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Gated communities from the perspective of developers[1]

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Abstract

Gated housing areas have increasingly become a profitable segment in the real estate market as well as a new marketing angle for developers to meet the demand for security, status/prestige, and lifestyle. The development patterns of gated communities in many countries show that developers recognize the opportunity to sell safety and security to a niche market. Against this background, the aim of this paper is to investigate the development process of gated communities in a metropolitan city, Istanbul, from the perspective of developers. The data and information used for evaluation are based on the extensive survey questionnaires filled out by developers of gated communities. A "logistic regression method" is deployed to identify the most important factors on approaches and behaviours of developers. Therefore, the motivating factors both in the decision-making and production-marketing process of developers are evaluated. This evaluation enables us to highlight the characteristics of the real estate market.

Keywords: gated communities, logistic regression, developer, investor, Istanbul

[1] This paper is based on the master thesis titled "A NEW TREND IN URBANIZATION: GATED COMMUNITIES IN ISTANBUL" of Aliye Ahu Gülümser supervised by Assoc. Prof. Dr. Tüzin Baycan Levent in January 2005.

1. INTRODUCTION

One of the defining characteristics of urbanization in the last quarter of the twentieth century has been the rapid spread of proprietary urban communities (Webster, 2001). Gated communities have been the typical patterns of this development.

There is no single definition and no consensus about the concept: "gated communities". In the literature, many concepts are used to refer to this phenomenon. Among these concepts used by researchers; "gated communities" (Blakely and Snyder, 1997a-b; Davis, 1992a-b; Landman, 2000a-b; and Low, 2001; 2003), "gated enclaves" (Grant, 2003), "edge cities" (Garreau, 1991), "enclosed neighborhoods" (Landman, 2000c), can be mentioned. The definitions and perceptions of what constitutes a gated community vary quite considerably. They differ to the degree that public access to the nature is maintained, to the degree of extent of common space/public space ownership and also due to the location and cultural characteristics. Even though, a general definition can be given as "gated communities are physical private areas with prohibited access and directed with special rules where outsiders and insiders exist."

Gated communities have increasingly become a new development trend in the real estate markets viz. housing market, industrial market, retail market etc. In the last years gated communities have emerged as a new trend in housing market with their different characteristics in which social segregation and identity features have become more prominent and strict than the past.

Gating a housing estate becomes a mechanism to protect property values from being affected by changes in the city and a way to market a property as more exclusive (Gooblar, 2002). Therefore, in these days, gated housing areas are a profitable segment in the real estate market as well as a new marketing angle for developers to meet the demand for security, status/prestige, and lifestyle. The development patterns of gated communities in many countries show that developers recognize the opportunity to sell safety and security to a niche market in which customers find new lifestyle choices.

Today, market of gated communities which first started in the US becomes a global phenomenon and has grown in both developed and developing countries (Minton, 2002). In Turkey, the phenomenon of gated communities first appeared in 1980s by socio-economic changes related to globalization and restructured laws, as secondary houses in the coastal zones. The demand for gated communities moved through the big cities because

of the code created by these communities, the prestige. Therefore, Istanbul, the most populated city of Turkey gets the most of the gated communities' demand and attracts most of the private investors to meet this demand. The production of developers and investors of large-scale real estate investments becomes a marketing angle and another way to target specific submarkets.

In Istanbul, gated communities emerged both in inner and outer city of both continents Europe and Asia (Baycan Levent and Gülümser, 2004a-b). They are usually located in the areas where quantity and quality of natural areas are high as well as available land by size and price exists. Basically, these areas are located in northbound of Istanbul where large forests, slums and rural areas are located. This situation faces Istanbul with a striking contrast at the outskirts of the metropolitan area, between gated communities and their rural vicinity.

Against this background, the aim of this paper is to investigate the development process of gated communities in a metropolitan city, Istanbul, from the perspective of developers. The data and information used for evaluation are based on the extensive survey questionnaires filled out by developers of gated communities. A "logistic regression method" is deployed to identify the most important factors on approaches and behaviours of developers. Therefore, the motivating factors both in the decision-making and production-marketing process of developers are evaluated. This evaluation enables us to highlight the characteristics of the real estate market.

The next section investigates developers of gated communities by focusing on their role in planning these communities. In the following section, the empirical results and the perspective of developers are examined. The paper concludes with an evaluation of the results by emphasizing the motivating factors of the market of gated communities.

2. GATED COMMUNITIES AND ITS DEVELOPERS

Gated communities have formed a niche market in the real estate market. For developers, these types of housing were first a space market but nowadays they become an asset market as well (Baycan Levent and Gülümser, 2004a). In other words, either there is a need or demand for gated developments, developers built up new gates to force and protect property values stable. This gives to developers the opportunity of being reliable by

their customers through which they become a brand, by which they achieve the success in their first aim “to gain money”. Becoming a brand and being reliable by their customers provide developers a permanent customer portfolio. This portfolio guarantees the sales of future projects.

Besides these general characteristics, developers of gated communities do not built only houses, but also, they create a new self-sufficient settlement with a well constructed identity. Either these settlements are small or large scale projects, the developers plan their communities for their target profile.

They take various land use decisions for a private zone where they are the manager and the planner at the same time; therefore, they provide a service of more secure property rights for their residents. In other words, they create and conserve the properties of their community and increase property values inside. It is obvious that the developers have incentives to think carefully about the rules which will govern the development after to be completed (Gordon and Keston, 2000).

All these actions are a synthesis of the whole. Developers of gated communities do not sell only houses, but also a way of living where all public issues are private and well developed. The common view of many researchers about gated communities is that this type of housing transform urban environment. In other words, developers develop and orient the plans of the gated developments and visions of their residents (Jacobs, 1992; Gordon and Keston, 2000), but additionally radically transform the whole city.

Although the early examples of gated communities oriented to the high income groups, nowadays, these settlements orient also to the middle income groups (Baycan Levent and Gülümser, 2004a-b; Gordon and Keston, 2000). Developers have achieved to create new lifestyles by building gates, walls and by providing security facilities, therefore, they have created indispensable features of gated communities. These features help to ensure privacy and show insiders as important persons.

Undoubtedly, developers of gated communities are creators, planners, authorities of these settlements. As gated communities are not accepted as a special type of housing in many countries, their developers become a kin of local authorities by their contributions to their vicinity. If developers continue to guide and control the market and the inhabitants’ visions in that way, they may become suddenly the planning authorities of cities in the future.

3. GATED COMMUNITIES FROM THE PERSPECTIVE OF DEVELOPERS

3.1. Prefatory Remarks

The aim of this paper is to investigate the development process of gated communities in a metropolitan city, Istanbul, from the perspective of developers. The data and information used for evaluation are based on the extensive survey questionnaires filled out by developers of gated communities. Our sample consists of 31 gated communities which are located mainly along the Bosporus and 22 developers who have built these settlements.

The method of logistic regression is deployed to identify the most important factors on approaches and behaviors of developers. The logistic regression model is simply a non-linear transformation of the linear regression. Binary logistic regression is a type of regression analysis where the dependent variable is a dummy variable (coded 0, 1) (Whitehead, 1999). Binomial (or binary) logistic regression is a form of regression which is used when the dependent is a dichotomy and the independents are of any type (Garson, 2004). Logistic regression can be used to predict a dependent variable on the basis of independents and to determine the percent of variance in the dependent variable explained by the independents; to rank the relative importance of independents; to assess interaction effects; and to understand the impact of covariate control variables.

Related to logistic regression, Wald statistic, correct classification rate is used in this study. The Wald statistic is the t type statistic that determines the marginal effect of each independent variable (Başarır, 1990). On the other hand, correct classification rate is an important factor that shows performance of the model. Since logistic model is a non-linear type of the linear regression, the statistics which show the model validity is chi-square (Hosmer and Lemeshow, 1989). To formulate the equations forward selection is used. The sample is so limited that the forward variable selection gives the opportunity to get more sensitive solutions from the models.

The study is constructed on three sub-models viz. (i) investment reasons of developers, (ii) success of gated projects and (iii) gated communities in the future market. The variables used in these sub-models are sorted out by the data obtained from in depth interviews and questionnaires done by developers.

The independent variables derived in the equations can be grouped under the titles; the market of gated communities, land characteristics, contribution of gated communities to the city, housing market, and the financial resources of gated projects. These categories have many sub-titles according to the questions asked to the developers. However, not all the variables are included in the final equations, the ones which are included in are coded with the letter "X" while the dependent variables are coded with letter "Y" (Table 1). Therefore, the variables excluded in the final equations are included in the constant value and without them the equations have no meanings.

Table 1. List of variables included in the final equations

CODE	VARIABLE NAME	VARIABLE DESCRIPTION
Y1	Investment Reasons Of Developers	Investment reasons mentioned by developers
Y1.1	Demand	Demand for gated communities in the market as a result of the analyses done by developers
Y1.2	Beneficial	Developers invest with the reason that gated communities are beneficial than non-gated houses
Y1.3	Name	Name and reliability of the developer in the market
Y1.4	New Trend	Gated communities are a new trend in housing market
Y1.5	Alternative Life	Gated communities create an alternative life for their residents
Y1.6	Richness Of Visual Environment	Gated communities' locations have a richness of visual environment
Y1.7	Coincidence	Developers invest in gated communities by coincidence
Y2	Success Of Gated Projects	Success of developers achieved by gated projects
Y3	Gated Communities In The Future Market	The future demand for and market of gated communities
X1	Pioneer	Pioneer gated developments and being the first in the market
X2	No Illegal Urbanization	The elimination of illegal urbanization
X3	New Employment Sources	Creation of new job opportunities for inhabitants of the city
X4	Motorway	The existence of motorway in the neighborhood
X5	Infrastructure	The existence of the infrastructure in the neighborhood
X6	Investment	Market of gated communities attracts developers by
X7	Marketing Of Gated Communities	Marketing tools of developers for gated communities
X8	Fashion	Gated communities are spread out in Istanbul as a fashion
X9	Future Demand	The change of the demand of gated communities in the future
X10	Quality Of Construction	The quality of construction and the components of the units which are different than non-gated houses

3.2. Empirical Results of the Study

Gated Communities and Their Developers in Istanbul

A house is a primary need of inhabitants of the cities. Housing sector is a well developed sector especially in big cities and metropolises by the entrance of private capital in the housing market. Istanbul, the most populated city of the country, has a huge lack in housing stock.

To meet the demand both public and private sector produce several types of houses. However, the private sector has a big share in the market. So, the private sector in the real estate market tries to meet the demand of their customers by creating some distinctive facilities and services. The great expectations of customers push the developers to find the best solutions and they have to change or to improve their understanding of quality of

construction as well as the quality of life. In Istanbul, the new social class which appeared by the socio-economic changes in 1980s, asked for high standards of living, therefore the developers had to increase the quality of the housing.

Gated communities are a new trend of housing in Istanbul. Actually they form a niche market in housing sector of Istanbul. To enter this niche market, developers usually establish a firm which calls with the same name of a planned project. Sometimes they can be a sub-firm of a group of firms or a holding that they can also be active in different sectors than housing. In our sample, from 22 developers, 12 of them are only active in housing sector but the rest 10 developers are mainly active in service sector like tourism, automotive, production of energy and food, retail, mining and ceramic sectors.

In Turkey, developers are not different firms from construction or investment firms; they usually play all the roles in the development process. Usually investors as land owners asked to developers to develop a project in their lands and they use developer firms as construction firms. In our sample, only 2 of the gated developments used different investor firms than developer firms.

Developers have a great spectrum of characteristics; they are both old and newly founded firms. From 22 developer firms, while 11 of them are founded after 1980, 9 of them are founded between the years 1950-1980. These 9 firms are general contractor or construction firms which are already in housing sector. According to the number of employees, the firm size changes from small to big. While 27,3 % of the developer firms are small sized firms with less than 30 employees, 31,8% of the firms are medium sized with 30-60 employees and 22,7% of the firms are big sized with more than 100 employees. Firms which entered to the housing market are usually medium sized firms. All the firms are national in terms of capital partnership; either they are real estate investment firms or construction firms they are usually anonym firms.

Developer firms are generally established for the gated project itself, and most of them stop their activities after the project. In our sample 7 developer firms have only 1 project whereas 5 developer firms have 2 projects. Among these developers, 14 developer firms develop also different gated communities from residential ones such as, industrial, retail, office blocks etc. This shows that these developers are well experienced firms on all kinds of self-contained, secured communities in the real estate market.

The reasons behind the increasing demand for gated communities, is primarily prestige which is emphasized by 86,4% of developers. Although all gated communities provide security, 77,3% of developers indicated that security is less important than prestige (Table 2). This clearly shows that gated communities are developed in Istanbul by the need of prestige.

Table 2. The Spread reasons of gated communities in Istanbul

CODE	SPREAD REASON	COUNT	PCT OF RESPONSES	PCT OF CASES
	Prestige	19	21,6	86,4
	Security	17	19,3	77,3
	Unit Type	10	11,4	45,5
	Natural Environment	9	10,2	40,9
	To Be Community	8	9,1	36,4
X8	Fashion	8	9,1	36,4
	Accessibility	6	6,8	27,3
	Payment Facilities	5	5,7	22,7
	Good Infrastructure	2	2,3	9,1
	Contemporary Urbanization	2	2,3	9,1
	Earthquake Resistance	1	1,1	4,5
	No Answer	1	1,1	4,5
	TOTAL RESPONSES	**88**	**100,0**	**400,0**

Even they find out why people chose gated communities and developers decide to invest in a gated project, where to build such a community is still a question. People ask for prestige in Istanbul. So, for developers to find undiscovered areas is very important in terms of becoming brand in the market and being the pioneer even it is risky. So, undiscovered land are where the motorways do not exist however, all those developments have a connection of motorway (X4). Another indicator for the undiscovered land is the level of infrastructure (X5) that gated communities which are located in the city do not need to reinvest for infrastructure; they invest only inside the development for some services. For large scaled projects, to invest for infrastructure is a necessity but these communities give the responsibility of these services to municipality when they completed. Gated communities are located in the areas where life has already started they can have at least 1 technical infrastructure. In other words, 68,1% of them has the highest level of infrastructure, so in such a big city, Istanbul to find out undiscovered lands is not an easy job.

After finding the right site to locate, developers start to develop their projects meanwhile they start also to develop marketing strategies to attract consumers' attention, interests and desires. Developers try to stimulate the potential customers. There is more than one marketing strategy; however, their main strategy is to create "a lifestyle", "a neighborhood life". This strategy is derived with the idea of regeneration of lost social

values and it also refers to the main spread reason “prestige” of gated communities. People are looking forward to getting prestige and status which are created by a new lifestyle. To enrich their strategy, developers use many marketing strategies like slogans, name of the projects, architects and their firm, decoration of houses, advertisement techniques, private PR or marketing firm etc.

If all these marketing tools (X7) address correctly to the customers that means gated communities get the success (Y2), however gated communities are successful with their contributions in city as well. There are several contributions from the view of developers. These contributions are better infrastructure, secured areas, being pioneer(X1), gained new land in a legal functional use (X2) and new job opportunities (X3) (Table 3).

Table 3. Contributions to the city

CODE	CATEGORY LABEL	COUNT	PCT OF RESPONSES	PCT OF CASES
	Better Infrastructure	17	22,4	54,8
	Functional Use	17	22,4	54,8
	Secured Areas	16	21,1	51,6
X3	Employment	12	15,8	38,7
	Public Transportation	5	6,6	16,1
X1	Pioneer	2	2,6	6,5
X2	No Illegal Urbanization	1	1,3	3,2
	Regeneration	1	1,3	3,2
	No Answer	5	6,6	16,1
	TOTAL RESPONSES	**76**	**100,0**	**245,2**

Gated communities having the code of prestige are designed by their various developers which play all the roles in the development process. These settlements are growing very fast that to highlight the motivating factors both in the decision-making and production-marketing process of developers gains more importance.

Investment Reasons of Developers

Developers have mentioned 7 different investment reasons (Table 4). 50% of developers’ investment reason is the demand in the market; they believe that there is a huge gap of gated communities in housing market. However, 18,2% of developers indicated that their names are their reason to take the risk to invest in a gated project.

Table 4. Investment reasons of developers

CODE	INVESTMENT REASON	COUNT	PCT OF RESPONSES	PCT OF CASES
Y1.1	Demand	11	47,8	50
Y1.2	Name	4	17,4	18,2
Y1.3	New Trend	2	8,7	9,1
Y1.4	Beneficial	2	8,7	9,1
Y1.5	Alternative Life	1	4,3	4,5
Y1.6	Visual Environment	1	4,3	4,5
Y1.7	Coincidence	1	4,3	4,5
Y1.8	No Answer	1	4,3	4,5
	TOTAL RESPONSES	**23**	**100,0**	**104,5**

All these 7 investment reasons are evaluated one by one by logistic regression. In the general equation, the components of the market of gated communities, land characteristics and the contribution of the gated developments to the city are included. According to general equation (1), for the dependent variables "demand for gated communities" (Y1.1) and "the name and reliability of the firm" (Y1.2), a final equation could not be found related to different variable selections, however, these variables; demand for and benefits of gated projects are absolute reasons to invest in a gated project. All the results of the analysis show that gated communities are beneficial and there is a remarkable demand for gated communities in the market.

$$Y1 = \textit{Market of Gated Communities} + \textit{Land Characteristics} + \textit{Contribution of Gated Communities to the City} \quad (1)$$

Besides these two dependent variables, "gated communities as a new trend" (Y1.3) has found a final equation (1a). The significance of chi-square of the equation shows that this model is sensitive as it is equal to 0.01 (Table 5). Another indicator to continue to evaluate the equation is the classification table. According to Table 6, the correctness percentage is 83,9%. This means 5 cases did not match the predictions of the model.

$$Y1.3 = (-1{,}526) + (10{,}729)\,X1 + (10{,}729)\,X2 \quad (1a)$$

Table 5. Omnibus tests of model coefficients of the equation 1a

	Chi-square	df	Sig.
STEP	3,293	1	,070
BLOCK	9,126	2	,010
MODEL	9,126	2	,010

Table 6. Classification table of the equation 1a

OBSERVED		PREDICTED		
		Y1.3		PERCENTAGE CORRECT
		NO	YES	
Y1.3	NO	23	0	100
	YES	5	3	37,5
OVERALL PERCENTAGE				83,9

Equation 1a does not contain all the independent variables included in general equation (1). The variables included in the equations are “being pioneer” (X1) and “to ban illegal urbanization” (X2) (Table 7).

Table 7. Variables in the equation 1a

	B	S.E.	Wald
X1	10,729	70,451	,023
X2	10,729	99,632	,012
CONSTANT	-1,526	,493	9,565

Equation 1a explains that if developers built pioneering projects and ban the illegal urbanization; they would be more reliable and would have a well-known name in the market. In other words, if they take risks of being pioneer and prevent illegal urbanization, they would have the guarantee to find customers for their future projects. They would have the confidence of their customers by their first gated projects and these customers would do the advertisement of developers.

Another equation is formulated on the fourth investment reason; a new trend in the housing market. Gated communities emerged as a new trend in the housing market. This equation (1b) is formulated according to the general equation (1) (Table 8).

$$Y1.4 = (-11,203) + (10,104)\,X3 \qquad (1b)$$

Table 8. Variables in the equation 1b

	B	S.E.	Wald
X3	10,104	62,134	0,026
CONSTANT	-11,203	62,13	0,033

Equation 1b is significant as the significance of the chi-square is 0,013 (Table 9) and the correctness of the observation is 90,3% (Table 10). Only 3 cases did not match with the predictions of the model. But this does not prevent to generalize an equation.

Table 9. Omnibus tests of model coefficients of the equation 1b

	Chi-square	df	Sig.
STEP	6,216	1	,013
BLOCK	6,216	1	,013
MODEL	6,216	1	,013

Table 10. Classification table of the equation 1b

OBSERVED		PREDICTED		
		Y1.4		PERCENTAGE CORRECT
		NO	YES	
Y1.4	NO	28	0	100
	YES	3	0	0
OVERALL PERCENTAGE				90,3

Equation 1b clarifies the idea that gated communities create new employment sources as a new trend. In other words, this trend will keep its actuality parallel to its creation of new job opportunities which is the most important contribution to the city and to the whole country.

Developers invest in gated communities to create alternative life styles for their customers. This is another investment reason mentioned by developers. For this creation, the features of the projects are important as they create lifestyles in the gated projects; however, the environmental factors of the chosen location are more important. When the model of the investment reason for alternative life is evaluated, the model is meaningful with a significance of 0,048 (Table 11). However, the significance is not very sensitive, the correctness of the model is 96,8% which is very high (Table 12).

Table 11. Omnibus tests of model coefficients of the equation 1c

	Chi-square	df	Sig.
STEP	,000	1	,998
BLOCK	6,063	2	,048
MODEL	6,063	2	,048

Table 12. Classification table of the equation 1c

OBSERVED		PREDICTED		
		Y1.5		PERCENTAGE CORRECT
		NO	YES	
Y1.5	NO	30	0	100,0
	YES	1	0	,0
OVERALL PERCENTAGE				96,8

Related to all these significance and correctness, the variables of the model are shown in the Table 13, for the equation 1c:

$$Y1.5 = (50{,}675) + (-39{,}668)\,X4 + (-11{,}007)\,X5 \qquad (1c)$$

Table 13. Variables in equation 1c

	B	S.E.	Wald
X4	-39,668	2336,459	,000
X5	-11,007	173,592	,004
Constant	50,675	2406,354	,000

According to Equation 1c, if the chosen location has already motorway connection and infrastructure which means there is already a life in these areas that the probability to create a new lifestyle will be affected negatively by the availability of these elements. So,

creation of an alternative life needs areas which do not possess early projects either gated or non-gated.

Gated communities are generally located in the periphery of Istanbul where natural elements exist and developers which invest in gated communities try to create a richness of visual environment in their projects. This is proved by the equation 1d. The variables included in this equation by the application of logistic regression can be seen in Table 14. The equation is significant related to the significance of the chi-square 0,014 (Table 15) and also to the classification table in which the correctness percentage of the model is 96,8% (Table 16).

Y1.6 = (-13,203) + (13,203) X1 *(1d)*

Table 14. Variables in the equation 1d

	B	S.E.	Wald
X1	13,203	136,709	,009
Constant	-13,203	136,702	,009

Table 15. Omnibus tests of model coefficients of the equation 1d

	Chi-square	df	Sig.
STEP	6,063	1	,014
BLOCK	6,063	1	,014
MODEL	6,063	1	,014

Table 16. Classification table of the equation 5.1d

OBSERVED		PREDICTED		
		Y1.6		PERCENTAGE CORRECT
		NO	YES	
Y1.6	NO	29	1	96,7
	YES	0	1	100,0
OVERALL PERCENTAGE				96,8

As a result, if gated communities want to have richness of visual environments, they need to get the best donated lands by natural elements. To get such a land, they must be pioneering projects.

Among all these investment reasons, there is one more reason; coincidence which is not a valuable reason for all developers, however, coincidence is a case all the time in any sector. You can enter in a market by coincidence with your sense of future or with a proposal of a friend, and with the obligatory circumstances to invest in a project. This investment reason is an output of such a process. When the equation 1e is evaluated, it is

meaningful with a 0,014 significance (Table 17) throughout the classification table of the model, the correctness percentage is 96,8% (Table 18).

Table 17. Omnibus tests of model coefficients of the equation 1e

	Chi-square	df	Sig.
STEP	6,063	1	,014
BLOCK	6,063	1	,014
MODEL	6,063	1	,014

Table 18. Classification table of the equation 1e

OBSERVED		PREDICTED		
		Y1.7		
		NO	YES	PERCENTAGE CORRECT
Y1.7	NO	29	1	96,7
	YES	0	1	100,0
OVERALL PERCENTAGE				96,8

The results of model can be seen as an evidence of the known reality that if you invest in gated communities according to the other developments, then it is not anymore a coincidence as it is obvious that his market already exists. The variables of the equation are shown in the equation 1e and Table 19.

$$Y1.7 = (13,203) + (-13,203)\ X6 \qquad (1e)$$

Table 19. Variables in the equation 5.1e

	B	S.E.	WALD
X6	13,203	136,709	,009
CONSTANT	-13,203	136,702	,009

These equations are formulated by investment reasons indicated by developers. All these models prove that investment reasons are generally related to the locations' characteristics which are usually legal and environmental factors as well as to the most important output of gated communities; new employment sources.

Success of gated projects

The success of projects is measured by developers depending on their sales and benefits they got at the end. Besides 20,4% of developers, they found themselves successful and mentioned their success reasons as mentioned in the Table 20. 28,6% of developers show as a reason of their success, the quality of the construction (X10).

Table 20. Success reasons

CODE	CATEGORY LABEL	COUNT	PCT OF RESPONSES	PCT OF CASES
	Reliability	12	24,5	38,7
X10	Quality	14	28,6	45,2
	Price	7	14,3	22,6
	Need	4	8,2	12,9
	Pioneer	2	4,1	6,5
	No Success	10	20,4	32,3
	TOTAL RESPONSES	**49**	**100,0**	**158,1**

Even though, developers mentioned their reasons of success, we evaluated their success by taking into consideration the market of gated communities, land characteristics of the projects, financial resources of the projects and also their contributions to the city with a general equation(2).

Y2 = Market of Gated Communities + Land Characteristics + Financial Resources + Contribution of Gated Communities to the City *(2)*

Developers have mentioned their successfulness with a 96,8% correctness according to the final equation sorted out by the forward variable selection of logistic regression (Table 21).

Table 21. Classification table of equation 3a

OBSERVED		PREDICTED		
		Y3		PERCENTAGE CORRECT
		NO	YES	
Y3	NO	10	0	100,0
	YES	1	20	95,2
OVERALL PERCENTAGE				96,8

This equation is very sensitive. The significance of the chi-square is less than 0,01 (Table 22). The equation of the model is 2a. Related to this equation, the main independent variables which affect the success of the project are the name and reliability of the firm as well as the quality of construction and unit characteristics (Table 23).

Y2 = (5,2933) + (2,9626) Y1.3 + (2,0138) X10 *(2a)*

Table 22. Omnibus tests of model coefficients of equation 2a

	Chi-square	df	Sig.
Step	6,702	1	,010
Block	38,986	3	,000
Model	38,986	3	,000

Table 23. Variables in equation 2a

	B	S.E.	Wald
Y1.3	13,427	106,305	,016
X10	13,618	101,274	,018
Constant	-2,303	1,049	4,820

Equation 2a shows that well-known developers and their quality criteria bring them the success.

Gated communities in the future market

Developers agree that future demand for this type of house will increase and parallel to the demand, market ratio will also increase. Besides, 18,2 % of developers think that gated communities will capture the whole market. That means, as the sole eliminatory factor, walls or booms will be the inevitable features in the built environment. To find out whether future market share of gated communities will be capturing whole market or not, we evaluated the third and the final sub-model for the application of logistic regression. In this process, the general equation (3) consists of contributions of gated communities to the city, financial resources of gated projects and the housing market.

Y3 = Financial Resources + Contribution of Gated Communities to the City +Housing Market *(3)*

To measure the correctness of the final equation (3a), the classification table is evaluated. From 31 projects, 29 of developers predicted correctly, the percentage of correction of the equation 3a which is 96,8% (Table 24), this gives the opportunity to continue to evaluate the equation. Another validity indicator to measure the significance of the equation is the chi-square. The significance of the chi-square of equation 3a is 0,002 which mean that the model is not only significant but also sensitive (Table 25). The equation 3a is formulated at the end as (Table 26):

Y3 = (-35,205) + (0,353) X1 + (35,326) X7 + (22,770) X8+ (23,715) Y1.3 + (0,219)X9 (3a)

Table 24. Classification table of the equation 3a

OBSERVED		PREDICTED		
		Y3		PERCENTAGE CORRECT
		NO	YES	
Y3	NO	21	1	95,5
	YES	1	8	88,9
OVERALL PERCENTAGE				96,8

Table 25. Omnibus tests of model coefficients of the equation 3a

	Chi-square	df	Sig.
STEP	6,592	1	,010
BLOCK	37,351	6	,000
MODEL	37,351	6	,000

Table 26. Variables in the equation 3a

	B	S.E.	Wald
X1	,353	2,714	,017
Y1.3	23,715	207,689	,013
X7	35,326	266,016	,018
X8	22,770	222,828	,010
X9	,219	7,987	,001
Constant	-35,205	271,546	,017

According to equation 3a, the future market share will capture the whole market related to the demand, the name of the developer, and the marketing strategies of the developers if the future demand will increase and gated communities will be still a fashion in the market.

4. CONCLUSION

Gated communities in Istanbul emerged by global socio-economic changes and appearance of a new social class. They have become one of the most important driving forces in housing market after 1980s. Gated communities have led to a transformation in the market and they have become an asset market for developers.

The method of logistic regression is deployed to identify the most important factors on approaches and behaviors of developers. The three sub-models viz. sub-model 1, “investment reasons of developers”, sub-model 2, “success of gated projects” and sub-model 3, “gated communities in the future” allow us to highlight the characteristics of the real estate market of gated communities from the beginning to the future.

The results of sub-model 1 insist on two basic factors, one is the name and reliability of the developer while the other one is to be pioneer in the market. However, the environmental factors of the chosen location, the creation of new job opportunities inside the developments and the prevention of illegal urbanization by gated communities are also driving factors which determine the investment reasons of developers.

The results of the sub-model 2 show that the success level of gated projects is related to the name and the quality criteria of the developers. With their names they have a

portfolio of customers and these customers can be the potential customers for the new projects.

The last sub-model, sub-model 3 defines the future of gated communities. In this model, the future market share of gated communities is evaluated. The market share can be changed in two ways, it may increase or it may capture whole market. According to the results, it seems gated communities will capture the whole market by the marketing strategies and the reliability of the developers. This means if developers create successful gated projects which will meet the needs of the inhabitants, they would become a brand with the marketing strategies and created new communities different from the non-gated ones. Therefore, gated communities will capture the whole market if the well-known firms will continue to develop gated projects.

REFERENCES

Başarır, G., 1990. Çok Değişkenli Verilerde Ayrımsama Sorunu ve Lojistik Regresyon Analizi, *Doktora Tezi*, Hacettepe Üniversitesi, Ankara.

Baycan Levent, T., and Gülümser, A., A., 2004a**. "**Production and Marketing of Gated Communities in İstanbul", *presented at 44th European Congress of the European Regional Science Association, Regions and Fiscal Federalism,* CD-ROM, Porto, Portugal, 25-29 August 2004.

Baycan Levent, T., ve Gülümser, A., A., 2004b**.** İstanbul'un Değişen Yüzü: Korumalı Yerleşmeler, *presented at 28. Dünya Şehircilik Günü, Değişen-Dönüşen Kent ve Bölge, Ortadoğu Teknik Üniversitesi, Ankara*, 8-10 Kasım 2004.

Blakely, E.J., and Snyder, M.G., 1997a**.** Gating America, California

Blakely, E.J., and Snyder, M.G., 1997b**.** Fortress America: Gated Communities in the United States, Brookings Institution and the Lincoln Institute of Land Policy

Davis, M., 1992a**.** City of Quartz, Excavating the future of Los Angeles, Vintage Books, New York

Davis, M., 1992b**.** Fortress Los Angeles: The Militarization of Urban Space in Sorkin, M. (Ed.), *Variation on A Them Park: The New American City and the End of Public Space*, Noonday Pres, New York

Garreau, J., 1991**.** Edge City: Life on the New Frontier, Doubleday, New York

Garson, D., J., 2004. Logistic Regression, http://www2.chass.ncsu.edu/garson/pa765/logistic.htm, Accessed in 27/11/2004

Gooblar, A., 2002**.** Outside the Walls: Urban Gated Communities and their Regulation within the British Planning System, *European Planning Studies*, Vol. 10, No.3, 321-334

Gordon, P., and Keston, M., 2000. Developers: the Real City Planners, Draft 7/25/00, http://www-rcf.usc.edu/~pgordon/pdf/Gordon_Keston_draft.pdf, accessed in 13.12.2005

Grant, J., 2003**.** Planning Responses to Gated Communities in Canada, *presented at the conference Gated communities: building social division or safer communities?, Glasgow,* September 18-19, 2003

Gülümser, A., A., 2005. *A New Trend in Urbanization: Gated Communities In Istanbul*, Master Thesis Supervised by Assoc. Prof. Dr.Tüzin Baycan Levent, Institute of Technology and Science, Istanbul Technical University

Hosmer, D., and Lemeshow, S., 1989. Applied Logistic Regression, Wiley & Sons, NY

Jacobs, J., 1992. *The Death and Life of Great American Cities,* Vintage Books, a Division of Random House, Inc., New York, first published in 1961

Landman, K., 2000a**.** Gated Communities and Urban Sustainability: Taking a Closer Look at the Future, *presented to Strategies for a Sustainable Built Environment*, Pretoria, 23-25 August 2000

Landman, K., 2000b**.** Planning in the African Context: Reconsidering Current Approaches to Gated Communities in South Africa, Pretoria

Landman, K., 2000c**.** The Urban Future: Enclosed Neighborhoods?, *presented to the Urban Future Conference*, Johannesburg, South Africa, 10-14 July 2000

Low, S., M., 2001**.** The Edge and the Center: Gated Communities and the Discourse of Urban Fear, *American Anthropologist* 103(1): 45-58

Low, S., M., 2003**.** Behind the Gates: Life, Security, and the Pursuit of Happiness in Fortress America, New York: Routledge

Minton, A., 2002**.** Building Balanced Communities, the US and UK Compared, RICS Leading Edge Series

Webster, C., 2001**.** Gated Cities of Tomorrow, *Town Planning Review*, 72 (2), 149-169

Whitehead, J., C., 1999. An Introduction to Logistic Regression, http://personal.ecu.edu/whiteheadj/data/logit/, Accessed in 27/11/2004