

The Impact of Land Tenure Security on Housing Investment at Informal Settlements (The Case of *EslamAbad* Neighborhood, Tehran)

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Abstract

In recent years, tenure security has been one of the main objectives of improvement projects in urban poor settlements. Despite lots of international studies initiated in this field, it has received little attention in Iran. The main aim of this paper is to assess the influence of tenure security on the level of household investment in housing. Survey method is considered as the methodology of this research hence questionnaires were prepared and filled in EslamAbad Neighbourhood of Tehran, Iran. In this study, Legal, extra-legal, perceptive fear of eviction, and the probability of eviction were four main indices used to measure tenure security with household income index as a controller variable. The findings of the research showed that there is a significant relationship between three different kinds of tenure security. In addition, it revealed that between five indices used, only three indices (e.g. legal, household income and perceived fear of eviction) affect the level of investment in housing by household. In comparison to other indices, fear of eviction was the most important factor that affects tenure security.

Keywords: Land Tenure Security, Housing quality, Investment in Housing, *Eslam Abad* Informal Settlement, Tehran.

1. Introduction

Informal settlements exist worldwide, especially in developing countries. Lack of willingness to invest in housing, population density, low-quality housing, and illegal tenure are obvious characteristics of urban informal settlements, although the lack of tenure security is the most important characteristic. Previous studies have shown that improper urban management, lack of supportive policies to urban poor people, and land price increase are the main challenges of these kinds of settlements (Davis, 2007; Otiso, 2003; Reader, 2004). However, with the rapid growth of these settlements, most governments and international organizations inspired by De Soto findings and started scheduling programs to increase tenure security by providing legal titles. These programs assume that tenure security can enhance economic growth, reduce poverty, provide opportunities for investment and encourage business development in some cases (Van Gelder, 2010). Practically, programs of title oriented had poor results in most countries that implement these programs.

It is assumed that formalizing land occupation in informal settlements not only affords households legal protection against eviction from their land, but also enhances economic growth, reduces poverty, enables land markets, improves access to credit from banks (De Soto, 2000; World Bank, 2003), provides opportunities for

investment, encourages business development in some cases and increases willingness on the part of informal settlement dwellers to invest in their land (Van Gelder, 2010). In practice, many of assumptions of the mass titling programs, such as improved access to credit, have failed to materialize (e.g. Caldero, 2004; Durand-Lasserve & Selod, 2007; Pamuk, 2000; Van Gelder, 2009). Additionally, it leads to disruption of community and social networks in urban informal settlements (Bromley, 2008; Payne, 1997; Von Benda-Beckmann, 2003). It ignores the fact that 'extra-legal' tenure can offer important de facto protection against eviction (Durand-Lasserve & Selod, 2007; Payne, 2002; Payne et al., 2007). The case studies that carried out in 16 countries revealed that in addition to formal/legal title factor, other factors exist such as customary, religious, and extra-legal factors that influence tenure security in (in)formal neighborhoods (Payne, 2002; Durand-Lasserve, Alain and Roystom, 2002).

So lacks attention to customary systems in these informal settlements identified as the main cause of failure in these programs. Following this failure, recent approaches considered extra-legal and semi-legal factors as special additional factors (Varley, 1987; Payne, 1997; Durand-Lasserve, 2006).

Recent studies have shown that the best and most accurate approach to enhancing land tenure security in urban

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informal settlements would be to view tenure categories as a continuum along which tenure categories vary in terms of their degree of legality, rather than using a dichotomy (Durand-Lasserve & Selod, 2007; Fernandes & Varley, 1998; Payne, 1997, 2001; Razzaz, 1993; Varley, 2002).

Yet, people have been found to improve their houses in spite of not having a legal title (Gilbert, 1994; Van Gelder, 2007; Varley, 1987). Legality of tenure may therefore not be a necessary precondition for enhancing security of tenure, as security depends less on the exact legal status and more on occupants' perceptions of the probability of eviction (e.g. Broegaard, 2005; Gilbert, 2002, 1994; Payne, 2002, 2001; Razzaz, 1993; Turner, 1976; Varley, 1987).

Therefore, land tenure security depends on legal (e.g. land title), extra-legal (such as the duration of occupation, the size of the settlement, the degree of community organization, and the support that residents can obtain from civil society groups) and perceived factors (fear of eviction and probability of eviction) (Durand-Lasserve, 2006; Durand-Lasserve & Royston, 2002; Gilbert, 2002; Kundu, 2004; Payne, 1997, Van Gelder, 2007, 2010).

There has been a serious discussion as to what can make up land tenure security. Some have argued that legal title is a necessary condition for investment (e.g. De Soto, 2000; World Bank, 1993), while others have argued that perceived rather than legal tenure security is a more important for investing in housing (e.g. Broegaard, 2005; Gilbert 2002, 1994; Payne, 2002, 2001; Razzaz, 1993; Turner, 1976; Varley, 1987).

The basis of this challenge present study tries to identify the level of influence that different types of tenure security (legal, de facto and perceived) have on the level of dwellers' investment in their housing. The research has been conducted in the Islamabad neighborhood of Tehran.

2. Background

2.1. Land tenure security and housing investment

Briefly, Tenure security is the ability to live in a place without the fear of eviction that place" (UN-Habitat, 2003). The dominant policies up until the 1980s (Broegaard, 2005: 849) was to improve the security of tenure of the urban poor in informal settlements, which were often based on the idea that people should be given legal title to their housing (Dadashpouret al., 2011).

One of the key assumptions of this perspective is that titles form an important source of security for residents to improve their dwellings and also function as a motivation to invest in them (Jimenez, 1984; De Soto, 1989, 2000; World Bank, 1993). According to this perspective, dwellers without titles are assumed not to enjoy a high enough level of tenure security to invest significantly in their housing (Van Gelder, 2007: 220), and it suggested that households which possessed a land title were secure, whereas those households without such a title were not. However, this focus sidestepped the fact that, in many contexts, title possession is not necessarily equated with having a high level of tenure security" (Broegaard, 2005: 849). This perspective is not a universal phenomenon and merely a perspective.

Gilbert's (1994) Studies showed that people are confident that when they are left alone by the state, then they will improve their housing. According to this viewpoint, tenure security depends less on the exact legal status and more on occupants' perceptions of the probability of eviction and demolition" (Razzaz, 1993: 349). In summary, what is important for investing in housing is not legal title but rather some sense of perceived tenure security (Aristizabal, 2004; Broegaard, 2005; Caldero´n, 2004; Ferguson & Navarrete, 2003; Gilbert 2002, 1994; Karst, 1971; Payne, 2002, 2001; Razzaz, 1993, 1994; De Souza, 1999, 2000; Turner, 1976, 1972; Varley, 1987).

The perceived tenure security perspective does not negate the possibility that the title can generate tenure security but argues that tenure security can be achieved by different factors (Dadashpouret al., 2011). Other factors that have been said to establish extra-legal forms of tenure security are the provision of basic services, support networks (Payne, 1997) customary and religious structures (Razzaz, 1993), time of settlement, the size of the settlement site, cohesion and power of community organizations and political support, etc. (Durand-Lasserve & Royston, 2002; Durand-Lasserve, 2006; Gillbert, 2002; Payne, 1997). Therefore, land tenure security can be categorized by three types: Legal (e.g. providing formal title), De Facto (originating from components such as duration of settlement, size of houses, social interrelations, political supports, etc.) and Perceived (that it is the level of household perception from his/her tenure security) (Van Gelder, 2009: 3) (Fig. 1).

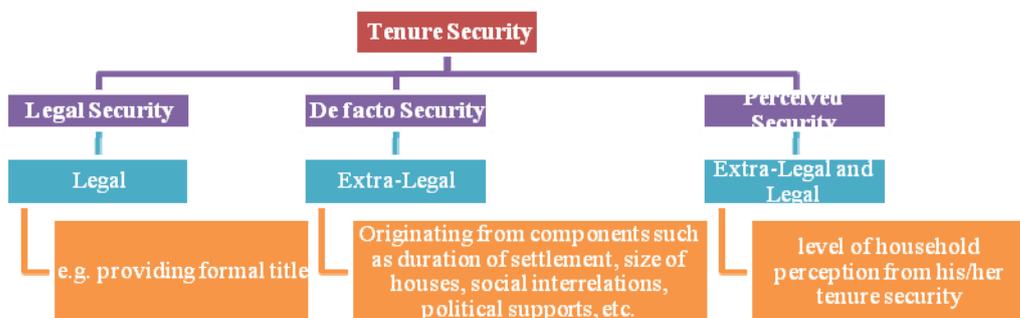


Fig. 1. Kinds of tenure security and their factors and means

Studies that have equated legal title with tenure security have ignored the fact that de facto or perceived tenure security is different and should, therefore, be distinguished from the legal title or legal tenure security, which is a formal and reasoned concept. Also, it can result in the price of land increasing thereby making it inaccessible for low-income groups in the form of service charges and property taxes (Payne, 2002; Van Gelder, 2007; Varley, 1987).

This is a fact that if dwellers of informal settlements think that they will not be removed by the authorities, they are likely to invest in their housing even in the absence of legal title/deed (Karst, 1971; Varley, 1987; Razzaz, 1993; Gilbert, 1994; 2002; De Souza, 2000; Payne, 2001; Ferguson and Navarrete, 2003; Aristizabal and Ortíz Gómez, 2004; Calderón, 2004; Broegaard, 2005, Van Gelder, 2009).

2.2. Informal settlements in Tehran, Iran

Informal settlements are an inclusive phenomenon and are one of the most obvious examples of urban poverty. These settlements are located in around or inside cities and they are formed without legal licenses. Informal settlement is the place in cities with physical texture which is commonly spontaneous, consisting of residential units which are built without technical principles (Ghahremani, 2018). Most residents are from low income people acting in informal market (Sarafi, 2003).

An increasing amount of population and structural changes in the rural economic system of Iran from the early 1960s has led to extensive migration of people from rural places to cities. Due to a lack of financial power, these households selected and settled in suburbs, on private lands without a readily identifiable owner and public lands in inner cities. The problem of informal/illegal settlements and the informality of housings vary in cities according to their type and scale of facilities and the degree of centralization of their industry. However, it is clear that informal settlements are one of the main challenges facing great cities of Iran like Tehran, Mashhad, Tabriz, Isfahan, Kermanshah, Ahvaz, Bandar-

Abbas, Zahedan and Rasht (Pooraghaee, 2004: 46) with one-seventh of the populations of these cities residing in informal settlements. Among these cities, the Tehran Metropolis has attracted many migrants due to its political and economic centrality.

The demographic changes in Tehran City from 1956-2016 shows that the population grew from 1.512 million people to 8.693 million people (about 5.7 times) (see Table 1).

At the present time, most of the experts consider the area as overloaded in terms of population and the activity and carrying capacity. In fact, during the past few years, due to the establishment of the employment centers and activities in the country, the city of Tehran has been the main focal points for attracting job seekers in the country (Salehi and Zebardast, 2015).

Surveys of these cities' populations (Piran, 1995; Pooraghaee, 2004; Zabardast, 2006) show that about 15% of this growth has happened in informal settlements (about 1.182 million people).

The most influential factors in the growth of informal settlements in Iran, especially in Tehran's metropolitan area, can be attributed to the following (Mahmoudi paty, 2008; Zebardast, 2006; Piran, 1995):

- Unfair distribution of power, wealth and income resources;
- A lack of affordable land for the urban poor because of high land prices in cities particularly in metropolitan areas;
- A lack of attention to the housing needs of the urban poor in urban physical plans;
- Poor people have difficulty accessing credit and loans in the banking system;
- A lack of an effective supervisory system in urban plans;
- A lack of institutions for specifically pooling and investing the assets of poor people;
- The existence of gangs of illegal land speculators and the inability of state organizations to control construction, especially in interstitial cities;
- Poor urban land management especially in land parcel creation, supervision, and control.

Table 1
The trend of population increase in Tehran City (in thousands).

Year	1956	1966	1976	1986	1996	2006	2016
Population	1512	4530	6042	6475	6759	7883	8693

Source: SCI, Statistical Center of Iran, 1956-2016

According to the rapid growth of informal districts in the country of Iran, the government has implemented programs to reduce and control these settlements. The most important of these programs are upgrading projects of poor urban neighbourhoods (including upgrading urban key services and infrastructure such as water, electricity, gas, etc.); the construction of public housing for the urban poor; and the provision of long term rental housing (99 years). Recently projects have focused on community-oriented and participatory approaches such as

empowerment programs for informal settlements. Unfortunately, the main objective of all of these programs relates to land tenure, by legalizing informal neighbourhoods through land titling programs. Lack of attention to extra-legal factors in informal settlements has been detected as the main cause of failure of these programs in Iran.

3. Study Design

3.1. Location

The Islamabad Neighbourhood is located in Region 2 of Tehran. This region is one of 22 regions within the Tehran Metropolis. It is located in the north-west of Tehran and extends over 5000 hectares. Islamabad Neighbourhood with 75 hectares is in the southern part of region 2. The influx of illegal settlements took place in 1979 on private lands. Now, almost 1,082 households live there and there are 1,059 residential units in this settlement (Fig: 2). It now has 3,747 residents with a male: female sex ratio of 104%. The economy of this settlement depends more on the informal market and most residents in this neighbourhood work in the black economy (i.e. colportage, flower shop, smoke shop jobs, etc). About

1,254 of residents (33%) are practitioners and 223 of them (6 %) are unemployed (SCI, Statistical Centre of Iran, 2006; survey studies, 2010). The housing quality in this neighbourhood is very low and households have no incentive for investment in improving the quality of their home. A review of economic, social and physical facts of Eslam_Abad Neighbourhood shows that it is an informal settlement with an absence of the planned urban fabric that occurs elsewhere in Tehran. Illegal tenure and the informal nature of settlements with its characteristically low quality of residential units were the main reasons for choosing this neighbourhood for the case study research.

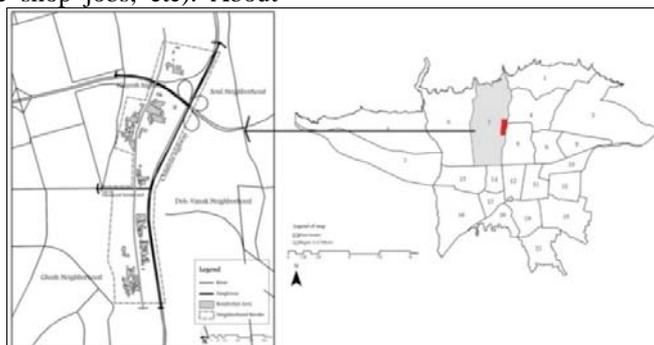


Fig. 2. The location of Eslam_Abad district in Tehran, Iran

3.2. Participants and procedure

Data were gathered by means of a survey that included 101 heads of household (62 men and 39 women) as respondents. The age of the respondents ranged from 29 to 82 years with an average of 47 years. Before carrying out the survey, a pilot study was performed in the settlement (N = 15). During the pilot study, the study questions were modified and simplified. Data were gathered during July 2016. The survey was carried out both on weekdays and during weekends. The research was completed in an ethical manner, with respondents being assured of anonymity.

3.3. Study variables

3.3.1. Legal tenure status

From the viewpoint of the production of land, a parcel is said to be legal when it complies with the various statutory requirements (i.e. lot dimensions, location, infrastructure, paid taxes, registered property title)

imposed by the legislation then in force and administered by relevant governance (De Soto, 2000, p. 136).

In this study, four different categories of legal tenure status were initially identified (Table 2). The first category, 'squatters' (n = 9), included dwellers who had gained their plot by squatting and still had no documents attesting a legal claim to that plot. The second kind of tenure system (n = 61) included residents who claimed to have bought their plot through an agreement with the original owner, but they had no title document to prove their claim. The third kind of tenure system, 'informal owners' (n = 24), included residents who gained their dwelling by purchasing it and had a title deed. But they could not claim to have had legal title, because they lacked the requirements for registration or they had not initiated or completed their registration of title. The fourth group (n = 2) had met all legal requirements and were termed 'registered owners'.

Table 2

Classification of sample households based on the tenure forms and the level of security.

Form of tenure	Squatters	Informal owners (had no proofing document)	Informal owners (had a proofing document)	Registered owners
Number	9	61	24	2
Level of security	Non	low	average	full

3.3.2. De Facto tenure security

This kind of tenure security can best be defined by the items that include the provision of basic services, support networks (Payne, 1997), time of settlement, the size of the settlement site, cohesion and power of community organizations, and political support, etc. (Durand-

Lasserve & Royston, 2002; Durand-Lasserve, 2006; Gillbert, 2002; Payne, 1997, De Soto, 2009).

In the present study, the three de facto tenure security items were measured using 5-point scales with possible answers ranging from 'very low' to 'very high'(Table 3). The mean score was 3.23.

Table 3

Indicators of de Facto tenure security.

Indicator	Very low	Low	Average	High	Very high	Mean score
Time of settlement	7	26	23	28	17	3.22
Power and coherence of community organization	8	19	27	29	18	3.29
Provision of infrastructure facilities and service	10	17	37	19	18	3.18

3.3.3. Perceived tenure security

The Indicators in the survey used to measure tenure security were based on the social psychological theory of risky decision-making. According to this approach, the perceived tenure security was divided into two categories: (1) perceived probability of eviction; and (2) the fear of eviction¹ (Van Gelder et al., 2005, 2007, 2009).

In this study, the three perceived probability of eviction indicators and the four fear of eviction indicators were measured using 5-point scales with possible answers ranging from 'completely disagree' to 'completely agree' (Table 4 and 5).

The mean score of the fear of eviction was 3.4 with a reliability alpha of 0.84. In addition, the mean score and reliability for the perceived probability of eviction were 3.01 and 0.783 respectively.

Table 4

Indicators used for measuring the fear of eviction

Indicator	Completely disagree	Disagree	Maybe	Agree	Completely agree	Mean score
The lack of a local and social support network in the neighborhood worries me	5	19	28	17	29	3.39
The lack of land title worries me	5	11	35	20	30	3.58
The lack of services by the municipality in my neighborhood worries me	7	11	30	26	24	3.51
The possibility of an eviction worries me	11	19	33	23	15	3.12

Cronbach's alpha = 0.84

Table 5

The Indicators used for measuring the perceived possibility of eviction.

Indicator	Completely disagree	Disagree	Maybe	Agree	Completely agree	Mean score
The possibility that my existing home will not be habitable within the next 5 years	14	25	30	22	10	3.89
The possibility that I will have to move to a formal neighborhood within the next 5 years	10	21	32	22	16	3.128
The possibility that we will get evicted from this neighborhood is always present	12	22	27	31	9	3.03

Cronbach's alpha= 0.783

3.3.4. The level of household investment in housing improvements

In this study, the three indicators that were selected to measure this variable were: (1) the level of household willingness to increase the number of existing housing stories; (2) the desire to get a loan to buy/improve the

existing house; and (3) the intent to buy housing for their children in this neighbourhood. Items were measured using 5-point scales from "very low" to "very high"(Table 4). Scores from the different items were then combined into one composite score (mean score= 3.18).

Table 6

The Indicators used for measuring the level of household investment in housing

Indicator	Very low	Low	Average	High	Very high	Mean score
The level of household willingness to increase the number of existing housing stories	4	20	39	25	13	3.28
The desire to get a loan to buy/improve the existing house	9	19	37	25	11	3.19
The intent to buy housing for their children in this neighborhood	8	21	33	30	9	3.09

3.4. Statistical techniques of study

In this study, in order to test for relationships between the indicators of the fear of eviction and the perceived probability of eviction, Cronbach's Alpha technique was applied. Cronbach's Alpha can take a maximum value of 1 and Alphas's of .70 and higher are generally considered

as indicating adequate to good reliability. Correlation coefficients were also determined and regression analysis applied.

4. Findings of Research

In order to test whether there were significant correlations between the three different forms of tenure (tenure security as perceived by dwellers, tenure security as a legal construct and De Facto tenure security) and

household income with the level of household investment as the independent variable, the statistical technique of Pearson correlation was applied (see Table 6).

Table 6

Correlations between de facto tenure security, legal tenure status, perceived probability of eviction, perceived fear of eviction, household income, and the level of household investment in housing

Variables	V1	V2	V3	V4	V5	V6
V1-De facto tenure security/extra-legal indices	1					
V2- Legal tenure security/Legal tenure status	.374**	1				
V3- Perceived fear of eviction/thinking of eviction	-.381**	-.408**	1			
V4- the Perceived probability of eviction/felling of eviction	-.360**	-.389**	.722**	1		
V5- Household income	.221*	.311**	-.243*	-.223*	1	
V6- the Level of household investment in his/her housing	.321**	.484**	-.513**	-.455**	.356**	1

**p < 0.01, *p < 0.05, N = 101

According to the results set out in Table 6, it can be seen that there is a positive significant relationship evident for the dependent variables of De Facto and legal tenure security when compared with the level of household investment in housing. This means that for households with high de facto security, they have a higher motivation to invest in housing. Also, for households where their legal tenure status is high, they have a higher willingness to invest in their housing. In addition, as can be seen from Table 3, both the perceived probability and fear of eviction are significantly (negatively) correlated with the level of household investment in housing (the results of the Pearson correlation test also show that a strong positive significant relationship exists between perceived probability and fear of eviction). This negative correlation means that households whose perceived security are high/good, both in terms of perceived probability and in terms of fear of eviction, are more willing than other households to invest in housing. These results support the

hypothesis that perceived tenure security is related to housing improvement as households with higher perceived tenure security, both in terms of perceived probability and fear of eviction, are more likely to invest more money in their dwellings than do households with lower perceived tenure security. The income of households correlates significantly (and positively) with the level of household investment in housing: richer households are more likely to invest in improving the quality of their housing.

Finally, in order to test which of the factors is a better predictor of tenure security, the Multi- Regression statistical technique was applied. Table 7 represents the results of step-wise regression analysis, in which the predictor factors were added in different steps, with the level of household investment in housing as a dependent variable. In all of these steps, the household income index was used as a control variable (Table 7).

Table 7

Stepwise Regression of the level of household investment in housing and de facto tenure Security, legal tenure status, fear of eviction, the probability of eviction, and household income

Step	Variable	β	sig
Step 1	De facto tenure security	.255	.007
	Household income	.299	.002
	R	.434	
	Square r	.188	
Step 2	Legal tenure status	.413	.000
	Household income	.227	.013
	R	.530	
	Squarer	.281	
Step 3	Fear of eviction	-.345	.005
	Probability of eviction	-.153	.207
	Household income	.238	.007
	R	.575	
Step 4	Square r	.331	
	De facto tenure security	.044	.630
	Legal tenure status	.262	.006
	Fear of eviction	-.275	.024
Step 4	Probability of eviction	-.100	.040
	Household income	.176	.043
	R	.624	
	Square r	.390	

Dependent Variable : household investment in housing; P-value (Sig)< 0.05, N = 101

In step 1, the influence of the de Facto tenure security (extra-legal indices) and household monthly income on the dependent variable (the level of household investment in housing) was tested. The results of the regression analysis show that the standardized beta for both De Facto tenure security (extra-legal indices) and household income are significant. It also shows that household income as the dependent variable is more influential than the De Facto tenure security factor. The r-square result shows that about 19% of changes in the level of household investment in housing were determined by the two variables of income and the De Facto tenure security of the household.

In step 2, the strength of influence of legal tenure security and household income variables were tested on the level of household investment in housing. The results showed that two variables of legal tenure status and income of a household can predict about 28% of the level of household investment in housing, and it showed that the influence of legal tenure status as the dependent variable is more important than household income.

In step 3, the effect of perceived tenure security (perceived fear and probability of eviction) was considered on the level of households investment in housing (household income index was used as a control variable in regression analysis as in the previous steps). The findings of this step show that perceived probability is not a significant predictor for a household's willingness to invest in the housing when it was tested simultaneously with fear of eviction (as indicated by the standardized

regression coefficient 'β'). This means that the predictive power of the perceived probability of eviction is reduced considerably when it was put together in the equation with the fear of eviction index. However, the fear of eviction index remains a significant predictor, implying that the effect of the perceived probability of eviction is significantly explained by fear of eviction and that the latter is a better predictor than the former. Furthermore, as can be seen in Table 4, the simple correlation between the level of household investment in housing and the perceived probability of eviction indicates a significant positive relationship. In addition, the results showed that fear of eviction variable can predict about 33% of households' willingness to invest in the improvement of housing quality.

In step 4, the effect of total tenure security was tested on the level of household investment in housing. At this step, all indices (de facto tenure security, legal tenure status, fear of eviction, the perceived probability of eviction and household income) were considered in the regression analysis.

The findings showed that the dependent variable (e.g. index of household investment in housing) is predicted by about 39% of all indicators together; also, it showed that the de facto tenure security (as a distinct kind of tenure security) is not a significant predictor of the level of a household's investment in housing (sig=0.63; it is >0.05) when tested simultaneously with two other forms of tenure security (e.g. perceived by dwellers and legal construct).

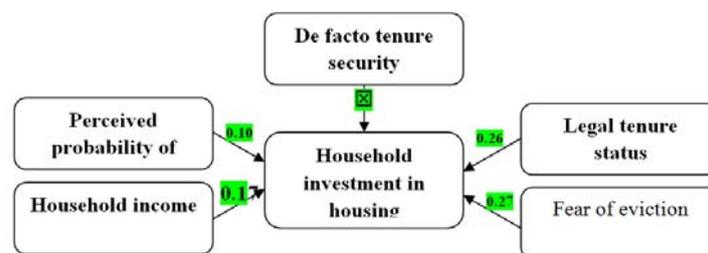


Fig. 3. the level of impact of land tenure security indicators on investment of Eslam_Abad (informal settlement) households in housing

This means that De Facto Tenure Security is reduced considerably when combined in the equation with the other two-tenure security types; making the former a modest predictor of the level of a household's investment in housing. In addition, according to the results of the multi-regression analysis, it can be claimed that the perceived probability of eviction is not a significant predictor for the level of household investment in the housing when tested simultaneously with the fear of eviction.

5. Conclusions

In this paper, tenure security is divided into three different categories, namely " Legal, De facto, and Perceived". Furthermore, legal, extra-legal and perception (thinking and feeling state) indices were used. This research

assessed the effect of tenure security on the level of household investment in housing in the Eslam_Abad neighbourhood, Tehran, Iran. The findings of the research showed:

- That there is a significant relationship between three distinct kinds of tenure security (legal, de facto and perceived). This means that all three factors affect the level of perceived tenure security of the household.
- It showed that among five indices of the present research, only three indices (e.g. legal, household income and perceived fear of eviction) affect the level of household investment in housing, and specified that the effect of perceived fear of eviction index was more than other indices.

- In addition, it showed that the effect of extra-legal factors on tenure security is lower than that of other factors in Eslamabad Neighborhood. This means that extra-legal factors have a lower effect than the other (e.g. legal and perceived) indices on the level of household investment in quality housing improvement. This finding of the research is different from findings of the research on this topic by Jiménez(1984), Friedman et al., (1988), De Soto, (1989), M. DE Souza, (1999), Kim, (2004), J. Van Gelder (2009) and G. Reerink & J. Van Gelder, (2010).

With reference to the above results, two main points to increase tenure security and households' investment in the improvement of housing in Islamabad Neighborhood are suggested:

- To enhance the quality of housing and improve the security of tenure in informal settlements, upgrading programs should focus more on perceived indicators and those programs should devote greater attention to titling programs in the long term.
- State agencies should avoid projects and actions that increase households' worry, stress, fear, and anxiety about their tenure situation to help improve quality of housing and enhance the level of dwellers' investment in housing.
- Whilst Informal Settlements continue to be a significant and on-going component of the housing stock in cities in the developing world such as Tehran, the adoption of policies to ensure tenure security for their residents would potentially do much to break down the entrenched structural social disadvantage often experienced, thereby providing these residents with hope and encouragement of a better future that embraces life beyond their Informal Settlements.

References

- 1) Aristizabal, A. (2004)'Improving security without titles in Bogotá',Habitat International 28:245–58.
- 2) Bigdeli. D. (2004) 'Organizing informal settlement: Case of research, Alley of Fatemiyeh Zanjan' M.Sc. The thesis of Geography and Urban Planning, University of Zanjan: In Persian.
- 3) Broegaard, R.J. (2005)'Land tenure insecurity and inequality in Nicaragua'Development and Change 36: 845–864.
- 4) Bromley. D. W. (2008) 'Formalizing property relations in the Developing world: the wrong prescription for the wrong malady' Land Use Policy 26:20–27.
- 5) Calderón. J.A. (2004) 'The formalization of property in Peru 2001–2002: the case of Lima' Habitat International 28: 289–300.
- 6) Dadashpour, H. B. Alizadeh & M.Rafian. (2011) 'Examining and Analyzing of the Role of Land Legal and De-Facto Tenure Security in the Level of Residents Participation in Improvement Programs: The Case Study of Eslam_Abad Neighborhood of Tehran, Iran' Urban - Regional Studies and Research Journal 7: 91-112. [in Persian]
- 7) Daneshpour, S.A and Soleimani Roudi, A. (2018)' Exclusionary Decision Making in Tehran Metropolitan RegionComplexity, Self organization and Power of Action' Space Ontology International Journal, Vol 7, Issue 3, pp. 23-34.
- 8) De Soto, H. (2000)'The mystery of capital: why capitalism triumphs in the West and fails everywhere else', New York.
- 9) De Soto. H. (1989)'the Other Path: The Invisible Revolution in the Third World. Harpers and Row Publishers Inc' New York.
- 10) De Souza. F. A. M. (1999)'Land tenure security and housing improvements in Recife, Brazil' Habitat International 23: 19–33.
- 11) De Souza. F.A.M. (2000)'Perceived security of land tenure in Recife, Brazil' Habitat International 25:175–90.
- 12) Durand-Lasserve, A. H.Selod. (2007)'The formalization of urban land tenure in developing countries'In Paper Presented at the World Bank's Urban Research Symposium: Washington, DC: 14–16.
- 13) Durand-Lasserve. A. L. Royston. (2002)'International trends and country contexts - from tenure regularization to tenure security' London, Earthscan
- 14) Durand-Lasserve.A. (2006)'Informal settlements and the millennium development goals: global policy debates on property ownership and security of tenure' Global Urban Development 2: 1–15.
- 15) Ferguson B, J. Navarrete. (2003)'New approaches to progressive housing in Latin America: a key to habitat programs and policy' Habitat International 27: 309–23.
- 16) Fernandes. E. A. Varley. (1998) ' Law, the city and citizenship in developing countries' an introduction: London,
- 17) FIG/UNCHS. (1998)'Informal Settlements, Security of Tenure, Urban Land Management and Local Governance: Experiences in Implementing the Habitat Agenda' Draft Report of the Durban Conference August 1997. 49 Pages unedited report.
- 18) Friedman J., E. Jimenez, S.K. Mayo. (1988)'The demand for tenure security in developing countries'Journal of Development Economics 29:185–198.
- 19) Ghahremani, M. (2018)' Investigating the Relationship between Density and Social sustainability in Informal Settlements, Case Study: Khezzr District of Hamadan' Space Ontology International Journal, Vol 7, Issue 2, pp. 47-54.
- 20) Gilbert, A. G. (2002)'On the mystery of capital and the myths of Hernando De Soto: what difference does legal title make?' International Development Planning Review 16: 1–19.

- 21) Gilbert. A.G. (1994)'The Latin American City'
The Latin America Bureau: London.
- 22) Jiménez. E. (1984) 'Tenure security and urban squatting' *The Review of Economics and Statistics* 66: 556–567.
- 23) Karst. K.L. (1971)'Rights in land and housing in an informal legal system: the barrios of Caracas'
American Journal of Comparative Law 19: 550–74.
- 24) Kim. A. (2004)'A market without the right property rights' *Economics of Transition* 12: 275–305.
- 25) Kundu. A. (2004)' Provision of tenurial security for the urban poor in Delhi: recent trends and future perspectives' *Habitat International*, 28:259–274.
- 26) Mahmouddee Paty. F. (2008)'Policies of urban land management' shahidy-ee Press, Tehran: In Persian.
- 27) Ministry of Housing and Urban Development. (2003)' National Document of Empowerment in informal settlements' [In Persian].
- 28) Pamuk. A. (2000)'Informal institutional arrangements in credit, land markets and infrastructure delivery in Trinidad' *International Journal of Urban and Regional Research* 24: 379–396.
- 29) Payne. G, Durand-Lasserve, A., & Rakodi, C. (2007)'Social and economic impacts of land titling programmes in urban and peri-urban areas: a review of the literature' Paper prepared for the World Bank's fourth Urban Research Symposium, Washington, DC, May ,14–16.
- 30) Payne. G. (1997)' Urban land tenure and property rights in developing Countries' A Review, IT Publications/Overseas Development Administration: London.
- 31) Payne. G. (2001)' Urban land tenure policy options: titles or rights?' *Habitat International* 25: 415–29.
- 32) Payne. G. (2002)' Land, rights, and innovation: Improving tenure security for the poor' ITDG Publishing London,
- 33) Piran. P. (1995)' Informal settlements in Iran' *Ettelaat-e-Siasi and Eghtesadi* 95: 125–129.
- 34) Pouraghaee. A. (2004)' Examining and analyzing of informal settlements in Rasht city and suitable solutions for their presses'M.Sc. The thesis of Geography and Urban Planning, University of Yazd: In Persian.
- 35) Razzaz. O. M. (1993)'Examining property rights and investment in informal settlements: the case of Jordan' *Land Economics* 69(4): 341–355.
- 36) Reerink. G., J. L Van Gelder. (2010)' Land titling, perceived tenure security, and housing consolidation in the kampongs of Bandung, Indonesia'*Habitat International* 34: 78–85.
- 37) Salehi, E and Zebardastb, L. (2015)' Application of driving force- Pressure- State- Impact-Response (DPSIR) Framework for Analyzing the Human habitat in City of Tehran' *Space Ontology International Journal*, Vol 4, Issue 2, pp. 65-71.
- 38) Sarafi, M. (2003)' Overview of features in spontaneous settlements in search empowerment strategies, Proceedings of marginalization and informal settlements' University of Welfare and Rehabilitation Sciences publications, Tehran, Iran.
- 39) Statistical Center of Iran – SCI. (2006)' Results of the Population and Housing Census; Tehran Province, Tehran' [In Persian].
- 40) Turner. J.F.C. (1976)' Housing by people: towards autonomy in building environments'Marion Boyars, London.
- 41) UN-Habitat. (2003)' The Challenge of Slums: Global report on human settlements' Earthscan, London.
- 42) Van Gelder, J. L. (2009)' Legal tenure security, perceived tenure security and housing improvement in Buenos Aires: an attempt towards integration' *International Journal of Urban and Regional Research* 33: 126–146.
- 43) Van Gelder, J.L., F. Ostuni and T. Endres (2005)' Being in the air: tenure security and housing investment in five informal settlements in Buenos Aires' *Medio*
- 44) Van Gelder. J.L. (2007)' Feeling and thinking: quantifying the relationship between perceived tenure security and housing improvement in an informal neighborhood in Buenos Aires' *Habitat International* 31: 219–231.
- 45) Varley, A. (1987)' The relation between tenure legalization and housing improvements: evidence from Mexico City'*Development and Change* 18: 463–481.
- 46) Varley, A. (2002)' Private or public: debating the meaning of tenure legalization'*International Journal of Urban and Regional Research* 26(3): 449–461.
- 47) Von. Benda-Beckmann. F. (2003)' Mysteries of capital or mystification of legal property?' *European Journal of Anthropology* 41: 187–191.
- 48) World Bank (1993)' Housing: enabling markets to work'World Bank, Washington, DC.
- 49) World Bank. (2003)' Land policies for growth and poverty reduction'a World Bank policy research report, Washington, DC.

ⁱ The indicator measuring the perceived probability of eviction refers to an estimate of the chance of it happening, a thinking state, whereas the indicator measuring fear of eviction refers to a feeling state.