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[DOI: DOI: 10.22034/39.172.77]

Assessment of the Impact of Beinolharamein Megaproject on the Neighboring Community in Shiraz

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Received	2020/04/18
Accepted	2020/11/09

Abstract

Megaprojects have emerged as one of the tools of urban management to create opportunities for economic growth, entrepreneurship and attract national and international investment in many developed countries. Such projects have a wide range of effects on many social groups. Some of these effects are population displacements due to the departure of some residents and the establishment of new groups, changing the identity of neighborhoods and creating an alien physical environment for residents, affecting the type and quality of employment and or unfulfilled promises of resolving social crises and losing trust in the public sector. Shiraz Beinolharamein project was put on the agenda of Shiraz Municipality with the motive of balancing urban services and creating quality urban spaces in coordination with adjacent historical and religious buildings, namely the two holy shrines of Hazrat Ahmad Ibn Mousa and the holy shrine of Seyyed Aladdin. This article evaluates the social, economic, physical and environmental effects of the implementation of this project on the two surrounding residential areas, Eshagh Beig and Lab-e-Ab, based on the results of a questionnaire distributed among the residents of these neighborhoods. This questionnaire, which was answered by 375 participants, was designed based on the impact theory and previous studies to collect the required data. The collected answers were analyzed by the hierarchical multiple regression model. The result of the analysis indicates that all 25 indicators used in the research analysis model have a significant relationship with higher level criteria and have the necessary adequacy to meet the criteria in question. The greatest effect was on the physical dimension and the criterion of access to facilities. However, the project had the least effect on indicators such as increasing construction and improving the quality of buildings, which were some of the goals of this project. The least positive effect of this project is in the social dimension and in cases such as increasing trust in the municipality, government institutions and non-governmental organizations; the desire to cooperate with them; the existence of a memorable place or event; tendency to remain in the place; relations with neighbors and residents; and the use of public spaces.

Keywords: Evaluation, Megaproject, Impact Evaluation, Multiple Hierarchical Regression, Beinolharamein Complex of Shiraz.

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This article is written based on the M.A Thesis of the second author entitled "Assessment of the Impact of Beinolharamein Multi-purpose project on the Neighboring Community in Shiraz", which was defended under the supervision of the first author in Aug. 2019.

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Introduction

Urban megaprojects are distinguished from other projects by their size and scope in terms of scale, construction costs, construction time period, the diversity of affected groups, and the range of effects (Flyvbjerg, 2017). Decisions about building these projects are typically made outside of a pre-determined planning framework, ignoring local concerns and considerations, and are spatially weakly linked to the physical and social context of their surroundings (Harris, 2017). In Shiraz, large-scale projects such as Valiasr cable bridge, the largest urban cable bridge in the country, Ali Ibn Hamzeh tourism complex and glass bridge, and Persian Gulf commercial complex, have been on the agenda of urban management since 1991 and have been built with the help of public and private financial resources. One of these projects is called Beinolharamein that is aimed to connect two religious centers of Shiraz (Astaneh and Shahcheragh). In this project, about 7 hectares of the historical context of Shiraz and one of the historical passages of this city called Beinolharamein road have been destroyed. Cultural centers, music halls and amphitheaters, sports complexes and shopping malls are among the activities planned for this project. This study evaluates the effects of this project using a questionnaire and applying a hierarchical multiple regression model and tries to answer these questions:

- In the social, economic, physical and environmental areas of assessing the effects of this project on the neighboring communities, what are the impacts of each criterion and indicator?
- What is the impact of this project in each of the four areas on the neighboring communities?
- What is the final ranking of each indicator based on the degree of impact on the status of selected local communities in the research area?

Literature Review

In some definitions, a megaproject refers to a project that costs more than € 100 million (Pitsis et al, 2018: 8; Mišić & Radujković, 2015). However, the cost is not the only distinguishing factor, and some other aspects such as long construction and operation time, lack of certainty, presence of risk, inherent complexity due to long-term phases, conflicting interests among a number of beneficiaries and multiple stakeholders, and the application of unique and uncommon technologies and designs, are also considered to determine a megaproject. In the decision-making and implementation of these projects, which have lasting biodemographic effects, the public sector usually plays an important role as the owner or even the main contractor of the whole project (Flyvbjerg, 2017; Locatelli et al, 2017). Prolonged construction time involves multiple decision-makers whose perspectives on the project are sometimes at odds (Hetemi et al, 2010: 47). There are several motives involved in constructing such projects, which can be identified as follows (Flyvbjerg, 2017: 6):

- Technological factors: Excited engineers who are looking for the ultimate and possible limit of a taller, longer or faster project;
- Political factors: The satisfaction of a politician with the construction of monuments that make them more famous in the media and among the general public;
- Economic factors: Economic benefits of megaprojects for contractors, investors and landowners;
- Aesthetic factors: Designers and the general public admire the creation of a huge, unique, symbolic and beautiful element, even if its uniqueness ends at the expense of ignoring the physical context.

Some researchers refer to these projects as a conduit for neoliberal policies in cities (Tarazona, 2017; Brener & Theodore, 2005; Harris, 2017; Pérez-López, 2019). They believe that through deregulation and opening markets, these projects create new opportunities for investment in favor of competitiveness. In this belief, megaprojects are the urban statement of this worldview and the spatial outcome of the resulting processes. Projects that, under the direction of political power, put pressure on urban spaces to accept market rules. From another perspective, megaprojects are associated with the concept of state intrepreneurialism (Wu, 2018) and the focus on their role is as a tool to achieve the strategic and political goals of

the government. That is, the government, especially at the municipal level, appears in the role of introducing and developing market tools and engages in market-based activities (Wu, 2018: 1384) to exploit its benefits, for example, through land re-pricing and changing tax bases, politically or economically. (Wang, Z., & Wu, 2019: 1642-43). The increase in land prices resulting from the implementation of these projects in the long run will lead to the gradual nobility of the surrounding areas. As a result, the considerations and interests of local residents and the general public would be possible in favor of creating financial benefits (Wang, Z., & Wu, 2019). However, in this process, there is the widespread relocation of citizens and the resulting problems including disputes arisen from the dissatisfaction of citizens with the amount of compensation or the land they have received from the municipality in exchange for the transfer of their land or housing unit. Moreover, it is argued that megaprojects not only affect those who relocate, but also have negative consequences for citizens who remain in their original place of residence –residents who have not relocated but are experiencing a decline in the quality of their neighborhood, social isolation, environmental pollution, and the loss of a sustainable source of income. Despite these shortcomings, it is often claimed that the process of constructing such projects and creating a favorable neighborhood or urban area to change the value of land and buildings may improve the quality indicators of housing in the neighborhood, including the quality of public space. These projects are also helpful in creating urban services (construction of educational, cultural and recreational complexes), providing appropriate infrastructure and improving the quality of green space (Sorkheyli, 2016: 73).

Scope of Research

The Beinolharamein project is located between the shrine of Hazrat Ahmad Ibn Musi and the shrine of Sayyid Aladdin (Astana) in the historical-cultural area of Shiraz (Figure 1). The purpose of this project, according to the documents published by its design company, is to create a large urban parking lot, provide commercial services, provide services on a regional scale to rehabilitate dilapidated urban fabric, create a link between the two shrines, encourage investment in this area, and improve employment through the development of Shiraz handicraft education in its cultural complex (Pars Industry and Development Consulting Engineers, 2018). In the detailed plan of Shiraz city, the motivation for building this complex is to balance urban services, create beautiful spaces, and adapt access and coordination of historical, cultural and religious buildings (Pardaraz Consulting Engineers, 2012). The words of the decision-makers at the beginning of the construction of this project show the hope for prosperity caused by the foreign investment made in this project, on the economic development of Shiraz and the revival of its cultural and historical context (Rahimi, the then mayor of Hasht Shahr District, Shiraz, 2014). Moreover, the establishment of a unique monument as the "architectural symbol of the Islamic Revolution" (Khani, Chairman of the Civil Engineering, Urban Planning and Transportation Committee of Shiraz City Council in the second period, 2008), which can be considered as a legacy of urban management (Pakfetrat, the then mayor of Shiraz, 2013) also seems to be one of the subgoals of building this project.

The construction of this complex has been on the agenda of the municipality since 2004 and in accordance with the approval of Shiraz City Council with the financial participation of a foreign investor, its executive operations began in three zones in 2006. The first zone, including 350 commercial units, mosque, parking lot, commercial warehouses and related facilities, was completed in 2011. The construction of the second and third zones began in 2011, and they were scheduled to be completed by 2015. However, some parts of these zones are not yet ready for operation. These zones include retail activities, library and gallery, office activities, hotels, restaurants, sports complexes, parking lots, warehouses and related facilities (Benkooh Sazan Consulting Engineers, 2006). To build this project in an area of about 68 thousand square meters and 110 thousand square

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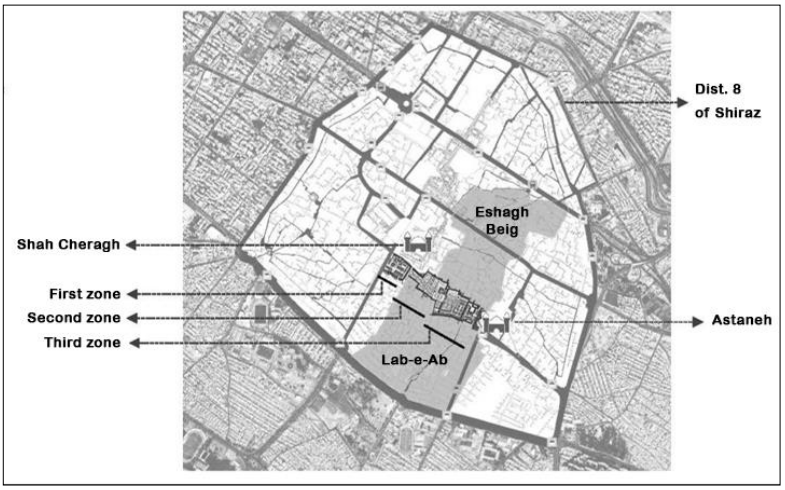
meters of infrastructure, 458 residential units were purchased and demolished (Pardaraz Consulting Engineers, 2012). Whit regard to the density of one household in a residential unit in District 8 in 2011, which was 3.7, it can be estimated that this project have caused a population displacement of about 1700 people.

In this article, to evaluate the effect of this project on the neighboring community, the two neighborhoods of Eshagh Beig and Lab-e-Ab have been selected. This evaluation is based on a comparison of the evaluation components before and after the project. The proximity of these neighborhoods to the second and third zones of the project, which have been mostly ready for operation by 2015, increases the likelihood of receiving data from residents in the immediate vicinity of the project who have a history of residence before and after the project. These two neighborhoods are located in the eighth district of Shiraz city, whose population share of the total population of the city has decreased from about 60% in 1954 to 3% in 2016 (Table 1).



F1. The location of Beinolharamein Project between two holy shrines (Source: The project zoning map, Benkouh Sazan Consulting Engineers, 2006).

Year		1954	1966	1976	1986	1996	2006	2011	2016
Shiraz	Population	170659	269865	425813	848289	1053025	1227331	1460665	1565572
	Population growth rate (%)	4.69	4.67	7.14	2.19	1.54	3.54	1.40	
Historical Fabric (Dist. 8)	Population	102395	78716	-	78911	67585	56445	53000	48195
	Population growth rate (%)	-2.60	0.01		-1.54	-1.79	-1.25	-1.88	

T1. Population of Shiraz city and the historical-cultural area of this city (Source: Statistics Center of Iran, General Census of Population and Housing 1954-2016).

The pattern of living in this area has also changed over time: in the period between 1996 to 2016, the rental rate has increased from 33 to 55 percent (Pardaraz Consulting Engineers, 2012), which can indicate that the old residents of the historic neighborhoods left their homes and are replaced with the low-income people who have been forced to move to these neighborhoods due to lower rental prices compared to other parts of the city.

Research Analysis Framework and Methods of Data Collection and Analysis

Evaluation in this research is in the realm of impact assessment. In the impact assessment, the focus is on the assessment of impacts that a project has on the circumstances which were supposed to be improved. That is, the status of the target community or the social conditions expected to be changed by the

project. The first step in measuring and evaluating project outcomes is to identify the outcomes that are suitable candidates for the intended measurement. According to the structure suggested by Rossi et al. (2018) for project evaluation, these consequences can be identified using the following two main sources:

Frist The impact theory: The first source to determine the consequences of a program is the theory of its impact. The impact theory is made up of assumptions about the change process that the project is considering and the expected improved conditions after implementation, which are mentioned either explicitly or implicitly. This theory explains the rationale of what is being done to achieve the desired results, and reflects the assumptions of the project decisionmakers about the nature of the problem and the rationale and feasibility of the project to solve it. If these assumptions turn to be invalid about how the desired effects are created by the activities in question, the desired social benefits will not be achieved. This study have assessed the objectives of the construction of Beinolharamein project, which are explicitly and implicitly stated by the decision-makers and implementers of this project (see the previous section), using the impact theory.

Second Previous studies: Other studies that have been conducted to evaluate the consequences of projects similar to this project can also be a source to determine its possible consequences. These studies can be helpful in identifying potential side effects, which may be positive or negative but not predicted in the project's impact theory.

In this article, first, by referring to the literature related to megaprojects in the literature review 2, four areas of social, economic, physical and environmental aspects were selected as the main areas that have an impact on the local community and its surrounding areas after implementation of Beinolharamein megaproject in Shiraz. In these areas, the criteria of social justice, security, housing and construction, facilities and infrastructure, access to municipal services, local economy, and household economy were obtained from the expected goals of this project (which shows the project's impact theory). Other criteria are derived from previous theoretical studies that have tracked the desired or unintended effects of megaprojects on surrounding residential neighborhoods. Evaluation indicators related to each of these criteria are extracted from related sources (Table 2).

Area	Criteria	Indicator
Social	Trust in the system decision making (Wang &Wu, 2019)	Trust of citizens in the municipality and governmental institutions (Souri, 2015; Tavana et al., 2016)
		Trust of citizens in NGOs (Tavana et al., 2016)
		Tendency to cooperation with decisionmakers in running future projects (Tavana et al., 2016)
	Social justice (impact theory)	Equal access to the project interests (Tabibian et al., 2010)
		Interests resulted from being near to the project (Tabibian et al., 2010)
	Safety (impact theory)	Safe transportation during night hours (Niarami, 2017)
		Social crimes (Lotfi et al., 2015; Raco, 2007)
	Sense of belonging (Wu, 2018)	Memorable place or event (Ghanbaran and Jafari, 2014)
		Tendency to remain in the residential area (Ghanbaran and Jafari, 2014)
	Social interactions (Nateghpour and Firouzabadi, 2006)	Relationship with neighbors
		Using public spaces of the neighborhood (Zamani and Shams, 2014; Ghanbaran and Jafari, 2014)
Physical	Status of housing and building (impact theory)	Relative share of newly constructed buildings (impact theory)
		Relative share of the quality of buildings (impact theory)
	Installations and Infrastructures (impact theory)	Access to parking lots (impact theory)
	Access to facilities and services (impact theory; Nouri and Rafieian, 2016; Sorkhili, 2016)	Access to recreational services (impact theory)
		Access to greenspace and local parks (impact theory)
		Access to cultural and religious services (impact theory)
		Access to commercial services (impact theory)
Economic	Local economy of services (impact theory; Nouri and Rafieian, 2016)	Increase in land prices (Nouri and Rafieian, 2016)
		Tendency to invest on construction (impact theory)
	Household economy of services (impact theory; Nouri and Rafieian, 2016)	Decrease in the prices of providing services (impact theory)
		Improvement of employment (impact theory)
Environmental	Heat islands (Nouri and Rafieian, 2016)	Heat increase (Nouri and Rafieian, 2016)
	Pollution (Nouri and Rafieian, 2016; Wang &Wu, 2019)	Noise pollution increase (Nouri and Rafieian, 2016)
		Air pollution increase (Nouri and Rafieian, 2016)

T2. The framework for assessment of the impacts of Beinolharamein megaproject in Shiraz on the surrounding communities.

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In this study, the required data were collected by a questionnaire distributed among residents. The validity of the questionnaire was measured by Cronbach's alpha test. Each question was designed to have five-level Likert item (Strongly disagree; Disagree; Neither agree nor disagree; Agree; Strongly agree). In data analysis, these options were numbered as follows: one (the lowest effect) and five (the maximum effect). According to Cochran's formula and the size of the statistical population (15683), at a confidence level of 95% and an error of 0.05, the sample size was estimated to have 375 people. Sampling was done in the area of the project (two neighborhoods of Lab-e-Ab and Eshagh Beig) by random classification. The samples in each of these two neighborhoods were randomly selected. The method of distributing the questionnaire in each neighborhood was proportional to the total population of the area of the project.

Among the methods that exist for evaluating subjects with multiple characteristics, according to the nature of the present study, the method of hierarchical multiple regression was selected to analyze the data. In this statistical method, which is used to analyze the relationship between a dependent variable and two or more independent variables (at lower levels of the model), after selecting the criteria, the measurement indicators of each criterion are determined. In the evaluation stage, each of the higher-level criteria on the lower level criteria of regression (in this article in a step-by-step manner) is given to identify independent and dependent variables (Rafieian, 2011: 90). Based on the analytical structure defined in Table 2, the hierarchical levels of the model for analyzing the multiple hierarchical regression of this research are as follows:

Frist level: The effects of the implementation of Beinolharamein Megaproject on the neighboring communities;

Second Level: The four dimensions of social, economic, physical and environmental areas;

Third Level: Criteria for each dimension;

Fourth Level*:* Indicators of each dimension.

In this paper, statistical analyzes have been performed using SPSS software and analysis was done by overlaying map layers in GIS and Envimet software.

Discussion and Analysis Results

Determining the effects of each of the criteria and indicators

In this section, the findings of the analysis are introduced to answer the first research question: In the social, economic, physical and environmental areas of assessing the effects of this project on the neighboring communities, what are the impacts of each criterion and indicator?

Frist: Impacts on the social dimension:

Determining the importance of social criteria (third level) in relation to the social area (second level)

Based on the table of coefficients obtained from regression (attached hereto), the standard beta coefficients of each of the independent variables determine the priority of the effectiveness of each of them among other criteria in the social area (Table 3). On this basis, the greatest impact on the social area is explained by the factor of social capital, followed by the factors of social interaction, social justice and safety.

Determining the importance of social indicators (fourth level) in relation to social criteria (third level)

In this analysis, each of the indicators was considered as an independent variable and its related factor as a dependent variable. After that, the previous step was repeated to calculate the beta weight and determine the priority of the effect of the indicators related to each factor. The results of this analysis are shown in Table 4.

Secound: Effects on the physical dimension:

In the physical dimension, to assess the effects of the project, we examined three criteria: the condition of housing and buildings, the condition of installations, and the condition of urban infrastructures. Regarding the building criterion, 72% of the residents believe that the construction of this project did not significantly change the construction process in the neighborhood, and the quality of construction is still the same. 80% also stated that the number of new buildings has not increased with the

implementation of this project.

According to the residents of these two neighborhoods, one of the main problems is the lack of greenspaces, and leisure and recreational spaces. The only recreational space in the area is the Amusement Park of Beinolharamein Project, which is only active during some night hours. In this regard, from the perspective of the residents, this project is effective in meeting cultural needs.

Determining the importance of physical criteria (third level) in relation to the physical area (second level)

According to Table 5, all three criteria are effective on the physical condition resulting from the implementation of the project. The most influential factor is the accessibility of urban facilities and services and the least influential factor is the status of housing and buildings.

Variables (Third level of the model)	Unstandardized Coefficients		Coefficients Standardized	T	Sig
	B	Std. Error	Beta (Standard Beta Coefficient)		
(Fixed amount)	1.750	0.288		1.960	0.000
Social Capital	0.110	0.088	0.404	8.295	0.000
Social Justice	0.233	0.121	0.240	7.544	0.000
Safety	0.007	0109	0.024	7.811	0.000
Sense of belonging	0.128	0.122	0.223	4.919	0.000
Social interactions	0.277	0.128	0.387	5.912	0.000

T3. Regression coefficients of the importance of factors (social criteria) in relation to the second level of the model (social area).

0	Variables (Third level of the model)	Unstandardized Coefficients		Coefficients Standardized	T	Sig
		B	Std. Error	Beta (Standard Beta Coefficient)		
Social Capital	(Fixed amount)	0.565	0.288	-	1.960	0.000
	Trust of citizens in the municipality and governmental institutions	0.702	0.088	0.446	10.295	0.000
	Trust of citizens in NGOs	0.705	0.109	0.374	7.387	0.000
	Tendency to cooperation with decisionmakers in running future projects	0.634	0.122	0.269	6.811	0.000
Social Justice	(Fixed amount)	-8.225	0.244	-	1.879	0.000
	Equal access to the project interests	0.797	0.098	0.498	10.132	0.000
	Interests resulted from being near to the project	0.767	0.245	0.503	2.983	0.000
Safety	(Fixed amount)	0.097	1.537	-	7.433	0.000
	Safe transportation in the place and having security when using it	1.971	0.055	0.677	35.570	0.000
	Reduction of social crimes	1.028	0.059	.0332	17.465	0.000
Sense of belonging	(Fixed amount)	1.658	0.111	-	5.822	0.000
	Existence of a memorable place or event	0.445	0.211	0.501	7.508	0.000
	Tendency to remain in the place	0.331	0.034	0.499	9.806	0.000
Social interactions	(Fixed amount)	1.888	0.980	-	4.233	0.000
	Relationship with neighbors	0.773	0.026	0.528	12.115	0.000
	Using public spaces of the neighborhood	0.652	0.343	0.476	11.165	0.000

T4. Regression coefficients of importance of social indicators (fourth level) in relation to social criteria (third level).

Variables (Third level of the model)	Unstandardized Coefficients		Coefficients Standardized	T	Sig
	B	Std. Error	Beta (Standard Beta Coefficient)		
(Fixed amount)	0.342	0.090		2.260	0.000
Status of housing and building	0.596	0.024	0.136	7.265	0.000
Installations and infrastructures	2.298	0.119	0487	7.831	0.000
Accessibility of urban facilities and services	0.433	0.132	0.623	3.939	0.000

T5. Regression coefficients of the importance of factors (physical criteria) in relation to the second level of the model (physical area).

Determining the importance of physical indicators (fourth level) in relation to physical criteria (third level)

Table 6 shows the calculations performed to determine the importance of physical indicators in relation to physical area. These calculations determine which indicators are more effective in relation to the specified

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criteria for measuring physical effects.

Third: Effects on the Economic Dimension

The economic dimension of assessing the impacts of Beinolharamein project can be divided into two components: household economy and local economy. The former refers to the level of employment and household expenditure in accessing urban services, and the latter depends on the price of land and housing and the amount of investment in the neighborhood.

The results of the questionnaires show that 80% of the residents in Lab-e-Ab and Eshagh Beig neighborhoods believe that the construction of Beinolharamein megaproject had no effect on reducing the cost of access to family services in the neighborhoods. This result can be justified considering the dominance of the middle- and low-income groups in these neighborhoods and the provision of spaces such as hotels, amphitheaters and international conference centers, which are not favorable for these income groups. Regarding the effects of this project on land prices, more than 80% of participants believed that the project has sharply increased the prices in these two neighborhoods. One of the motives for building this project was to stimulate private sector investment in the historical context of Shiraz. However, nearly half of the residents in the studied region are not willing to invest in businesses that are related to the Beinolaharamein megaproject.

Factors	Variables (Third level of the model)	Unstandardized Coefficients		Coefficients Standardized	T	Sig
		B	Std. Error	Beta (Standard Beta Coefficient)		B
Housing and Construction	(Fixed amount)	0.345	0.088	-	2.260	0.000
	Relative share of newly constructed buildings (impact theory)	0.712	0.088	0.046	9.285	0.000
	Relative share of the quality of buildings (impact theory)	0.305	0.119	0.174	8.887	0.000
Installations and infrastructures	(Fixed amount)	10.225	0.222	-	2.829	0.000
	Access to parking lots (impact theory)	0.697	0.078	0.498	7.122	0.000
Accessibility to Facilities	(Fixed amount)	0.187	0.557	-	7.453	0.000
	Access to recreational services (impact theory)	2.272	0.095	0.540	7.570	0.000
	Access to greenspace and local parks (impact theory)	0.128	0.159	0.314	11.465	0.000
	Access to cultural and religious services (impact theory)	1.058	0.121	0.344	6.852	0.000
	Access to commercial services (impact theory)	0.765	0.111	0.312	7.508	0.000

T6. Regression coefficients of importance of physical indicators (fourth level) in relation to the criteria of physical area (third level).

Determining the importance of economic criteria (third level) in relation to the economic area (second level)

In Table 7, the regression coefficients of the importance of economic criteria are determined in relation to the second level of the model (economic field). This table shows that the two criteria of the economic field are effective on the economic status resulting from the implementation of the project. In this regard, it is to be note that the impact of the local economy is more severe than the impact of household economy.

Determining the importance of economic indicators (fourth level) in relation to economic criteria (third level)

In this analysis, each of the indicators was considered as an independent variable and its related factor as a dependent variable. After that, the previous step was repeated to calculate the beta weight to determine the priority of the effect of the indicators related to each factor. Table 8 shows that both independent variables affect the dependent variable.

Four: Effects on the environment dimension

The operation of Beinolharamein project has significantly increased the number of arrivals at this region. This has created heat islands, and also increased air and noise pollution.

Determining the importance of environmental criteria (third level) in relation to the environmental field (second level)

Based on the coefficient table in this field (Table 9), both pollution factors and heat islands affect the environmental status of the project. The highest effect is in the pollution

factor and the lowest effect is in the creation of heat islands.

Determining the importance of environmental indicators (fourth level) in relation to environmental criteria (third level)

The results of this analysis in Table 10 show that both independent variables in this area affect environmental criteria.

Variables (Third level of the model)	Unstandardized Coefficients		Coefficients Standardized	T	Sig B
	B	Std. Error	Beta (Standard Beta Coefficient)		
(Fixed amount)	1.322	0.098		3.233	0.000
Household economy	0.544	0.094	0.106	7.265	0.000
Place economy	0.998	0.199	0.513	7.831	0.000

T7. Regression coefficients of importance of factors (economic criteria) in relation to the second level of the model (economic field).

Factors	Variables (Fourth level of the model)	Unstandardized Coefficients		Standardized Coefficients	T	Sig B
		B	Std. Error	Beta (Standard Beta Coefficient)		
Local economy	(Fixed amount)	1.323	0.188	-	3.360	0.000
	Housing and land prices	0.802	0.088	0.446	4.485	0.000
	Tendency to invest on construction	0.315	0.129	0.374	7.787	0.000
Household economy	(Fixed amount)	0.987	0.454	-	6.466	0.000
	Prices of providing services	0.972	0.292	0.167	9.590	0.000
	Improvement of employment	0.228	0.232	0.144	10.495	0.000

T8. Regression coefficients of importance of economic indicators (fourth level) in relation to economic criteria (third level).

Variables (Third level of the model)	Unstandardized Coefficients		Coefficients Standardized	T	Sig B
	B	Std. Error	Beta (Standard Beta Coefficient)		
(Fixed amount)	2.222	0.2018		2.223	0.000
Heat islands	0.744	0.114	0.107	8.245	0.000
Pollution	0.998	0.199	0.414	7.834	0.000

T9. Regression coefficients of the importance of factors (environmental criteria) in relation to the second level of the model (environmental field).

Factors	Variables (Third level of the model)	Unstandardized Coefficients		Coefficients Standardized	T	Sig B
		B	Std. Error	Beta (Standard Beta Coefficient)		
Pollution	(Fixed amount)	3.333	0.288	-	9.343	0.000
	Air pollution	0.322	0.098	0.596	8.483	0.000
	Noise pollution	0.125	0.199	0.312	7.587	0.000
Heat islands	(Fixed amount)	0.127	0.854	-	8.466	0.000
	Temperature	0.232	0.272	0.127	5.540	0.000

T10. Regression coefficients of importance of environmental indicators (fourth level) in relation to environmental criteria (third level).

The impact of each of the social, economic, physical and environmental areas

In this section of the article, attempts were made to answer the third question of the research: What is the impact of this project in each of the four areas on the neighboring communities? To answer this question, each of the four areas is considered as an independent variable in the framework of the analysis, and the overall goal (the effects of Beinolharamein megaproject on the surrounding residential neighborhoods) is considered as a dependent variable. According to the table of coefficients (Table 11), all four areas have an impact on the development resulting from the implementation of the project. The most influential one is related to the social area and the least influential one is related to the environmental area.

Variables (Third level of the model)	Unstandardized Coefficients		Coefficients Standardized	T	Sig B
	B	Std. Error	Beta (Standard Beta Coefficient)		
(Fixed amount)	1.071-	0.095		10.875-	0.000
Social	0.120	0.098	0.587	7.275	0.000
Economic	0.223	0.124	0.256	8.544	0.000
Physical	0.080	0.119	0.487	5.655	0.000
Environmental	0.133	0.122	0.240	4.344	0.000

T8. Regression coefficients of the importance of factors in relation to the first level of the model.

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Determining the score of the indicators

To determine the final value of the indicators and criteria (Question 4 of the article) in the form of HMR model, we used the beta coefficients and scores that were obtained from regression analysis and one-sample t-test in the previous steps. Table 13 shows the results of this analysis, in which:

m: Score of each index based on the statistic of one sample T-test;

β: beta coefficients;

β * m: The final value of each index

m': final value of the indexes related to each factor (Σ (β * m))

β * m ': The final value of each factor

β * m ": The final value of each field

m ": the sum of the final values of the fields (Σ (β * m '))

m '": the sum of the final values of the factors and areas Σ (β * m' '))

The results in Table 12 show that all 25 indicators used in the research analysis model have a significant relationship with higher level criteria and have the necessary adequacy to cover the desired criteria. The highest impact that was exerted by this project was on the accessibility of facilities in the physical dimension. However, in increasing the amount of construction and improving the quality of buildings, which were a part of the project's motivations, it had the least impact. The least positive effect of this project is in the social dimension and in cases such as increasing trust in the municipality, government institutions and non-governmental organizations; the desire to cooperate with them; the existence of a memorable place or event; tendency to remain in the place; relations with neighbors and residents; and the use of public spaces.

Conclusion

Large-scale urban projects are on the agenda of many cities to make them competitive in creating good opportunities for the city's economic growth and entrepreneurship. Beinolharamein project in Shiraz was built with the aim of balancing urban services and creating quality urban spaces in coordination with adjacent historical and religious buildings. This project can be considered as a megaproject with a lasting impact on the surrounding local communities due to its characteristics such as long construction period, multiple and conflicting stakeholders, high construction cost and the role of the public sector as one of the investors. The aim of this research was to evaluate these effects and to determine the factors and areas affected by this project. To achieve this aim, we surveyed the theoretical literature of megaprojects. These criteria were measured in a four-level evaluation framework by asking the residents of the surrounding residential areas. The analysis of the questionnaires shows that in the opinion of the residents near this project, in the social dimension, it has affected the surrounding neighborhoods more than other dimensions. Decisionmakers believe that the construction of this project has had equal benefits for all residents and increased the neighborhood's safety. However, the results of the construction of this project and the expected benefits for the residents could not increase their trust in decision-makers and willingness to work with them in the future. Relying on the provision of parking lots in the neighborhood, the residents considered the project as effective in the physical conditions. However, the price of this effectiveness was the destruction of the culturally and historically valuable buildings of Shiraz without stimulating the construction of higher quality housing in these neighborhoods.

In the economic dimension, the employment of residents in construction activities during the construction of his project has caused residents to report a relatively large effect on improving their employment status. However, the urban services provided in this project are not within the reach of the surrounding community and its goals in providing services to the residents of the surrounding neighborhoods have not been achieved. This is similar to what Wang & Wu (2019) call in-situ marginalization. They believe that the residents who are not forced to relocate during the construction of a megaproject, are exposed to new dangers, and the physical changes caused by the project do not improve the quality of their living. According to the questionnaires, the fact that the residents of the two selected neighborhoods are not motivated by

Beinolharamein project to stay in these interpretation. A comparison of this tendency to leave the neighborhoods with one of the main problems of the historical and cultural area of Shiraz (a lack of interest to stay in the historic fabric) further shows the failure of this project. A review of the literature on megaprojects on the transformation of urban spaces into neoliberal policies in cities, as well as gaining political credibility through urban marketing, has implications for interpreting the results of the analysis in this article. This project, with the investment of foreign private sector and with the support of public sector, has created neighborhoods also confirms this a wide change in a strategically valuable area in Shiraz, while not only creating a sustainable opportunity for local employment, but also a large part of the historical and cultural area of the city. Commercial units are booming or awaiting transfer to the next buyer. However, the services provided in this project are services beyond the capacity of the surrounding community, so similar to what Harris (2017) reports, not only physically, but also socially disproportionate and inconsistent with the context in which it is located.

L 1	m'''	Impact	L 2	β*m''	β	m''	L 3	β*m''	β	m''	Impact	L 4	β*m''	β	m''	Impact
Impact of the megaproject on the neighboring residential area	4.06	High	Social	1.78	0.587	3.03	Social capital	1.00	0.404	2.48	Relatively low	Trust in municipality and governmental institutions	1.12	0.446	2.51	Low
												Trust in NGOs	0.80	0.374	2.15	Low
												Tendency to cooperation with decisionmakers	0.56	0.269	2.11	Low
							Social justice	0.71	0.240	2.97	Average	Equal access to the project interests	1.48	0.498	2.97	Average
												Interests resulted from being near to the project	1.49	0.503	2.97	Low
							Safety	0.06	0.024	2.69	Relatively low	Safe transportation and usage	2.56	0.677	3.78	
												Social crimes reduction	0.13	0.332	3.80	Relatively high
							Sense of belonging	0.48	0.223	2.17	Low	Memorable place or event	1.16	0.501	2.32	Low
												Tendency to remain	1.01	0.499	2.02	Low
							Social interactions	0.78	0.387	2.02	Low	Relationship with neighbors	1.06	0.528	2.01	Low
												Using public spaces	0.96	0.476	2.01	Low
			Physical	1.68	0.487	3.45	Housing	0.06	0.136	0.47	Low	Relative share of new buildings	0.09	0.046	2.04	Low
												Relative share of the quality of buildings	0.38	0.174	2.18	Low
							Infrastructures	0.91	0.487	1.88	Low	Access to parking lots	1.88	0.498	3.78	Relatively high
							Facilities	2.48	0.623	3.99	High	Access to recreational services	1.60	0.540	2.97	Average
												Access to greenspace	0.63	0.314	2.03	Low
												Access to cultural services	1.09	0.344	3.18	Average
												Access to commercial services	0.67	0.312	2.17	Low
			Economic	0.40	0.256	1.59	Place economy	1.50	0.513	2.94	Average	Land prices	1.74	0.446	3.90	High
												Investment	1.20	0.374	3.22	Average
							Household economy	0.09	0.106	0.88	Low	Services costs	0.33	0.167	2.01	Low
												Improvement of employment	0.55	0.144	3.81	Relatively high
			Environmental	0.20	0.240	0.86	Heat islands	0.08	0.107	0.72	Low	Temperature	0.72	0.272	2.64	Relatively low
							Pollution	0.78	0.414	1.89	Low	Air pollution	1.26	0.596	2.12	Low
												Noise pollution	0.63	0.312	2.01	Low

T12. Results from HMR model.

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