Int. J. Architect. Eng. Urban Plan, 31(1): 1-11 January 2021
DOI: 10.22068/ijaup.31.1.567

Research Paper

An Analysis of the Attractions of Suburbanization and its Relationship with Urban Shrinkage in Mashhad: A Case Study of Abouzar Town in Mashhad

Hossein Hataminejad [1*], Amir Reza Rezayi Gorgani [2]

[1] *Associate Professor, Faculty Member of Geography and Urban Planning, University of Tehran, Tehran, Iran*
[2] *MS of Urban Planning, Khavaran Institute of Higher Education, Mashhad, Iran*

Received: June 2020, **Revised:** September 2020, **Accepted:** September 2020, **Publish Online:** October 2020

Abstract
The city which is developing is a successful city and the one which is not, is considered to be an ailing and shrinking city. In the past, cities faced many demographic changes caused by wars, natural disasters and epidemics. Nowadays, cities experience huge demographic changes, too. In this regard, urban shrinkage is defined as long-term population loss which leads to decline in a city or a city center. Urban suburbs also have a significant effect on transitioning the population from cities to suburbs; this study aims to analyze the attractions of Abouzar town in Mashhad as a suburb and study its relationship with urban shrinkage. This study uses a descriptive and analytical method and data were gathered through scientific sources and using a questionnaire. The population of the study consists of the inhabitants of Abouzar town who had left Mashhad and taken residence in this town. Using PASS software package, a sample size of 350 was determined. The questionnaire data were analyzed suing the SPSS22 software package and Smart PLS was used for modeling. Analysis of the attractions of Abouzar town revealed that social status, with 5 indices, has the most influence on the attraction of Abouzar town. Moreover, Spearman's test showed that a significant positive relationship exists between the attractions of Abouzar town and leaving it.

Keywords: *Demographic change, Urban shrinkage, Suburbanization, Abouzar town, Social Attraction.*

1. INTRODUCTION

Cities which are growing rapidly are considered to be successful, desirable, and admirable. Using this conceptualization, inhabitants of cities which are declining or growing slowly experience a sense of smallness in the place they live (Leo & Anderson, 2006). Therefore, the growth of urbanization is mainly attributed to spatial behavior of urban users, families, corporations and local authorities(Li & Mykhnenko, 2018). According to the report provided by the UN, 54 percent of the world's population lived in cities in 2014 and this figure is expected to grow to 66 percent by 2050 (Bartholomae, Woon Nam, & Schoenberg, 2016). History shows that cities experience growth and decline (Rybczynski, 1999).

Urban shrinkage is not a new phenomenon in Europe or the world. Repeated destruction of ancient or medieval cities due to wars, epidemics or economic downturns reveals that, prior to industrialization, urban development did not follow a linear growth (Nelle et al., 2017). Population decline is a serious, prevalent phenomenon in many cities in the world (Sakamoto, Iida, & Yokohari, 2018) and since the second half of the twentieth century; urban shrinkage has become a common path for many large cities all over Europe and North America (Haase, Rink, Grossmann, Bernt, & Mykhnenko, 2014). While population growth is considered an indicator of a city's health and boom, over the past decade, urban shrinkage has turned into a topic of serious and contentious discussions (Rhodes & Russo, 2013). its formal recognition is usually associated with East Germany, known as Stadtumbau Ost (Bernt, 2014). As an empirical phenomenon, urban shrinkage is caused by the interaction of various macro factors (economic, demographic or living, development, environmental issues and changes in political or bureaucratic systems) and is defined on a local level (Rink, 2012). It is the "the manifestation in the built environment of contemporary capitalism's creative destruction" (Martinez-Fernandez, 2012). Urban shrinkage is not a phase of urban development, but a part of urban development which is neglected and is viewed as a taboo or at least a case for critical evaluation in urban studies (Rezayee Gorgani & Amirfakhrian,2020) The urban life-

[*] *Corresponding author: hataminejad@ut.ac.ir*
© 2020 Iran University of Science & Technology. All rights reserved

cycle theory theory describes the four phases of urban development including urbanization, suburbanization, deurbanizaiton and reurnbanization in the form of centralization, decentralization and sprawl, growth and decline in all urban areas (Zakirova, 2010).

Urban shrinkage is not confined to the polycentric industrial city of the past, but a widespread emergence of contemporary space on one hand and globalization on the other (Joo & Seo, 2018). In addition, shrinkage features are entwined with social, cultural, political, economic conditions and the history of a country (Hattori, Kaido, & Matsuyuki, 2017). Other factors that lead to urban shrinkage include counter urbanization due to overcrowded city cores and suburbs, wars, natural or man-made disasters, aging or less-fertile population, etc. (Bartholomae et al., 2016). It is also a global phenomenon which certainly has an effect on the fate of cities and urban areas (Haase, Nelle, & Mallach, 2017). Central areas of many historic cities also suffer from long-term population decline which is intensified by technological change, rapid suburbanization and top-down renovation (Madanipour, 2017). Urban development and shrinkage are two parallel phenomena and accordingly, urban shrinkage is the interaction among various factors including, but not limited to, demographic and economic ones (Batunova & Gunko, 2018). Generally speaking, urban shrinkage primarily appears on planners and policy makers' agendas only when its negative consequences (abandoning, discarding or not using infrastructure and facilities) become apparent in the city; therefore, spatial planning for urban shrinkage consists of approaches and tools to prevent its growth (Batunova & Gunko, 2018). In Mashhad, population decline is observed in some regions like the central area, including Semen districts. Considering indiscriminate, sporadic growth of the city and dissatisfaction of some citizens with living in Mashhad, its suburbs also attract of repel population. It seems that Abouzar town, which is located on the suburbs of Mashhad, has some attractions that make citizens of Mashhad leave this city and join this town. Therefore, the main research question of this study is as follows: what are the attractions of Abouzar town and how do they affect urban shrinkage? To this end, the objective of the study is to identify and evaluate the attractions of Abouzar town and their relationship with urban shrinkage in Mashhad.

2. LITERATURE REVIEW

Maes and colleagues in a research titled "urban shrinkage and everyday Life in post-socialist cities" studied urban shrinkage and daily life in Ostrava, Czech Republic. They concentrated on working-class neighborhoods which had undergone severe shrinkage. Interviews in this study showed that the shrinkage process was indicative of social inequalities and revealed the way through which respondents had changed their new livelihood to conform to these change (Maes, 2012).

In 2012, Rink and colleagues in a study titled "From Long-Term Shrinkage to Re-Growth?" studied urban development trajectories of Liverpool and Leipzig. They studied urban development trajectories of these two European cities of similar size - Leipzig in Germany and Liverpool in UK- during a short period from the 1930s until the late 1990s (Leipzing) and even the 2000s (Liverpool) (Rink, 2012).

Salvati and colleagues studied sustainability and urban shrinkage with regards to land use, regional planning, and levels of land vulnerability in Rome in four periods of 1960, 1990, 2000 and 2010. They also analyzed various reasons for land depredation like population and economic growth, land use change along with climate change and, in the end, evaluated the indices (Salvati et al., 2015).

Using the data for the past 130 years, Alves and colleagues studied 25 Portuguese cities facing population decline and found five types of shrinking cities: persistent early shrinkage due to exodus from villages, metropolitan shrinkage due to the challenges of urban sprawl, shrinkage in industrial areas, cyclic shrinkage occurring in transformation cores, and mild shrinkage due to life-style disamenity (Alves, Barreira, Guimarães, & Panagopoulos, 2016).

Alan Mallach and colleagues described and comparatively analyzed urban shrinkage in Germany, Japan and United States and showed that two factors of independence and policy provide an answer to the shrinkage problem; to this end they analyzed three elements: conditions, independence and policy and actions (Mallach, Haase, & Hattori, 2017).

3. THEORETICAL FRAMEWORK

3. 1. Urban shrinkage

Urban develop consists of complex stages of development, stagnation and decline (Alves et al., 2016). In this regard, population change has the most influential effect on the form of the habitat and abandoning the habitat and its demolition is the worst such effect (Chapman, 2007). In its widest and most general sense, this concept is synonymous with loosing population in the long run. In the twenty-first century, urban shrinkage is a global, structural and multi-dimensional phenomenon which is accompanied by population decline, economic downturn and is influenced by various spatial territories and scales which are not necessarily directly linked to urban shrinkage (Shourche, 2014). The Shrinking Cities International Research Network defines a shrinking city as a densely populated urban area with a minimum population of 10,000 residents that has faced population losses in large parts for more than two years and is undergoing economic transformations with some symptoms of structural crisis (Yamada, Terada, Tanaka, & Yokohari, 2016). In addition, an increase in vacant urban lots and houses is a common sign of shrinking cities (Sakamoto, Iida, & Yokohari, 2017).

3. 2. Effects of Urban Shrinkage

Local entities and development organizations are also influenced thorough the effects of shrinkage on urban

infrastructure. Population decline makes urban services more expensive, leads to lower levels of social and retail activities, reduces social dynamics and ultimately lowers the sense of security, is destructive to the integration of urban form and makes urban areas look disconnected; in addition, urban areas will have to face illegal activities and vandalism (Rybczynski, 1999). Population decline also creates infrastructural problems, since cities struggle to maintain an oversized and aging city infrastructure even as population loss, economic disinvestment, and declining property values lead to a declining taxes (Rhodes & Russo, 2013). On the other hand, as people immigrate to suburbs, increased tax income in these regions lead to the development of services and infrastructure such as new telephone lines, sewerage systems, the police and fire stations are drawn to suburbs while the city center, due to lack of financial revenue, faces a decline (Rahnama & Abbaszadeh, 2008). Critics recognize that shrinkage is not a simple regional or temporary phenomenon, but bespeaks global changes in urbanization in the contemporary world (Rhodes & Russo, 2013). Table 2 depicts attraction and repulsion factors in residential environments.

Table 1. Definitions of Shrinkage (Bernt, 2014)

Authors	Definition of Urban Shrinkage
Oswalt and Rieniets (Schilling & Logan, 2008)	Shrinking cities … are cities that have temporarily or permanently lost a significant number of their inhabitants. Population losses are considered to be significant if they amount to a total of at least 10% or more than 1% annually.
Schilling and Logan (Schilling & Logan, 2008)	We identify as shrinking cities a special subset of old industrial cities with significant and sustained population loss (25% or greater over the last 40 years) and increasing levels of vacant and abandoned properties, including blighted residential, commercial and industrial buildings.
Haase et al (Haase, Bernt, Großmann, Mykhnenko, & Rink, 2013)	We conceptualize urban shrinkage as an empirical phenomenon resulting from the interplay of changing drivers of shrinkage at different spatial levels (from regional to global) that produces a decline in population at the local scale … These drivers may be related to economic decline, demographic change, and settlement system changes in the form of suburbanization and sprawl.
Pallagst et al (Pallagst, 2013)	urban shrinkage is a multidimensional phenomenon encompassing regions, cities and parts of cities or metropolitan areas that are experiencing a dramatic decline in their economic and social bases and are facing population losses.

Table 2. Pull and push factors derived using factor analysis (Guimarães, Nunes, Barreira, & Panagopoulos, 2016)

Factors	Push attributes	Factors	Pull attributes
Lack of services push factor	Lack of commercial areas	Living conditions pull factor	The safety of the city
	Lack of public services		The affordability of the houses
	Lack of road access		The tranquility of the city
	Lack of good schools		Good public transport coverage
	Lack of green areas		A good place to raise children
	Lack of services for elderly residents		Being close to good schools
	Lack of leisure areas	Recreational and environmental amenities pull factor	The city's beauty
			Live close to friends and family
	Lack of accesses adapted to special needs		The city's heritage
			The existence of open-air sport areas
Shrinking atmosphere push factor	Sense of population decline City with many old people		The existence of walking trails
	Existence of homeless people		The existence of a lively nightlife
	Lack of planned city development		The existence of good environmental quality
	Undesirable neighbours		The existence of good weather
	Insufficient housing dimensions	Social ties pull factor	Existence of mutual aid between neighbours
	Constricted distribution and size of buildings		Existence of a sense of community
	Risk of floods, heat waves		Being involved in local organizations
Surroundings and visual attributes push factor	Vandalized quarters		The existence of elderly centres
	Abandoned buildings		A good place to meet people
	Lack of environmental quality	Accessibility pull factor	Being close to shopping areas
	Lack of safety in the city		Being close to leisure areas
Working conditions push factor	Expensive housing		Being close to green areas
	Lack of employment opportunities		
	Finding higher salary elsewhere	Live and work pull factor	Work in the city in which you live
	Being distant from work		Being close to work

3. 3. Factors Influencing Urban Shrinkage

Katharine Bradbury analyzed urban decline in two ways: 1. descriptively, that is based measurements of some urbanization indicators such as population and job opportunities, and 2. functionally, that is the set of privileges that a city offers to its residents (Fokouhi, 2011). Similarly, Florida, in his creative class theory, describes the mass relocation of highly skilled, highly educated, and highly paid Americans to a relatively small number of metropolitan regions, and a corresponding exodus of the traditional lower and middle classes from those same places (Florida, 2014).

Lack of successful and incremental transition from traditional products to industries with advanced technologies led to dislocation and polarization of economic activities on a global scale along with severe unemployment and immigration problems in many urban areas and, hence, a gradual increase in urban shrinkage throughout the world (Bartholomae et al., 2016). Shrinkage may be induced by economic decline, population change, changes in the settlement system in the form of suburbanization and urban sprawl, environmental disasters and radical changes in political and bureaucratic systems. Population decline is a major index for urban shrinkage. Factors influencing urban population can affect urban development directly or indirectly. In addition, they have affect local job market, socio-spatial differentiation, housing, land use patterns, the status of social and technical infrastructure, municipality's finances, investment and the overall local economy (Haase, Rink, Grossmann, Bernt, & Mykhnenko, 2014). Moreover, it is usually argued that, at the moment, there is no urban shrinkage theory that encompasses a wide range of urban decline factors (Richardson & Nam, 2014).

3. 4. Suburbanization and Decline of Cities

Over the past decades, central cities in many urban areas have experienced a considerable decline in economic and social conditions (Hettler, 1998). North-American literature on urban shrinkage with the perspective of concentration of urban poverty, lower-class growth, poor neighborhoods and shrinkage, racial discrimination, and immigration has been dominant. Classical economic outlook emphasizes people's preferences and the tradeoff between land, settlement and transportation costs and predicts a decline in urbanization rates in city centers and an increase in suburbs since wealthy consumers can purchase more land and houses in the suburbs and bear the costs of transportation while the poor and low-income people are concentrated in the city center where transportation and housing costs are potentially lower. Filtering and trickle-down theory is considered to be another factor influencing urban shrinkage. Over time, old and initial peripheries of cities have a large portion of the poor, low-income national or immigrant population and some neighborhoods experience a physical decline and owners in such areas, because of low rents, forsake repair and maintenance and let the situation deteriorate (Martinez-Fernandez, 2012).

Urban sprawl does not happen easily but suburbanization, as a process, is widespread (Hall & Pain, 2012). In the human-ecology view, increased urban shrinkage by settling low-income population in middle-class neighborhoods is emphasized which makes the middle-class population escape to the next circle in outer suburbs (Lucy & Phillips, 2000). When middle-class people escape the city center, financial shortfall makes the city core look less appealing and therefore more people immigrate (Rahnama & Abbaszadeh, 2008). Beauregard called this parasitic urbanization since such growth patterns harm central and industrial cities and deplete the crucial economic forces, middle-class population and investments. This weakens governments and hence leads to the concentration of poverty, ethnic minorities, unemployment, abandoned industrial sites and ultimately ineffectiveness of neighborhoods and shrinkage (Martinez-Fernandez, 2012).

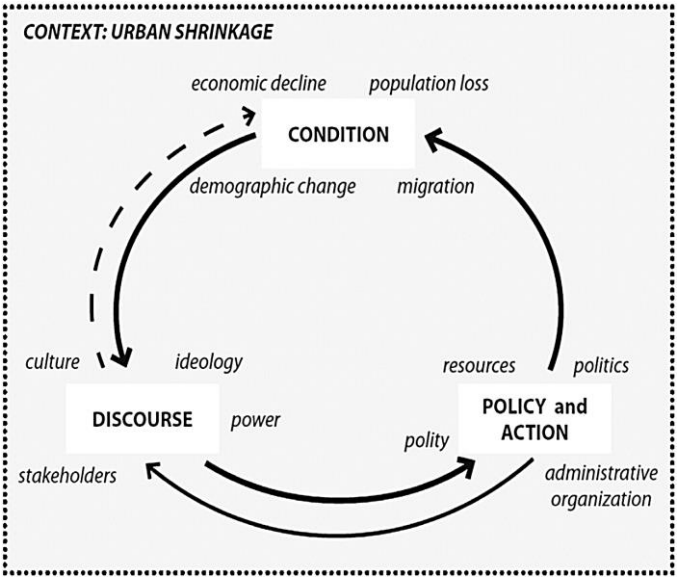

Fig 1. Heuristic model: interlinkages between conditions, discourse and policy as well as contextual factors (Haase, Nelle, & Mallach, 2017).

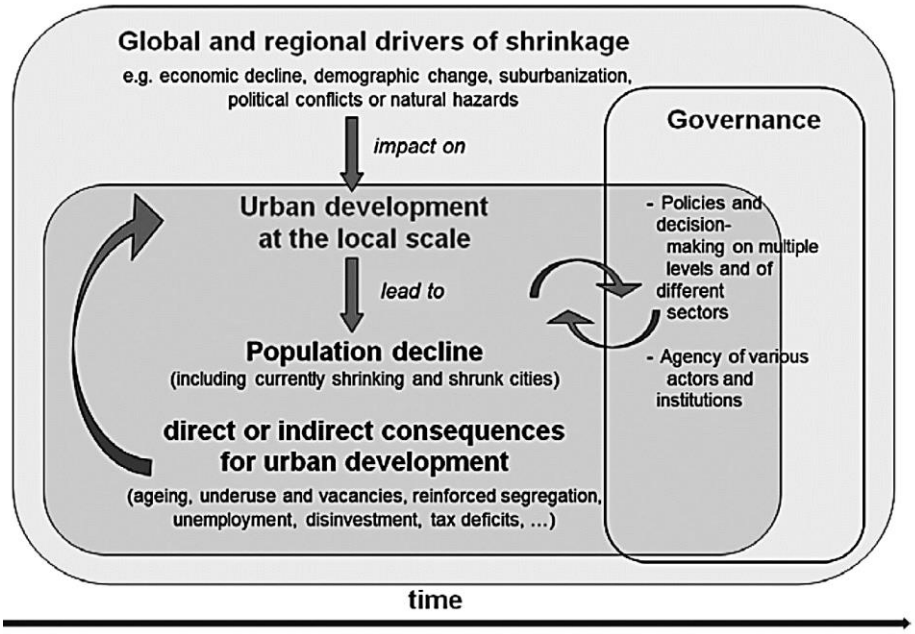

Fig 2. Heuristic model of urban shrinkage (Haase, Rink, Grossmann, Bernt, & Mykhnenko, 2014)

4. MATERIAL AND METHOD

4. 1. Research Method

The data was gathered through library research and using credible scientific databases. The present study is an applied research and in terms of its method is a descriptive-analytical one. In addition, field method and questionnaires were also used for collecting the data. Questionnaire's reliability was confirmed using Cronbach's alpha. Table 3 shows the reliability of items in the questionnaires. Samples were selected from citizens of Abouzar town who had left the city of Mashhad and moved to this town. Using PASS software package and considering the population of the town (7449 people) and a significance level of less than 0.05, the sample size was determined to be 350 people. Excel was used to collect the data bank, SPSS 22 was used to analyze the data and GIS was used for depicting location data.

Table 3. Reliability of questionnaire's items

Index	Social status	Economic status	Environmental status	Geographic
Cronbach's alpha	0.745	0.930	0.843	0.979

4. 2. Introducing Variables and Indices

During the formulation of the conceptual model, 17 variables in four sub-indices (social, economic, environmental and geographical status) identified. To collect the opinions of the inhabitants of Abouzar town, the questionnaire centered around the aforementioned indices and variables. Next, inhabitants of the area asked to fill in the questionnaire and the area's status regarding the intended indices measured. Considering the multiplicity of the variables in this study and their differential effect on urban shrinkage (the dependent variable), structural equation modeling was used for formulating and analyzing the conceptual model. For this purpose, after collecting the data, relationships among various variables were created using Smart PLS.

4. 3. Study Area

Abouzar town which is located in district 7 of Mashhad municipality and was built before the Islamic Revolution in Iran was selected as the area under study. This town is adjacent to the old road between Mashhad-Neyshabur; in addition, it has a mosque named Imam Khomeyni which was built around 1980 and is recognized as its distinct socio-cultural landmark.

5. FINDINGS OF THE STUDY

5. 1. Duration of Residence

Respondents' duration of residence is shown in figure 6. Nearly 50 percent of the population, which is equal to 176 people, have been living in the town for less than 10 years.

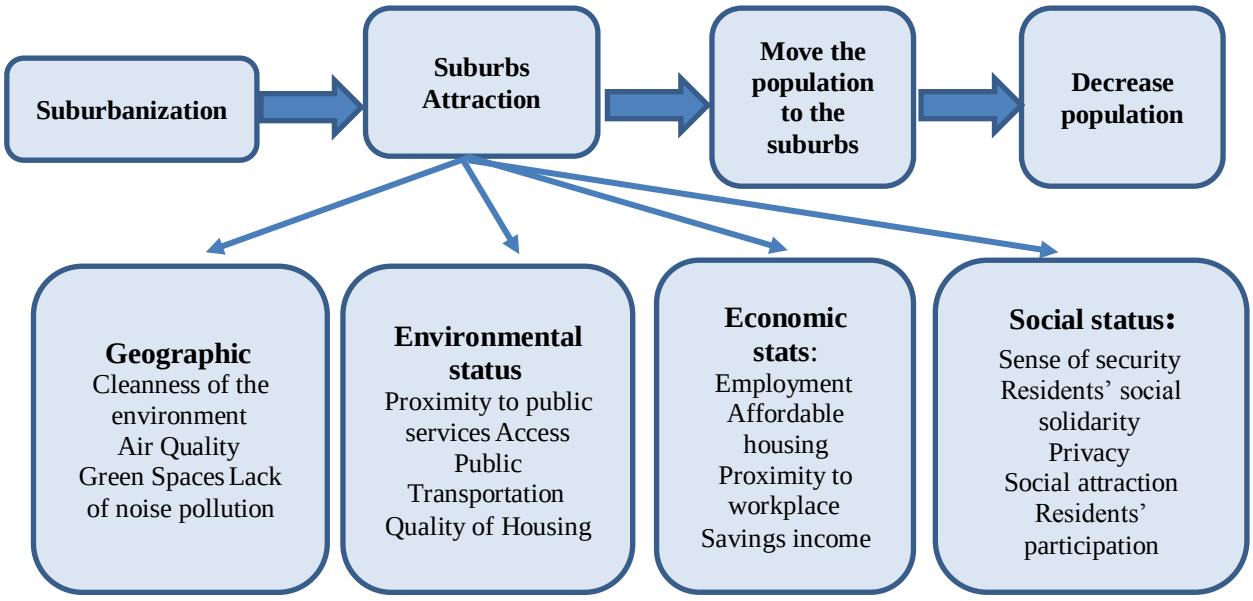

Fig 3. Conceptual model of the study

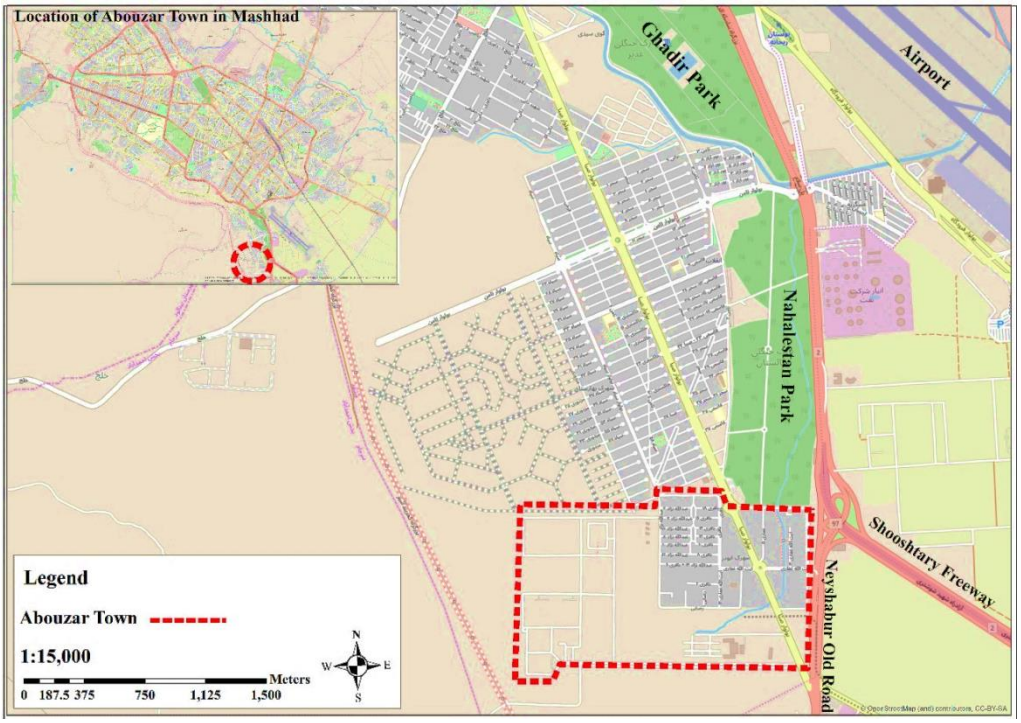

Fig 4. The location of Abouzar town

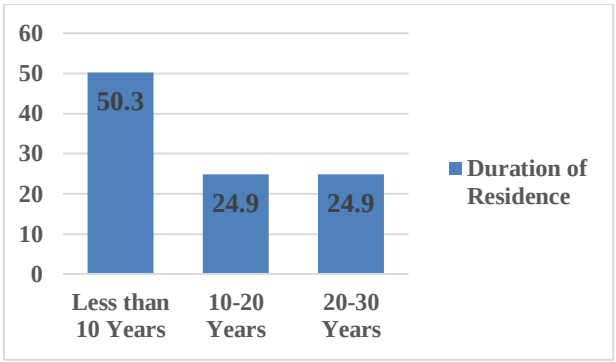

Fig 5. Duration of residence in Abouzar town

5. 2. Types of Ownership

Types of residence ownership are depicted in table 4. As can be seen, nearly 49 percent of residents owned their houses and 178 people, that is 51 percent, lived in rental houses.

5. 3. Urban shrinkage in Mashhad

Inhabitants' dissatisfaction with their residence is a repelling factor which makes the population leave the city of Mashhad. To this end, factors that are influential in leaving Mashhad were also analyzed with respect to the attractions of Abouzar town.

5. 4. Analysis of attracting indices in the area under study

5. 4. 1. Social Status

The social status of Abouzar town is depicted in table 5 which shows that for residents, social attraction or preference for living in this town is low; also as can be seen, sense of security has the highest score.

5. 4. 2. Economic Status

With regards to the economic status, proximity to workplace and affordable housing have lowest and highest attractions respectively; other indices are depicted in table 6.

5. 4. 3. Environmental status

Attraction of the environmental status of Abouzar town is shown in table 7. Levels of public transportation has the lowest attraction and quality of housing has the highest attraction.

Table 4. Type of residence ownership

Type of ownership	Number	Percentage
Owned	172	49.1
Rental	178	50.9
Total	350	100

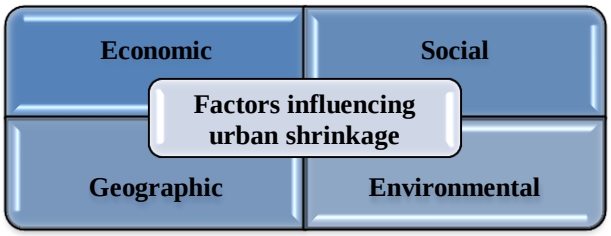

Fig 6. Factors influencing urban shrinkage in Mashhad

Table 5. Social status of Abouzar town

Index	Very Low	Low	Average	High	Very High
Sense of security	44	33	14	48	211
Residents' social solidarity	21	30	35	91	173
Privacy	15	28	60	156	91
Social attraction	115	77	74	61	23
Residents' participation	122	80	78	35	35

Table 6. Economic status of Abouzar town

Index	Very Low	Low	Average	High	Very High
Employment	171	75	24	43	37
Affordable housing	7	19	66	55	203
Proximity to workplace	153	93	49	31	24
Savings (income) status	10	42	79	129	90

Table 7. Environmental status of Abouzar town

Index	Very Low	Low	Average	High	Very High
Proximity to public services	49	103	94	86	18
Access	79	85	61	66	59
Public Transportation	86	112	83	46	23
Quality of Housing	7	16	69	158	100

5. 4. 4. Geographic status

Table 8 shows geographical status of Abouzar town. As can be seen, quality of fresh air and cleanness of the environment have the highest scores with regards to the geographical attractions of this town.

5. 5. Factors Affecting the Attractions and Abandonment of Mashhad

Structural equation modeling was used to evaluate factors affecting shrinkage in the area under study. It is hypothesized that shrinkage or abandonment of Mashhad is caused by the attraction of living in Abouzar town which, in itself, is an outcome of social, geographical, environmental and economic factors. Standardized regression coefficients of each index show that social status (0.84) has the highest influence on the attractions of Abouzar town, and other features, in the order of importance, include geographical status (0.74) and economic status (0.14) while environmental status (-0.8) has a negative influence on the attractions of this town.

5. 6. Reliability and Validity of the Model

In order to evaluate the model's goodness of fit. It is reliability and validity were examined. As depicted in following table, the value of Cronbach's alpha for each index along with the composite reliability coefficient is higher than 0.7. In addition, average variance extracted (AVE) for each index is higher than 0.5. Overall, SRMR is less than 0.08 and NFI, whose optimal value is close to 1, equals 0.7.

5. 7. The Relationship between Attractions and Abandonment

Table 10 shows the output of Spearman's rank correlation between the attractions of Abouzar town and abandonment of Mashhad. As can be seen, there is a positive, significant relationship between these two variables which is equal to 0.802 and is statistically significant at a five-percent level of significance. Therefore, as attractions of Abouzar town increase, population outflow from Mashhad increases too.

Table 8. Geographical status of Abouzar town

Index	Very Low	Low	Average	High	Very High
Cleanness of the environment	15	33	96	78	128
Air Quality	12	48	91	36	163
Green Spaces	54	76	30	85	105
Lack of noise pollution	97	20	42	79	112

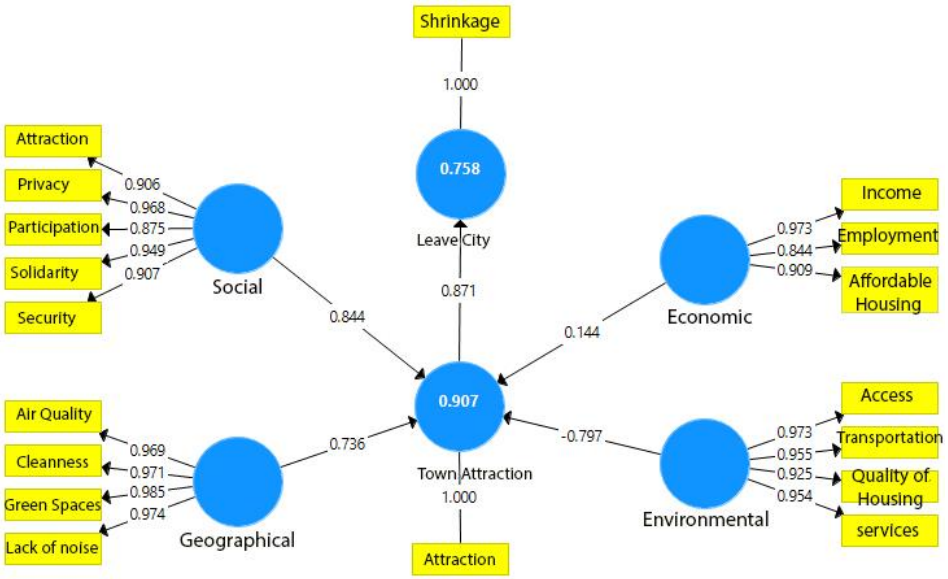

Fig 7. Factors affecting the attractions of Abouzar town and abandonment of the city based on structural equations

Table 9. Models' Reliability and Validity

Index	Cronbach's Alpha	CR	AVE	SRMR	NFI
Social	0.956	0.966	0.850	0.067	0.704
Economic	0.897	0.935	0.829		
Geographical	0.983	0.987	0.950		
Environmental	0.965	0.975	0.950		
Town's attraction	1	1	1		
Abandoning the city	1	1	1		

Table 10. Output of Spearman's test

Variable	Spearman's rho	Abandonment of the city	Attractions of the town
Abandonment of the city	Correlation coefficient	1	0.802
	level of significance	0	000
	N	350	350
Attractions of the town	Correlation coefficient	0.802	1
	level of significance	.000	0
	N	350	350

6. CONCLUSION

Throughout history, cities have had booms and declines; meanwhile, cities which are losing their population are considered to be shrinking cities. Urban shrinkage, solely leads to such negative effects as lower sense of security, vandalism, and increased cost of urban services and can turn the city into a cacotopia. Many factors affect urban shrinkage and, hence, result in higher rates of abandonment, immigration and population reduction. Demographic factors such as birth and death rates, special diseases and wars have an effect on population reduction and factors such as economic decline, employment status, privileges that a city, compared with other cities, offers to its citizens, environmental disasters, fundamental changes of political system along with globalization reduce manpower, specifically in industrial countries, and, hence, increase immigration and abandonment. Hasty urbanization and changes in the types of settlement are other factors that expedite urban shrinkage and, due to immigration into suburbs, lead to population reduction, poverty and unemployment in central areas. Settlement problems in cities and services that a city offers to its citizens can also lead to population displacement. Analysis shows that Abourzar town, located the North Eastern part of Mashhad and near the old road to Neyshabur, has some attraction for residence of Mashhad. The findings of the survey showed that this town has economic, social, and geographical attractions, among which social and geographical attractions have the most influence on the attraction of this town; its social attraction can be attributed to the escape it offers from the bustle of the city, its security and lack of social class difference. Moreover, affordable housing has a great effect in attracting population. Green spaces, tranquility and clean air are among other contributing factors. The findings of Spearman's test showed that increase in attractions of the town is associated with an increase in abandonment of the city. Some factors, such as distance from the city, urban services and transportation problems, negatively affect attraction of population; but these issues can be solved by increasing land use, offering better cultural, recreational and sports facilities, improving public transportation, increasing centers for commercial employment, developing tourism amenities, and empowering the identity of the town.

ACKNOWLEDGMENTS

The Authors would like to thank Keisuke Sakamoto from the school of engineering at the University of Tokyo.

REFERENCES

Alves, D., Barreira, A. P., Guimarães, M. H., & Panagopoulos, T. (2016). Historical trajectories of currently shrinking Portuguese cities: A typology of urban shrinkage. *Cities, 52*, 20-29. doi:https://doi.org/10.1016/j.cities.2015.11.008

Bartholomae, F., Woon Nam, C., & Schoenberg, A. (2016). Urban shrinkage and resurgence in Germany. *Urban Studies, 54*(12), 2701-2718. doi:10.1177/0042098016657780

Batunova, E., & Gunko, M. (2018). Urban shrinkage: an unspoken challenge of spatial planning in Russian small and medium-sized cities. *European Planning Studies, 26*(8), 1580-1597. doi:10.1080/09654313.2018.1484891

Bernt, M. (2014). the limits of shrinkage: Conceptual Pitfalls and Alternatives in the Discussion of Urban Population Loss. *urban and regional research* 441-450.

Chapman, D. (2007). Creating neighbourhoods and places in the built environment (M. T. Sh. Faryadi, Trans.). In: University of Tehran Press.

Florida, Richard . (2014). The Creative Class and Economic Development. Journal of Economic Development Quarterly 28: 196-205, http://dx.doi.org/10.1177/0891242414541693

Fokouhi, N .(2011). Urban Anthropology; seventh reprint. Tehran: Ney Publication

Guimarães, M. H., Nunes, L. C., Barreira, A. P., & Panagopoulos, T. (2016). Residents' preferred policy actions for shrinking cities. *Policy Studies, 37*(3), 254-273. doi:10.1080/01442872.2016.1146245

Haase, A., Bernt, M., Großmann, K., Mykhnenko, V., & Rink, D. (2013). Varieties of shrinkage in European cities. *European Urban and Regional Studies, 23*(1), 86-102. doi:10.1177/0969776413481985

Haase, A., Nelle, A., & Mallach, A. (2017). Representing urban shrinkage — The importance of discourse as a frame for understanding conditions and policy. *Cities, 69*, 95-101. doi:https://doi.org/10.1016/j.cities.2016.09.007

Haase, A., Rink, D., Grossmann, K., Bernt, M., & Mykhnenko, V. (2014). Conceptualizing Urban

Shrinkage. *Environment and Planning A: Economy and Space*, *46*(7), 1519-1534. doi:10.1068/a46269

Hall, P., Pain, K. (2012). The polycentric metropolis (K. Ziari, Trans.). Tehran, Iran: Tehran University Press.

Hattori, K., Kaido, K., & Matsuyuki, M. (2017). The development of urban shrinkage discourse and policy response in Japan. *Cities, 69*, 124-132. doi:https://doi.org/10.1016/j.cities.2017.02.011

Hettler, Paul Lawrence. (1998). Central city fiscal conditions, suburban sprawl, and urban decline, Thesis of Doctor of Philosophy, Advisor: Patricia Beeson, University of Pittsburgh

Joo, Y.-M., & Seo, B. (2018). Dual policy to fight urban shrinkage: Daegu, South Korea. *Cities, 73*, 128-137. doi:https://doi.org/10.1016/j.cities.2017.08.015

Leo, C., & Anderson, K. (2006). Being realistic about urban growth. *Journal of Urban Affairs, 28*(2), 169-189.

Li, H., & Mykhnenko, V. (2018). Urban shrinkage with Chinese characteristics. *The Geographical Journal, 184*(4), 398-412.

Lucy, W., Phillips, D. (2000). Confronting suburban decline. Island Press, Washington, DC.

Madanipour, A. (2017). Ephemeral landscape and urban shrinkage. *Landscape Research, 42*(7), 795-805. doi:10.1080/01426397.2017.1355445

Maes, M. L., Maarten; Kesteloot, Christian. (2012). *Urban Shrinkage and Everyday Life in Post-Socialist Cities: Living with Diversity in Hrušov, Ostrava, Czech Republic*: Alexandrine Press.

Mallach, A., Haase, A., & Hattori, K. (2017). The shrinking city in comparative perspective: Contrasting dynamics and responses to urban shrinkage. *Cities, 69*, 102-108. doi:https://doi.org/10.1016/j.cities.2016.09.008

Martinez-Fernandez, C., Audirac, I., Fol. (2012). shrinking cities: Urban challenges of globalization. *International Journal of Urban and Regional Research*, 213-225.

Nelle, A., Großmann, K., Haase, D., Kabisch, S., Rink, D., & Wolff, M. (2017). Urban shrinkage in Germany: An entangled web of conditions, debates and policies. *Cities, 69*, 116-123. doi:https://doi.org/10.1016/j.cities.2017.02.006

Pallagst, K., C. Martinez-Fernandez and T. Wiechmann (2013). Shrinking cities: international perspectives and policy implications. *Routledge, New York*.

Rahnama, M. R., & Abbas Zadeh, G. R . (2008). Principles, basics and models of evaluating the physical form of cities; Mashhad: Jahad Daneshgahi Press.

Rhodes, J., & Russo, J. (2013). Shrinking 'Smart'?: Urban Redevelopment and Shrinkage in Youngstown, Ohio. *Urban Geography, 34*(3), 305-326. doi:10.1080/02723638.2013.778672

Richardson H., Nam CW . (2014). Shrinking cities: A Global Perspective, Abingdon: Routledge, : 1–7.

Rink, D. H., Annegret; Grossmann, Katrin; Couch, Chris; Cocks, Matthew. (2012). *From Long-Term Shrinkage to Re-Growth? The Urban Development Trajectories of Liverpool and Leipzig*.

Rezayee Gorgani, A., Amirfakhrian, M., (2020). An Analysis of Satisfaction of the Residential Environment and its Impact on Urban Shrinkage Case Study: Samen District of Mashhad City. *Journal of Research and Urban Planning, 12(43).*

Rybczynski, W. a. P. L. (1999). How to save our shrinking cities. *Public Interest* 30-44.

Sakamoto, K., Iida, A., & Yokohari, M. (2017). Spatial Emerging Patterns of Vacant Land in a Japanese City Experiencing Urban Shrinkage
A Case Study of Tottori City. *Urban and Regional Planning Review, 4*, 111-128. doi:10.14398/urpr.4.111

Sakamoto, K., Iida, A., & Yokohari, M. (2018). Spatial patterns of population turnover in a Japanese Regional City for urban regeneration against population decline: Is Compact City policy effective? *Cities, 81*, 230-241. doi:https://doi.org/10.1016/j.cities.2018.04.012

Salvati, L., Ferrara, A., Tombolini, I., Gemmiti, R., Colantoni, A., & Perini, L. (2015). Desperately Seeking Sustainability: Urban Shrinkage, Land Consumption and Regional Planning in a Mediterranean Metropolitan Area. *Sustainability, 7*(9), 11980-11997. Retrieved from https://www.mdpi.com/2071-1050/7/9/11980

Schilling, J., & Logan, J. (2008). Greening the Rust Belt: A Green Infrastructure Model for Right Sizing America's Shrinking Cities. *Journal of the American Planning Association, 74*(4), 451-466. doi:10.1080/01944360802354956

Shourche, M .(2014). Urban planning theories in the 21st century. Tehran, Iran: Parham Naghsh.

Yamada, C., Terada, T., Tanaka, T., & Yokohari, M. (2016). Directions for Vacant Lot Management in the Outer Suburbs of the Tokyo Metropolitan Region. *Urban and Regional Planning Review, 3*, 66-84. doi:10.14398/urpr.3.66

Zakirova, B. (2010). Shrinkage at the Urban Fringe: Crisis or Opportunity? *Berkeley Planning Journal*(23), 58-82.

AUTHOR (S) BIOSKETCHES

H. Hataminejad ., *Faculty Member of Geography and Urban Planning, University of Tehran, Tehran, Iran*
Email*: ehsan.masoud@ut.ac.ir*

A. R. Rezayi Gorgani ., *Khavaran, Institute of Higher Education Mashhad, Mashhad, Iran*
Email*: amirreza_rezayee@yahoo.com*

COPYRIGHTS

Copyright for this article is retained by the author(s), with publication rights granted to the journal.
This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0/).

HOW TO CITE THIS ARTICLE

Hataminejad, H., Rezayi Gorgani, A. R. (2021). An Analysis of the Attractions of Suburbanization and its Relationship with Urban Shrinkage in Mashhad: A Case Study of Abouzar Town in Mashhad. *Int. J. Architect. Eng. Urban Plan*, 31(1): 1-11,. https://doi.org/10.22068/ijaup.31.1.567.

URL: http://ijaup.iust.ac.ir