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# Scrutinizing of City Taxes Effects on Final Housing Price in Hamedan

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**Abstract**

Housing has some characteristics as an economic good that distinguishes it from the other goods. Housing can be considered as a commodity and also can be accounted as one the essential human needs such as food and clothing; it is also a durable and immovable capital good while investing in it forms a huge volume of the family property. It is an attractive target for business agents and families themselves. In this paper, with an analytical-descriptive method, the role of city taxes has been studied in housing prices, emphasizing transferring excess density. This research case study is Hamedan City. Required information has been obtained from studying related documents gathered from Hamedan region one municipality as well web sites, property databases, field studies, and sampling from 230 cases in the study region analyzed, using SPSS and regression model. Results revealed that transferring excess density with a present pattern increases the average city tax share in new residential production prices by 8%. Pierson correlation coefficient (r= 0.743), confirms the existence of a direct and significant relationship between housing price and city taxes while transferring excess density in Hamedan. In this regard, replacing sustainable income resources and decreasing the amount of taxes on housing supply and demand is highly recommended while we are relying on housing demand taxes more.

**Keywords:** Housing, City Taxes, Final Housing Price, Excess Density.

## Introduction

Within the last two decades, there have been the most significant fluctuations in housing prices in Iran. The housing sector's considerable stagnation and prosperity, have caused destructive effects in this sector and the other economic sectors. Marked increase and occurring cyclical shock in housing prices in different countries, especially in Iran, is a widespread and complex phenomenon that seems to be more than an inter-sectoral issue. Economic and social consequences of the increase in housing prices or its dramatic fluctuation have many dimensions. Housing as a major sector in the economy (Bao et al., 2017), and as a key issue in healthy and attractive communities (Farrokhirad & Gheitarani, 2024), has a comprehensive and narrow relationship with the other economic sectors (GHADARJANI & GHEITARANI, 2013).

So, housing in recent years in Iran has had dramatic losses for families, housing production agents, and other economic sector operations. Regarding the importance of the housing sector in the country's economy, the need for policy making and appropriate financial interaction rather than housing price inflation is required mainly. Accurate analysis of housing market status and right recognition of macro effective factors and their amount of effectiveness, can help authorities and planners for accurate prediction and analysis of future conditions and suggesting appropriate solutions. Land and housing as a property, or in some cases as a capital good, are impressed mainly by a city's economic characteristics; many different factors that are effective on the city economy, can be reflected in land and housing prices (Ghadarjani et al., 2013).

***Theoretical***

Housing due to having different and complicated dimensions and also its importance in people's life, requires a high amount of attention. The economy and social importance of housing, have situated this sector under public consideration, and on the other hand, due to the employment rate in this sector as well its relationship with the other economic sectors, it is accounted as a useful tool for implementing economic policies (Gheitarani et al., 2013). These features have caused governments to intervene in land and housing markets and begin planning. In the information age, along with society awareness level, planners and policymakers try to establish their plans based on society member views and interests; they do this, for reaching public well-being and preventing social costs as well promoting economic prosperity.

In the world, planners can provide more societal development by combining plans implementation profits. So, success in implementing housing production policies requires precise determination of consumers' interests and their tendency rather than housing-specific characteristics. Effective factors in housing prices can be categorized into two categories. First, fundamental factors can be controlled by supply and demand forces, and second, non-fundamental factors that are not related to the housing economy operation; however, they comprise some forces that are effective on housing prices, while are out of the housing sector operation (Gheitarani et al., 2020).

Recently, we have witnessed the indirect and external effects of building densities. We can see also the municipality's excessive reliance on building and housing and land taxes, particularly in main cities. Nowadays, municipalities are less reliant on governments and also they have faced many urban problems in big cities due to excessive population growth as well as migrations. All of these have forced municipalities to use unsustainable income resources such as building taxes while they have major duties according to law and have to provide sufficient funds to afford population needs. This situation will lead to the domination of the housing capital dimension in addition to consumption taxes because of more reliance of municipalities on housing and land taxes and also building taxes instead of consumption taxes. Increases in housing prices and stagnation in building demand and buy and sell are all of this status. This paper tries to investigate the role of municipality taxes in housing prices in Hamedan, emphasizing excess density transferring taxes. The "Selling Density" phenomenon in Hamedan began in 2000 and the municipality was recognized by authorities as the accuser of housing unemployment and inflation. This hypothesis was been created that transferring excess density to the builders in Hamedan, has led to an increase in housing prices along with ignoring building regulations approved through the detailed plan. This research tries to respond to the question of whether transferring excess density right leads to an increase in housing prices. Also answering how is the share of city taxes throughout transferring excess density, in final housing price or its share in producing new units (Gheitarani et al., 2013).

**Methodology**

We can categorize this research as analytical-descriptive research in terms of its nature. The research study area is Hamedan City and the statistic community is these city properties. This is while that, through random sampling, 230 cases were selected and studied. Required data in this research were been gathered through documentary resources, intended region municipality, property-related sites and centers, and field studies. These data were analyzed by SPSS software and classified. In this research, according to the theory of pricing by final cost, which is famous in the micro economy, we calculated and comprised the share of each of city taxes, building cost, and land cost; then using the Pierson correlation coefficient and simple linear regression model, this research hypothesis which was "the existence of a positive and significant relationship between housing price and city taxes at the time of transferring excess density right", was tested (Gheitarany et al., 2013).

**Results and Discussion**

In international regulations especially in the eleventh international cultural, social, and economic laws, having justifiable housing has been recognized as one of the most important human needs for anyone and any family and for having a life with dignity (Jiang et al, 2014). Until now, many studies have been done about municipality income systems and the effects of fiscal policies on producer behaviors and land and housing consumers in Iran and the world. In all of the world municipalities, providing income resources for supporting urban services costs is accounted as one the most common municipality problems. Global experiences show that local taxes can be the best income-durable and sustainable method for municipalities. According to law, these kinds of taxes can be received from state, property, goods, services, and entities income, directly or indirectly in a specific or free time (Kahvand et al., 2016).

Mills (1978), determined a desired fiscal system rather than the other aspects of housing investments (Khanian et al., 2013; Zakerhaghighi et al., 2015). Keith (1984) examined taxes on states and housing demand through economic analysis and showed that the status of state taxes decreases the number of housing owners in city centers; this is while housing production will see a kind of stagnation. Oates and his colleagues (1996), analyzed the effects of tax situation review on a big city's economic development and suggested that taxes on land value will help to effective usage of lands by the owner in comparison with the previous status of taxing on land value (Khanian et al., 2013). Trasberg (2003), within reviewing the status of property taxes in the Baltic, recognized property tax as a desired income resource for local governments and introduced it as a mechanism for the local dependent economy and financial decentralization (Khanian et al., 2019; Karimimansoob, et al., 2024). Ghaderi (2004), examined the consequences of urban land taxes and suggested that land taxes, instead of state taxes, have encouraged landowners to develop their lands (Ghaderi, 2004: 13).

Ghaledar (2005), comprising of municipalities' income resources in big cities, introduced the income structure of big cities based on building taxes by producers (Maleki et al., 2024). Akbari, (2008), in "Analysis of city taxes effects on housing price in Isfahan", concluded that the commercial land use prices and taxes have significant effects on residential land uses as well as excess densities and building licenses (Norouzian and Sarabi, 2023; Sarabi et al., 2023). Finally, Jamshidzadeh (2008), in "scrutinizing of the role of building taxes on housing prices in Tehran", suggested that building share in the evaluation of building and land final price in Tehran is only about 5 percent hence, increasing in housing price should be scrutinized by the other factors (Moayedifar et al., 2020; Mohammadzadeh et al., 2020).

***Reviewing land and housing price changes in Hamedan.*** Studying the housing price index in Hamedan shows an increase in housing prices each year than last year. In 1993, the average price of each square residential meter in Hamedan was 168,000 Rials. This number in 2001 increased to 774,000 and in 2006 it surged to 4120,000 Rials which shows a 40 % growth in housing prices between 1993 and 2001. The number of residential units built in 2006 in Hamedan city was 2231 units which cost 917908 million Rials. This number increased to 6058132 million Rials in 2010. The percentage of annual growth of housing prices between 2008 and 2011 in Hamedan was 1.31 and 1.56. 0.16, 1.61, 1.52 and 1.70 respectively. In 2010, the average price of each square meter of residential building was 7044,000 Rials (Iran Statistics Center, 2023).

**Table 1. Average real price (thousand Rials) and percentage of annual growth of one residential square meter in Hamedan between 2006 and 2010**

| Growth Percentage | Housing Price(Thousand Rials) | Year |
|---|---|---|
| 1.31 | 4120 | 2006 |
| 1.56 | 5422 | 2007 |
| 0.16 | 6455 | 2008 |
| 1.61 | 6654 | 2009 |
| 1.52 | 6301 | 2010 |
| 1.70 | 7044 | 2011 |

**Source: Iran statistic Center and author calculations**

***Case of Study*.** This research case study is Hamedan City. Hamedan country, with 526792 people population and 2831 square kilometers has had two sections and four cities until 2010. The number of building licenses approved for building constructions in terms of land area and substructure in 2010 in Hamedan was 1294 cases which involved about 404886 square meters; also 972456 square meters were related to floor substructure area in this city (Iran statistic Center, 2023; Yu et al., 2013). Seismic analysis of a long tunnel based on multi-scale method. *Engineering structures*, *49*, 572-587).

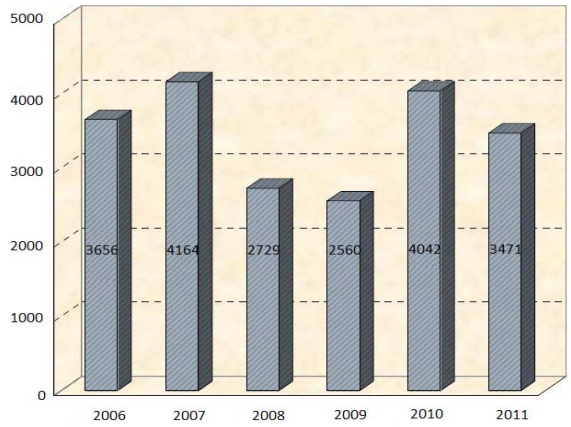


**Figure 1. Approved building licenses for building constructions in Hamedan province urban area between 2006 and 2011**
**Source: Iran Statistic Center, 2023.**

In 2011, in Hamedan, 1201 building licenses out of a total of all approved licenses were related to residential licenses. In 2010, in Hamedan, 57 building licenses out of a total of 1294 building licenses were related to one-floor buildings, 173 cases were related to two-floor buildings, 170 cases were related to three-floor buildings, 392 cases were related to four-floor buildings and 502 cases were related to five floors buildings or higher (Pai et al., 2020). The number of approved licenses in Hamedan in recent years is representative of the considerable growth of construction buildings with high densities; this is while, it also highlights the important role of transferring excess density rights and earning building taxes by municipalities in Hamedan as well as excessive reliance on building taxes (Iran statistic center, 2023; Naghibi Iravani et al., 2024).

***The criterion of determination of Hamedan municipality taxes in 2023.*** In applying the 30th financial single article of municipalities, each municipality should have a tariff in which all municipality incomes such as taxes, services costs, and other costs should be received by municipalities or related agents. In Hamedan, the criterion for earning local municipality taxes would be municipality suggestions and city Islamic council approvals. Applying all of the detailed plan regulations, urbanism principles, and article 5 of commission and empowerment staff approvals in all tariff chapters is obligatory. On Hamedan's number one tax tariff, approved in 2022, we can read that any resident's application out of detailed plan regulations would be available just after setting agreement in the municipality and based on the 2022 taxes tariff and approval of Hamedan Islamic council and agreement of valid authorities (article 5 of commission). Moreover, the minimum amount of this tax tariff was specified in 2022, and its maximum was been introduced by six-fold changing land use taxes which was mentioned on page 75 (article 49). On the other world, taxes in this section would be minimum or maximum (Oraee et al., 2010; Tsinidis et al., 2016).

***Substructure taxes on single residential buildings.*** Substructure taxes of residential buildings according to the last modifications and article 5 commission of detailed plan in Hamedan city legal domain are as follows:

**Table 2. Single building license taxes in Hamedan in 2022**

| **Taxes on single-building license issuance** | | | |
|---|---|---|---|
| **Minimum taxes for each square meter** | **Taxes for each square meter area** | **One unit area** | **Row** |
| 2000 Rials | p × % 13 | To 60 square meters | **1** |
| 3000 Rials | p × % 26 | To 100 square meter | **2** |
| 4000 Rials | p × % 39 | To 150 square meters | **3** |
| 6000 Rials | p × % 52 | To 200 square meters | **4** |
| 11000 Rials | p × % 70 | To 300 square meters | **5** |
| 12000 Rials | p × % 85 | To 400 square meters | **6** |
| 20000 Rials | p × % 130 | To 500 square meters | **7** |
| 36000 Rials | p × % 150 | To 600 square meters | **8** |
| 60000 Rials | p × % 160 | From 600 square meters to over | **9** |

**Source: Region One municipality of Hamedan, 2020**

(The single residential unit, is a building on the ground or all of the floors without more than one unit. If each floor or other floor involves two units then they cannot be accounted as a single unit. Also, the p sign is the subject of the regional value of 64 direct taxes article).

***Taxes on residential complexes' substructure.*** The area average of each unit is the whole building's impure area divided by unit numbers. At least (100 ÷ unit average area), should be assumed one. N is the number of units with 6 units it would be n=0.3 and to 12 units it would be n=0.5 and to 18 units it would be n=1 and to 24 units it would be n=1.5 and over 24 units it would be n=2.

**Table 3. Issuance taxes of residential complexes licenses to 600 square meters**

| **Issuance taxes of residential complexes licenses to 600 square meters** | | | | |
|---|---|---|---|---|
| **Class separation** | **The criterion for calculation of taxes for each square meter of impure building area (Regional price= p)** | | **Impure building area** | **Row** |
| Pure area×p×n | Minimum taxes for each square meter, 7000 Rials | Average unit ÷100) p× %20 (area | To 200 square meters | **1** |
| Pure area×p×n | Minimum taxes for each square meter, 10000 Rials | Average unit ÷100) p× %50 (area | To 400 square meters | **2** |
| Pure area×p×n | Minimum taxes for each square meter, 12000 Rials | Average unit ÷100) p× %55 (area | To 600 square meters | **3** |
| Pure area×p×n | Minimum taxes for each square meter, 18000 Rials | Average unit ÷100) p× %80 (area | Over 600 square meters | **4** |

**Source: Hamedan region one municipality**

***Value Added.*** All of the states and properties impressed by the implementation of detailed plans and street widening would have state value added. Their calculations also are done by the below formulate at the time of issuance of the document and the stakeholder is responsible for paying it. Value-added taxes are calculated and earned through the below formulated while urbanism regulations are considered especially density and elevation regulations (in case of on-the-ground excess density, the proposed amount would be considered), (Mohammadzadeh et al., 2020; Sadeghi et al., 2019).

R= [(Sm-Sg) × (20 × (S'/S)) × P] - 8PSt

Sm= According to the proposed draft from the Department of Urbanism

Sg= ((Area before widening × 60 %) + (12)) × Floors

P=Regional Value

S'=Land area after widening

S= Land area before widening

***The share of city taxes in housing prices at the time of transferring excess density right.*** According to the theory of "pricing based on final price", which is common in micro-economy, the price of producing each residential square meter is the sum of land, building materials, human resources, city taxes prices, etc.

Final housing price = land+ building materials+ human resources+ city taxes+ other costs

Table 4 shows that, if in the above relationship, city taxes for constructing any residential building at the time of transferring excess density rights to applicants are introduced as the sum of excess floor taxes and residential substructure taxes, then, the share of any building and land costs and building taxes in producing residential units are as followed:

**Table 4. City taxes, land cost, and building shares, in final housing price (percentage) in Hamedan in 2022**

| **According to approved detailed plan regulations** | | | |
|---|---|---|---|
| **High density** | **Average density** | **Low density** | **Indexes** |
| 7.2 | 3.4 | 1.8 | **Residential substructure taxes** |
| 1.1 | | | **Average** |
| 52.6 | 47.2 | 49.9 | **Land cost for constructing a building** |
| 51.3 | | | **Average** |
| 24.1 | 22.9 | 28.2 | **The cost of constructing a residential building** |
| 25.5 | | | **Average** |
| **At the time of transferring excess density right** | | | |
| 6.8 | 3.1 | 1.7 | **Residential substructure taxes** |
| 12.3 | 10.0 | 4.9 | **Excess floor taxes** |
| 19.1 | 13.1 | 6.6 | **Total taxes** |
| 13.2 | | | **Average** |
| 48.0 | 41.7 | 46.1 | **Land cost for building** |
| 47.7 | | | **Average** |
| 31.3 | 30.1 | 32.2 | **Residential building cost** |
| 31.4 | | | **Average** |

**Source: Income unit of Hamedan region one municipality, 2022**

Low density 120 %, average density 180 %, and high density 240 %, according to Hamedan approved detailed plan regulations in 2005, which were 2 floors, and 4 floors in 60 % occupation area, respectively (Hamedan detailed plan regulations, 2005). Results show that transferring excess density rights by the municipality to applicants has increased the share of city taxes in the costs of producing new residential units by 8 %. According to Table 4, the average amount of city taxes in the costs of producing housing, by condition of transferring excess rights to applicants, is about 13 % in low densities to high ones, 6.6 to 19.1 %, and average (Singh et al., 2017).

This is while earnt city taxes according to detailed plan regulations has formed about 3 % of all of housing production costs, averagely. Regarding this, transferring excess density right through an 8 % increase in producing new residential units costs, has led to an increase in housing prices.

Moreover, at present, transferring excess density rights has transferred added value to applicants while cannot be comprised with municipality-added value in high densities.

Added value= the price of building square meter – Building square meter cost

The share of briberies is average, 23 to 27 percent of the selling price, while compared with detailed plan added value in 2005, and has had a 13 to 17 % increase and this will lead to inappropriate consequences. This is due to transferring excess density right out of detailed plan regulations, which increases briberies profits and changes a consumable aspect of housing to capital ones. This will lead to an increase in demand for residential units over actual needs, and storing residential units would be turned into an accepted and logical behavioral pattern as it causes inflation in the housing market by creating false claims.

**Table 5. Average of costs, price, and added value of selling one square meter of housing at the condition of transferring excess density in Hamedan in 2022 (thousand Rials)**

| Amount | Indexes |
|---|---|
| 12104 | **Average of land square meter value** |
| 12104 | **The average cost of constructing a square meter building** |
| 1613 | **Average of city taxes for each building square meter** |
| 8122 | **Average of final price of building per square meter** |
| 12891 | **Average of building square meter** |
| 2598 | **The average added value designated to briberies in square meter** |

**Source: Income unit in Hamedan Region one municipality, 2022**

***Regression fitness pattern of housing price and city taxes at the time of transferring excess density right.*** The main hypothesis of this research was the existence of a significant relationship between city taxes and housing prices at the time of transferring excess density right in Hamedan. To scrutinize this hypothesis the fitness Figure of housing prices and city taxes (including residential licenses and excess density taxes) has been drawn below.

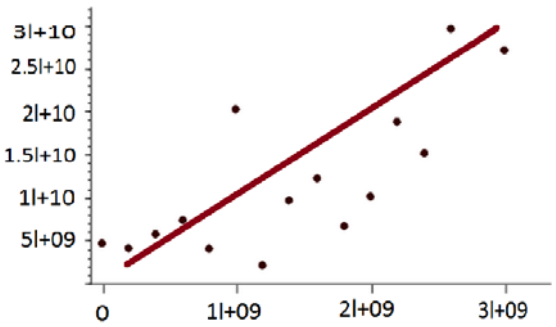


**Figure 2. Transmittance of housing price and city taxes and its regression equation**

Scrutinizing of transmittance Figure of housing prices and city taxes shows that there is a linear, positive, and rather strong correlation between unit prices and city taxes. As, in most cases, increases in city taxes have led to housing price increases. According to calculations, the Pierson correlation coefficient (r) is 0.743 between housing prices and city prices, and also p-value is zero.

These are significant at a higher level of 1 percent (a=1%) and are representative of the existence of a direct and rather strong relationship between the mentioned variables. In this regard, the obtained regression line based on a random sample from the studied community has the below equation:

Y= 6.098X + 3E + 09

In which, (Y) is the independent variable (housing price), (X) is the dependent variable (city taxes), and 3E+09 is a constant amount of regression (intercept). Square statistic R (determination coefficient), which is the overall changeability percentage, is over (X), due to regression (see table 6); it has been calculated by 0.722, in this equation. This means that changes in the dependent variable (city taxes) can explain 70 percent of changes in the independent variable (housing price). So, the obtained regression line to some extent, can relate independent variable (Y) changes to dependent variable (X) changes. The amount of p-value which is lower than 0.005 (in Table 6) shows that t related to the taxes variable is significant at a level higher than 0.01. In this regard, this research tested the hypothesis that "the existence of a significant and positive relationship between city taxes and housing price at the time of transferring excess density right" would be confirmed.

**Table 6. The amount of multiple R and square of R**

| Model | R | R Square | Adjusted R Square | Std. The error of the Estimate |
|---|---|---|---|---|
| 1 | 0.801a | 0.722 | 0.661 | 2.340E9 |

**Predictors: (Constant), Taxation**
**Dependent Variable: Price**

## Conclusion

This research examined the role of city taxes in housing prices in 2022, in Hamedan City, emphasizing taxes on transferring excess density rights. Analyzing major research data, results showed that excess density taxes had a significant effect on housing prices and led to an increase of 8% in the costs of producing new residential units. It was also specified that transferring excess density right out of approved detailed plan regulations would lead to an increase in housing prices by increasing the price of new residential unit production and creating false claims. It also increases the bribery's profits and their numbers in the housing market by decreasing the proportion of density price in substructure price, especially in high densities. This itself, increases the ability of briberies and decreases urban management abilities gradually. Finally, it is suggested that municipality financial systems be placed on sustainable income resources in terms of their income structure, so, decreasing the share of housing production taxes and turning to consumption taxes such as rebuilding taxes. Increasing constant income share in overall municipality income also specifies the optimized tax rate based on the real value of immovable city properties. It is also worth noting that, in this research, only the role of city taxes in housing prices was examined and other factors such as macro and regional policies, facilities and credit facilities, capital market changes, and others, were not examined while are of major ad effective factors on housing price fluctuations.

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