

## The Effect of Renting Cost on Housing Demand in the Isfahan City Period of Time (1981-2011)

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### Abstract

One of the major problems is the lack of investment in rental housing. Experience has shown that cash transfers under a proper system of financing not only will not lead to economic mobility but does observe the effects of inflation in the housing sector and being active in the market to buy and sell real estate as a rapid increase in housing prices provides asset forms. In this study, the demand for rental housing in particular, the factors and the fee will form around it. Statistics used in this study is the average of the OLS, attempted to estimate the parameters of the demand function for rental housing is in Isfahan province. Statistics and data have been used from 1360 to 1390. The test was performed using linear and logarithmic, and all parameters are tested. The results show that the cost of rent has a negative and significant effect on the number of rented houses in Isfahan. The results also suggest that higher income individuals either directly by increasing income or indirectly

Significant positive effect on increasing the stock of rental housing demand Isfahan city. The facilities also have a positive effect on the dependent variable and suggest that the increased purchasing power facilities and will increase demand for rental housing. Results suggest that the cost of food and non-food household has a negative effect on the dependent variable set and shows that inflation and interest rates, purchasing power and demand for rental housing decrease in Isfahan province. The results also show a positive effect of population on the demand for rental housing, which indicates the population, could increase demand.

**Keywords:** Housing Rent, Isfahan City, OLS Method, Demand Function

## **1 – Introduction**

Housing as one of the most essential needs of human life is the demographic characteristics of the population has a common border, the higher the housing needs of the population of the city has increased in other areas. Construction sector, which includes housing has an impact on other economic sectors and economic development issues, particularly sustainable development is allocated to a particular position. The building is part of the Sustainable development and dependence and interaction with other departments could accelerate the growth of other sectors of the economy. Rapid growth in population has increased the demand for housing. Based on studies of the demand for housing is greater than the supply, Thus, determining the effective demand for housing is necessary to deal rationally with this task. In general, we can say analysis of factors affecting demand for rental housing issues in macroeconomics is the housing sector.

## **2 - Research Literature**

### **2.1 - Factors Affecting Housing Demand**

Housing as a commodity, heterogeneous, stable, immovable assets, consumables and ancillary outcomes, a large share of household budgets, expenses and gross domestic fixed investment accounted for large role in employment and value added countries.

Housing market, including issues Rosen and Falys (1998) and Mgbvlgby and Lynmn (1993) in their studies, a comprehensive summary of the literature in this field are presented. Proceedings of the housing, the share of housing costs on household budgets, national expenditure and gross fixed investment and factors affecting choice of capture (taste, cost and revenue) and models used in this analysis is to investigate the market (Askari and Ghader, 1383: 105). However, studies in urban and regional economics, consider housing as a commodity; but the reality is that housing has high variety of different types of markets. In other words, the housing market is a single market, but markets with each of them based on tenure, type of unit, lifetime residential units, quality, finance and sizes are separated (Samimi et al, 1389: 47). In general, the methods for estimating the demand for housing can be divided into two general categories: First, housing is considered as a homogeneous good as with other commodities and try to estimate the amount of demand, income and price elasticity's of it. But in the latter, housing as a commodity to be considered multidimensional and the influences of the characteristics of the housing price are estimated. The first method is ignored housing characteristics and is used to estimate demand or time-series cross-section data. In the second method, the cost per unit is a function of many variables, such as land, housing, infrastructure, number of rooms, and type of building materials used in its location and is each of these properties on the market price of its own. The model consists of a good home with a basket of different features and each of the characteristics, suitability for use are different (Askari and Ghader, 1383: 92). Issue of demand for housing has attracted much attention of policy makers. Historically, demand for housing, has been the focus of many studies. Despite numerous studies, there is still a lot of ambiguity in this concept. Rothenberg et al (1991) The demand for housing has been summarized in the following four forms: 1) The demand for housing services

2) demand for individual housing characteristics 3) The demand for rental units and units of the property (determined by the type of housing tenure) 4) Allocation of households

In estimating the determinants of the demand for housing due to the seizure type, select the type of property occupied or leased and the demand is assumed to be time-dependent. The

estimated demand for housing or rental property. Regardless capture the determinants of the demand for housing or rental property as a function of income, age, education householder Price (rental) housing, and the like, this is estimated to be implicit (Street, 1382: 12).

2-3 - Goals housing indicators:1) Provide appropriate analytical tools to provide a thorough understanding of the various aspects of developments and changes (Social, economic, physical) for housing policy, planning and monitoring of policies and programs have been developed.

2) Understand and explain the relationship of the various aspects of housing.

3) Evaluate the results of different policies on different aspects of housing and govern their relations.

4) Establishment of proper relations between different dimensions of housing that can efficiently leverage policies, to be effective. It goes on to define and describe various indicators of economic and physical address housing (Samimi and Thranchyan, 1385: 112).

#### 2.4 - Background Investigations

Ball et al (2013) in his article titled assumption of price elasticity of housing: evidence from International Data, national, local and corporate, one of the key parameters of the economy, housing (Price elasticity of housing supply will evaluate the results show that constraints on the design elasticity is of paramount importance but the geographical and historical patterns of land use is also important. Estimates of firm-level data also show the elasticity of supply for larger firms than smaller firms.

Malach (2012) in a study entitled "rent private landlord in North America", key Features in the rental housing industry in the United States of America and Canada is discussed. In this study, an overview of the characteristics of the housing market and its associated occurred rent and goes on to discuss the key features of the industry is presented.

Street (1382) used their model to explain the wide interval to analyze the effect of macroeconomic variables such as money supply, exchange rate, GDP volatility of stock price index and housing price is paid. In his study of the separation of positive and negative shocks on housing prices and other words, to distinguish the effect of symmetric and asymmetric shocks, the model was modified ARDL uses. Based on the findings, the sensitivity of the real price of housing to a percentage change in real money balances,

In the long run, 86.0, and in short 34.0 is estimated. The reaction of real house prices and real output in the short term 89.0- 3.0 has been estimated.

### 3 -Research Model

The purpose of this research, applications and the way research is descriptive and analytical.

To estimate the factors affecting the demand for rental housing has the following models: Variables in this study are as follows: The dependent variable is the number of rental housing in the city and independent variables such as the average fee per unit in the city, household income,

The rate of population growth, the rate of marriage in Isfahan, other factors such as credit, Stock price indices, interest rates, inflation rates. The average annual income of urban households in the country and city or average annual cost of edible and inedible households in the whole country is affected in a stock index.

$$Y = \alpha_0 + \alpha_1 P + \alpha_2 INC + \alpha_3 S + \alpha_4 Co + \alpha_5 POP + \alpha_6 T + \alpha_7 INF + \varepsilon$$

Table 1: introduces the research variables

Definition of variables	Symbol Variables
Cost of edible and non-edible Isfahan	CO
Inflation	INF
The cost of rent	P
The population of the Isfahan	POP
Stock index	S
Interest rate	R
Payment	T
Number of rented houses in Isfahan	Y
Household income	INC

In this study, consistent with previous studies, the demand for rental housing is in Isfahan extraction. Based on the microeconomic literature, the most important factor affecting the demand for products or services, the price of the goods or services and income level of the population.

In this study, these two factors are considered. According to the factors influencing the demand for housing in the city, the other study variables were extracted. Furthermore, variables used in the model based on microeconomic literature are Studies and Yazdani (1382), Street (1382) and Malach (2012).

Statistics used in this study is from 1360 to 1390 and the test is performed using linear and logarithmic, and all parameters are tested.

#### 4 - Estimation Model

##### 4-1 - Study of variables Stationary

The first step is to evaluate Stationary variables: In the model, this study used data on a monthly basis and it is important For this set of data is an important point Stationary. Because they believe that most of these data sets, Non Stationary it is. The first step in examining these data, it is Stationary and Non Stationary.

Table 2: Evaluation of variables Stationary

Variables	Statistics	Probability	Results
CO	-4.35	0.01	I(1)
INF	-5.22	0.005	I(1)
P	-4.77	0.006	I(1)
POP	-3.60	0.01	I(1)
R	-1.96	0.04	I(1)
T	-2.27	0.02	I(1)
Y	-8.35	0.0001	I(0)
INC	-3.38	0.001	I(1)

Stationary results also indicate that variables often a difference between the logarithm of the variables are stationary. Furthermore, because of the nonstationary variables to avoid spurious regression difference variables entered in the model have been estimated based on the difference variables.

Table 3: Estimation results of OLS estimation method.

$Y = \alpha_0 + \alpha_1 P + \alpha_2 INC + \alpha_3 S + \alpha_4 Co + \alpha_5 POP + \alpha_6 T + \alpha_7 INF + \varepsilon$				
Variable	Coefficient	SD	T-statistics	Significance level
C	29.24296	95.52501	3.061288	0.0135
D(P)	-23.08728	5.797974	-3.981957	0.0032
D(INC)	0.003867	0.001157	3.341149	0.0086
D(R)	-2350.332	2943.205	-0.798562	0.4451
D(S)	1.161364	0.379125	3.063278	0.0135
D(CO)	-0.005271	0.002798	-1.906779	0.0166
D(POP)	0.544458	0.150265	3.623312	0.0055
D(T)	0.001603	0.000432	3.708971	0.0049
D(INF)	-22.83441	114.4927	-0.199440	0.8464
AR(1)	-0.769736	0.205502	-3.745645	0.0046
Coefficient of determination ( $R^2$ )		=0.80	Statistic Durbin - Watson	=2.33
Adjusted $R^2$		=0.61	F-statistic Significant F-statistic	=4.18 =0.02

The results are consistent with Table 3 and as the statistics show that the coefficient of determination

Variables, the explanatory power of the model are 80% and Durbin Watson statistic indicates the absence of heteroskedasticity. The course goes on to study Bryvsh White and Godfrey tests to investigate the failure of variance anisotropy there has been no Autocorrelated.

The results are presented as follows:

The results show that the cost of rent and significant negative effect on the number of rented houses in Isfahan has been made. In other words, the negative slope of the demand curve, the demand for rental housing is true with the rising cost of rent, demand for rental housing decreases.

The results also suggest that higher income individuals either directly by increasing income or indirectly by increasing the stock index and has a significant positive effect on the city made a number of rental homes. In other words, the demand curve, the transfer resulted in increased revenue and increased demand for rental housing. The facilities also have a positive effect on the dependent variable and suggest that the increased purchasing power facilities and demand for rental housing will increase. Results suggest that the cost of food and non-food household has a negative effect on the dependent variable set and shows that inflation and interest rates, purchasing power and demand for rental housing in the city decreases.

The results also show a positive effect of population on the demand for rental housing, which indicates the population, could increase demand.

#### 4.2 - Test Required

A) Examination of the residual variance heteroskedasticity

Table 4: Test results of residuals variance heteroskedasticity

Null hypothesis against	F-statistic	Obs * R-squared statistic	p-value	Test
Ho: equality of variances heteroskedasticity	1.54	10.48	0.23	Accept the null hypothesis (equality of variance)

In this test, the null hypothesis of equality of variance explained is the existence and given that the likelihood statistic and a significance level of 0.05 is more Consequently, the null hypothesis is accepted, indicating that there is no variance anisotropy.

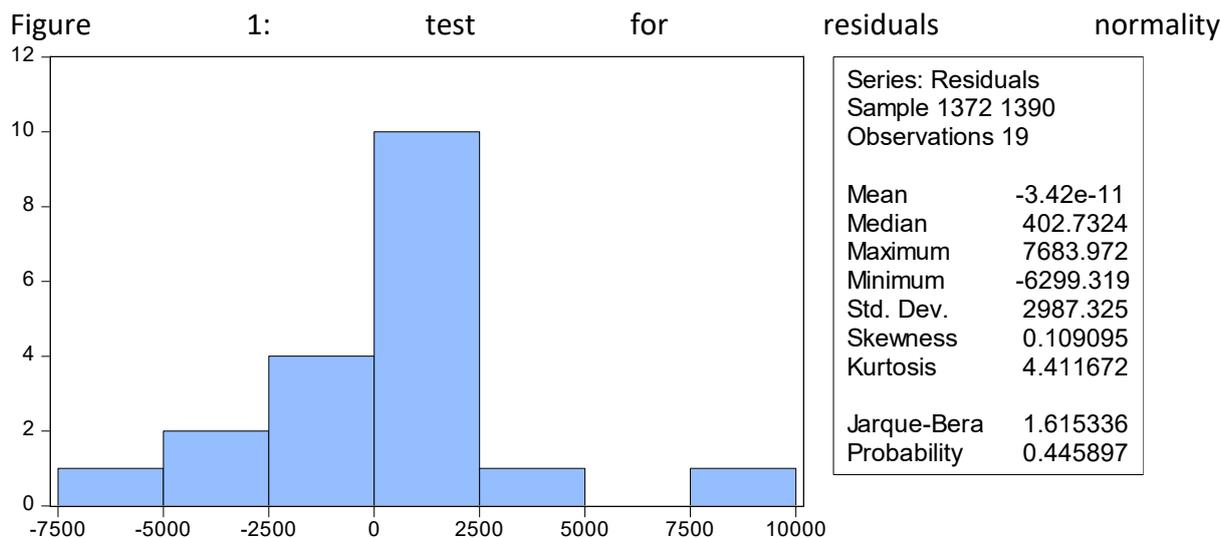
B) Failure to test for residual autocorrelation

Table 5: failure to test for residuals autocorrelation

Null hypothesis against	F-statistic	Obs * R-squared statistic	p-value	Test
Ho: no autocorrelation	0.84	2.84	0.24	Accept the null hypothesis (nocorrelation)
H1: the presence of autocorrelation				

According to the table and see the output of this test is the probability of observing that the probability is greater than 5%. Therefore, the null hypothesis was confirmed and their correlation error values are rejected.

C) Test the normality of residuals:



Given the lack of significance of the test statistic Jakubra remainder of this paper is to show normality.

D) The accumulation of parasite Granger This allows for the parasite Granger cointegration residual estimation, has been StationaryIf the residuals are stationary, research shows that the public is Variables

In this study, estimation of remaining Stationary tested and the results are in Table 6:

Table6: Estimated residuals Stationary by Dickey Fuller test

Variable	Dickey Fuller test	Significant risk
Estimation of residual	-4,2312	0,0001

Results show that the estimated residuals are stationary and engel and Granger Community for research data exists.

### 5 - Conclusions and Recommendations

The results show that the cost of renting has a negative and significant effect on the city number of rental homes. In other words, the negative slope of the demand curve, the demand for rental housing is true with the rising cost of rent, demand for rental housing decreases. The results also suggest that higher income individuals either directly by increasing income orhas been made indirectly by increasing the stock index and a significant positive effect on the number of rented houses in Isfahan. In other words, the demand curve, the transfer resulted in increased revenue and increased demand for rental housing. The facilities also have a positive effect on the dependent variable and suggest that the increased purchasing power facilities and demand for rental housing will increase. Results suggest that the cost of food and nonfood negative effect put on the dependent variable And show that the rate of purchasing power and demand for rental housing in the city decreases. The results also show a positive effect of population on demand for rental housing which shows that the population could increase demand. Based on the results of this study, the following suggestions are offered: As the results show, The cost of renting a negative and significant effect on the city has made a number of rental homes This study suggested an increased demand for rental housing, rental costs are reduced. In other words, controlling the cost of rental housing rent and suggest that government policies on property sector should be based

on the rent for cost control. Due to the increasing income of the population either directly by increasing income and indirectly by increasing the stock index and a significant positive effect on number of rented houses in Isfahan has been made, it is suggested, Policy changes in household income or developing markets To control and increase the number of rental homes in Isfahan to be adopted. In fact, government policies that directly or indirectly target income the demand for rental housing is also effective. On the other hand, with respect to the payment of the facilities had a positive effect on the dependent variable, Other studies suggest an increased demand for housing facilities for Astjary is paid. In other words, the central bank monetary policy can affect the demand for rental housing. Finally, based on the results show a positive effect of population on the demand for rental housing which shows that population policy adopted by the government can be directly targeted to rental housing demand.

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