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Analysis of the Effects of Creative Tourism On the Quality of the Urban Environment (the case of Arak City)

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Abstract

The urban environment quality approach, as one of the most modern paradigms for revitalizing urban areas, has a significant impact on the quality of life and Citizens' welfare, and its combination with creative approaches such as urban branding can lead to the growth and excellence of urban areas and increase the competitiveness of the city. Therefore, the aim of the present study is to analyze the spatial relationship between creative tourism indicators and urban environment quality in the neighborhoods of Arak. The required data and information were collected using library and survey methods. After analysis in EXCEL software, they were entered into GIS software and spatially analyzed using multivariate regression in the form of the GWR model. The statistical sample of the study was 384 citizens of Arak. The results of the study showed that the status of creative tourism indicators is in an unfavorable condition and the peripheral neighborhoods of the city are in a weaker condition. Also, the environmental quality indicators in Arak are not in a favorable condition and most neighborhoods have an average score lower than 3. Also, the results of the spatial analysis of the GWR model showed the relationship between creative tourism and the quality of the urban environment, and creative tourism indicators can have a high impact on the quality of the environment of the neighborhoods of Arak, especially in the eastern, southern and southwestern regions of the city. Also, findings revealed that the impact of creative tourism indicators on economic and Physical-functional, the quality of the environment is in an almost average position.

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Introduction

Several reasons have led to the degradation of the quality of residential environments in urban areas. In the 10-year time series, approaching the last 10-year period, the concept of quality in the urban environment has received attention from both experts and professionals, as well as citizens involved in issues in society (Papachristou & Rosas-Casals, 2019). The quality of the urban environment, as part of the quality of urban life debate, has a special place in contemporary urban planning studies, because the higher the quality of an urban environment, the more capable that city is of smart and sustainable development (Mohammad Ebrahimi & Oshnavii, 2022). All urban problems have an environmental quality characteristic, more precisely, it can be said that most environmental challenges will quickly become urban problems. As we move from the past to recent years, aspects of environmental sustainability and quality of life and healthy communities have increasingly taken into account the quality dimensions in urban and residential environments (Takano et al., 2023). The theme of urban environmental quality is a concept with various dimensions, and of course, the lives of city dwellers are affected by the concept of quality of life in every way (Musse et al., 2018). The theme of urban environment quality is an important part of City dwellers' lives and directly affects the quality of life. This concept has many undeniable similarities with concepts such as the quality of place, and a correct understanding of the level of satisfaction or dissatisfaction of residents with the residential environment. A person's place of residence can have maximum utility for him when it is capable of meeting his needs and desires in various environmental, social, physical, and economic. If any of these factors in a person's place of residence does not have the expected quality, his individual satisfaction changes due to his feeling and perception of space (Barati & Kakavand, 2013). Currently, Iranian cities are in a situation where they are faced with various economic, social, physical, infrastructural and environmental problems (Radjahanbani & Partovi, 2011). Planners believe that the quality of the environment is an important category in determining programs with regional and social relevance and is related to elements such as quality of life, diversity of social space, physical characteristics of activities, spatial dependencies and urban identity (Nouri et al., 2021).

Concern about the quality of life is a characteristic of today's society (Pacione, 2003). The necessity and relevance of environmental quality in various aspects of life, the special theme of the residential environment, the undeniable role of the residential environment as the most important human habitat, and the gathering of countless people greatly affected by the prevailing conditions of their residential environment, make the importance and necessity of examining this issue in cities more evident than ever (Pacheco & Rossouw, 2012). Urban environmental quality is a multidimensional term and these dimensions are in interaction with the living environment (Pal & Sengupta, 2019). Therefore, the simultaneous development of theories of urban environmental quality and its main characteristics is a

directed activity (Brown, 2003). Meanwhile, it is seen that improving the quality of the urban environment has a tremendous impact on increasing citizens' satisfaction with urban life, reducing social disorders, creating a sense of ownership among citizens, and creating a safe and participatory environment, etc. As a result, the issue of the urban environment and the positive and targeted improvement of its quality are important points to note in this regard (Lu et al., 2021).

Creative tourism was initiated using a participatory community-based approach to achieve a better quality of life for local communities (Wisansing & Vongvisitsin, 2019). Today, tourism is considered a gateway to sustainable development and one of the main and dynamic factors of individual well-being in society and is one of the most important economic activities (Fazelnia & Hedayati, 2010). The importance of this issue has made tourism the first pillar of income generation and territorial development, especially in countries with suitable physical, health, welfare and communication infrastructure (Sarantou, 2021). By creating a tourism platform in urban areas that are full of new and undiscovered opportunities, and by discovering and exploiting these opportunities promptly and creating new and competitive businesses based on them, significant economic benefits can be brought to citizens. In this regard, among the new policies proposed in urban planning, creative tourism, as one of the new urban planning ideas in many cities around the world, has led to an increase in the quality of the citizens' environment. In Iran, due to the shortcomings in the planning of the physical-functional aspect of regional and urban plans, extensive migrations and rapid physical growth, and most importantly, the implementation and induction of ineffective policies and methods in dealing with neighborhoods and urban areas, as well as the lack of attention to the constructive role of urban areas and neighborhoods in increasing the social, economic, and physical identity of cities, the problems and issues of neighborhoods and urban areas have appeared in an unprecedented way. Lack of attention to this important issue has caused a downward trend in the quality of the urban environment in terms of physical, environmental, economic, and social aspects. Meanwhile, Arak, as one of the metropolises of Iran, is involved in various urban issues and problems such as; air pollution, traffic, and marginalization. Also, the activity of various industries (Shazand Petrochemical, aluminum industries, industrial machinery factories, etc.) in Arak has given the city an industrial nature and has reduced the quality of the citizens' environment to some extent. According to existing statistics, the Arak metropolis is now one of the 8 most polluted cities in the country. Therefore, considering the issues and problems raised, it is evident that creative tourism has been a moderator of many of the problems of cities in many countries, so the main issue raised here is what is the status of the creative tourism indicators of Arak city. What is the status of the environmental quality of the neighborhoods of Arak city. To what extent do creative tourism indicators in the spatial dimension (neighborhoods) affect the environmental quality of Arak city?

Literature Review

The tourism industry, which development planners and policymakers refer to as one of the main pillars of sustainable development (Panahi & Sattari, 2017), has been an important part of productive industrial activities, a dynamic and unique economy, and a symbol of national and regional interaction of different countries all over the world (UNWTO, 2007). This industry, which includes all the phenomena and relationships resulting from the interaction of tourists and various suppliers and vendors to attract and host tourists, has had a great impact on the environmental, social, cultural, employment, foreign exchange, regional balance, world peace, investment in cultural heritage, etc. A situation in that, we do not reach desirable results by studying in Iran. Iran, given its overreliance on oil revenue, the issue of political pressures and sanctions, as well as the need to showcase our country's rich and vast culture, must include tourism in various and new dimensions with a creative model among its main programs. Creativity, as an important factor in a knowledge-based economy, supports environmental growth and functions more successfully in a competitive market. In the literature and planning of tourism studies and tourism development, creativity and innovation are undoubtedly essential factors for development. Creativity is increasingly being introduced and considered as an important basis for designing and providing experiences between a successful product and its serial reproduction for mass distribution. Extensive discussions have been raised about creative development and creative strategies and creativity. The main question is what is creativity? In most discussions of creativity, no specific and universal definition of this term can be found. The lack of a comprehensive and specific definition may be due to the multidimensionality and non-objective nature of creativity (Florida, 2008). Creativity is a vague concept; however, it is traditionally considered as an individual characteristic that is related to, but different from, the emergence of genius. Creativity is the application of mental abilities to create or crystallize a new thought or concept, which some have also interpreted as the combination of ideas or the creation of continuity between ideas(Mohammadi et al., 2015). This term can be broadly defined as the emergence of something sublime and appropriate from the perspective of a person, group, or society. Nijs and Peters (2002) point out key aspects of creativity as part of the concept development process: creativity is about solving problems; creativity is about innovating; finding solutions that others have not yet found; creativity is about crossing boundaries and looking at other fields; creativity is about combining knowledge and different fields, not necessarily about developing completely new ideas. According to these definitions, creativity is a pervasive and ongoing process that continuously shapes everyday life. It is worth noting that consumers play an important role in this because they increasingly have more power and control over the experiential environments of the future in which, the dialogue between them and companies takes place (Prahalad & Ramasawy, 2004). Florida (2002) argues that the emergence of human creativity is a major factor in the economy and society. It also identifies and

introduces creativity as a driving force for societal transformation. However, in all existing definitions of creativity, there are a few key elements that are widely repeated. For example, the Oxford English Dictionary describes creativity as innovative and imaginative. Chartrand (2014) argues that individual creativity occurs when an individual steps beyond traditional ways of doing and knowing. These ideas suggest that creativity is more about developing new ways of thinking and acting, which demonstrates the close relationship between creativity and innovation (Rogerson & Visser, 2004). In this sense, creativity may lead to tourism development through the development of new products or experiences. This creativity encompasses new forms of consumption of new tourism spaces, including any type of tourism related to creativity and the capabilities of producers and consumers that are in the field of creative tourism (Mohammadi & Mirtaghian Rudsari, 2016).

Creativity in tourism includes a wide range of architectural and media fields (Batey & furham, 2006). In general, many definitions and areas related to creativity, tourism and culture can be stated, the most important of which include the following areas: creativity as a product; creativity as an experience; creativity as innovation; creativity as a marketing strategy; creativity as an industry sector; creativity as a vision; creativity as a problem solver; creativity as a key term for heritage and new cultural tourism; creativity as a challenge to identity; creativity as difference and diversity.

Urban Environment Quality

The quality of the urban environment is an aspect of the quality of life, which includes the sense of well-being, comfort and satisfaction of people with the physical-spatial, socio-economic, environmental and symbolic factors of their living environment (Kumar et al., 2020). In other words, the quality of the environment focuses not only on the areas of meeting human material needs but also on the revival and improvement of social capacities and the development of human communities in the form of a city, which also affects their social behavior patterns. The quality of the urban environment depends on the quality of the city's infrastructure and its appropriate management and includes the physical environment such as (rainwater management, air quality, green space, noise, traffic, etc.), housing facilities (water supply, electricity, gas, telephone, health, sewage disposal, etc.) and the social environment (society, independence, social actions, sense of satisfaction and social security). The quality of the urban environment is defined as the social, cultural, economic and physical-spatial conditions of the urban environment that express the level of satisfaction or dissatisfaction of citizens with the urban environment. Lansing and Marats (1969) believe that a high-quality environment gives its inhabitants a set of feelings of well-being and satisfaction through characteristics that may be physical, social or symbolic. Specific and related aspects of quality indicators such as health and safety in combination with aspects such as comfort and environmental attractiveness can create a deep concept of

environmental quality in the mind (Van Kamp et al., 2003). In summary, most researchers consider the quality of the urban environment as an interconnected set of environmental, economic, social and physical conditions and characteristics, the decline or improvement of which plays an important role in the quality of life of citizens. The quality of the urban environment to some extent reflects the state of the quality of life of citizens.

To understand the responsiveness or non-responsiveness of environmental qualities, norms must be sought in the external environment. These norms are placed in containers and defined by carriers. Carriers are the same indicators that carry different norms with them; therefore, the indicator is a benchmark that demonstrates the existence of other phenomena (Sung et al., 2015).

Material and methods

The research method is descriptive and analytical and the aim is applied. The data required for the research were collected by two library methods and referring to related organizations. The questionnaire was collected stratified among the 5 regions of Arak City. To determine the urban environment quality indicators and creative tourism indicators, related sources and documents were collected and studied; and finally, the most widely used indicators in other related research were extracted. Finally, 4 indicators (creative environment, creative process, creative industries & products, and creative class) were selected as independent variables of creative tourism; and 4 indicators (physical-functional, economic, environmental, social) were determined as dependent variables of urban environment quality, and for each of these indicators, several sub-indicators were selected to construct items (Tables 1 and 2).

Table 1. Creative Tourism Indicators
(Nejadebrahimi et al., 2021; Shams Najafi et al., 2022; Bastenegar, 2016; Abrishami et al., 2020)

Index	Component
Natural heritage, medicinal plants and traditional medicine, historical and cultural heritage, traditional cultural manifestations, tourism facilities, tourism welfare service activities	Creative Environment
Workshops and educational classes, indigenous and local festivals, cultural and artistic competitions, cultural programs, cultural and artistic exhibitions	Creative Process
Performing and visual arts, audio-visual industries, games and entertainment, handicrafts, food, fashion and clothing, jewelry, books, printing and publishing, creative services	Creative Industries and Products
Engineers, music, fashion and clothing, cinema, theater, literature, elite group, handicrafts, visual arts, human capital, tourism sector employees	Creative Class

In the next stage, the questionnaire was designed based on a five-point Likert scale in such a way that the average value of the desired variable in the population is measured relative to the number 3. Now, if the average value is greater than 3, it is concluded that the desired variable in the statistical population has an upwardly moderate status, and lower than this number indicates an unfavorable status of the

analyzed indicator. The questionnaire was distributed among the residents of the 5 regions of Arak. The questionnaire was distributed in a balanced manner based on the population size of each urban region (Table 3). The statistical population of the study of Arak citizens was 603,000. The sample size was determined based on the Cochran formula as 384 citizens living in the 5 regions. Also, the convenience sampling method was used to select the sample individuals.

Table 2. Environmental quality indicators, (Mohammadebrahimi et al., 2022; Rafieian & Zahed, 2018)

Index	Component
Adequacy of public services (schools, clinics, etc.), quality of public transportation, quality of housing, beauty of the shape and appearance of buildings, quality of urban furniture (chairs, bus stops, etc.), readability of urban spaces	Physical-Functional
The existence of suitable and numerous markets and shopping centers, favorable living costs, the existence of attractions, spaces, and facilities necessary to attract tourists, the existence of sufficient jobs for citizens (employment in the city), equal opportunities for residents in economic activities, the existence of numerous wholesale and retail centers, the existence of various economic activities, a low unemployment rate, and the appropriate prices of land and housing.	Economic
The desirability of the urban landscape, satisfaction with the absence of bad and offensive odors, satisfaction with the absence of noise pollution, the presence of natural landscapes, the favorable climate throughout the year, the lighting of the urban environment, the desirability of the area of green spaces and parks, the welcoming environment for citizens.	Environmental
A sense of belonging to a place of residence, a sense of community and participation among people, the trustworthiness of the neighborhood for citizens, compliance with traffic laws, the appropriateness of social interactions between citizens, and the appropriateness of the quality of educational facilities.	Social

Table 3. Spatial distribution of questionnaires based on regional population

Regions	Population according to the 2016 census	Sample size	Regions	Population according to the 2016 census	Sample size
Region 1	97606	63	Region 2	181867	1117
Region 3	106870	67	Region 4	111377	74
Region 5	62	Total sample	384		

Finally, the collected information was analyzed using GIS software and the GWR model. Using the GWR model, as one of the spatial statistics analysis tests, the spatial relationship between Arak's creative tourism indicators as an independent variable and the dependent variable (urban environment quality) was calculated.

Analusis and findings

Analysis of the status of urban environment quality indicators This study provides valuable In the research findings section, the current status of urban environment quality indicators (physical-functional, economic, environmental, social) was first measured and evaluated, and the results obtained are as follows: In evaluating the economic status of Arak city neighborhoods, the results indicate that;

most neighborhoods in Arak city do not have a suitable economic status, so that in the eastern neighborhoods of the city due to the presence of various industrial factories and industrial estates, areas 4 and 5 due to the presence of dense and old texture, high traffic, the neighborhoods in the western region towards Shazand and the refinery have a very unsuitable economic status from the citizens' perspective. Also, in the environmental dimension, the eastern and central neighborhoods have average conditions compared to other regions, and of course, area 3 in the western part of the city has weaker conditions than other regions in terms of this indicator from the citizens' perspective. In the economic dimension, neighborhoods in areas 1, 4 and 5 have a more suitable status than the western and southwestern regions. In the social dimension, the situation is not very good in most areas of the city, and among all the neighborhoods, only perhaps 10 neighborhoods are close to the number 3, and all neighborhoods have lower average statistics (Figure 1).

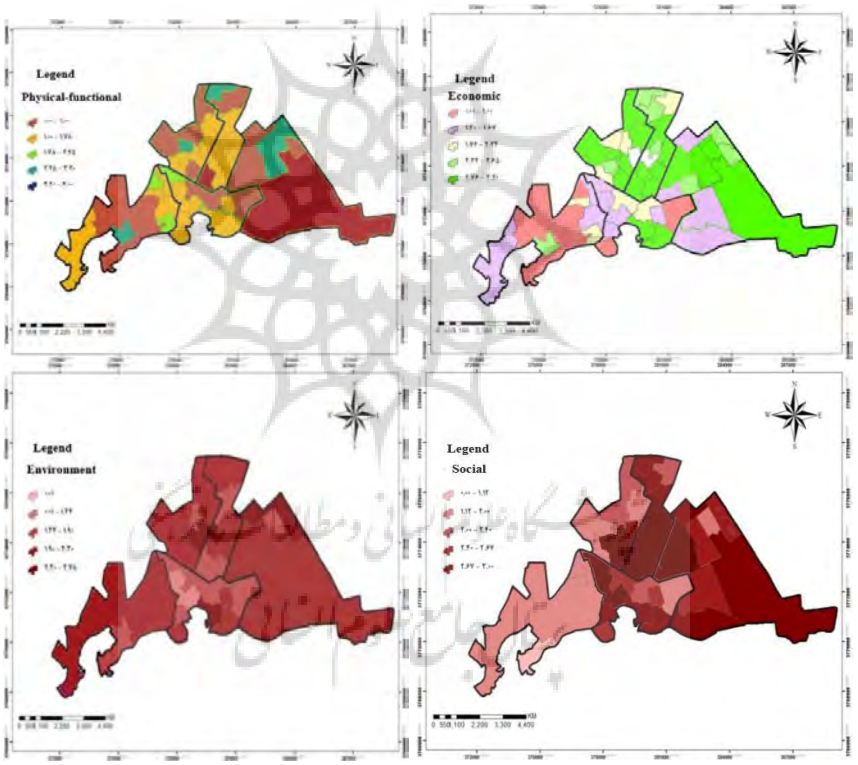

Figure 1. Status of Arak's Urban Environment Quality Indicators, (Resourse: Author, 2024)

Analysis of the Status of Creative Tourism Indicators

In this part of the research, the current status of creative tourism indicators from the perspective of citizens has been evaluated. The results obtained are presented in the form of the following maps (Figure 2) for a better visual understanding of the research. The results obtained show that in the field of the

city's creative environment, creative process, and creative industries and products, the neighborhoods and central urban areas have a better situation than other areas of the city. Also, in the field of the creative class, most areas and neighborhoods of the city do not show a good situation. So that the statistics obtained from the analysis of the questionnaire in the field of all 5 creative tourism indicators show a medium to low average (less than 3), which indicates the lack of development and success of creative tourism in the neighborhoods and areas of Arak.

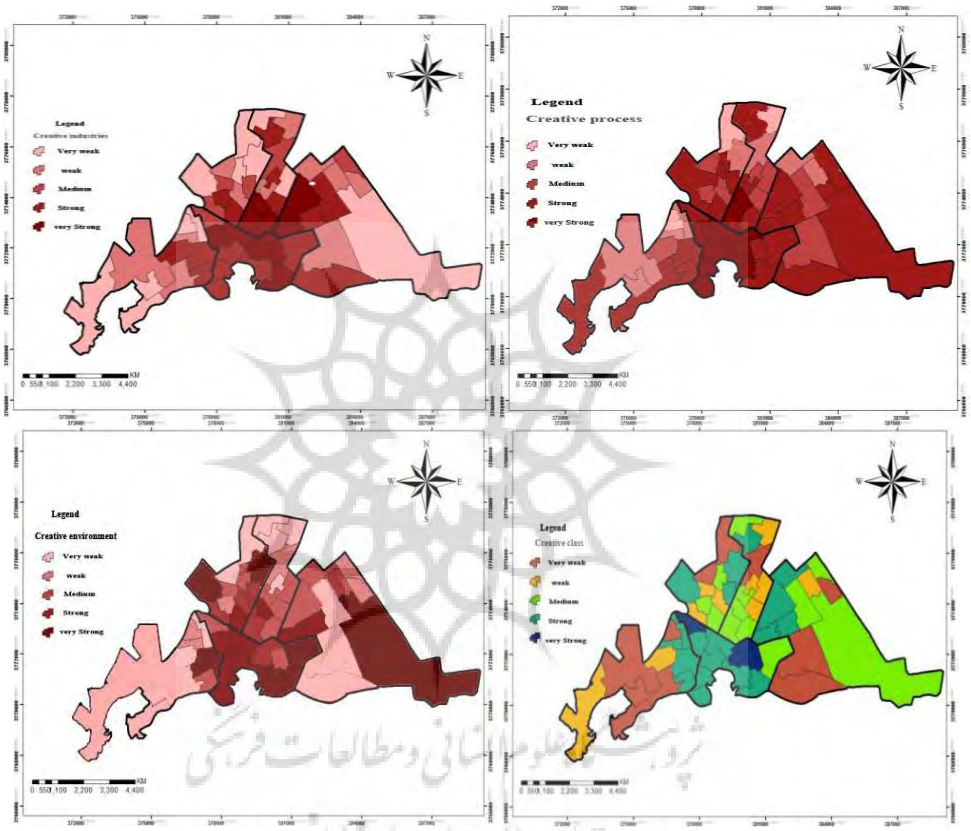

Figure 2. Status of Creative Tourism Indicators (Resourse: Author, 2024)

Spatial Analysis Using Geographic Weighted Regression

In this section, the spatial relationship between the creative tourism index and the quality of the urban environment is measured and evaluated using multivariate spatial regression, so that the spatial relationship of each environmental quality indicator (social, environmental, economic, physical-functional) is measured and analyzed separately; In the analysis of the results, the R2 statistic as the most important analysis statistic is equal to 0.76: that is, the relationship between the variable space of creative tourism and the state of the environmental quality of the city of Arak in the environmental

dimension is confirmed at a 95% confidence level. Of course, in the following analysis, the maps are interpreted as neighborhoods and regions. Also, the AICc2 value shows a low number (689.09), which indicates a better fit of the model with the observational data and shows the efficiency of the model. (Table 4).

Table 4. Weighted regression of environmental index

AdjustedR	Sigma	AICc	R	Dependent variable	Independent variable
0/72	0/008	689/09	0/76	Environmental	**Creative industries and products, creative environment, creative process, creative class**

Spatial analysis of the relationship between creative tourism and the quality of the urban environment in the environmental dimension (Figure 3) shows that in the std statistic, the range of data changes is between +2.5 and -2.5, and none of the data is outside the desired range, which indicates the high quality of the model. Also, the R2 statistic = 0.76 shows that the spatial correlation between the creative tourism index and the quality of the urban environment in the environmental dimension at the level of the neighborhoods of Arak is more than 50%, which indicates the high impact of creative tourism on the quality of the urban environment of Arak. This spatial correlation is greater in the neighborhoods of the south, east, northwest and north than in other areas of Arak, which of course can justify this issue given the development of factories, industrial estates and refineries in these areas of Arak.

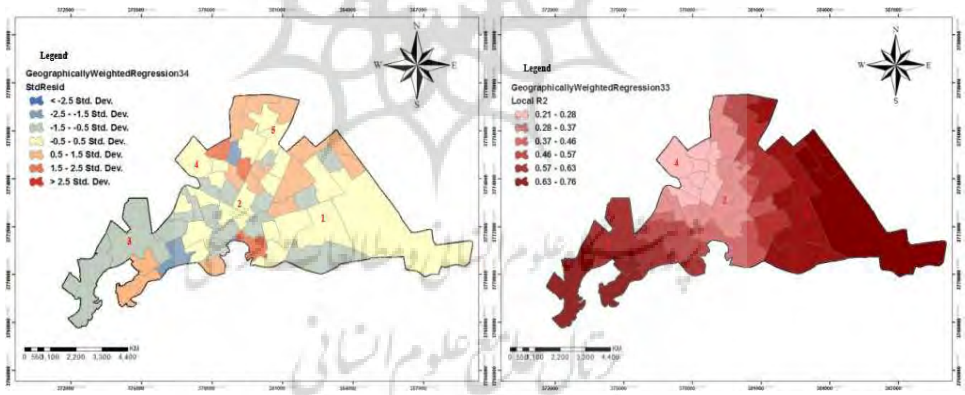

Figure 3. Spatial analysis statistics (StdResid, R2,) of the environmental index (Resourse: Author, 2024)

The results of spatial analysis of the relationship between creative tourism indicators and urban environment quality in the social dimension show that there is a significant relationship at a 95% confidence level. R2 value of the analysis is 0.67: that is, creative tourism indicators have an impact of 67% on the environmental quality of citizens in the neighborhoods of Arak city in the social dimension. Also, the AICc2 value shows a desirable number lower than 3, which indicates a better fit of the model

with observational data. The descriptive statistic Predicted predicts spatial changes between the independent variable and the dependent variable by 0.59.

According to the output map, in the analysis of the outputs of the StdResid statistic, among the existing scores of the neighborhoods of Arak City, there is no data smaller than -2.5 and larger than +2.5, which indicates the high suitability of the model. Also, the R2 value shows a relatively high spatial correlation (0.67) between the creative tourism indicators and the neighborhoods of Arak City in the social dimension. This correlation is evaluated as approximately average in most neighborhoods of the city, and of course this spatial relationship is greater in the southern, southwestern and eastern neighborhoods than in other neighborhoods, meaning that in these neighborhoods the quality of the social environment of the neighborhoods is more affected by the creative tourism indicators than in other neighborhoods. Also, in the northern and northeastern regions, the spatial relationship is weaker than in other regions and neighborhoods of the city.

Table 5 - Weighted regression of social index

AdjustedR	Sigma	AICc	R	Dependent variable	Independent variable
0/62	0/001	876	0/67	social	**Creative industries and products, creative environment, creative process, creative class**

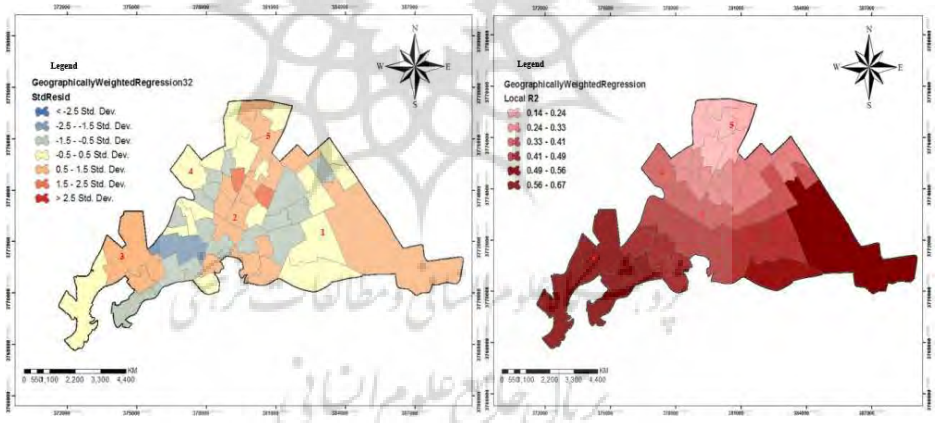

Figure 4. Spatial analysis statistics (StdResid, R2,) of the social index (Resourse: Author, 2024)

The results of spatial analysis of the relationship between creative tourism indicators and urban environment quality in the physical-functional dimension show that R2 value of the analysis is 0.48: that is, creative tourism indicators have an approximately moderate (48%) effect on the environmental quality of Arak city neighborhoods in the physical-functional dimension. Also, the AICc2 value shows a desirable number of 903.76, lower than 3, which indicates a better fit of the model with the observational data.

Table 6. Weighted Regression of the Physical-Functional Index

AdjustedR	Sigma	AICc	R	Dependent variable	Independent variable
0/44	0/007	903/76	0/48	Physical-functional	**Creative industries and products, creative environment, creative process, creative class**

According to the output map, in the analysis of the outputs of the StdResid statistic, among the existing scores of the neighborhoods of Arak City, there is no data smaller than -2.5 and larger than +2.5, which indicates the appropriate suitability of the model. Also, the R2 value shows an approximately average spatial correlation (0.48) between the creative tourism indicators and the neighborhoods of Arak city in the physical-functional dimension, and of course, this spatial relationship is greater in the southern and eastern neighborhoods than in other neighborhoods, meaning that in these neighborhoods, the state of environmental quality in the physical-functional dimension of the neighborhoods is more affected by the creative tourism indicators than in other neighborhoods.

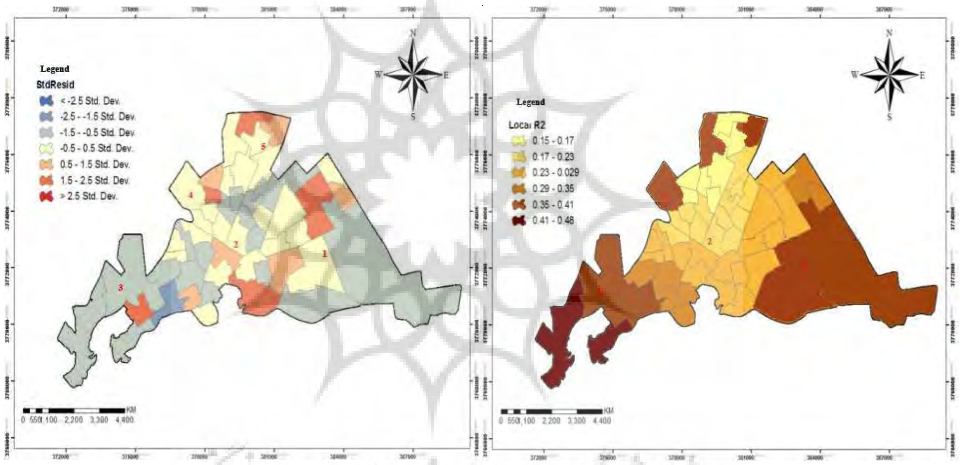

Figure 6. Spatial analysis statistics (StdResid, R2,) of the physical-functional index (Resourse:Author, 2024)

The results of spatial analysis of the relationship between creative tourism indicators and urban environment quality in the economic dimension show that the R2 value of the analysis is 0.51: that is, creative tourism indicators have an impact on the environmental quality of Arak city neighborhoods in the economic dimension at an average to high level (51%). Also, the AICc2 value shows a desirable number of 876/32, lower than 3, which indicates a better fit of the model with the observational data.

Table 7. Weighted regression of economic index

AdjustedR	Sigma	AICc	R	Dependent variable	Independent variable
0/49	0/002	876/32	0/51	Economic	**Creative industries and products, creative environment, creative process, creative class**

Spatial analysis of the relationship between creative tourism indicators and urban environment quality in the context of economic indicators shows that the StdResid statistic, among the existing scores of neighborhoods in Arak city, does not have any data smaller than -2.5 and larger than +2.5, which indicates the appropriate quality of the model. Also, the R2 value shows an approximately average spatial correlation (0.51) between creative tourism indicators and neighborhoods in Arak city in the economic dimension, and of course, this spatial relationship is greater in the southern and southwestern neighborhoods than in other neighborhoods of the city.

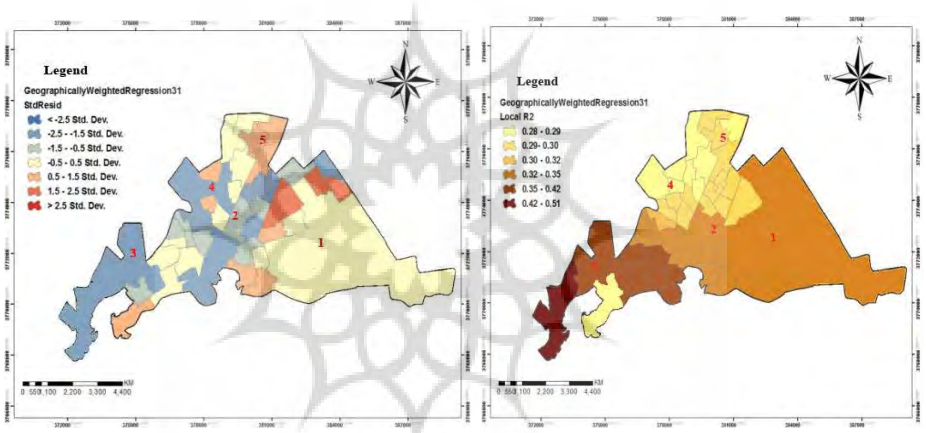

Figure 7. Spatial analysis statistics (StdResid, R2,) of the economic indicator (Resourse: Author, 2024)

Therefore, according to the final analysis, the results indicate that the status of creative tourism indicators (creative class, creative process, creative industries & products, creative environment) in Arak neighborhoods is at a low level. Also, according to citizens' opinions, the results of the spatial analysis of the impact of creative tourism indicators on the quality of Arak's urban environment show that most neighborhoods, despite having a low level of creative tourism indicators, have a high impact on the quality of the citizens' environment.

Conclusion

The present study uses the GWR spatial tool to evaluate and spatially analyze the impact of creative tourism indicators on the quality of the urban environment at the level of neighborhoods in the metropolitan area of Arak. The final conclusion of the study confirms that the situation of neighborhoods in Arak city in terms of independent variable indicators (creative tourism) is undesirable. Based on the

final analysis of creative tourism indicators (creative class, creative process, creative industries and products, creative environment) only a very limited number of neighborhoods in areas 2, 4, and 5 have a suitable average of creative tourism status. Also, most neighborhoods in Arak City do not have a suitable economic situation.In the neighborhoods of the east of the city due to the presence of various industrial factories and industrial towns, areas 4 and 5 due to the presence of dense and old texture, high traffic, neighborhoods in the western region towards Shazand and the refinery have a very unsuitable economic situation from the perspective of citizens. Spatial analysis of the GWR model revealed that based on the R2 statistic, the relationship between the independent variable (creative tourism) and the dependent variable (quality of the urban environment) in two indicators; environmental and social is 76% and 67% respectively, and creative tourism indicators can have a high impact on the quality of the environment of Arak city neighborhoods, especially in the eastern, southern and southwestern regions of the city. The R2 statistic also showed that the impact of creative tourism indicators on the economic and physical-functional dimensions of the quality of the environment of Arak city neighborhoods is in an almost average position of 50%. Considering the useful results obtained, it seems that spatial analysis can be useful in classifying urban areas in tourism issues. Therefore, further research in different urban areas is recommended.

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