
Weight Consistency Evaluation and Exploratory Factor Analysis of Urban Resilience from the Perspective of the Earthquake Crisis (Case study of Ilam city)

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1. Introduction

As cities are expanding as the best form of human habitation, and every day, more urban breakdowns occur in communities, increasing the resilience is a major concern for cities. The resilience in the context of crisis management can be seen as the birth of a new culture to respond to disasters. The city of Ilam has also been considered as a high risk city due to its location in the Zagros region. In today's changing world, natural disasters, based on socio-physical characteristics, have different implications for human societies. Of course, despite the tremendous advances in technology and the achievements it has been impossible for centuries, man is still helpless against unexpected natural disasters, such as earthquakes, floods, and so on (Agudelo and Claudia, 2012). And sometimes it leads to human and financial damage (Folke, 2010). Therefore, on the other hand, the vulnerability of different groups of people living in the squatters of the city varies depending on the level of their life and their social and economic status. Therefore, the resilience is not the only result of the risk of the regions, but also the result of physical, socioeconomic and political processes, and the accident is a final condition that results from these processes. Regarding the approaches and theories, people are not vulnerable to natural disasters because of the proximity to the place of occurrence of the risk factors, but their social and economic conditions also increase and decrease. The city of Ilam, like other major cities of the country has urban instability in its physical, economic, social and environmental dimensions. The objective consideration of these problems is mountainous region, borderline situation, strategic sensitive conditions and the possibility of vulnerability caused by it, although itself, due to crisis management considerations, necessitated the formation of some biotechnologies during the forties in Ilam (Mavedat, 2018).

2. Materials and Methods

The method of the present study is a combination of methods (descriptive, exploratory, survey and analytical). It should be noted that the research has a practical-developmental approach.

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The statistical population of the research is all urban areas of Ilam in the form of 14 urban districts. Data analysis was performed using HMR models and factor analysis using KMO and Bartlett's test as RAFA model. It should be noted that SmartPLS, Grafer, SPSS, ArcGIS, Visio, EXCEL have been used to output data.

3. Results and Discussion

The city of Ilam is located on 45 minutes and 47 degrees east longitude and 15 minutes and 34 degrees north latitude. According to the Bureau of Statistics and Information Office of Ilam Governorate, the population of his city was 213579 in 2014 distributed in the form of 52474 households. Among the 21,357 people in Ilam, 50.66 percent (10,800) are men and 49.33 percent are women (105,379). It should also be noted that the city of Ilam has four urban areas and 14 urban areas.

The RAFA* model is adopted as a combination of two factor analysis models and a hierarchical weight regression model. The factor analysis, first proposed by Thorston in 1931, is a method used in two ways to reduce the number of variables and discover the structure of relationships between variables; and the hierarchical regression model is more often used in correlation research with the aim of predicting several dependent variables from one or more independent variables.

Based on the correlation matrix:

- The highest negative correlation among total variables of city Ilam volatility is the cultural factor with the rate of 517.0%.
- The RAFA model is a combination of two models of factor analysis and hierarchical weight regression model.

According to the calculations made regarding the resilience of Ilam city, the value of Bartlett's test was equal to (0.000) and the value of KMO test was equal to (0.203).

Ilam city resilience Based on factor analysis method, only 4 factors have been able to play a key role in Ilam city resilience.

Of these variable factors, the population of the areas of Ilam city alone is 51.5%.

4. Conclusion

The present study was carried out with a quantitative research approach in the city of Ilam. According to the results of the study, two factors of urban area and residential use had the most impact on Ilam's vibrational calibration. The results of the study showed two factors area and residential land use. It had the greatest impact on the resilience rating of Ilam city. The most positive correlation in all variables is the factor of urban facilities and infrastructure with a rate of 0.8 percent. Also, Bartlett's test was equal to 0.000 and the KMO test was equal to 0.203, which indicates that the data were suitable for factor analysis in the areas and the subject of urban sustainability. And only four factors have been able to play a major role in alleviating the city of Ilam, and among these variables, the population of the districts of Ilam alone has a 51.5% role.

Keywords: Resiliency, Crisis, Earthquake, Model, Ilam

*. Regression Algorithm Factor Analysis (RAFA)

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