

## ***Study of Effect of Spatial Interaction on Spatial Balance Using Space Syntax Technique in the Urban Structure of Bojnourd***

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### **Extended Abstract**

#### **Introduction**

Variety & diversity of viewpoints about urban structural-functional growth & development shows the complexity & expansion of the "city" category and the related issues which, in turn, indicates dynamic characteristics of the city. After a century of introducing organized and systematic theories in this filed, what worth surveying is the effective skeletal-social-economical outcome of these views on the development & structure of the cities. The theories on development & structure of the cities have one characteristic in common, i.e., one-dimensionality which normally accompanies with a skeletal view. Also, one of the main goals of these theories is to reach spatial balance as the result of convenient urban spatial structure.

#### **Methodology**

The writer has used eclectic method of analytic-documental and using gravity theory has estimated the extent of spatial interaction among urban regions. Then, the extent of regions integrity has been obtained using space syntax technique. And at last, causal relation between these factors is equated using linear regression.

#### **Results and Discussion**

The paper aims to study spatial structure of Bojnourd and the role of functional-skeletal

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elements in shaping this structure. The study is performed through spatial interaction of land uses and the extent of urban network integrity to access appropriate spatial structure. One of the issues raised in the paper is how to create balance through production and attraction of interurban journeys via space syntax model and technique. This article assumes that correlation between spatial interrelation and local position of urban regions is one of the skeletal effective elements that are helpful to spatial balance realization. The writer tests the hypothesis on Bojnourd city to determine the position of two major factors, i.e., spatial interaction and place situation of each of 31 urban regions for study of spatial balance of Bojnourd.

To accept the issue that spatial balance of a particular city such as Bojnourd depends on the proper spatial interaction, integration in urban areas and the appropriate spatial relationship within the evolutionary process of an active system between these two factors, it has been tried to study spatial interaction of the areas and their rate of integration in the city and also analyze the amount of correlations between these two factors and at last review the impact of these factors on the spatial balance of the city.

### **Conclusion**

So, spatial-anatomical structure of the city is unbalanced and there is little integrity between the regions. In the case study, the study of spatial interaction of regions and their integrity and interrelation indicates that spatial balance is an important and fundamental indicator which has been found less evident about the city of Bojnourd. The result of research shows that either correlation between place situation of the regions and spatial interaction does not exist or is at least.

Spatial interaction of the areas in the case study and their integration and the relationship between these two factors indicates that the typical spatial balance is considered to be essential and important which is less noticeable as the result of this research reflects in the city. Therefore, the spatial interaction of the areas, their integration and their interrelationship are among the factors affecting the spatial balance which can be used to create spatial balance. Regarding this issue, there is a causal relationship between the two variables which can be formulated to layout spaces. This method is exerted on the case study (Bojnourd) which can afford to calculate the ideal syntax of urban components according to the formula derived. Consequently, ideal interaction of a region can be measured based on the structure of that region, while in reality the obtained amount is much different from this value. We call this value the "error". Thus, presence of such an error rate according to Table Two shows that the spatial structure of Bojnourd is defective and out of balance. As a result, the syntax must be changed in such a way that the error rate reaches its minimum.

So, by studying the existing differences among the models and the reality of spatial interaction of the areas of Bojnourd, one can slowly lead urban system toward more spatial balance in its natural bed through physical, social, economic and cultural measures.

**Keywords:** *Spatial Interaction, Urban Spatial Structure, Spatial Balance, Space Syntax, Bojnourd.*