different parts of the city, creating the social-economic development, and the spatial areas of poverty in urban decay [8]. Economic poverty and unequal geographical concentration and distribution of wealth, in developing countries, have caused the extensive population to migrate from the urban decay to the wealth centers to have the opportunities such as employment, income, more service, and hope for a better future. In this process, immigrants settle in the cities, outskirts, and surroundings, informally due to a lack of extant economic power and absorption in the texture and life of their internal space [8]. There are the most important reasons of creating poverty as follows:

- 1- Income: Two points are essential in this regard: a) lowering income that many factors such as individual, family, regional, and local properties; how to work; property laws; social structures, etc. create it, and b) unequal income distribution that may be the most important reason for poverty in the developing countries, that is, in these countries, there is not a lack of income as extended as it is raised, but the huge part of that is on hands of a little people of the community that leads to the poverty expansion of many people of these cities.
- 2- Education: low educational levels are associated with unemployment and a gradual risk of poor life. Families that have been in the low levels of education, almost they cannot provide the better educational conditions for their children, and eventually; the better job positions are taken from them and cause poverty to transfer to the next generation.
- 3- Housing: Only a small number of low-income families have houses. Housing, itself, affects finding a job, education, and training, and in most of the cities and zones where there are more jobs, housing prices and rents are very high. On the other hand, housing for the poor has an impact on the health and environmental welfare of people.

- 4- Healthy: People in poverty suffer from physical and mental diseases. Poverty and stressful conditions, themselves, affect behaviors that threaten health, such as smoking and a poor diet. Also, people with disabilities and poverty should pay higher costs for medical services, commuting, and other health services because they cannot often pay for private care costs.
- 5- Service: Access to service for all people, even the poor is one of the most essential strategies to overcome poverty because a lack of access makes the conditions more critical.

### Research method

The current study is practical in terms of the goal and analytical-descriptive in those of identity and research methods. The statistical population of this study is the statistical blocks of Ray City in 2019. Data related to the theoretical basics of research have been prepared in a library/documentary method, and the raw data extracted from the statistical blocks of Ray City; have been prepared based on the census of the Statistical Centre of Iran in 2019.

The economic indicators of poverty are the most important ones to assess urban poverty. To explain these indicators, the conception of active and inactive populations should be explained, which have many applications in these indicators. Based on the fact that these indicators have been extracted from the statistical blocks of Ray City according to the census of the Statistical Centre of Iran in 2019, we consider these conceptions based on their definitions. According to this, all the people under 11 years and more (determined minimum age) who have participated in community manufacturing and service (employment) or had the capability of that (unemployment) in the week before the census, are called the active economic population. Also, people under 11 years and older who are not in the employment and unemployment groups during the referential week, are called the inactive economic population. The economic indicators consist of dependency burden, unemployment rate, unemployment rate of women, ratio of private vehicle owners, tendency rate, dependency rate, and activity rate.

In this study, poverty in Ray City 2016 was analyzed by two methods: Hot-Spot and Moran's indicator.

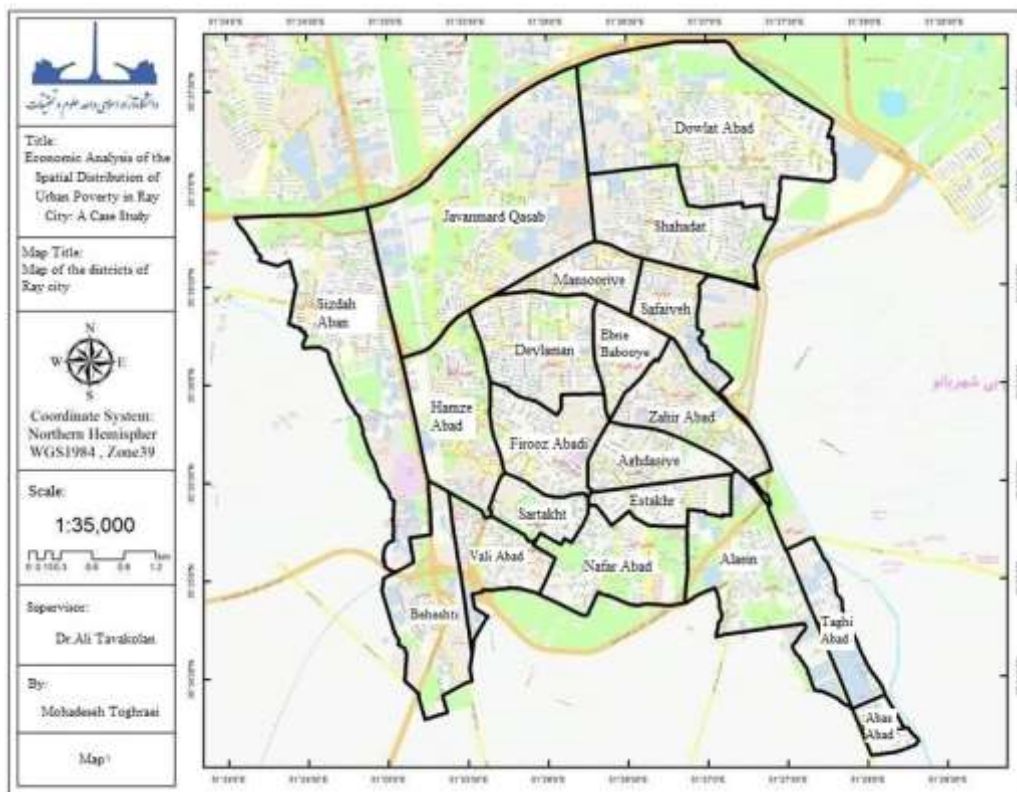
### Study area

The city of Ray is located at 35 degrees and 36 minutes of the north latitude and 51 degrees and 36 minutes of the east longitude with a distance of 1050 m from the sea level; it has plain topography. Its climate has dry cold winters and dry warm summers where the average annual rainfall is almost 200 ml; the minimum average temperature is -4 and the maximum is +42 per year.

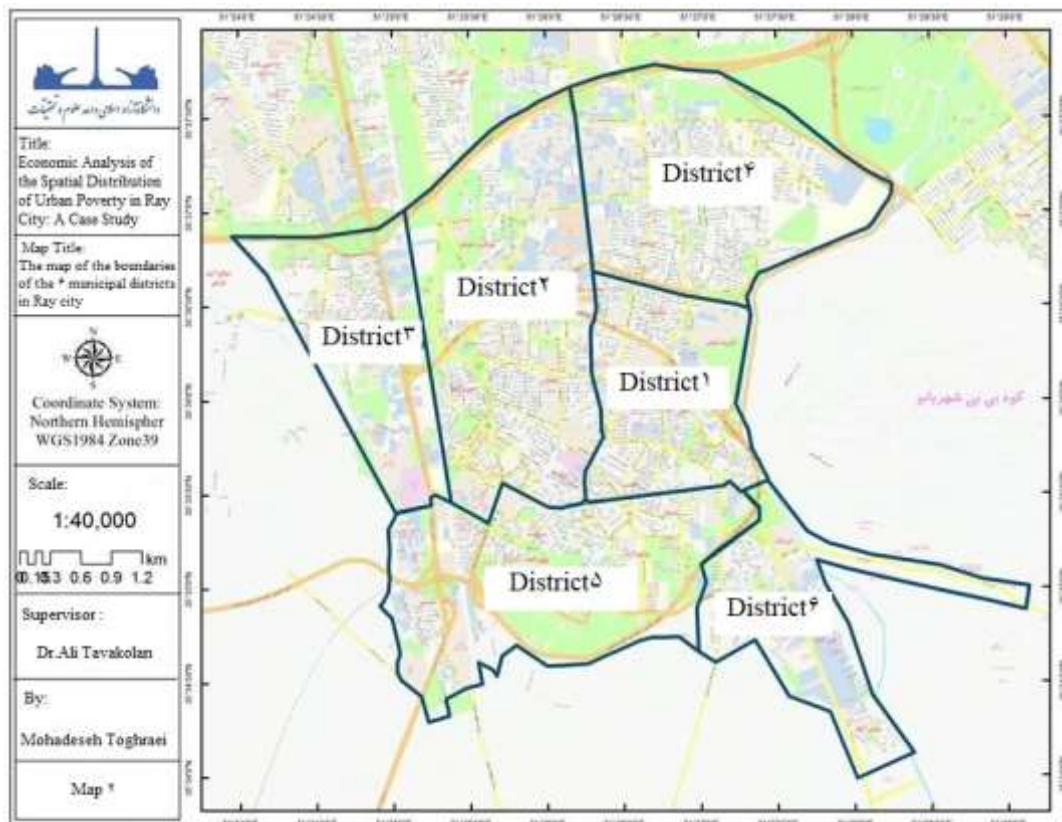
Its 20th urban district is the southernmost of the Tehran municipality with 470 thousand and 24 populations and 168 thousand and 598 households, 90% literacy rate, 9% illiteracy rate, 39% active people, 91% employment rate, and 9% unemployment rate. Also, this city, with a surface area of 2624 hectares, including 22 square kilometers inside the city and 178 square kilometers of privacy, has 6 districts and 20 neighborhoods.

The city is associated with Tehran through several main roads: The Shahid Rajaei Road along the Qom road on the west, Fadaeiyan Eslam Road which directly begins with Shahre Rey Square and extends to Shush Square; the third road of the Ray city is the same route of the smoke machine, starts from the three ways and continues to the Khorasan street intersection; the Dastwara street along the Javanmard Qasab that is associated with Tehran through the Besat expressway. Among these, both the main road axes of Shahid Rajaei and Fadaeiyan Eslam create the main relationship of Ray City with the east, west, and north of Tehran. On the other hand, based on all the lines considered for the metro of Tehran, Line 1 is the north-south line, begins with Tajrish Square, extends to the south, from the Shush Square parallel to the Varamin railway, and reaches Ray City.





Map 1: The map of neighborhoods related to the 20th district of Tehran (Ray City).



Map 2: The map of 6 areas related to the 20th municipal district of Tehran (Ray City).

Four thousand, eight hundred, and 28 residential plates are worn out. The surface area of the 20th urban district, in Ray City, is two thousand and 624 hectares; out of that, 137 hectares are in urban decay, including 37 hectares of roads and passages plus 100 hectare residencies. There are seven thousand 764 urban decay plates in 17 neighborhoods; out of these, a thousand 936 plates, i.e. more than 38%, have been destroyed and renewed. Four thousand and 62 plates are worn out and must be renewed. The part of urban decay of the 20th district has also been located in the road and passage network. 180 urban decay plates of this network have identified that the acquisition and reopening plan by the urban management is on the agenda. This city has 20 neighborhoods whilst 17 out of those are involved in urban decay. It is expected that these are also destroyed and renewed in partnership with their owners and municipal encouragement packages.

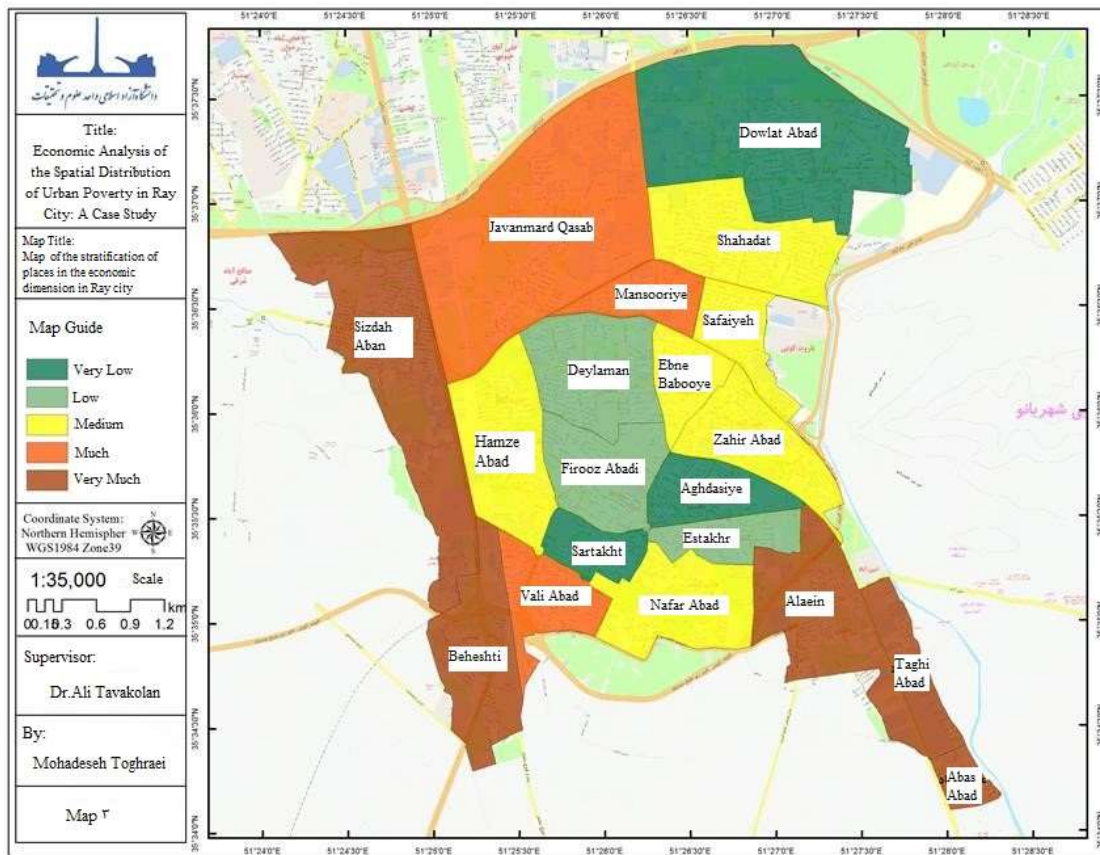
### Findings

In Table 1, the extracted indicators and their weights are given; they have been weighted by the AHP method. To investigate the urban poverty in the level of neighborhoods in Ray City, 8 indicators have been used in an economic dimension format.

**Table 1:** The indicators used in the study.

Economic (0.5)	
Indicator	Amount
Dependency burden	0.16
Unemployment rate	0.20
Overhead rate	0.13
Unemployment rate of Women	0.21
Rate of private vehicle owners	0.05
Tenancy ratio	0.13
Dependency rate	0.080
Activity rate	0.035

To investigate the economic dimension, 8 indicators have been used. The spatial view of this dimension in the level of neighborhoods in the city is given in Maps 1-4 in total, based on the available data for the economic dimension, 5 neighborhoods, that is 25%, are in very high economic poverty situation (Sizdeh Aban, Shahid Beheshti, Alabin, Taqi-Abad, and Abbas-Abad) 3, that is 15%, are in the high situation (Javanmard Qasab, Mansourieh, and Vali-Abad); 6 (30%) are in the medium level (Shahadat, Safaiyeh, Shahid Ghiori, Ibn Babawayh, and Hamza Abad); 3, that is 15%, are in a low level (Dillman, Firouzabadi, and Dolatabad); and eventually, 2, that is 10%, including Aqdasiyeh and Sartah, have the better economic situation than others (see Map 3).



Map 3: The spatial distribution of economic poverty in the level of neighborhoods in Ray City.

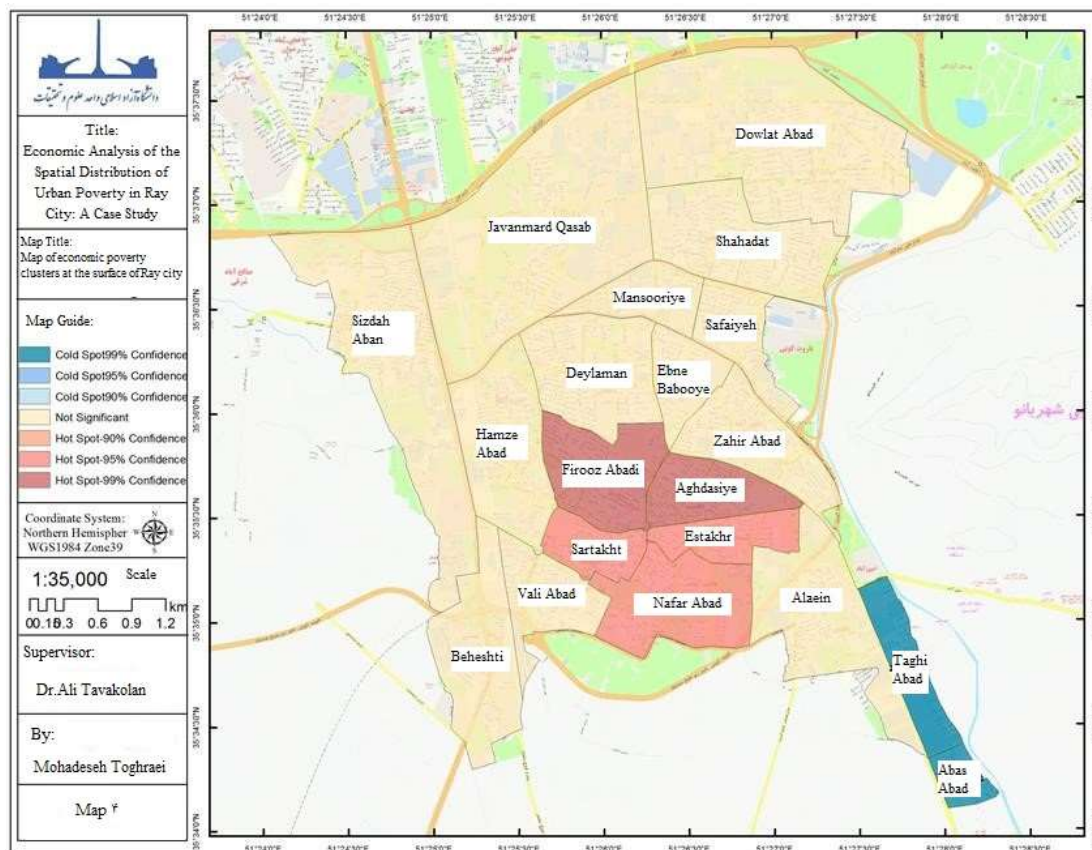
One of the main problems with spatial distribution is how to create their distribution pattern. In this stage, to understand better the distribution pattern of slums in Ray City, MoransI has been used.

Investigating the spatial self-correlation of the economic dimension among the neighborhoods in Ray City shows that their distribution pattern of economic poverty is a cluster according to the Z-Score value as well as its MoransI (0.32); also, the level of significance shows the significance of this pattern among the neighborhoods in the city. The analysis of hot spots of the economic poverty dimension in the level of city neighborhoods shows that hot clusters have formed in the central and southern neighborhoods in terms of economic and economic poverty in the southeast.

**Table 2:** The results of MoransI for the economic poverty dimension of neighborhoods.

The economic poverty dimension of neighborhoods in Ray City	
MoransI	0.3252
Z-Score	6.082
P-Value	0.0





Map 4: The spatial distribution of economic poverty clusters in the level of neighborhoods in Ray City.

## Conclusion

This study aims to analyze the economic dimension of the spatial distribution of urban poverty in the 20th district of Tehran. First of all, the urban poverty indicators are gathered in the economic dimension and then, weighted by the experts' survey in AHP. After calculating the raised indicators using the demographic data and housing data from documentaries and the Statistical Centre of Iran, they enter into the GIS software and are prepared to calculate Moran's index (Moran's I).

One of the current problems of our cities, the same as many countries worldwide, especially in third world countries, is urban poverty, which is increasing, and should be noted by the urban management immediately; based on its reasons, they should try to resolve this challenge fundamentally. Although urban poverty is affected by the economic dimension, it threatens its other dimensions as well. In other words, its impact is more than the other dimensions, but it doesn't mean that others are not effective. One of the solutions to prevent its increase is to organize the situation in less privileged zones and to identify areas of slums, especially at the level of metropolitans such as Tehran, especially in the urban decay where most immigrants and low-income people are. So, it should be resolved by policy-making and planning based on the identification of reasons and zones, which is costly and time-consuming. In this regard, this study tried to address the distribution pattern of urban poverty in the level of neighborhoods in Ray City.

Referring to the results, experts believe that the economic dimension has the highest impact on urban poverty in this city, based on the score registered in the AHP software for each dimension, followed by the physical dimension and eventually social. The Spatial view of economic poverty in Ray City identifies that 5 neighborhoods have very high economic poverty (Sizdah Aban, Shahid Beheshti, Alabin, Taqi-Abad, and Abbas-Abad) included 25%; 3, that is 15%, are in high economic poverty (Javanmard Qasab, Mansourieh, and Vali-Abad); 6 (30%) are in the medium level (Shahadat, Safaiyeh, Shahid Ghiori, Ibn Babawayh, and Hamza Abad);



3, that is 15%, are in a low level (Dillman, Firouzabadi, and Dolatabad); and eventually, 2, that is 10%, including Aqdasiyeh, and Sartaht, have the better economic situation than others.

Based on the results, it is proposed we find the following trends regarding the poverty issue and specify the possible future ways to prevent time loss and cost plus replication of findings. Also, it is recommended that wise measures are considered for transferring the population from villages and surrounding counties to informal settlements that are continuously increasing. On the other hand, the poverty alleviation plans are suggested based on macro-policies and comprehensive planning.

## References

- [1] Oleksandr S, Anatolii K, Andrii S, Petro S, Olga P, Lena D. Rationale for Choosing the Basis for Early Coverage. *Arch Pharm Pract* † Volume. 2021 Jan;12(1);103-108
- [2] Elkalmi RM, Elnaem MH, Elsayed TM, Salawi AA, Alkoudmani RM, Allela OQB. Disparity and compatibility, familiarity and perception among waterpipe tobacco smokers (Shisha) in Malaysia: A comparative study. *Arch Pharm Pract*. 2021;12(1):21-30.
- [3] Van TP. Relationship between well-being and social interaction of disabled people in Ho Chi Minh City, Vietnam. *J Adv Pharm Educ Res*. 2022;12(2):23-9
- [4] Melikov I, Kryuchkova S, Khrapov S, Otyutskiy G, Kryuchkova E. Correspondence between society and culture as form and content. *J Adv Pharm Educ Res*. 2021;11(3):162-6.
- [5] Hasanalizadeh, M. (2018) Spatial Analysis of Urban Poverty in Qaemshahr City in 2017), Master's thesis, supervisor: Amer Nikpour, University of Mazandaran.
- [6] Zanganeh, A. (2010) Recognizing the Spatial Pattern of Urban Poverty Expansion Using Geographic Information System (GIS) In Kermanshah during the Years (1996-2006), University of Zanjan.
- [7] Farhadikhah, H., Hataminejad, H., Shahi, A., and Zafari, M. (2018) Spatial Analysis of Urban Poverty in Neighborhood Levels (case study: Mashhad city), *Urban Economics*, Vol. 2, Issue 2, pp. 17-36.
- [8] Movahhed, A., Vali Noori, S., Hataminejad, H., Zanganeh, A., and Kamanroodi Kajouri, M. (2016) Spatial Analysis of Urban Poverty in Tehran Metropolis. *Journal of Urban Economics and Management*, Vol. 4, Issue 15, pp. 19-36.
- [9] Rostaei, S. and Karbasi, P. (2017) Identifying and Assessing the Extent of Urban Poverty in Maragheh Locals, *Journal of Community Development*, Vol. 9, No. 17, pp. 197-214.
- [10] Baniasad Kalate-seri, T. (2016) Investigation and Analysis of Urban Poverty Dimensions, and Its Spatial Distribution in Sabzevar City, Master's thesis, supervisor: Mohammad Salmani Moghadam, Hakim Sabzevari University; Faculty of Geography and Environmental Sciences.
- [11] Ghasemian, S. (2005) Poverty in Iran: Challenges and Perspectives, *Social Welfare Quarterly*, Vol. 5, Issue 18, pp. 333-356.
- [12] Zebardast, E. and Ramezani, R. (2016) Evaluating Urban Poverty and its Relationship with Access to Services in Qazvin City, *Journal of Fine Arts: Architecture and Urban Planning*, Vol. 21, Issue 2, pp. 45-54.
- [13] Sharifi, M. (2006) Poverty; The threat of international security in the 21st century, Vol. 14, No. 39.
- [14] Job, (2002), Australian Agency for International Development, National, Archives of Australia.
- [15] Zahedi Mazandarani, M.J. (2005) Rural Poverty in Iran: Trend and Measurement (The Explanation of Methods and the Critic of Approaches), *Social Welfare Quarterly*, Vol. 5, Issue 17, pp. 289-0.
- [16] Schiller, B.R. (2001) *The Economics of Poverty and Discrimination*, Prentic Hall, New Tersey.
- [17] Masika, R., de Haan, A. and Baden, S. (2015) Urbanisation and Urban Poverty: A Gender Analysis," Working Papers id:7104, eSocialSciences.
- [18] Parestesh, N. (2018) Economic magazine - monthly review of economic issues and policies, Numbers 79 and 80.