



Urban designs for commercial projects in Iraq study area Baghdad DOAA

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Abstract

The research has dealt with the study of the essential concepts of planning, design of commercial investment projects and the elements of the urban investment environment and their relationship and dimensions in the planning process, benefiting from previous studies and experiences of some countries as well as spatial analysis of the reality of the city of Baghdad and the extraction of planning indicators that contribute to achieving balance, spatial integration and social justice in the distribution of investment projects and raising the value of the land. The research concluded through statistical analysis and extracting practical results using the (Spss) program and analyzing data from the questionnaire forms that were distributed to specialized experts that there is weakness in planning and distributing projects as a reality and their hugely concentration on certain sectors than others, especially (Al-Karada, Al-Mansour, Rusafa. The study also dealt with planning and spatial distribution of investment projects in the investment map in general and commercial projects in particular through the (GIS) program.

Keywords: Urban designs; Commercial Projects; Iraq; Distribution; Investment; Commercial

1. Introduction

The investment map is a product of interaction of many economic projects and investment alternatives within spatial space (1), as planning and design of economic activities and investment projects should be balanced with natural resources and capabilities available within spatial space, and that biggest challenges facing urban planning and design, especially decision-makers among them lie in various and varied offers of investment projects that lead to difficulty of making an investment decision that ensures best use of available spaces, and achieves best urban spatial planning and design for investment map, as well as process of analyzing investment alternatives that are of great importance in making investment decision.

1.1. Research problem

Weakness in choosing the spatial designation in terms of its appropriate planning and design for investment projects within the investment map, which led to the imbalance in the elements of the investment environment and social justice in addition to the negative effects on the environment and the biosphere.

1.2. Research objective

- Getting the possibility of achieving a kind of planning, designing and preparing an investment map through the equitable distribution of projects that achieve social justice.
- Analyzing and determining the factors affecting urban planning and design through the application of digital indicators using the (GLs) program, as well as the (non-parametric) statistical treatments and using the (Spss) statistical program, and arriving at a predictive model that helps in making planning decisions.

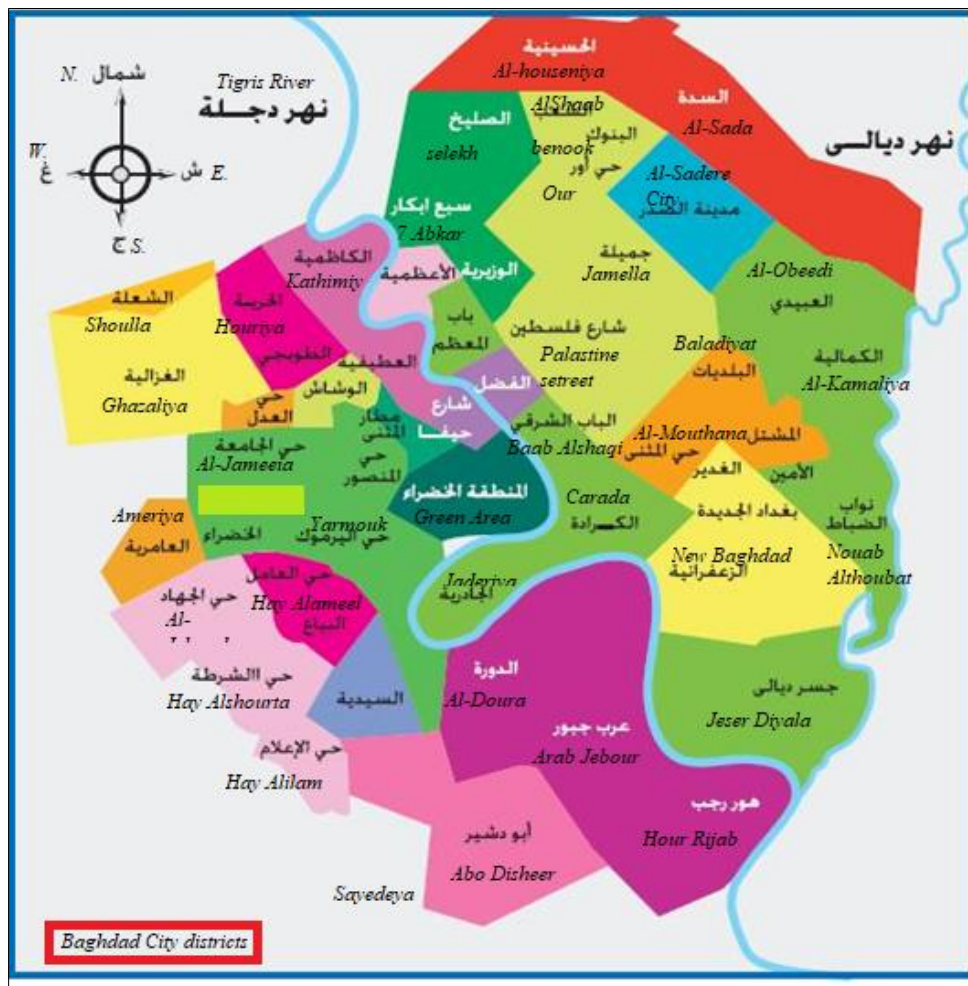
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1.3. Research hypothesis

The possibility of achieving designs and plans through a model analyzing the impact of planning standards on the spatial designation of investment projects in the investment map.

2. A general overview of the study area (Baghdad city)

The city of Baghdad, the capital of the Republic of Iraq, and the center of the governorate of Baghdad, with a population of approximately (7) seven million, is considered the largest city in Iraq and the second largest city in the Arab countries after Cairo. It is divided into two parts: Karkh (the western part), and Rusafa (the eastern part). It is considered as an important point for the movement of roads, air and trains. The area of Baghdad governorate is (4,555) km², which constitutes approximately (1.5%) of the entire area of Iraq. (National Investment Commission, 31, 2017), as for the geographical location of Baghdad, and fig. No. (1) shows the city of Baghdad and its residential neighborhoods.



Source: Baghdad City Provincial Council for the year 2012

Figure 1 Residential neighbourhoods in the city of Baghdad

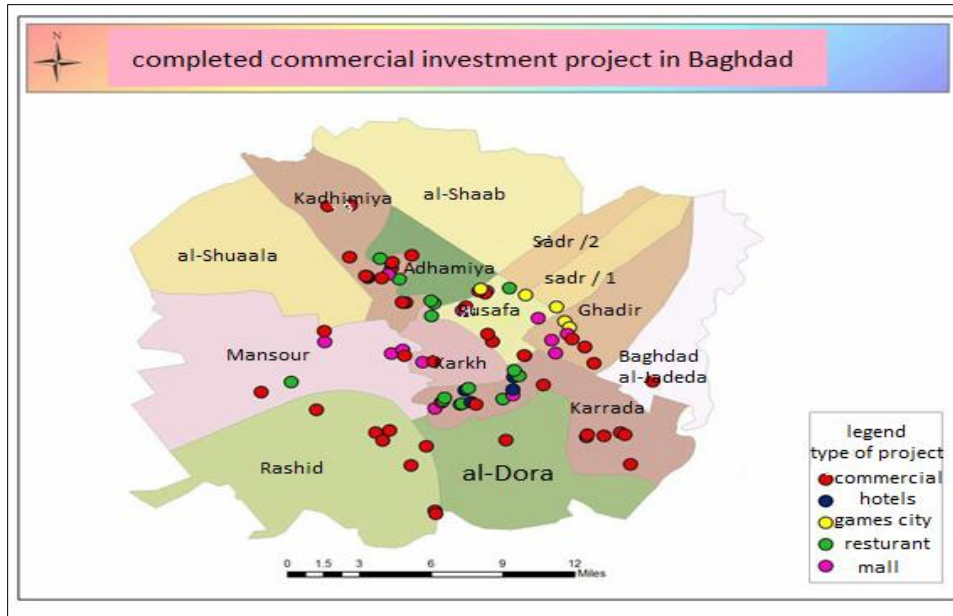
2.1. Population

The population of Iraq is 37.5 million people, and the population of the city of Baghdad is (8,126,755) million people for the year (2017), and the population of Baghdad governorate is estimated at (21.2 percent of the total size of the total population of Iraq).

In respect to population density, the population of the city of Baghdad is approximately (8,318,696), eight million three hundred and eighteen six hundred and ninety-six people. (Ministry of Planning, Central Bureau of Statistics).

2.2. Investment projects in the city of Baghdad

The city of Baghdad is a huge commercial center. The projects are distributed according to importance of each project, which implements these projects. Therefore, it contains a group of investment projects distributed over sectors according to a specific spatial distribution mechanism determined by Investment Commission. The city of Baghdad consists of a group of districts: Karkh district, Al-Rusafa District, Al-Kadhimiya District, Adhamiya District, Al-Sadr District [1][3][7], Al-Sadr District (2), Al-Madain District, Abu Ghraib District [4], Mahmoudiyah District, Taji District, Tarmiyah District, these districts include a large group of designated projects as approved by City Investment Authority in Baghdad, and most important of these commercial investment projects can be summarized according to type of investment [2] and spatial characteristics that it possesses within sector, which are illustrated by Table No. (1) achieved commercial investment projects, and figure. (2) shows fulfilled commercial investment projects. Figure. (3) shows commercial investment projects under implementation. Figure. (4) shows proposed commercial investment projects.



Source: From the researcher’s work based on the Ministry of Planning / Central Statistics Agency / for the year 2018

Figure 2 Achieved Commercial Investment Projects

Table 1 Research field

No.	% in community	No.of research forms	Research Field
1	36%	18	Governor’s council
2	44%	22	National investment commission
3	20%	10	Mayoralty of Baghdad

Reference: researcher

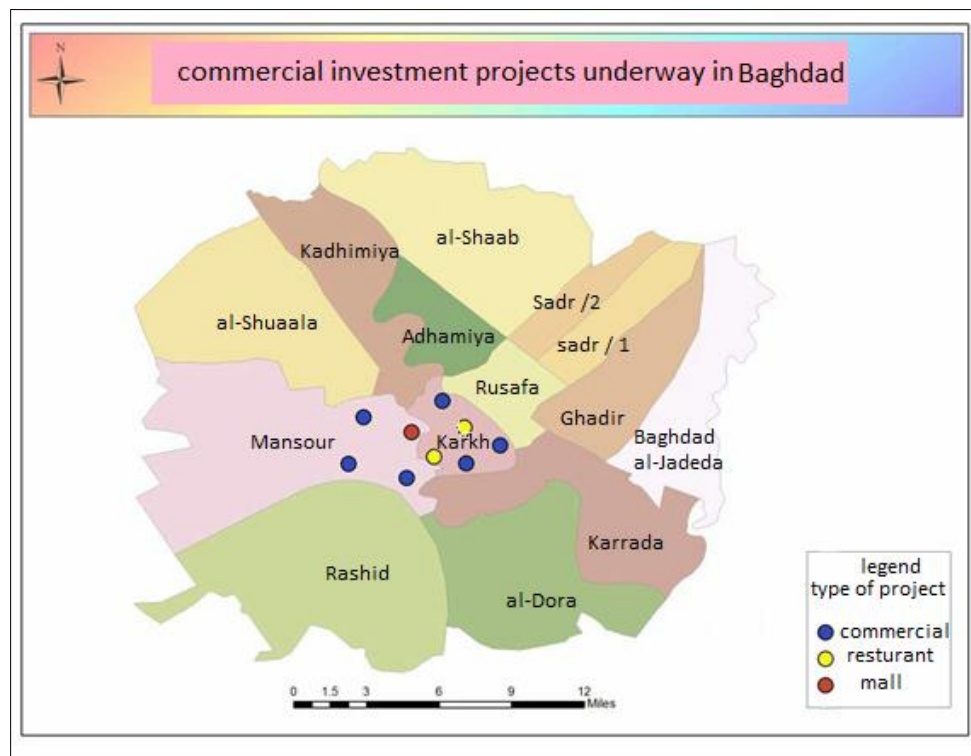
Table 2 Commercial investment projects under implementation for the period from (2014-2018)

Relative weight degree	Answer
1	Acceptable
2	Average
3	good
4	V.good
5	excellent

Table 3 % of scientific specialization

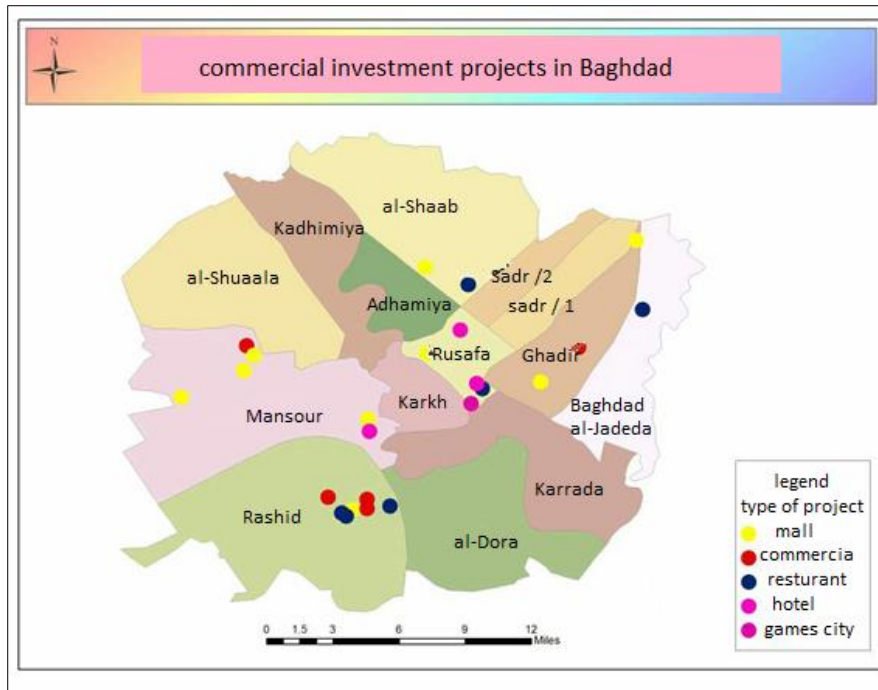
Percentage%	No.	scientific specialization
36%	18	Urban and regional planning
18%	9	Architect engineering
24%	12	Survey Engineering
14%	7	Economy
8%	4	Accounting
100%	50	Total

Reference: researcher



Source: From the researcher's work based on the Ministry of Planning / Central Statistics Agency / for the year 2018

Figure 3 Commercial investment projects in progress

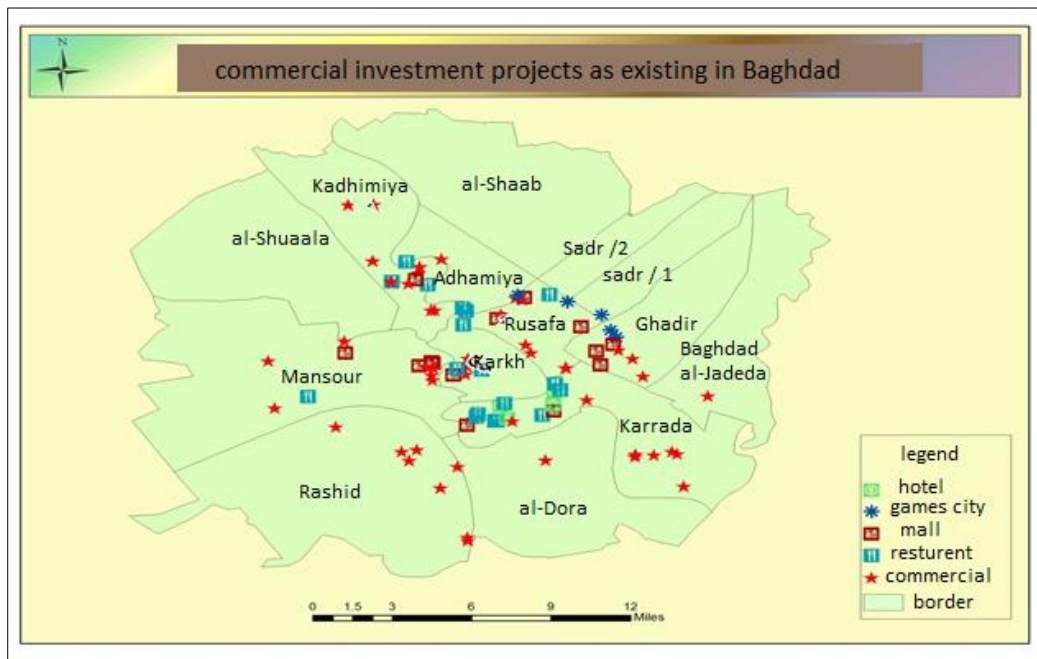


Source: From the researcher's work based on the Ministry of Planning / Central Statistics Agency / for the year 2018

Figure 4 The proposed commercial investment projects

2.2.1. Achieved commercial investment projects and underway projects

It includes projecting commercial investment projects as a reality according to sectors according to the basic design of the city of Baghdad.



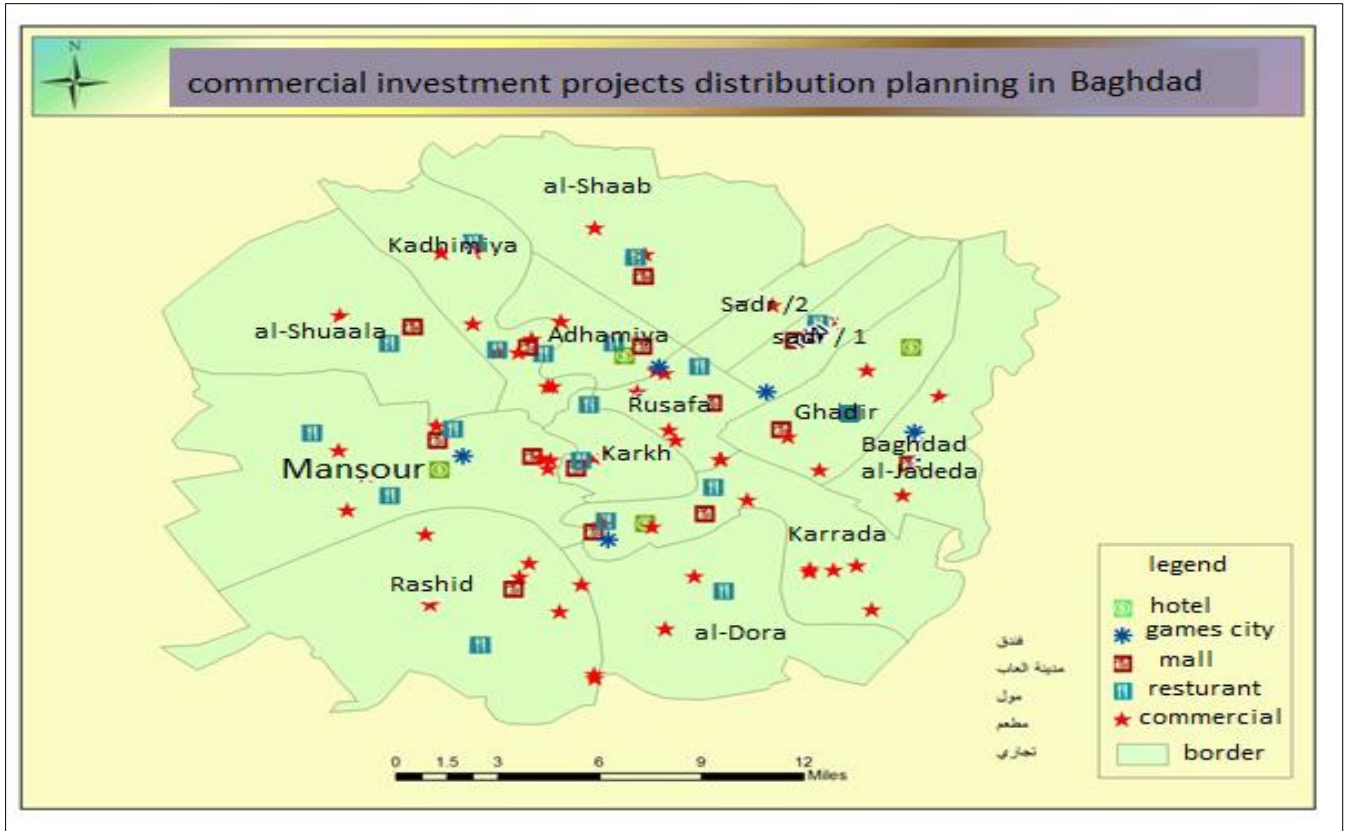
Source: From the researcher's work based on the Ministry of Planning / Central Bureau of Statistics / Gis for the year 2018

Figure 5 Commercial investment projects as a reality in the city of Baghdad for the period (2000-2017)

We note from Figure. (5) concentration of commercial investment projects in center of capital with presence of scattered projects in Dora sector, Baghdad al-jadeda sector, Ghadeer sector, First Sadr sector, Shaab sector, Shula sector, and Shaab sector, while commercial investment projects are concentrated in Al-Mansour sector, Karkh sector, Rusafa sector, Adhamiya sector, and Kadhimiya sector, which initially indicates poor spatial distribution of investment projects [2][6].

2.2.2. Commercial investment projects according to planning criteria:

Fig.No.6 shows the spatial distribution of commercial investment projects in accordance with the planning standards.



Source: From the researcher’s work based on the Ministry of Planning / Central Statistics Agency (GIS) for the year 2018

Figure 6 Commercial Investment Projects According to Planning Standards for the Period (2000-2017)

We note from figure(6) spatial distribution of investment projects, which was adopted on planning standards by (Baghdad Municipality, provincial council), which takes into account uses of land and development possibilities, and Table (1-4) shows percentage of commercial investment projects completed and under completion according to sectors.[3][1]

Table 4 Percentage of commercial investment projects completed and under completion by sectors

Percentage %	No.	Experience years
32%	16)10-5 (years
28%	14)15-10 (years
40%	20	More than 15 years
100%	50	Total

Reference: researcher

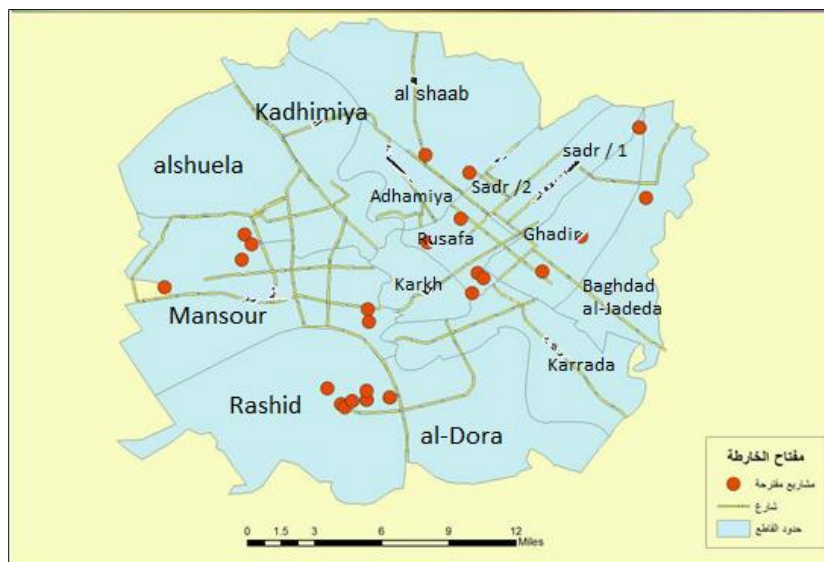
Table 5 Percentage of educational attainment

Percentage %	No.	Educational attainment
28%	14	Bsc DEGREE
20%	10	Msc Degree
52%	26	P.H.D Degree
100%	50	Total

Reference: researcher

2.2.3. The proposed commercial investment projects:

The (proposed) commercial investment projects were distributed according to sectors, which were developed by the Ministry of Planning and the National Investment Commission, which will be clarified according to Fig.No.7



Source: From the researcher’s work, depending on the Ministry of Planning / Central Statistical Organization, Gis

Figure 7 Of the proposed commercial investment projects in the city of Baghdad

Table 5 Number of proposed commercial investment projects by sectors, and according to planning standards

Sector	Population	Number of proposed commercial projects	Number of commercial investment projects based on the planning standards	The difference in respect to the planning standards
al-Dora	732456	0	30	-30
Mansour	451746	4	39	-39
sadr / 1	708388	0	17	-17
Sadr /2	503461	0	11	-11
Karkh	217899	2	52	-50
Rusafa	222607	6	51	-45
Karrada	331002	3	27	-24
Baghdad al-Jadeda	823452	3	26	-23
Kadhimiya	473335	0	33	-33
al-Shaab	297157	2	22	-22

Adhamiya	476543	0	34	-30
Rashid	433005	4	19	-19
al-Shuaala	345342	0	26	--22
Ghadir	4330056	4	39	-35

Source: From the researcher's work, based on the Ministry of Planning/Central Statistical Organization

2.3. Field analysis and statistical treatments

2.3.1. The model for measuring spatial balance in the investment map of the city of Baghdad:

In order to measure spatial balance, the following model was built to rely on it in extracting and evaluating the results of the questionnaire. To study the effect of explanatory variables (demographic factors, economic factors,, urban factors), and put the relationship between the dependent variable Y and the independent variables X1,X2,.....,Xp in the following multilinear regression model:

$$y_i = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + \dots + \beta_p x_{ip} + \varepsilon_i$$

So,

$$\beta_0, \beta_1, \beta_2, \dots, \beta_p$$

Represents parameters

β_0 = Constant value.

β_1 = y slope on the first independent variable .

β_2 = slope of the regression y on the second independent variable....and so on to β_p .

It represents random error and follows a normal distribution

X_i = Variables, $i=1, 2, 3 \dots n$ represents the number of independent variables.

After obtaining the results of the regression equation, we must show whether these coefficients are statistically acceptable, that is, statistically significant?

In order to judge the significance of the regression coefficients, we use the T-test and the corresponding probability level, while R^2 is called the coefficient of determination with probability limits for the period from (0~1) and is used to find out the explanatory power of the estimated model (estimated equation). On other words, it is a measure that shows the percentage of the contribution of independent variables in explaining the change in the dependent variable.

We also use the F-statistic, where the (F) test measures the significance of the model as a whole, whether it is acceptable or not, depending on the level of significance extracted from the analysis of variance (ANOVA) table. If it is ($0.05 \geq P$), this means that the regression model has a high degree of fit and suitability at a certain level of significance, based on the following decision rule:

Null Hypothesis

$$H_0: \beta_i = 0$$

Alternative Hypothesis

$$H_1: \beta_i \neq 0$$

The null hypothesis H0: represents the acceptance of the estimation value of (β) extracted = zero, and states that there is no spatial equilibrium for the investment map

Alternative Hypothesis H1: Acceptance of the extracted β value due to the presence of a spatial equilibrium of the investment map.

It became clear through the analysis and testing of the hypotheses of the approved model and the effect of the independent variables, which represent the basic planning criteria for planning and design, which represents the spatial distribution of the proposed projects in the study area as shown in Table (1-6)

Table 6 Results of multiple linear regression analysis of the proposed projects in the city of Baghdad

depended variables	Independent variables coefficients X1,X2,X3,X4,X5,X6,X7 and $\alpha\beta$								Interpreted variance coefficient R2	Correlation coefficient R	value of F	Significance level	Null hypothesis HO
	$\alpha\beta$	1β	2β	β_3	β_4	β_5	6β	7β					
Y1	$\alpha\beta$	1β	2β	β_3	β_4	β_5	6β	7β	0.952	91%	59.917	0.00	reject
Coefficient value	1.538	0.929	2.052	1.195	1.437	0.254	0.869	0.515					
T	3.239	1.485	3.116	2.124	2.210	0.433	10.471	0.812					
Morl	0.002	0.145	0.003	039	032	667	149	421					
equation : $\hat{Y} = 1.538 + .929X_1 + 2.052X_2 + 1.195X_3 + 1.437X_4 + 0.254X_5 + 0.869X_6 + 0.515X_7$													
Y2	$\alpha\beta$	1β	2β	3β	4β	5β	6β	7β	0.875	77%	19.987	0.00	reject
Coefficient value	6.229	2.457	4.258	4.407	4.954	0.469	3.657	2.666					
Test values T	-0.134-	0.773	0.748	1.515	1.362	-.153-	1.738	1.050					
Morl	0.894	0.444	0.459	0.137	0.180	0.879	0.089	0.299					
equation: $\hat{Y} = 6.229 + 2.457X_1 + 4.258X_2 + 4.407X_3 + 4.954X_4 + 0.469X_5 + 3.657X_6 + 2.666X_7$													
Y3	$\alpha\beta$	1β	2β	3β	4β	5β	6β	7β	0.940	88%	46.672	0.00	reject
Coefficient value	1.425	1.554	1.366	1.289	1.622	0.142	0.518	0.532					
Test value T	2.229	2.240	1.869	2.065	2.249	0.219	0.791	0.755					
Morl	0.002	0.030	0.068	0.045	0.030	0.828	0.0433	0.454					
المعادلة التقديرية: $\hat{Y} = 1.425 + 1.554X_1 + 1.366X_2 + 1.289X_3 + 1.622X_4 + 0.142X_5 + 0.518X_6 + 0.532X_7$													

3. Conclusion

- No factor was dominant in influencing the spatial distribution, functional integration, or the transport network, but the effects varied according to the adopted variable.
- The comparison between proposed projects, leading to choosing the best alternative that guarantees the achievement of the investment map objectives, can push the local authorities to alternative options. These options pose challenges to the process of matching between the economic feasibility of investment projects and their suitability in terms of planning, design and distribution, to give the importance of the investment map.
- By studying and analyzing the planning criteria based on statistical analysis in the style of the (Spss) program and extracting the regression equation and analyzing the factors and variables affecting the model.
- It was shown through the significance of the results of the statistical analysis the positive impact of the planning standards in the distribution of investment projects for the time period under study.

- The distribution, planning and design of investment projects depend on several common factors and it is not possible to rely on the dominance of one of the factors in influencing the spatial distribution because this does not achieve economic efficiency, social justice or environmental quality.

Recommendations

- The necessity of taking into account application of planning standards in distribution, planning and design of investment projects because of their positive results in that.
- The possibility of applying method and methodology of analysis and applied model of the variables of planning standards and their impact on spatial distribution through morality of extracted model, as we reached numerical results with a statistical significance in other areas, which are housing projects and services with all their uses, and relying on feasibility study for investment projects in terms of Distribution, planning and design, specifically National Investment Authority, Ministry of Planning and Development Cooperation, Central Agency for Statistics and Information Technology[7].
- On economic level, reports of technical and economic feasibility study must be accurately prepared,[2][4][6] inputs and outputs should be realistically studied, and a time limit for implementation should be set in order for project to achieve required economic benefit.
- On the environmental level, a report on "environmental impact" of project must be prepared and evaluated in terms of environmental and visual pollutants, waste collection, air pollution, water and sewage networks, and this is an important part of investment map.

Compliance with ethical standards

Acknowledgments

We confirm that neither of us has any objection to publish this research paper in your esteem journal.

Disclosure of conflict of interest

We the researchers of this papers would be glad to publish our work in Open Access Research Journal of Engineering and Technology.

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