

# The Study of Banking System Participatory Role in the Development of City's Spatial Using ARDL Method (Case Study Urban Centers of Ilam Province)

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## ABSTRACT

Spatial development in the city centers of our country had been started from the past few decades and it is growing rapidly. So, the financial factors especially the banking facilities among many effective factors have increased its speed.

Therefore, in this study for a period of ten years (2011-2002), to explore ways of financing such as bank loans, government grants and income municipals in the spatial development of urban centers of Ilam province by Using econometric model(ARDL) having been studied. results of analyzing this model show that among of ways financing Spatial development, the governmental aids and the banking facilities have a significant and positive and direct influence on spatial development if of Ilam province city centers and the municipal revenues have no significant and direct influence of spatial development of Ilam province city centers. Such that, any One million increase in the government aid 1.62 acres and any One million increase in the banking facilities 0.02 acres is improves spatial development.

**KEYWORDS:** city centers, spatial development, ARDL model, banking facilities.

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## INTRODUCTION

### 1. Issue Expression

Unlike the growth that originated from the promotion of the economic indices especially precipitate income, develop meant means the promotion of all of the indices that influence on the quality of the material and immaterial life of the humans. Until the middle of the last century, the development meant the economical growth that often was measured by the national gross production and the percapipa income of the countries .Now, the views of the social justice, self- support ness, and ecological balances have been linked with the new concept of the development.( Ziyari; 2006).

The spatial development of the country cities has traversed various routes under the effect of various economical, historical factors and the governmental politics. The governmental investments resulted from the oil incomes, the bank facilities and so on cause the spatial development degree of the urban centers of Ilam province to be hetero genous and without the balance so that the concentration of the possibilities and resources in one country leads to the increase of the urban population and it's spatial development, and the other cities had not much growth in this viewpoint; for such reason, the recognition of the situation and the spatial development of the urban points as the most principal form of the habitation in the country, and of the strong and weak points, the powers and their shortcomings in the urban planning not only lead to the submission of the designs and the wealthier plans but also it is considered a fundamental necessity .In this research, the spatial development of the urban centers of Ilam province has been investigated by using of the method of the self- explanatory econometrics with the wide intervals during 2001- 2011 years.

The inefficiency of the system of the urban planning and the weakness of the plans of the national development and land logistics lead to the urbanism growth and the uniform development of the urban centers in Iran. One of the important issues of the developing countries such as Iran is the inequality and the lack of the special balance between the regional and national levels that due to the various factors have been created under the effect of the mechanisms dominated on the political, social and economical structures.

The severe dependency of the urban centers in the developing countries especially Iran on the national resources of the bank network poses the issue of the effect of the credit and monetary politics of the government on the expenditures of the investments that have been done in the cities of these countries. One of the ways of the preparation of the capital of the urban centers is the credits and facilities allocation to their economic parts through the bank system.

According to the surveys, in Ilam urban centers, a great part of the investments of the urban parts have been prepared through obligation and Non obligation facilities of the banks. According to the statistics, all of the facilities granted by the banks of the province during 2002-2011 in the different ports have been more than 6000 milliard, and at the same time, the urban centers of the province are spreading increasingly; then, So,

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Investigation of the partnership role of the bank system( facilities payment) in the spatial development of the urban centers of Ilam province Including the main objectives of this research.

In the this research, we following these find out;

- Bank systems have a positive and significant role in the urban spatial development through the facilities payment
- The amount of the municipalities' income has not a significant and positive role in the spatial development of the cities.
- The government policies in the form of the developmental help have significant role in the urban spatial development.

## 2. Theoretical principals

The financial systems are considered as one of the most important parts of every economy. Today, many of the changes of the urban environments and the cities economy originated from the evolution created by the financial systems and the monetary institutions. These systems include the network of the financial markets, institutions, families and the government that participate in the system and regulate its operation.

More concentration of the investments in the basic cities as the growth and development centers lead to the increase of their distance from the other cities in terms of the spatial development. In the developmental programs before the Islamic revolution, an especial glance had been focused on the urban centers ; but , after the Islamic revolution , this developmental viewpoint increased in the form of first to fourth developmental programs, mean while, the effect of the financial policies of the government in the from of the developmental budgets and it's total budget in the cities and increasing of the lending power of the banks in the from of buying the housing, civic partnership, Contract of reward and the various purchases and soon, leads the investment in the different economical parts such as the infrastructural and services parts, and this can be a reason for the increasing development and the comprehensive extension of the cities so that the parts of the services, infrastructure, and urban constructions and so on, had always been among the interest- takers of the bank facilities.

The surveys that have been done show that a great part of the spatial development of the cities have originated from the investment of the economical instates and injection of the credits in the from of the bank facilities, the development assistance of the government, the municipalities investment in the infrastructure parts and the urban development. Then, given the direction of this research, it seems that participation of the financial (bank) system in the form of the facilities payments to the economical parts, is one of the effective factors in the spatial development of the cities of Ilam province.

## 3. Research back ground Different

Within and outside the country, Researches have been conducted in the field of effect of the bank and monetary facilities on the various economical parts, We refer to some of them in the following:

Looiz (1990) has investigated the possible reaction of the money policy when encountering with the of the price of the housing during 1980- 2004 by application of VAR and ARDH Models in a paper. In this paper, two rules are defined for the monetary policy that according to the first rule, the nominal interest rate follows the inflation rate and the nominal interest rate of the previous period and in the second rule, the nominal interest rate follows the inflation rate, the nominal interest rate of the previous period and the price of the housing. The results show that if the monetary system reacts the housing prices directly, it maybe leads to the stagnation in the production so; the second rule of the monetary policy has the most efficiency and has more roles in the adjustment of the trade ages.

Ahren and others (2005) studied the fluctuation in the housing price in 18 industrial countries from 1970 to 2004 by using ARDL and VAR models and the concentration on the monetary policy. The results show that the housing price will increase soon with the enforcement of the tentional monetary policies, but after that, the increasing inflation causes the monetary authorities to enforce the spastically monetary policy before the housing price reaches its peak.

Saidi (1992) has investigated the issue in Golestan province in a research under: the role of the bank network in the economical growth by using the self- regulation regression model. The results of this research show that the bank facilities as a supplement of the producing capital can have a significant role in the investment and the production growth in Golestan province, so that 0.1 increases in the bank facilities of the province can increase the added value (economic growth) of the province to the amount of 0.27.

Khiabani (2003) has investigated and analyzed the effects of the macro economical variables on the fluctuation of the seasonal index of the housing price during the period of 1992- 2001. He has surveyed the effect of the short – and long- term factors on the findings of this research , the real sensitivity of the housing price to one percent change in the real balance of the money has been calculate 0.86 in the long- term and 0.34 in the short – term. Also, the reaction of the housing real price has been calculated- 0.89 in long- term and 0.3 in short – term.

Akbarian and Haidari-poor(2009) have investigated the effect of the development of the financial market on the economic growth in Iran during 1966 – 2007 by using of the self- explanatory econometrics with broad intervals (ARDL) in a research. The results obtained from the calculation of the equations show that the financial indices have a negative effect on the economic growth in the short – term, but in long- term and with little ignorance, this relationship existed between the indices of the financial development and the economic growth that show the lack of the exact control of bank facilities on the granting facilities.

**4. Research method (model presentation):**

The best method for the investigation of the variables and the related indices in one time section is the survey of the amount of the spatial development of the urban centers of Ilam province and the participation role of the bank system. The data that have been used in this research have been obtained from the general census of the population and housing of 2002-2011 years, the results of the statistic data of the central bank of Iran Islamic republic, the statistic year book of the country and so on.

One of the most important methods for the investigation of the role of the bank system in the spatial system of the urban centers is using of the self- explanatory econometrics with broad intervals – This pattern is a dynamic method that offers this possibility that considers the short- term dynamic between the explanatory variables regardless that in what static degree they are and in conclusion calculates the long- term coefficients of the model carefully.

General form of the regression function is as follows:

$$\begin{aligned}
 (1) \quad & \alpha(L, P)y_t = \sum_{i=1}^k \beta_i(L, q_i)X_{it} + \delta W_i + u_t \\
 (2) \quad & \alpha(L, P) = 1 - \alpha_1 L - \alpha_2 L^2 - \dots - \alpha_p L^p \\
 (3) \quad & \beta_i(L, q_i) = 1 - \beta_{i1} L - \beta_{i2} L^2 - \dots - \beta_{iq} L^{q_i}
 \end{aligned}$$

L, interval operator;  $W_i$ , a vector of the definite (non random) variables such as wideness from the origin, process variable, virtual variable or the exogenous variables with the constant intervals; P, the intervals that have been used for the dependent variable and  $q_i$  is the intervals that have been used for the independent variable.

ARDL method involves two stages: In the first stage, we test the existence of the long- term relation between the considered variables in this way that if the sum of the calculated coefficients related to the dependent variable intervals are less than one, then, the dynamic pattern has the tendency towards the long- term balance; So, the test of the following hypothesis should be done for the convergence test:

$$(4) \quad H_0: \sum_{i=1}^p \alpha_i - 1 \geq 0$$

T statistic quantity needed for doing the above test is calculated as the following:

$$(5) \quad H_1: \sum_{i=1}^p \alpha_i - 1 < 0$$

If modulus of the critical quantity offered in the given reliability level is less than the modulus of the above calculated t statistic quantity modulus,  $H_0$  hypothesis is dismissed and in conclusion, there is a long- term relationship between the model variables. In the second stage, the long- term coefficients are estimated and calculated as the following:

$$(6) \quad \hat{\theta}_i = \frac{\beta_{i0} + \beta_{i1} + \beta_{i2} + \dots + \beta_{iq}}{1 - \alpha_1 - \alpha_2 - \dots - \alpha_p}$$

Where,  $i=1, 2, 3 \dots K$  for  $q_i$ , p the values chosen for P and  $q_i$  are based on one of the criteria of the interval determination. The number of the optimized intervals in ARDL is determined based on one of the criteria AIC, SBC, HQC or  $R^2$ . In this research, the model calculations have been done by the following relation in order to answer the research hypotheses:

$$(7) \quad FAZAI = C(1) + C(2)*GOVER + C(3)*TASHILAT + C(4)*GOVER + C(5)*TASHILAT(1) + C(6)*INCOME + [AR(1) = C(7)]$$

The variables used are as follows;

- FAZAI; The spatial development (skeletal) of the dependent variable.
- GOVER; The government development helps of the independent variable.
- TASHILAT; The bank network facilities balance of the independent variable.
- INCOME; The municipality income of the independent variable.

**5. Data description.**

The studied range in this research is the urban centers of Ilam province. The studied statistic society includes seven central cities of Ilam province such as: Abadan, Ilam, Eivan, Dareh shahr, Dehloran, Sarableh and Mehran. Ilam city as the center of the province has the highest urban population and the province and the least urban population is belonged to Sarableh city. The time domain of the research is the years of 2002-2011.

**The stages and the process of the spatial development of the urban centers.**

The stages and the process of the spatial development of the urban centers of the province have been considered as the dependent variable. Based on the information existed in the comprehensive, formal and directorial plans of the urban centers, the cities of Ilam and Mehran with 1.46 and 0.10 respectively have the most and the least physical development among the studied urban centers.

Also, during the considered years, the cities of Sarableh, Dehloran, Eivan, Abdanan and Darehshahr have 0.74, 0.40, 0.38, 0.29 and 0.35 physical growth respectively. At the end of 2011, Ilam city with the legitimate range of 1850 hectares has the highest level of the skeletal development among the urban cities, while the legitimate range of Sarableh city has only been 250 hectares. Given the present information and statistics, in terms of the net levels of the urban lands with the different controls among the studied urban centers, Ilam city with 1213.4 hectares has the most urban lands and Sarableh city with 159.2 hectares has the least urban lands.

Table (1) the skeletal development of the urban of Ilam (figures in hectare).

Mehran	Sarableh	Dehloran	Dareh shar	Eivan	Ilam	Abdanan	city - year
400	144	626	360	372	752	434.5	Early in2002
440	250	875	486	512	1850	559.5	The late2011
0.10	0.74	0.40	0.35	0.38	1.46	0.29	Percent increase
40	106	249	126	140	1098	125	Additional area

Reference: The ditectorial and comprehensive plans of the urban centers of Ilam.

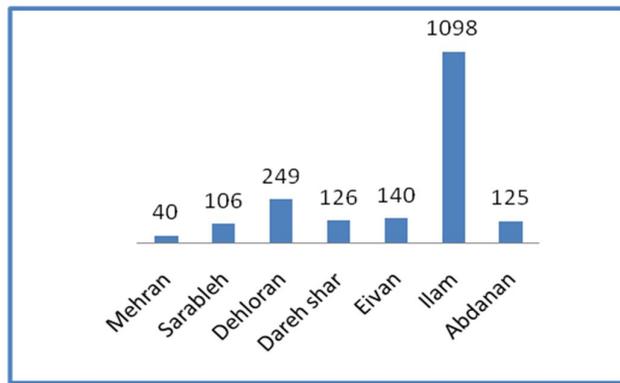


Diagram (1) the skeletal development of the urban centers.

**The governmental helps:**

Total government aid to urban centers Ilam province done during the years of 2011-2002 totaled 620.46 milliard Rails. Ilam cities with 223.63 milliard rail and Sarableh city with 49.68 milliard rail have received the most and the least governmental helps. According to the obtained information and statistics, the cities of Abdanan with 86.23 milliard rail received help, Dehloran with 72.78 milliard rail. Dareh Shahr with 67.20 milliard rail, Eivan with 63.01 milliard rail and Mehran with 57.83 milliard rail are in the second to this orders.

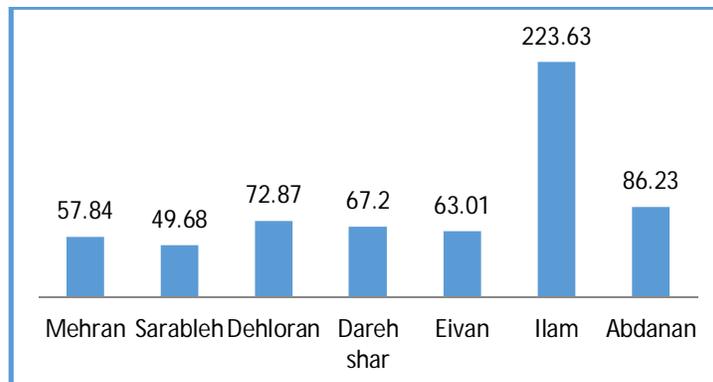


Diagram (2) the governmental helps to urban centers.

**The municipalities' income.**

According to the statistics obtained from the municipalities of the central cities of Ilam province years of 2011-2002, the total sum of the incomes received from seven urban center of the province was 1664 milliard rails that was the most income figure related to Ilam municipality that amounts 926.56 milliard rails(55.67 total percent of the incomes). The least income figure that amounted to 33.16 milliard rail has been related to DarehShahr municipality. Also, during the considered years, the cities of Mehran with 208.85 milliard rails, Darehshahr with 184.94 milliard rails, Eivan with 129.92 milliard rails, Abdanan with 104.54 milliard rails and Sarableh with 76.60 milliard rails In the next categories.

Table (2) the income of the municipalities of the studied cities during 2002- 2011 (figures in milliard rials).

Mehran	Sarableh	Dehloran	Dareh shar	Eivan	Ilam	Abdanan	city
208.84	76.6	184.93	33.15	129.91	926.57	104.52	Total(M.R)
12.55	4.60	11.11	1.99	7.80	55.67	6.28	% Of Total

Reference: The municipalities' income.

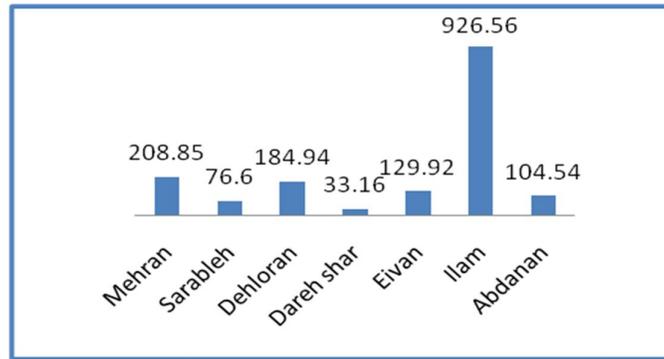


Diagram (3) municipalities' income.

**Bank facilities balance:**

The statistics show that the payment facilities balance of the banks has been varied during the considered years that it has increased from 2647 milliard rails in 2002 to 20291 milliard rails in 2011 that shows a growth more than 6.67 times in a 10 years period. The total facilities balance during the considered years was 94661 milliard rails that out of this figure, the most amount of the payment facilities is related to Ilam city with the figure of 53768.78 milliard rails that equals with 56.8 percent of the total balance of the facilities and the least facilities balance is related to Abdanan city with the figure of 4720.93 milliard rails that equals with 4.99 percent of the total balance of the bank network facilities.

Table (3) the facilities balance of Ilam bank network in terms of the city during 2002- 2011 (figures in milliard rials).

Mehran	Sarableh	Dehloran	Dareh shar	Eivan	Ilam	Abdanan	Total
5084.09	8688.91	7755.99	7210.86	7431.44	53768.78	4720.93	94661
5.37	9.18	8.19	7.62	7.85	56.80	4.99	% Of Total

Reference; Central Bank of Iran Islamic Republic, Bank data and statistics office.

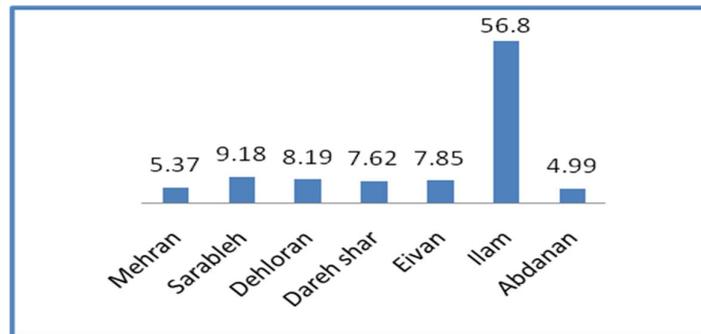


Diagram (4) the percent of the bank network facilities balance.

**6. Durability Investigation of the variables:**

The data should be considered in the static terms before the calculation of the model, if the non- static data are used because these data have not constant variance and mean; then, t and f statistics aren't valid and the model results are improvable. (Rajabi Jehroodi, 2002; 367)

In the model investigation, the variable characteristics should be investigated in durability terms. In the durability case of the variables we should say that a variable is durable when the it's mean, variance and coefficient remains constant during the time. If the variables that are used in the model are undurable, then, the model will not prepare the constant condition and the functions obtained from it, have not enough valid.

Now, the various tests have been introduced for the investigation of the hypothesis of the existence or non- existence of the single root in the time series that their most important are: The single root test of adjusted Dicky fouler (ADF) and Philips and Peron (PP) test. If the calculated statistic is bigger than the critical amount that is usually in 5 percent level; then considered variable is durable (mana) otherwise it is enduring. In this research, the adjusted Dicky Fouler and Philips and peron tests have been used for the investigation of the existence or non-existence of the single root in the variables.

Table (4) the results of the single root test (durability zero hypothesis).

Residual		bank facilities balance		municipalities income		governmental helps		Variable name
PP	ADF	PP	ADF	PP	ADF	PP	ADF	
26.79	25.67	0.072	0.072	8.84	12.09	13.51	11.88	The test statistic
0.02	0.02	1	1	0.84	0.59	0.48	0.61	Error Probability
Stationary	Stationary	No stationary	No stationary	No stationary	No stationary	No stationary	No stationary	Test results

References; the present research calculations.

As it has been shown in N.4 table, the results of the adjusted Dicky Fouler and Philips person tests for the durability measurement of the considered variables show that none of the variables have been 5 percent durable in the possibility level of the first type error; so, the durability hypothesis of the considered variables can't be dismissed. Given the theoretical discussions of the econometrics, if the model variables are enduring, the mode l can't be evaluated and the result can't be advocated because the considered variables may show high significance without having a real semantic relationship and the researcher commits error in the inference and deduction, the single root test has been done for the investigation of the durability of the variables and the results show the durability of the variables in the first order difference. Given that all of the variables have a same degree of durability; now, being co-accumulative of the variables should be guaranteed by using of the co-accumulation test. If the variables are co-accumulation; then, the models behavior will be synchronous in the long-terms, and the model calculation is simple and the results can be supported. The adjusted Dicky Fouler and Philips Peron durability test has been done for doing co-accumulation on the residues and the results of N.4 table show that the residues are durable and using ARDL model in the variables level is without difficulty and the constancy condition in the model has been meted.

**7. Calculation and evaluation of the model**

Regarding the relation of N.7, the model has been calculated as the following and its final result has been mentioned in N.5 table;

Table (5) the result of the model estimation by using of Eviews software.

Variable	Coefficient	Statistics t	Error Level
C	276.8147	8.956611	0
GOVER	1.625019	3.389654	0.0014
TASHILAT	0.026049	2.568918	0.0133
GOVER(1)	0.882858	2.302216	0.0256
TASHILAT(1)	0.0155	1.752955	0.0859
INCOME	0.184039	0.608637	0.5456
AR(1)	1.055872	91.8497	0
R-squared	0.998657	Mean dependent var	588.6071
Adjusted R-squared	0.998493	S.D. dependent var	368.0350
S.E. of regression	14.28865	Akaike info criterion	8.273276
Sum squared resid	10004.11	Schwarz criterion	8.526445
Log likelihood	-224.6517	F-statistic	6073.286
Durbin-Watson stat	1.162655	Prob(F-statistic)	0.000000

References; the present research calculations.

We can't submit an economical interpretation about the wideness from the origin; it means that if all of the variables choose the zero value, the dependent variable (spatial development), namely, the spatial development, equals with 276.8147 in the province as a whole.  $R^2$  index that it is known as Goodness of fit index, shows that a model that has been considered for the research expresses what extent of the reality and how many effects have the unknown variables that are absent in the model and are reflected in the residues terms, or in other words, what average percent of the changes of the dependent variables (spatial development) is explained by the average dependent variables.  $R^2$  index value shows that the model can explain 99 percent of the changes of the dependent variable. In other hand,  $\bar{R}^2$  is also high. Based on the econometrics issues, whatever  $R^2$  and  $\bar{R}^2$  are close each other, the accuracy of the model specification can be more trusted. So, the closeness of the values of above two indices gives us this confidence that all of the effective variables have been considered and we have not committed the wrong specification error of the model or not putting the effective variable that has been remained out of the model. One of the other criteria for the measurement of the accuracy of the model estimation is Durbin-Watson test that is used for the recognition of the self-correlation between the parts of the disorder in the model. Whatever the Durbin-Watson statistic approaches zero parts of the disorder and whatever it approaches number four, they will have the negative closeness of this statistic to number 2 shows that there is not the self-correlation between the disorder parts. The statistic that has been mentioned in the above estimation equals with 1.2 and this shows the lack of correlation in the model.

One of the other statistics is F-statistic that shows the total significant of the regression coefficients and in this statistic,  $H_0$  hypothesis shows that all of the independent variables don't influence on the model, and  $H_1$  hypothesis is that at least one of the independent variables affects on the model. So, if F value is more than the critical value; namely, its error possibility is less than 5%, it shows the total significant of the regression. The F-statistic value equals with 6073.286 and its error possibility is zero. So, the total coefficients of the model are severely significant. Given the N.5 table and the obtained results, the analysis and the significance of the coefficients are as the following:

- The coefficient of the governmental helps is 1.625019 with the positive signal; statistic has adopted a high value and is significant with 0.0014 possibilities. This coefficient shows that during the considered time in average, the governmental helps with 1.62 coefficients have direct and significant effect on the spatial development of the province.

- The coefficient of the bank facilities is 0.0226049 with the positive signal.

T- Statistic has adopted a high value and is significant with 0.013 possibilities. This coefficient shows that during the considered time, in average, the bank facilities with 0.02 coefficients have significant, direct and positive effect on the spatial development of the province.

- The efficient of the municipalities' income is 0.184039, but because its error level is higher than 5 percent, it hasn't had a direct and significant effect on the spatial development of the province. So, it has not had a direct and significant effect on the spatial development of the province.

- Coefficient AR (1) is equal to 1.05, which means an annual moderated coefficient is 1.05 Urban Spatial Development. In other words, an increase in the spatial development of urban acres this year, the next year will be figure of 1.05 acres the spatial development of urban

## 8. Conclusion

- The coefficient of the bank facilities is 0.0226049 with the positive signal. t Statistic has adopted a high value and is significant with 0.013 possibilities. This coefficient shows that during the considered time, in average, the bank facilities with 0.02 coefficients have significant, direct and positive effect on the spatial development of the province. In other words, we observe the development of one hectare of the spatial development in return for every 0.02 milliard rails of the bank facilities. Thus, the first hypothesis that shows that "the bank system has a positive and significant role in urban spatial development." Is certified.

- The coefficient of the municipalities' income has not had a direct and significant effect on the spatial development of the province. So, the second hypothesis that shows that the extent of the municipalities' income hasn't a positive and significant effect in the spatial development of the cities.

- Given the results obtained from the self-explanation with the brand intervals, the third hypothesis of the research that shows that "the government policies in the from of the developmental helps have a significant role in the urban spatial development" Was certified, because the coefficient of the governmental helps is 1.625019 with the positive signal and t- statistic has adopted a high value and is significant with 0.0014 possibility. This is coefficient shows that during the considered time in average, the governmental helps with the coefficient of 1.62 have had a direct and positive effect on the spatial development of the province. In other words, the spatial development of the urban centers of Ilam has increased one hectare in return for every 1.62 rails of the governmental helps.

Given the above positions, we can conclude that out of three considered variables, respectively in terms of the effectiveness, two variables of the governmental helps and the bank facilities have had a positive and significant

effect on the urban centers of Ilam province; but, the municipalities' income hasn't had a significant effect on the development of the urban centers of Ilam province.

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