Measuring Urban Sprawl in the Metropolitan Region of Mashhad

Sadegh Fakour Kargar
MA in Urban Planning, Department of Urbanism, Mazandaran University, Babolsar, Iran

Iraj Asadie
Assistant Professor, Department of Urbanism, Mazandaran University, Babolsar, Iran

Nosrat Goudarzi
Instructor, Department of Urbanism, Mazandaran University, Babolsar, Iran

Received: 17 October 2018 Accepted: 31 August 2019

Extended Abstract

1. Introduction

The way of our development affects people's daily lives; how much families pay for housing and transportation, how long workers spend commuting home, the economic opportunities in communities and even personal health are all connected to how neighborhoods and surrounding areas are built (Ewing & Hamidi, 2014). The biggest problem in understanding the question of where the city ends and countryside begins is the result of current ways of living where physical boundaries are becoming increasingly less clear. Nowadays we observe new categories like urbanized countryside (rural-type cities) on the periphery of the city. These in-between spaces are the mixing of various mechanisms and natures. Although the changes that occurred in the last half of the twentieth century has made the boundary (difference) between urban and rural less visible (or even erased it), people still perceive the difference in their perceptions of space. In other words, the boundary will become more a part of mental perception rather than a function of exterior physical indicators. Nowadays, suburbs are provided as the new in-between areas for city residents that wish to live in nature and yet close to the city and its facilities (Scott et al., 2007). On the other hand, a driving force for the expansion of urban spaces, especially residential land use, is a critical need for habitation. It is also a desire for security through the acquisition of property and private activities aimed at searching for additional benefit via the additional value of urban land. The allocation of appropriate land around the cities for urban development provides a basis for competing among different actors that follow their benefits and strategies; this benefit determines if development begins to take shape or is stopped (Bastye & Deezer, 1999). This phenomenon and the economic and regulatory systems which create it not only produce an inefficient and unpleasant environment on the urban fringe but also adversely affect the inner city and the rural areas as well (Bosselman, 1968). Although the expansion of city at outskirt can be cited as a general and extensible characteristic of urban sprawl problem, in a detailed explanation of why it occurs we have to say that if one block group or a group of them has a significantly higher density than those surrounding it. We can say the former serves as a center for the block groups surrounding it; therefore, sprawl does not always occur at the periphery of urbanized areas moving outward based on this definition, (Ewing & Hamidi, 2010).

Due to the above-mentioned definition of sprawl, this article intends to organize the texts and data of other studies and extract their main message. Then, with the help of summarization and evaluation methods, it draws out and applies the practical knowledge lies in them. Based on this

1. Corresponding Author. E-mail: fakoursadegh@gmail.com
method, this study aims to explore the measurement of urban sprawl in the areas of the Mashhad Metropolitan region as a preferred statistical measurement scale.

2. Review of Literature

From the earliest writings on sprawl, sprawl has been assumed to occur primarily at the periphery of urbanized areas moving outward. An individual street or block may contribute to sprawl, but we would not call it sprawl. This distinction seems particularly poignant when we talk about population and employment centers, which is defined by the interrelationships among block groups (Ewing & Hamidi, 2010).

A unique and specific definition of the so-called Iranian sprawl phenomenon includes planned and unplanned automobile-oriented urban growth with lack of local public facilities and uses, public social open spaces, and relatively low-population density caused by fast urbanization and poor growth control and automobile-oriented planning. In this sense, it can be argued that the form of the fast and dispersed developments in the periphery of the Iranian cities has little in common with suburban development. In fact, the urban sprawl of the country can hardly be called suburban or development (Ebrahimpour, 2012).

3. Method

As an organized, controlled, experimental and critical action about a usual phenomenon, the present paper intends to benefit from two joint methods for achieving objective knowledge and practical results through resources-data and identify their relationship with people's lives and control it, if necessary. The first methodology is applied at the same time with codification of the research theoretical framework. Thus, using documentary method and the utilization of related references, the results of studies, viewpoints and intellectual evolutions are compared, summarized and combined until a unit estimation begins to take shape and moderator variables are extracted for explaining the effects of the intended phenomenon. In the next step, these variables are adjusted according to the conditions of the country-study area in terms of economic, social and physical general conditions and available-accessible data in order to provide the basis for the second type of methodology at the level of quantitative measurement of the problem. At this level, the data are extracted from the available statistical sources and an organized geographical information system. The data are then analyzed and evaluated through the factor analysis to provide the necessary preparations for the production of maps.

4. Results and Discussion

Global urbanization and rapid population growth have made sprawl a common form of development at the international level. Even with consideration of this fact that the nature of suburbanization and sprawl may not be the same, nowadays, however, in many American and world cities, suburbanization often has taken the scattered form and pattern. In Iran, today's massive sprawl is also only a part of the urban transformation process aimed at preparing the urban form of the cities for car usage.

It is obvious that the current condition is seeking multi-dimensional spatial planning interference to ensure wise distribution-management of goals, infrastructures, land uses and essential services at city scale on one hand, while proper implementation of plans contains these distributions on the other hand. However, all these ideals could not be practically achieved as they should be. As a result, the ground for the appearance of urban sprawl begins to take shape in illegal or unplanned conditions, generally on the periphery of cities.

As a debatable issue, this part of research attempts to rebuild the imperfect or incorrect intellectual assumptions of its audience on the pillars of the problem literature and undermine the accuracy of compound words such as "urban sprawl" and "suburban sprawl" that have been the default assumption of the present researchers'
intellectual foundations. Therefore, the authors of this research attempt to explain the following points to readers:
Firstly, the common title of this phenomenon misleads the mind in recognition of its true nature and origin of formation. In other words, the prefix "urban" in the compound word "urban sprawl" not only could not describe the true nature of settlements formed based on this development pattern but also could not necessarily be their only formation source.
Secondly, if the urban sprawl pattern generally begins to take shape on the periphery of cities despite the generalization, we should not overlook the possibility of its occurrence within the city. That is, the prefix "periphery" could not necessarily be the only place that this phenomenon appears.
Thirdly, although we may enumerate various causes and mechanisms for the problem of urban sprawl from one city to another, it must be understood that most of them are influenced by a major cause called the value of land and estates.
Fourthly, the so-called Iranian sprawl is a compound that nowadays has been forgotten in domestic research, while it is compatible with western sprawl only in generality (some general traits) and fundamental differences are also found in details.
Due to various issues arising out of scattered growth pattern, an urgent need is felt for research on the difference between scattered and normal growth. Understanding the obstacles of development management in both developed and developing nations and offering effective approaches are the most important part of the process of solving this problem. There are different capabilities to establish theoretical and practical frameworks. Some are not in the scope of this study such as an intellectually-authoritative monitoring and intervention on urban sprawl aligned with the requirements-offers of comprehensive plan, compacting inner city and offering urban gentrification plans, revitalization of historic centers, controlling urban growth through monitoring public transportation networks expansion (especially railway networks) and monitoring the distribution of services outside city limits. On the other hand, because of differing cities' growth and transformation nature, the proposed solutions must be obtained from native urbanization. That is why an attempt was made during this study to offer a unique definition of Iranian-style sprawl.

5. Conclusion
The theoretical and practical findings of this study proved that nowadays sprawl is considered the leading edge of city growth and reflects the effects of slight oversight of the development planning process on the land subdivision. To be more precise, it is necessary to admit this existing reality in Iranian cities that planned or unplanned growth of cities in suburb, illegal change of land use inside and outside of public service boundaries, concentration of residential, commercial and industrial activities outside of city service area along with the intercity roads and many similar cases are not due to the lack of law but are outputs of monitoring weakness and more importantly, non-enforcement of law. These two are the most important issues intensifying urban sprawl in Iranian cities, solving them could become one of the best strategies inhibiting the formation of scattered areas in cities.
Urban sprawl has extensive literature, and paying attention only to its measurement aspect (especially in domestic studies) and the lack of detailed studies in other parts like the causes, consequences and the proposed solutions is a considerable problem and an excuse for future research. The aim of this study was to measure urban sprawl in the metropolitan region of Mashhad, which could consequently determine a likely picture of its compaction amount. The extracted findings and variables from this study are provided for other researchers who desire to study causes, costs, benefits and coping solutions with this phenomenon in separate, in-depth and detailed studies or who aim to assess social success in dealing with it.
Keywords: Sprawl, Quantitative and qualitative measurement, Metropolitan region of Mashhad, Suburbanization, City-region

References (In Persian)

References (In English)


**How to cite this article:**


URL: http://jgusd.um.ac.ir/index.php/gud/article/view/76036

**ISSN: 2538-3531**