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Article

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The Study of Determinants of Rent Housing in Ilam City Based on Hedonic Spatial Econometrics

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Abstract: Housing unit is heterogeneous and multidimensional commodity; therefore, to determine effective factors on rent, hedonic pricing model is used. To explain the factors, four properties are used for housing, which are physical variables of residential units, access variables, environmental variables (neighborhood), and economic and social characteristics. The variables related to the spatial property are used by spatial hedonics to bind the lease function to the location. Spatial hedonic technique is able to determine the effective factors on the rental of housing, also the impact of renting housing from other properties of adjacent ones. In this paper, using linear, semi-logarithmic, logarithmic and box-cox models, the effect of each of the properties of leased residential units on their rental prices has been investigated using simple and spatial hedonic function. The results indicate that the best model is the linear model. Moreover, among the residential apartments in Ilam, physical and socioeconomic factors affect the rental of residential units more than neighborhoods and access variables, as well as the effect of spatial dependent variable in spatial hedonic model on rentals is quite significant and positive. The estimated model of spatial econometric method is well fitted; the percentage of coefficients and the explanation of the effect of the variables in the model are more efficient and better than conventional econometric methods.

Keywords: Rent, Hedonic, Spatial Econometric, Spatial Dependence, Spatial Heterogeneity
JEL Classification: C02, D04, C21, R31

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1- Introduction

One of the natural needs of human, especially in contemporary societies, is housing. The importance and role of housing in the economy and its impact on the development of countries is a well-known debate. Housing is a commodity that has no mobility, no substitute goods, and capital values (Mohammadzadeh et al., 2012). In addition, housing is a durable, immovable, consumption commodity and it has a large share of household budgets, expenditures, and fixed gross national investment, account for a large role in employment and value added of countries. Therefore, identifying the effective factors on the housing market and achieving a stable situation in the housing sector has always been the goals of different countries. The role of the housing market in the Europe and the United States in the phenomenon of the recent financial crisis confirms this fact. For this reason, the study of the housing market is important.

Housing rentals are one of the most important indicators of living costs today, and fluctuations in the rental cost of a residential unit affect the socio-economic status of societies. Furthermore, population growth and more tendency towards urbanization in the urban areas of Iran, a closer examination of the changes and changes in the rental of housing to determine the factors affecting this area in order to policy in this field is necessary (Kahzadi et al., 2016).

The most fundamental problem in examining housing rent is the heterogeneity of housing as a commodity. Each residential unit has features such as area and infrastructure, number of rooms, etc. These features make residential unit a multidimensional commodity. One of the possible ways to estimate the rental rates is Hedonic method. The Hedonic model has been widely used for studying the housing market due to the heterogeneity of housing products (Wen et al., 2005).

The main assumption in the hedonic method is that the price or rental of each unit is a function of the characteristics of the property. Therefore, in this research, the purpose of estimating the effects of physical, spatial, environmental and socio-economic characteristics of households is based on the lease of residential units using the Hedonic function in the city of Ilam. Since housing is one of the spatial issues, it is expected that rental in this section will vary according to the geographical location of the areas under investigation, thus, with the approach of spatial econometrics, this is discussed.

2- Literature Review

a) Foreign Researches

Panduro & vele (2014) in a study in the city of Aalborg examined the effect of green space on housing prices using the hedonic valuation method. By dividing green spaces into eight types, they estimated the impact of each on housing prices using a generalized model, and concluded that green space is a uniform environment without effect, but a set with distinct characteristics and very different effects on housing prices.

Karlik & Olgac (2015) have compared hedonic models and neural networks to predict prices and lease housing. The results of this study showed that the hedonic method, due to the coverage of all the variables in the housing, has more success in this regard than the neural network method.

FelixSchläpfer & FabianWaltert (2015), using the Hedonic model, investigated the effective factors on renting housing in the

urban areas of Switzerland, they were looking at how land use and environmental facilities and facilities affect rental prices in Swiss urban areas. The sample consists of 563 observations. The results show that about 70% of the apartment price change and about 30% of the villa's dwellings compare to the variables of different types of recreational infrastructure and the proximity of lakes, wetlands, untouched areas, impressive national landscapes and cultural places, access to urban services and property type have a positive and significant effect. Other explanatory variables such as building life, distance from the city center, street noise, railway noise, industries and power lines had reverse impact on renting residential units.

Helbich, Brunauer, Vaz (2018) examined the spatial effects of access to public service premiums on housing prices in the case study of Jian city in China using geographic weights regression model (MGWR) and geographic model (GD). The results indicate that, in terms of allocating urban spatial resources, facilities providing basic human needs, such as medical care and education, are the main elements of housing price differentiation; in such a way that housing prices in areas of the city that have access to such centers are higher than in other areas.

b) Iranian Researches

Azimi et al., (2013) studied the changes in housing prices in Iran in a study of the SAR and using the combined data of the main provinces of the country for the period (1991-2010). The results indicate that the effect of spatial distribution of housing prices between different provinces of the country is a very important factor in explaining the behavior of housing prices, and on average, an increase of 10% in housing prices in other provinces increases the price of housing in the province by 6% .

Milani & Haddadi (2014) used the hedonic function and spatial econometric method to estimate the price function of the residential property in Tehran. According to the results, the distance between the centers of the neighborhood of the metro station was significant in the spatial model, and the proximity to the metro station did not have a significant negative effect on the value of residential property.

Mehregan & Ghaffari (2016), considering the demand and capital expenditures in urban housing and its effective variables, investigated the effects of housing price variables, domestic production, domestic consumption, and the number of construction works executed on the rental price of urban land in Iran, using combined data from 30 provinces of the country during the period from 2001 to 2011. Accordingly, the results indicated that the changes in GDP per capita, housing prices and household size were directly and significantly were effective on urban rental rates, and the number of construction licenses issued has a reverse and significant effect on the cost of renting a city in Iran.

Amirinezhad et al., (2016) indicated that in Eynak Lagoon, environmental factors have a negative effect on the price of residential units in the area, and the cost of housing increases with increasing distance from the lagoon. In addition, the variables of land area type of skeleton and access to health centers have had a positive effect on housing prices, while variables of distance to Main Street, distance to city center and access to the park have had a negative effect on

housing prices in the study area. Furthermore, the variables of land area type of skeleton and access to health centers have a positive effect on housing prices. Among these factors, the variable distance to Eynak Lagoon has the most effect on the dependent variable.

3- Theoretical Background

The housing sector plays a major role in economic growth due to its past and recent links with other sectors of the economy. This sector can act as the engine of the growth and development pillar in the country's economy due to the high need for data than other sectors of the economy (Nasrollahi & AzadGholami, 2013). Housing is a shelter that is the basic need of each family. Having shelter is an important goal that every family is looking for. It is very important to have an affordable housing. Effective factors on the price of housing and renting are as important to families as urban planners, builders, and finance providers (Ghaderi & Izadi, 2016). Housing prices and rentals are affected by several factors, such as updating public infrastructure such as highways, public transport systems, and so on. In addition, housing price is affected by factors such as inflation and the price of crude oil and so on (Liew & Haron, 2013).

There are a lot of buyers and sellers in the housing market, each with a very small share of total sales, and entering and leaving the housing market is easy. In this market, the utility of each person is different from the service provided by a residential unit. In other words, housing, unlike many commodities, is a multi-dimensional commodity and it has different characteristics; so that two residential units of a very similar quality and quantity, if located in two different places of the city, have different characteristics that can meet different demands. Each applicant for housing is willing to pay a certain amount for each of these features. The exact recognition of these factors and the coefficients of affecting each of these characteristics in the price and market of renting housing increases the success rate of housing supply plans and, as a result, satisfaction of households (Poormohammadi et al., 2013).

Another feature of housing is its durability, which allows for the storage of wealth and speculation. In this case, housing is considered as one of the financial assets that does not have high liquidity but its value changes with the general level of prices. Thus, in inflationary conditions, the incentive for people to convert money into housing increases and the shock caused by speculation in housing in the short and medium term will increase housing prices (HasaniSadrabadi & Moshfegh, 2011).

The existence of a rental housing market and the possibility of supplying demand from the rental market channel will enable the consumer to postpone ones purchase if necessary, if such a topic has no meaning in the demand for food because the household consumes the services of housing, not the housing itself. Annually, with rising inflation, rents for urban households are rising. Therefore, one of the concerns of planners and decision makers in housing is the determination of rental rates. When the commodity has a market, supply and demand status can provide valuable information about the benefits and value of goods and services. When the product has a non-market nature, demand information

is required. Housing is one of the non-market goods used by the information available to estimate its price. One of the methods for meeting rental rates is the Hedonic method (Aboonoori et al., 2008).

The hedonic approach is a method of determining the value or feeling of pleasure due to the characteristics of a commodity. Compared to conventional economic valuation practices that account for the value of a commodity with respect to the total commodity, the hedonic approach considers the product as a set of properties and considers the integral value of this set of properties. In Hedonic demand model, a commodity has a few dimensions. Since housing is a composite commodity consisting of a basket of diverse characteristics, the application of the hedonic model to the housing market is appropriate (Cebula, 2011).

In the hedonic price function of housing, residential unit is considered as a commodity composed of different properties with different degrees and quantities. The basis and reason for establishing the causation and causality relation that the function of the price of the hedonic is expressed is that the higher the number of positive properties of a residential unit (assuming that other conditions are constant), the market price of that residential unit will be higher. If the hedonic price function of the partial derivatives hierarchy is taken in relation to each of the characteristics of a residential unit, the resulting derivatives represent the final changes in the equilibrium price of the residential unit, if the other features are constant, than the changes in that property. In the hedonic function model, residential unit is considered as a heterogeneous commodity and its price is studied considering all the factors that cause its heterogeneity compared to another residential unit (Sedaghati & Nourian, 2016).

In hedonic studies, it is assumed that renting housing reflects the willingness to pay residents in order to obtain the necessary facilities inside and outside the home (physical, environmental, access, etc.). In other words, it is assumed that differences in rental properties are due to differences in housing characteristics (Kuetthe et al., 2008). Housing rentals therefore represent the maximum amount of money people want to improve the quality of the environment, a certain amount of facilities and the status of the building, and access to facilities and services (Karlik & Olgac, 2014). So many features that affect the quality of life are considered in the rental of residential units. The willingness to pay for each of the properties of the property can be used to obtain the offer function. By estimating the coefficients of the model variables, the price of the shadow housing and each of these characteristics is obtained; the implied prices are the same as the price of the hedonic. For example, a customer might want to pay more for a rental house near educational centers, while other features are kept constant (Amirnejad et al, 2016).

4- Research Methodology

The city of Ilam, with an area of 2138.1 square kilometers, contains 10.62 percent of the province's area as the capital of Ilam province, and the most important city in the province has seen a huge wave of migration from villages to the city in recent decades. The increasing expansion of urban village migration and the increase in the natural population of the city has; on the other hand, it led to a fluctuating trend around inflation due to

the increasing need for housing and shelter over the past few years. The statistical population in this study is rental apartments. In 2016, their lease contracts were registered at one of the Ilam Property Consulting Offices, using the Cochran formula at 95% confidence level, 291 samples were selected as random blocks. It should be noted that, for more accurate estimate, the statistics for residential units in the villa are not included in this study, and only estimates of the residential units of the apartment where the majority of tenants reside in these units are estimated.

$$n = \frac{\frac{z^2 pq}{d^2}}{1 + \frac{1}{N\left(\frac{z^2 pq}{d^2} - 1\right)}} \quad (1)$$

Z denotes the number of z-statistic that is the same percentage of the standard error of confidence coefficient that is usually considered to be equal to 1.96; p is the probability of being true; q is the probability of being wrong; in other words (1-p) d The error rate or degree of assurance and probability is desirable, N is the volume of society and n is the sample size. After specifying the sample size, the community was divided into 25 regions and then randomly selected from N1, N2, N3 and ... N25 in total 291 views.

Referring to the history of the Hedonic studies, there is no definite theory for choosing the appropriate type of hedonic, and the researchers choose the appropriate form based on the use of the model and its statistics. For this reason, due to the superiority of the linear functional form (the stability of the hedonic coefficients, the use of the model to determine the implicit prices of the features, the greater the coefficient of determination and the coefficient of determination, and the number of significant variables and F statistics), the analysis and interpretation of the results is based on this figure.

As stated, housing rent is a function of the properties used in the housing unit demanded by the household, which is called the hedonic price function. The function of the hedonic price is represented by P (z) and is shown as follows:

$$P(z) = P(Z_1, Z_2, Z_3, \dots, Z_n) \quad (2)$$

In the above function, the vector Z is the various properties of a residential unit (physical, environmental, access, etc.), and P is the market price.

$$U = U(X, Z) \quad (3)$$

In the above function, Z represents the various characteristics of the residential unit, such as physical, spatial, peripheral, and social characteristics of the household, and X represents other commodities other than housing (Nourian & Sedaghati, 2016).

If, for ease, the price of other goods is taken into account and the income of the household Y is assumed, then the budget limit can be written as follows:

$$Y = X + P(Z) \quad (4)$$

By maximizing equation (2) with the limitation of budget (3) through Lagrange, the initial conditions allow maximization of utility:

$$L = U(X, Z_1, Z_2, \quad Z_3, \dots, Z_n) + \lambda(Y - X - P(Z)) \quad (5)$$

$$\frac{\partial L}{\partial X} = \frac{\partial U}{\partial X} - \lambda = 0 \rightarrow \frac{\partial U}{\partial X} = U_X = \lambda \quad (6)$$

$$\frac{\partial L}{\partial Z_i} = \frac{\partial U}{\partial Z_i} - \lambda \frac{\partial P(Z)}{\partial Z_i} = 0 \rightarrow \frac{\partial U}{\partial Z_i} = U_{Z_i} = \lambda \frac{\partial P(Z)}{\partial Z_i} \quad (7)$$

If we put (5) in (6), we have:

$$\frac{\partial U}{\partial Z_i} = U_X \frac{\partial P(Z)}{\partial Z_i} \rightarrow U_{Z_i} = U_X = \frac{\partial P(Z)}{\partial Z_i} \quad (8)$$

$$\frac{\partial U}{\partial \lambda} = Y - X - P(H) = 0 \quad (9)$$

From the above process, the demand function is extracted from the following form:

$$\frac{\partial P(Z)}{\partial PZ_i} = P(Z_i) = \frac{Uz_i}{U_X} \qquad i=1,2,...,n \qquad (10)$$

$$\frac{\partial P(Z)}{\partial PZ_i} = P(Z_i) = \frac{Uz_i}{U_X} \qquad i=1,2,...,n \qquad (11)$$

In the above relationship:

UX: Ultimate utility of consuming other goods

Uzi: Ultimate utility resulting from consumption of the i-th characteristic of the residential unit

Pzi: The Miliens are the households for the i-th characteristic of the residential unit (Amirnejad et al, 2016).

In this way, the first step is to determine the implied prices of each of the characteristics of the residential unit. This is accomplished by fitting the residential unit rentals to all the features and ultimately extracting the best-fitted form.

In this research, the aim of the present study is to estimate the effects of physical, spatial, environmental and socioeconomic factors of households on the leases of residential units using the hedonic function with the spatial econometric approach in the city of Ilam.

Hedonic space model is important considering the spatial heterogeneity of housing and its related services (heterogeneity of research data across space). In other words, when spatial data is used in the econometric model, due to the spatial heterogeneity in the model, the explanatory power is increased because renting or any other residential unit is not only affected by its physical, environmental and specific access. Nevertheless, it is influenced by the quality of the portfolio of properties of adjacent residential units and land-use patterns of the surrounding area (Akbari et al., 2004). Therefore, in this study, special emphasis has been placed on the importance of space and spatial data in housing rents.

To examine and test the spatial dependency and its significance, different statistics such as Moran statistics can be used. Moran statistics for variable X in different regions can be calculated as follows:

In equation (10) x_i and x_j, the values of x are for different regions (samples) and s^2 is the sample variance. w_{ij} The proximity positions i and j are relative to each other, in other words, their spatial relationship, also referred to as an adjacency matrix. This matrix is obtained in various ways, the most common of which is the linearity proximity matrix, the proximity of the shapes, the adjacency of the elephant, and the proximity of the queen. Of the other types of spatial communication, we can point out the reciprocal distance, the inverse square, and the Moran dependency coefficient is obtained by Euclidean intervals according to the standardized form of the matrix.

The expected value for the Moran statistic is for a randomized spatial pattern $E(I) = \frac{-1}{n-1}$, which represents the number of regions or samples of the mechanized. The larger values of E (I) represent a cluster pattern, in other words, a positive affinity, and less than that, represents a matched or disjoint pattern, that is to say, a negative affinity.

The significance of the Moron statistic is investigated through the Z test. The standard Z value of the standard moron statistics is calculated by equation 12. The values obtained are comparable with the values of Z table.

$$z_I = \frac{I-E(I)}{\sqrt{VAR(I)}} \qquad (12)$$

Where I is the amount of moron statistics obtained from equation (10), the values of E (I) and VAR (I) are the mean and variance of Moran statistics, respectively.

In this study, two models have been used to estimate the Hedonic price function. The underlying relationship, like all internal studies, is estimated using conventional methods (ordinary least squares), which is a model in which the spatial variable has been neglected. Therefore, its general form is as follows.

$$\text{Rent} = \beta_0 + \sum_{i=1}^{k} \beta_i X_i + u \qquad (13)$$

In the above equation, there is no variable that connects residential units with each other according to the location, and X_i includes physical, environmental, access, and socioeconomic variables.

Another model for estimating the Hedonic price of housing is the space model presented below.

$$Rent = \beta_0 + \rho W\, Rent + \sum_{i=1}^{k} \beta_i X_i + u \qquad (14)$$

This function can be estimated using the maximum probability method. Here is the dependent variable Rent, which is the same housing rent and is a vector of 1×291. ρ The coefficient of the spatial dependency variable WRent and the parameter β represent the effect of the explanatory variables on the deviation in the dependent variable. Nevertheless, W is the same cosmic proximity matrix whose elements represent the neighborhood of the residential units of the sample. This matrix is calculated for 291 views in different locations in the city of Ilam and is standardized. This means that the sum of the elements of the proximity matrix row is equal to one. The reason for this is that this transformation is achieved by the product of the proximal matrix in the vector associated with the dependent variable, whose elements are the average of the observations of the adjacent regions. According to the above mentioned, the standardized space proximity matrix for the apartment units of the city of Ilam is 291 × 291. Here, the definition of proximity is based on neighboring units located within the four main streets. Therefore, residential units located in a common area were considered adjacent and for the element related to those units, placed in the adjacency matrix A, and, in the absence of adjacency, insert for the corresponding element with two non-adjacent residential units. Due to the fact that the number of samples in this study is 291, the proximity matrix W for residential units in the city of Ilam is defined as follows.

$$W = \begin{bmatrix} a_{۱\times۱} & \cdots & a_{۲۹۱\times۱} \\ \vdots & \ddots & \vdots \\ a_{۱\times۲۹۱} & \cdots & a_{۲۹۱\times۲۹۱} \end{bmatrix} \qquad (15)$$

In this research, housing rents are considered as dependent variables. In addition to the supply and demand law, housing prices also have an impact on housing. Therefore, the four groups of factors as independent variables influence the price of the hedonic price of leased housing. For this purpose, the general functional form and the model in this study are as follows:

$$\text{Rent} = f(ST, EN, AC, EC) \qquad (16)$$

Where in:

ST: Represents the structural variable of residential units. The most important physical factors that determine the rentals of apartment units are the following:

EN: It reflects the environmental and neighborhood characteristics, and these effects also affect the lease of housing on the basis of affecting the utility of individuals.

AS: is the accessibility variable. It means access to facilities.

EC: It is the economic and social characteristics of households.

SP: The spatial variable, the data of this variable are obtained by the product of the spatial mass matrix (proximate matrix) in the matrix of housing. It is worth noting that the context variable is not used in the conventional model.

After adjusting the variables on the rental of the apartment units, the simple model of the first hedonic model was found to be inaccurate with the variance of the variance, but finally, after solving the mentioned problems (eliminating the anisotropy of the variance in the OLS model); the final optimal estimation is obtained as presented below.

5- Results

The results of Moran's test on the dependency of renting apartment units in different areas of the city of Ilam using static software are presented in the Table 1 based on the type of Euclidean distance and the standardized form of the matrix. As indicated in the table, the amount of moron statistics is positive and significant, so it can be said that there is a positive spatial dependence on the rents of apartment units in different parts of the city of Ilam.

Table1. Moran test

Test	Amount	statistics	Z	Prob
Moran I	0.0112	2.0565	1.96	0.0397

Lagrange Multiplier Test for the Detection of an Appropriate Model

As explained above, in order to account for spatial dependence in the pattern, one can act in two ways:

a) a spatially interrupted pattern.

b) a pattern with spatial error.

The results of two LMError and LMLeg tests show that Lagrange Lag space spatial interruption is significant at 95% confidence level, but the Lagrange coefficient of spatial error is not significant at a confidence level of at least 90%. Therefore, in the final model, the pattern is considered with an interruption.

In this section, the results of the two models are presented and reviewed.

Table2. The results of appropriate model diagnostic tests

test	amount	Prob
LM_{Leg}	6.7729	0.0398
LM_{Error}	0.9041	0.3164

Table3. Estimation of Linear Forms of Simple and Spatial Hedonic Models

		Spatial hedonic		Hedonic	
		Coefficient	**Prob**	**Coefficient**	**Prob**
Physical variables	LA	167.80760	0.3170	185.514	0.0045
	FA	15460.370	0.0170	15082.84	0.0188
	Position	901.57510	0.8790	2304.326	0.5575
	Cover	20179.45	0.0040	20718.79	0.0118
	View	14371.12	0.040	16380.48	0.0496
	Rooms	5847.326	0.4020	5453.430	0.4643
	Old	8951.891	0.1350	6646.721	0.3195
	Elevator	34855.34	0.0130	38933.02	0.0089
	Radiator	37341.75	0.0080	3906.50	0.0088
	Cool	-16568.64	0.1110	-15388.6	0.2283
Neighborhood Variables	TU	15090.14	0.0450	19329.99	0.0229
	Num-F	-5265.263	0.4380	-8420.96	0.2610
	Unit – Nf	1138.445	0.8940	4112.73	0.6455
	Sec	9611.664	0.3150	7406.56	0.3183
	Owner	4149.72	0.6810	8123.36	0.4245
Access variables	Edu-ser	13445.49	0.0330	12328.41	0.1290
	Park	-16332.68	0.0050	-17628.6	0.0041
	D-Center	16460.88	0.0080	16107.79	0.0177
	D-work	-1951.495	0.7480	132.06	0.9840
Economic and social variables	Age	-1379.75	0.0530	-18165.1	0.0203
	Num-P	16857.35	0.0030	17731.2	0.0104
	Edu	21549.2	0.0060	23622.2	0.0100
	Income	16362.44	0.0080	18041.2	0.0063
	Job	3693.187	0.6720	3437.24	0.7299
	Deposit	0.0157068	0.0000	0.01614	0.0000
	P	**0.16656**	**0.0020**	**-**	**-**
	R^2	0.886		0.882	
	$\overline{R^2}$	0.875		0.871	
	F (prob)	79.467(0.0000)		79.985(0.0000)	

From the review of the hedonic rental function of the housing sector in the 25 areas of the city of Ilam, it is observed that the rental of an apartment unit is influenced by four groups of variables:

The first group includes physical or structural factors of residential units, which in fact assess their qualitative and quantitative qualities. The second group is known as Access Factors, which include the residential unit's access location. The third group includes environmental factors that represent the amenities of a residential unit. The fourth group is also the economic and social characteristics of the household. To estimate this price function, the variables of elevator, radiant, residence of the owner of the residential unit in the apartment and the occupation of the tenant's household manager were assigned as a virtual variable with zero and one values. Therefore, in a logarithmic two-way model, since logarithm of the virtual variables of meaning They did not have the model removed and in the mixed model were linearly entered into the model so that their effect on the rent could be properly analyzed.

In both simple and spatial hedonic models, the probability of meaningful coefficients in both models is almost the same, with the difference that the amount of coefficient of determination and the coefficient of determination determined by the explanation rate are higher in the spatial hedonic model. Considering the significance of the spatial variable, it can be concluded that the effective factors for the displacement of residential units in Ilam in the case of the Hedonic model and the presence of the dimension of the location (adjacency) can be explained and interpreted better. Failure to pay attention to this factor is a major disadvantage in the study of housing rental behavior.

6- Conclusion and Discussion

In this research, based on the econometric literature of the conventional econometric model, the spatial variable ρ (regression marker) was modified from the dependent variable and adjusted for the space weights matrix. The results indicate that proximity is an important factor in determining the factors affecting the rents of residential units in Ilam, and the lack of attention to this factor will probably end up with the results. The rest of the research results are listed as below:

1. In this study, variables that were expected to have an impact on the rental of housing in Ilam, were studied in four groups: physical variables, neighborhood, accessibility, and socio-economic variables, and the effect of each on rental housing in the period and area under study Estimated. The results show that the significant variables on the rental of housing in Ilam show that the ultimate factors affecting the rental of apartment units in Ilam in the form of a hedonic model can be interpreted as the determinants of housing determinants of travel. Secondly, the proximity to the lease variable has a positive and significant effect.

2. By comparing the results of previous studies in the country, the use of neighborhoods in the form of a spatial model between regions in the pattern and the model of hedonic housing, is one of the advantages and features of this study. In other words, the spatial hedonic model is preferable to its simpler type, and rented housing rents affect adjacent areas.

3. Among the residential units of the city of Ilam, physical and economic factors affect the housing of residential units more than neighboring and access variables. In addition, among the physical characteristics, the area of the infrastructure, the number of rooms, having elevator and radiant are the most important factors affecting the housing. The most important economic factors are income, the amount of the deposit and the number of households.

4. The existence of spatial dependence between the views of the rental of apartment housing units and the higher detection capability of the spatial lag model to explain the factors affecting the rental of housing in apartment units indicates the fact that when using the simple daemonic method in spatial data, the proximity and neighborhood effects should be taken into account in the collected data, Studied to avoid the coefficients with a tuple fit.

5. The reason for the relationship between the rental of residential units and the variable of access to green space is inverted; it is overcoming the negative effects of green space, such as noise pollution and population density on adjoining units.

6. The positive relationship between the area of the infrastructure and the rentals suggests that these types of units have the most suitable space, the more favorable they are for applicants, and people tend to pay higher rent.

7. Although the safety variable is not significant in this study, the existence of a positive relationship between the security variables and the rents of an apartment building unit means that a person tends to incur more rents on average, in order to be ultimately more secure.

8. The diversity of the situation and the social status of neighbors from one region to another have led households to consider it in their portfolio as an important feature of apartment units. Because of this, there is an indirect relationship between renting an apartment unit and the social status of people in the region.

9. Given the positive impact of the physical characteristics of the area of the infrastructure and the lack of impact of the land plots on the rent of the residential unit, the policies of the relevant organizations, including the municipalities, are such that by constructing residential complexes from the existing urban lands, they are most able to design apartments to meet the household's needs.

10. Based on the results of the final willingness of households to pay rent for physical characteristics such as under-built area and old age, and given the seismicity of most parts of the country, special attention should be paid to these building characteristics in construction projects.

11. Given that the tax system and charges on residential units are based on the regional price, in which many properties of the residential unit are ignored, we can use the coefficients of the hedonic function as a criterion for imposing taxes and charges on the residential unit.

Planners and builders of residential buildings are recommended to comply with the priorities of applicants for residential units. For example, according to the principle of pleasure (Hedonic), policymaker can help with the construction of shopping malls with the right distance from apartment complexes to the preference of applicants for residential units. Therefore, the following suggestions are given to the planners of urban development plans:

A) Urban development lanners and housing aggregators for implementing policies and cost-benefit analysis should provide accurate information on the prioritization of households in the predefined basket of housing features.

B) It is recommended that planners use incentive policies in order to ensure that the performance of residential building makers is in line with the applicants' prioritization of housing features.

C) Creation of new urban centers and the lack of emphasis on the centrality of the city in order to make all facilities and services available to all parts of the city in an identical manner

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