Studying the Relationship between Building Density and Land Price: Case Study of the Municipal Zone 1 of Tabriz Metropolis

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Extended abstract

1. Introduction

The main aim of this research is to study the relationship between the variable of land price and building density in the first zone of Tabriz megalopolis so that a proper understanding of the study of building density, recognizing the potentials of development, height increase and determining the final potential of the neighborhood and areas of the first zone of Tabriz municipality and the most important point of building density, that is economical facet with land is acquired The hypothesis was that having in mind that there is a relationship between building density with the most important subject of density, that is economical facet with land price, it seems that there is a direct and positive relationship between land price and building density in the studied area.

In the principles of the research, the concepts of building density and land property have been studied. Building density is one of the most important subjects in urban planning, in such a way that, in every work done on urban management, we can see a hint on density. Building density is the ratio of the building foundation to the area of the land.

Land and housing as an asset. Or in some instances as an investing asset, are heavily influences by the economical characteristics of a city and the influences of the different factors affecting the city economics are reflected in land and housing prices.

2. Methodology

The research is functional regarding the aim and is analytical, explorative and based on field study regarding the essence. Secondary data has been acquired using library methods and primary data has been acquired from real estate agents. The research equipment is based on Pierson method. After gathering data from library and field methods, these data will be organized using a GIS base and will be classified according to the need and byusing these bases, the map of the area will be produced and for drawing the tables Excel.13 software has been used.

3. Results

The results showed that there is a significant and direct positive correlation between price and building density in every time and place. This coefficient is .697 for the first period (2006-2011) and .724 for the second one (2011-2015). So, the increase of land price in the areas studied will increase the height of buildings and will also boost buildinf sky-scrapers.

If we look at the review of the related literature, in spite of the fact that the researchers have not had grappled with this subject directly, all the results of them are quite the same and they show that there is a direct relationship between land price and building density. That is, the higher the price of the land, the more the building density

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will be. Of course, it is possible to have a reversal relationship in other areas which is need of comparative study.

According to the studies and collected information in this study, the lack of balanced urban facilities among the neighborhoods in the first region of Tabriz is visible, which causes a large difference in land prices and housing between the neighborhoods of this area. This is contrary to urban justice.

In Tabriz, as one of the metropolises in Iran, the cost of buying land or so-called dilapidated has been close to 50% of the whole cost of building housing, which means that land is considered as the main building component. According to this, the average price per square meter of land in Tabriz 1, especially in the eastern part, reaches 7 million tomans, while the share of land price in construction and per square meter of residential construction is almost equal With one million USD; Therefore, Taking into account the level of land occupancy in each building, the level of density in each building construction and the fact that the price of the land is calculated based on all the foundation, the price of per square meter of land reaches about one fifth in each square meter of residential construction. This fact clearly indicates the full correlation between land prices and construction density even when the cost of land price is prorated in the number of construction floors.

4. Conclusion

According to Researchers of the current research approved the hypothesis but because of the probability of inverse conclusions in other areas, we are in need of further comparative research. Some suggestions, in two areas, are proposed for the use of urban managers and academics:

- It is a necessity that urban facilities and services be distributed in an equal and balanced way so that sharp increase in land and house price can be prohibited.
- -Forming of a commission for setting land and house price in each area to prevent sharp increase in land price in some of the neighborhoods.
- Urban organizations', like municipality, monitoring on land transactions and building construction for preventing land dealing.
- -Proposing a functional method in calculating the maximum building density and at the same time, respecting the characteristics of housing blocks.
- Studying comparatively the relationship between the variable of land price and building density in other areas.

Key words: Building Density, Land Price, Municipal Zone 1 of Tabri**z.**

References (in Persian)

1. Abounoori, M., E., & Noroozinejad, D. (2010). Tahlil-e qeymat-e zamin-haye keshavarzi-ye shahrestan-e sabzevar be ravesh-e hedonic [Analysis of prices of agricultural land using Hdnyk method in Sabzevar city]. *Journal of Economic Modeling*, *3*(2), 95-122.

2. Ahadnezhad-Rowshti, M., & Mo'tamedi, S. A. (2014). Barresi vaTahlil-e nagshe bazarche-haye marzi dar qeymat-e zamin va maskane shahri (nemune-ye moredi: shahre baneh dar maqta'e zamani 1375_1392) [Analysis of the role of border markets in urban land and housing prices (Case study: Bane city in 1996-2013)].*Research and Urban Planning*, *5*(19), 1-40.

3. Akbari, N. A., & Tavassoly, N. (2008). Tahlile ta'sir avareze shahrdareha bar qeymat-e maskan(motale'e moredi shahre esfahan); yek rahyafte egtesad sanje Faza'i [Analyzing the impact of municipalities' taxes on housing prices (Case Study of Isfahan), a spatial econometric approach]. *Economic Review Quarterly*, *5*(1), 47-64.

4. Azizi, M.M. (2009). *Tarakom dar shahrsazi (osul va meyar-haye taien tarakom)* [Density in urban planning: Principles and criteria for density determination] (4th ed.). Tehran: Tehran University Press.

5. Azizi, M.M., & Arasteh, D. (2011). Tabyin-e parakanderoie shahri bar asas-e shakhes-e tarakom-e sakhtemani(motale-e moredi: shahr-e yazd) [Explaining urban sprawl by building density index (Case Study: Yazd)]. *Journal of city identity*, *5*(8), 5-15.

6. Fazaeli, A. (2015). *Jayegah-e egtesad-e zamin-e shahri dar sheklgiri va eshaeh moghayerate karkardi karbari-haye shahri bar asas-e osul-e keyfie shahrsaz* [The role of urban land economics in the formation and diffusion of functional conflicts of urban uses based on the qualitative principles of urban planning]. (Unpublished master's thesis, urban planning geography). Tabriz University, Iran.

7. Ghorbani, R. (2004). *Tarakom va samandeh-i faza-haye shahr-i motale-e moredi shahr-e tabriz* [Density and organization of urban spaces (Case study: Tabriz)] (Unpublished doctoral dissertation). Tabriz University, Iran.

8. Khakpoor, B., & Samadi, T. (2014). Tahlil va arzyabi avamele mo'asser bar qeymat-e zamin va maskan dar mantaqe 3 shahre mashhad [Analysis and evaluation of factors influencing the price of land and housing in Region 3 in Mashhad]. *Journal of Geography and Urban & Regional Logistics*, *4*(13), 21-38.

9. Majedi, H. (1994). Nokat-e kolie piramun masael-e shahrsazi . Siasat-haye zamin shahri dar iran [general tips on planning issues. Urban land policy in Iran]. *Seminar Proceedings housing development in Iran*. Tehran. Urban Planning. First volume, 139-192.

10. Mujtahedzade, G. (2007). *Barnameh rizi shahri dar iran* [Urban planning in Iran]. Tehran: Payame Noor University Press.

11. Naghshe Mohit Consulting Engineers. (2015). Tarhe toseeh va omran-e jameh shahr-e tabriz [*Development plan of the city of Tabriz*]. Tabriz: Working paper, Department of Housing and Urban Development in East Azerbaijan province, Iran.

12. Nejattalabi, J. A. (2002). *Eraeh yek ravesh jahat-e taien tarakome maskoni shahr-ha* [Providing a way to determine the housing urban density housing]. (Unpublished master's thesis). University of Tehran. Iran.

13. Rahnema, M.R., & Gholizdeh Sarabi, N. (2012). Nagshe avareze shahrdari bar gimate maskan dar shahr-e mashhad [The impact of tax on housing prices in the city of Mashhad]. *Journal of Urban Studies*, *1*(3), 44-49.

14. Ramazani, D. A. (2015). Salname amari 1393 kalanshahr-e tabriz [*1393 Statistical Yearbook of Tabriz*]. The Deputy of Planning and Development of East Azerbaijan Province. Tabriz: Directorate General of International Relations, Tabriz Municipality, Iran.

15. Sarkheili, A., Rafieian, M., & Bemanian, M. R. (2011). Barresi angize-haye takhalof-e ehdas-e banay-e mazad bar tarakom-e sakhteman-i dar shahr-e tehran [Study of a motivation for building construction violations associated with the excess building density in Tehran]. *Journal of Urban Management*, *10*(30), 140-162.

16. Sholeh, D. (2008). Tabyin-e mafhoom-e tarakom be onvan-e abzare shahrsazi dar tarh-haye maskan [Explicating the concept of density as a tool in city building]. *Journal of Urban Management*, *6*(21), 3-44.

17. Ziyari, Y.A. (2013). Barrasi tasire qeymat bar sazeman-e faza-ie shahr(motale-e moredi: nahiye 5 mantage 1 tehran teye sal-haye 1374_1383) [Studying the impact of land price on the spatial organization of the city (Case Study: District 5 of zone 1 of Tehran during the years 1995-2004)]. *Journal of City identity*, *7*(14), 49-60.

References (in English)

1. Bolen, F., Yirmibesoglu, F., Turkoglu, H., Korca, P. (1998). *Determinants of land prices in Istanbul: A case study*. Retrieved from https://econpapers.repec.org/paper/wiwwiwrsa/ersa99pa111.htm.

2. Debin, D., Jiangang, X. (1998). *An analysis on location factors affecting the spatial distribution of Shanghai land values*. Chinesse Geographical Science, *8*(4),335-342.

3. European Environment Agency. (2010). *Land in Europe: Prices, taxes and use patterns.* Retrieved from http://www.pedz.uni-mannheim.de/daten/edz-bn /gdf/ 10/ EEA_Land% 20pricing.

4. Fan, Z. (2008). *Analyses of spatial-temporal distribution changes of residential land prices in Beijing*. Paper presentaed at the 12ᵗʰ Asian Real Estate Society (AsRES) Annual Conference and the 2007 American Real Estate and Urban Economics Association (AREUEA) International Conference, Macau, China.

5. Farvacque, K. (1992). *Reforming urban land policies and institutions in developing countries.* Retrieved from http:// documents. worldbank .org/ curated/ en/ 257481468763516241/ Reforming - urban- land- policies- and-institutions- in- developing-countries.

6. Gabriel, P., Ahlfeldt, M. (2008). Impact of sports arenas on land values: Evidence from Berlin. university of Hamburg faculty. *Economics and Social Sciences*, *44*(2), 1- 42.

7. Ministry of Interior (1998). *The ways for urban development plans implementation.* Tehran

8. Neukirchen, M., Lang, H. (2005). *Characteristics and macroeconomic drivers of house price changes in Austrailia*; http://papers.ssrn.com/sol3/papers.cfm.abstract_id=1614697.

9. Ozus, E., Dokmeci, V., Kiroglu, G., Egdemir, G. (2007). Spatial analysis of residential prices in Istanbul. *European Planning Studies*, *15*, 707–721.

10. Partridge, M., Rickman, D., Ali, K., Rose Olfert, M. (2007) Agglomeration spillovers and wage and housing cost gradients across the urban hierarchy. *Journal of International Economics*, *78* (9), 126–140.

11. Pumain, D. (2003). *Scaling laws & urban systems*. Retrieved from https://www.santafe.edu/ research/results/ working-papers/scaling-laws-and-urban-systems.

12. Vander Molena, P. (2002). The dynamic aspect of land administration: an often forgotten component in system design. *Environment and Urban Systems*, *26*, 361–38.

13. Zhao, P. (2011), Managing urban growth in transforming china: Evidence from Beijing, *Land use policy.24*(1), 96-109.