

## **Investigating the Factors Affecting the Physical-spatial Changes in Rural Settlements of Mashhad Urban Complex**

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*Received: 31 August 2018*

*Accepted: 31 August 2019*

### **Extended Abstract**

#### **1. Introduction**

In human communities, adoption of dynamism and permanent changes entails the acceptance of permanent changes and dynamism of rural areas in various dimensions. Knowledge of the spatial and physical structure of villages could be one of the factors influencing the success rate of planners and contributes to improving rural environments, that is why today, the knowledge of the physical-spatial structure of villages and the factors affecting the transformation of this structure is necessary, especially around metropolitan areas; therefore, having such a knowledge is one of the important factors in the success of rural and urban designers and planners. Consequently, recognizing and explaining the factors effective in the physical-spatial changes of rural settlements in Mashhad urban complex can lead to a more accurate land use planning and sustainable development. Therefore, this research seeks to answer the following question: What are the factors affecting the physical-spatial changes in rural settlements of Mashhad urban complex?

#### **2. Review of the Literature and Theoretical Framework**

Space is a key concept in urban and rural planning and design, as it is involved with all

the elements and structural components of a settlement and shows how these elements are established and function at the residential level. Numerous components are involved in the production of space including economic, social, and environmental components, all of which are collected and crystallized in the form of residential morphology. The physical structure of a village includes a set of physical and observable dimensions and measurement of the texture of the villages, which is the result of the intervention of influential, natural and human factors in an interactive space.

In recent decades, the rapid growth of urbanization and rural-urban inequalities and the growing trend of rural migration have encouraged many social scientists and geographers to conduct extensive research on urban-rural relations. In Iran, following the socio-economic changes in the early decades of the present century and the emerging issues of urban areas that were developing day by day, and the depopulation of rural areas, the need for an urban-rural study became more apparent. Some of the most relevant resources are covered below. Saeedi and Soltani (2004), Afrakhteh et al. (2015) and Montazeri et al. (2017) explored the role of different factors in development of metropolitan cities and the effects of this development on the urbanization process, physical changes in rural areas and

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environmental and geographical impacts of surrounding areas. They concluded that there were different spatial currents between cities and the surrounding rural settlements, which contributed to many changes in rural areas.

Saeedi and Hosseini Hasel (2006), Amiri Entekhabi (2013), Amar (2013) and Monshizadeh and Sadeghi's (2010) examined the urban and rural relations in Iran and found that unequal relations between these two residential spaces have made way for irregular physical-spatial changes in rural settlements; therefore, given the role of these relations in the changes and development of urban and rural centers, it paved the way for sustainable development in rural areas to examine the types and causes of relations, and recognize their economic, social-cultural and spatial-physical consequences on rural and urban areas. Therefore, the present study seeks to investigate the factors affecting the physical-spatial developments of rural settlements in the urban complex of Mashhad.

### 3. Method

This fundamental study was conducted in a descriptive-analytical method. Documentary studies and field works were used to collect data. The sample includes 28 villages having more than 20 households in Mashhad urban complex which were selected from different classes of population and different distances from Mashhad. Out of 20083 households in the sample rural areas, using the Cochran formula, a sample of 377 households were selected by random sampling method. Fuzzy Analytical Hierarchy Process (FAHP) (views of 32 experts) and Shannon entropy (sample villagers' views) were used to explain the indicators affecting the physical-spatial changes in rural settlements.

### 4. Results and Discussion

The results showed the experts believe that the indicator of proximity to Mashhad metropolis with a weight of 0.3556, has the highest and the indicator of inner factors of the villages with the weight of 0.0861 has the lowest

impact coefficients on the physical-spatial changes of rural settlements. However, in villagers' view, the internal factors of the villages with an average of 3.58 and proximity to Mashhad metropolis, with an average of 3.51, has had the least effect on the physical-spatial changes in rural areas. In addition, given the results of Shannon's entropy and the weights, the indicators of proximity to Mashhad metropolis and internal factors of the villages, respectively weighing 0.435 and 0.34 have had a greater impact coefficient in the physical-spatial changes of the sample villages.

Based on the results of the T test, as the significance level is less than 0.05, at the 99% confidence level, the H<sub>0</sub> hypothesis is rejected and the H<sub>1</sub> hypothesis is confirmed; That is, the impact coefficient of factors affecting the physical-spatial changes of rural settlements differs between both groups of the experts and villagers.

Concerning internal factors, the economic indicators with a weight of 0.457, in the proximity dimension, the economic indicators with a weight of 0.3556 and political-managerial indicators with a weight of 0.2333 and concerning external factors, the economic and political management indicators weighting 0.4147 and 0.2464, respectively have had the greatest impact on the physical changes in the rural settlements of Mashhad urban complex. In contrast, the environmental indicators, in all three dimensions, have had the least impact coefficients in the physical-spatial changes in rural settlements. The results show in villages near Mashhad, the factors affecting the physical-spatial changes have a higher mean. The villages of Hosseinabad Ghorghi, Gorgi Sofla, Dostabad, Manzelabad, Farakhad and Virani have the highest means in all three dimensions of the factors affecting the physical-spatial changes. However, the villages of Hosseinabad Gazband, Ali Abad, Mohammad Abad Baluch, Mazang and Shotorpa, which are closer to Mashhad, have the lowest mean in the level of factors affecting the physical-spatial changes in rural settlements.

## 5. Conclusion

Due to internal and external factors and mechanisms, rural settlements have undergone many changes over time. Spatial flows and the expansion of rural-urban links have been among the main factors contributing to such developments in rural areas, which have affected rural settlements through various mechanisms. In this study, the indicators affecting the physical-spatial changes in rural settlements were categorized into three: the internal factors of the villages, effects of proximity to Mashhad metropolis, and external factors (both at national and transnational levels). The significance of these indicators were examined from the perspectives of experts and rural community. The results showed that

proximity to Mashhad metropolis and political-managerial as well as economic indicators had the greatest and the environmental indicators had the least impacts on the physical-spatial changes in rural settlements of Mashhad urban complex. Moreover, based on Pearson correlation test, the impact of indicators affecting the rural physical-spatial changes in Mashhad urban complex and the villages closer to Mashhad was greater and has led to functional changes in those villages.

**Keywords:** Physical-spatial changes, rural settlements, internal factors, Neighborhood Characteristics, Proximity to Mashhad Metropolis

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**How to cite this article:**

Javanshiri, M., Anabestani, A. A., & Sojasi Gheidari, H. (2020). Investigating the factors affecting the physical-spatial changes in rural settlements of Mashhad Urban Complex. *Journal of Geography and Urban Space Development*, 6(2), 17-47.

URL <http://jgusd.um.ac.ir/index.php/gud/article/view/75067>

**ISSN: 2538-3531**