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Spatial analysis of housing indicators with a sustainable urban form approach (Case study: Babol)

Nikpour, A[a, 1]., Ghasempour, F[b]., Molahoseini, A[c]

[a] Associate Professor of Geography & Urban Planning, Mazandaran University, Babolsar, Iran.

[b] MSc of Geography & Urban Planning, Mazandaran University, Babolsar, Iran.

[c] MSc of Geography & Urban Planning, Mazandaran University, Babolsar, Iran.

Extended Abstract

Objective: Housing is one of the most important and important components in urban development because it is the largest land use, and its quality is one of the central concerns of urban households and urban decision-makers. The vast majority of experts define housing planning in the context of urban planning because housing has always been and is an essential part of urban space. Therefore, knowledge of the spatial form and shape of the city can be one of the effective factors in the success of urban planners and stakeholders and help to improve urban environments. The form of the city is the result of combining several concepts and elements of the urban structure, the elements of these concepts may be such as street pattern, block size and shape, street design, plot formation, parks and public spaces and the like. Apart from the non-physical aspects, understanding the form of the city provides useful information for urban planning policies. Urban form analysis identifies the problems and challenges of urban development and identifies areas for intervention from urban planning policies. Housing is the main element of the urban form, so the spatial organization and the way it is established and built reflects the quality of use of the environment, and the impact of the economy, traditions, and norms that govern urban society. Therefore, considering the importance of housing and its spatial concept in cities, in the present study, the status of housing indicators in different urban forms has been investigated and the effect of dispersion and compactness of urban neighborhoods on housing indicators has been evaluated. Therefore, paying attention to it to balance the spatial structure of the city and increase the quality of residential environments is a necessity of urban planning. The purpose of this study is the spatial analysis of quantitative and qualitative indicators of housing and its relationship with the form of neighborhoods in the city of Babol.

Methods: The present study is applied in terms of purpose and descriptive-analytical in terms of methodology. In this process, the required data have been prepared by library and documentary methods and the results of the general population and housing census of 1390. The statistical population of the study includes all neighborhoods of the city of Babol. Which includes 22 known neighborhoods. In this study, 35 indicators have been used to analyze the situation of housing indicators in the neighborhoods of Babol. For spatial analysis of data, spatial autocorrelation models (Moran model) and Gi statistics (hot spot analysis) have been used and the form of neighborhoods has been obtained based on layers of geographical information.

[1] Corresponding author at: Mazandaran University, Faculty of Humanities and Social Sciences, Mazandaran, Babolsar, Iran, P.C: 4741613534, E-mail address: A.nikpour@umz.ac.ir (Nikpour, A).

Results: To assess the physical form of the neighborhoods, first, the density, connectivity, and mixed-use indices were prepared and then the relevant coefficients were calculated using the formula "fuzzy normalization" and finally in the GIS environment, the neighborhoods are divided into three classes. According to the findings, hot spots of most indicators are more focused in the compact form, but hot spots of seven indicators are more focused in the scattered form and three indicators in the intermediate form. Therefore, it can be said that the indicators that indicate the desirability of housing are more clustered in the compact form, on the other hand, hot spots of indicators that indicate the state of housing are observed in intermediate and scattered forms, including Indicators related to less infrastructure and low-quality materials can be mentioned.

Conclusion: The results show that firstly, the spatial pattern of all housing indicators in the city of Babol is clustered and the data have a spatial autocorrelation. Accordingly, about 71.4% of the indicators are concentrated in a compact form and about 28.6% of the indicators are located in uncompressed areas. According to the research results, dense neighborhoods have better living conditions in terms of the quality of housing indicators. These neighborhoods, which are mainly located in the central part of the city, are in the group of developed neighborhoods of the city, and most of the houses in these neighborhoods are newly built and have better facilities. High density, more mixing, and better accessibility are the hallmarks of these neighborhoods, making builders and home buyers more inclined to live and invest in these areas. On the other hand, neighborhoods with a medium and scattered form are less desirable in terms of housing indicators. These neighborhoods are mainly located in the suburbs and in the less developed neighborhoods and are often inhabited by low-income immigrants, and the housing is not of good quality.

Keywords: Housing, Spatial Analysis, Moran, Stable Form, Babol.

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