

# **The Demolition Rate Of Residential Buildings In Iran**

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## **Abstract**

Housing sector is the main components of each country's capital stock which would affect the economic activities and measuring the wealth; therefore a precise estimation of it would be required for assessing the nation's capital. The inventory of housing units per year is the most important information needed in housing sector as well as other economic and social planning and research sectors.

The numbers of buildings in Iran are decreasing on one hand due to their continuous depreciation and on the other hand because of the economic factors which play a significant role in their destruction. The sudden and unplanned increase in the urban population causes the increase in the housing demand as one of the basic needs of the households. In addition the unprecedented interest in building construction and limitations in the supply of urban land would considerably increase the prices of land and housing which results in the destruction of existing buildings which are completely suitable for settling to provide newly constructed settlements.

Furthermore only once per ten years (the last census was conducted after 5 years in Iran) the census population can be conducted and the population in between years is estimated based on the growth rate. Similarly the number of housing units in the country is estimated based on the net growth rate of housing units (units added and demolished units).

Therefore it is required to determine the components which influence the building destructions and provide methods to calculate their rates. This will help the housing planners adopt appropriate strategies to mitigate this problem by developing new rules and regulations.

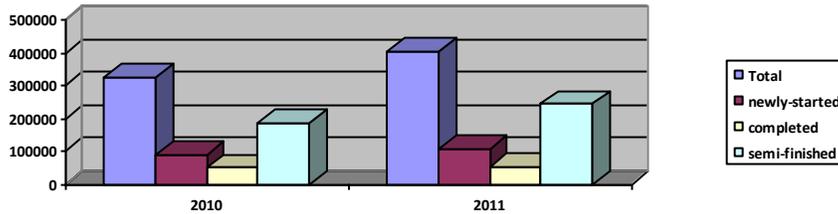
In this study the relationship between the capital stock in general and the inventory of housing units in particular is evaluated, different kinds of destructions along with the influential components including the economic factors are analyzed. Different methods for the estimation of demolition rates are compared and the best approach based on census data is selected and it will be calculated for Iran.

Key Words: Housing, The inventory of housing, destruction of buildings, demolition rate

## **1.Introduction**

Capital stock is one of the factors that play an important role in the economic development process. In Iran investment in the building, has always been a major part of total capital. But capital is always depreciated. Depreciation of building is a process that the quality and capacity of building, is reduced. This process gradually all essential features of a building affected and its major components, such as stability, consistency, beauty, ability to provide shelter, security and protection against external factors destroyed and building will be demolished.

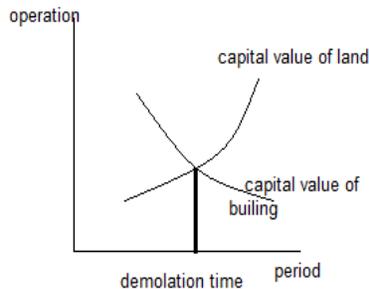
Private sector investment in new buildings in urban areas by construction phase (bln rials)



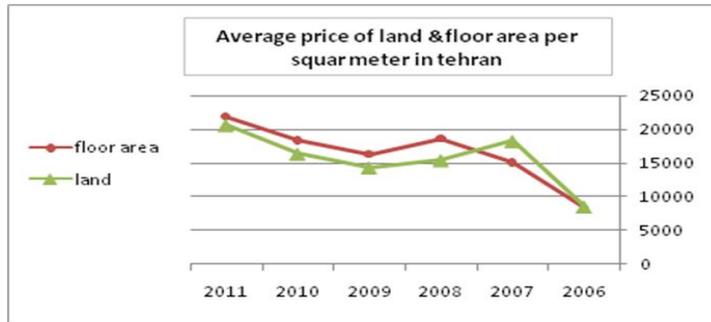
The most important of these factors are:

- 1- The design features
- 2- Materials
- 3- How the construction process
- 4- How to use the building

Neglect any of these cases, makes life shorter buildings and housing security decreases. But in Iran, especially in Tehran, in addition the depreciation, another factor, causes buildings demolition. It is the economic factors that play an important role in the demolition process. While the economic life of the building, before the physical life runs out . If the capital value of land increase the capital value of the existing building on it, the economic life come to the end, and destruction will be explained. Building value function in normal conditions due to its special features, is higher than the land value function. However, due to the gradual depreciation over time the value of building is reduced and is closed to the value of land. When these two are crossed with each other, the demolition of building be acceptable in terms of economic .If factors increase the speed of reduction of building function or increasing of land function, demolition comes sooner and encourage land owners for the use of the new situation of land .This factor cause the neglect and lack of building maintenance at the right times and depreciation is augmented.



Increasing land prices in large cities is one of the characteristics of developing countries. On the one hand this is due to the high level of demand for urban land, which is caused by the rapid growth of urbanization and socio-economic developments. And on the other hand, this is due to the limited production capacity and supply of land suitable for a variety of applications.



## 2.Results

In 5 years in Tehran(Capital of Iran) the price of a square meter of land is closed to the price of a square meter of floor area. One of the reasons of it is stagflation in the housing market . The housing market stagflation is one of the most dangerous inflation. It causes to close or equal the price per square meter of land and floor area Since land is non-transferable and can not be reproduced each piece of land, , will create a monopoly for the owner.Then the increase in land prices, unlike other goods, not only do not increase the land supply and price adjustment but also the price of land will increase more.

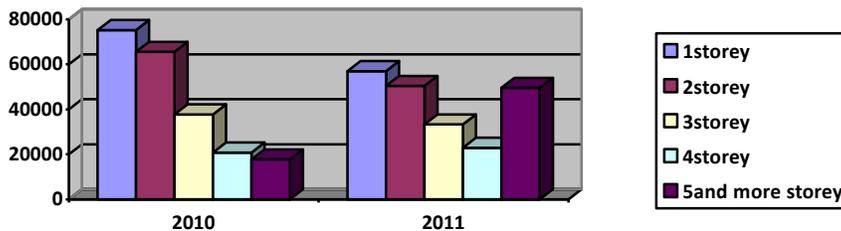
Also the construction permit of high-density has significant impact on the demolition.

The reasons of increasing the density are:

- 1 - the policies and decisions of the municipality in sales densities.
- 2-High demand for construction and limited supply of land in the area or areas of the city.
- 3-The high commercial value of land in certain areas.

There are many high density Buildings in some areas, so that constructors, pay fine of density to destroy low density buildings.

Permits issued for construction of building in urban area by number of storeys(number)



## 3.Conclusion

Demolition rate of residential buildings:

Demolition rate of the residential buildings is important in understanding the status and inventory of residential units. Considering the importance of the housing sector in the economy,

the amount of investments made in this sector, human resources and materials related to this section, keep the national capital, increasing its useful life and better use of it is necessary.

Reasons for the demolition rate:

1-Impact assessment policies regarding urban development issues.

2-Understanding the decision-makers, the changes in the housing sector as national capital.

If the rate of demolition of residential buildings is most of the standards, it must investigate the factors that affecting it, and plan to minimize them.

Demolition rate in Iran according to Population and Housing Census(1996,2006,2011):

$$DR(\text{Demolition rate}) = \left( \frac{CD_{t_2-t_1} - (DN_{t_2} - DN_{t_1})}{DN_{t_1}} \right) * 100$$

$CD_{t_2-t_1}$ (constructed between first & second survey)

$DN_{t_2}$  (dwelling number1)

$DN_{t_1}$ (dwelling number2)

Average rate of demolition		1996-2006			Description
Each year	For 10 year	Total units demolished	Total units built <sup>(1)</sup>	Differences in housing inventory	
1.6	16	1773632	6863449	5089817	Total
0.7	7	513465	5031617	4518152	Urban area
3.3	33	1260167	1831832	571665	Rural area
Average rate of demolition		2006-2011			Description
Each year	For 5 year <sup>(3)</sup>	Total units demolished	Total units built <sup>(2)</sup>	Differences in housing inventory	
1.0	5.2	828461	4923240	4094779	Total
0.1	0.5	61470	3411702	3350232	Urban area
9.3	46.4	2053945	2798492	744547	Rural area

<sup>1)</sup>The year of construction completion is between 1996-2006

<sup>2)</sup>The year of construction completion is between 2006-2011

<sup>3)</sup>After 2006, Population and Housing Census in Iran each 5 year is done.

According to table, about 5.2 percent of housing units that built up to 2011, have been destroyed between 2006-2011.

between 2006-2011, every year 0.1 percent of housing units in urban area and 9.3 percent of housing units in rural area was demolished.

The most reason to demolish buildings in rural area related to low quality building materials. Also some villages were deserted because of migration then their building was demolished.

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