FACTORS INFLUENCING HOUSING PRICES IN REVITALIZING AREAS

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ABSTRACT

The socio-economic revitalization process of deteriorated urban areas is important for the social and economic efficiency of the whole city. Revitalization projects aimed at regenerating these historical urban centres have generally been successful. This study utilizes hedonic price analysis to determine the physical and functional factors that influence housing prices and their degree of influence on these prices in Beyoğlu. The analysis revealed that the factors influential on the house sale prices are as follows: the expanse of view, building construction type, the number of empty housing units in the building, the distance to industrial facilities, the number of floors in the building and the existence of heat insulation.

Keywords: Revitalization, Housing prices, Hedonic Price Analysis, Beyoğlu.

INTRODUCTION

The post 1980s saw the advent of new structural transformations influenced by the dynamics of globalization, which may be defined as a world-wide political and economical restructuring that is being propelled by advanced technologies of information and communication. The spatial reflections of these transformations can be seen both in the location selection witnessed in the macroforms of cities and in the forms and roles of urban functions. In Turkey, this transformation process is most intensely perceived in Istanbul, and the location of its town centers, the main determining factors of the city, in this new spatial formation.

The rapid urbanization process of the 1950s was followed by the transformation of the urban pattern. Subsequent to the expansion of the residential areas, the trade centers of the city began to cluster along the axes of transportation (Dök-
meci et al, 1993; Dökmeci & Berkoz, 1994). Due to its own unique historical characteristics and the structural deterioration it experienced over time, the historical city center became inadequate in satisfying the needs in communications, area etc., thus giving rise to a process of out-migration. This process has also been propelled by the increasing accessibility round the city by freeways, the opportunity to obtain large and cheap land in the urban periphery and the development of the communication technology. The combination of all of these factors has caused the historical city center to lose its function of being the central business district (CBD). As new CBDs and sub-centers emerged, Istanbul has fully gained the property of being a multi-centered metropolitan area (Tekeli, 1998).

Various measures have been taken in order to revive the decaying neighborhoods of the historical center. Among these measures, especially the works and the investment done in Beyoğlu (the pedestrianization of İstiklal Avenue, the organization of socio-cultural activities, the widening of Tarlabası Avenue and the research for a solution to the traffic problem, etc.) have played an important role in the increase of the attractiveness of the area. By the impact of the revitalizing actions made in these historical residential areas, the deteriorating buildings have started to be bought and restored, resulting in the restoration and improvement of buildings in areas that had been deserted and ruined because of neglect. As low-income groups in the city center are being replaced by high-income groups, housing prices in the historical residential areas have increased. Considering the aforementioned development process, the purpose of this study is to use hedonic price analysis to determine the factors that affect housing price analysis. There have been only a few studies on this subject in developing countries and this study fills the need on this subject in Turkey.

Residential property, a multi-component asset that it is, presents a very wide perspective to be examined. Along with the residential property that is studied by different disciplines for different purposes, many studies have the factors that play a role in the determination of its prices; urban planners and politicians began to examine this subject when it became obvious that the urban use of land is related with the dynamics of the housing market (Ding et al, 2000).

The studies carried out to determine the factors influencing the house prices have been done taking as their base the structural variables relative to the residence or to the building of the residence (the type of residence, the construction style of the residence, the age of the building, the number of rooms, the number of bathrooms, the heating system, fireplace, garage, etc.), neighborhood variables (the quality of public services, accessibility, the distance to the CBD, shopping malls, health and education institutions, the social and economic qualities of the neighborhood etc.), natural and artificial environment variables (natural limit, the view, the climate, pollution, the noise from highways and airport, storage areas etc.),
and in these hedonic price analysis has been widely used (Can, 1990). The variance present in the factors influencing the price of the residential property has caused the use of more than one group of variables together, instead of one in the studies hitherto done.

In these studies’ analysis of structural variables, it has been found that house prices vary according to the structural characteristics of the residence and the building of the residence (the area of the building lot, age of residence, type of building, size of residence, number of rooms, number of bathrooms, the quality of construction, size of the parking lot etc.) (Forrest, 1990; Goodman & Thibodeau, 1995; Millis & Simenauer, 1996).

In the studies analyzing neighborhood variables, it has been concluded that housing prices are relative to the accessibility of the CBD, the other sub-centers within the city district, the amenities in the immediate environment, the accessory areas and other zones (Daniere, 1994; Cheshire & Sheppard, 1995). Handling this subject in wider perspective, the results of the studies illustrate that the socio-economic structure of the neighborhood (size of household, group of profession to which the head of the family belongs, rank of household income, crime rate, satisfaction from the social activities, racial allocation, the rank of education, income per person etc.) also has an influence on house prices (Tse & Love, 2000; Lynch & Rasmussen, 2001).

In the studies considering neighborhood features together with the structural qualities of the residences and buildings in order to analyze the factors influencing house prices in general, it has been found that factors such as structural specifications of the building, the present situation and function of the environment of the residence and the buildings in that area, the qualities of neighborhood, the distance from the city center and business districts, universities, cultural centers and recreation areas have an impact on house prices (Muth, 1969; Dubin & Sung, 1987).

In the studies examining the effect of natural and artificial environment variables on house prices, generally, different factors (natural limitations, view, climate, pollution, highways and airport noise, storage areas etc.) have been taken together and it has been universally accepted that the view from the residence has a positive impact on house prices (Rodriguez & Sirmons, 1994). It was determined that environmental factors other than view from the residence (air pollution, proximity to waste, dense traffic, smoke, noise, pollution etc.) have a negative impact on house prices (Gregory & Smith, 1990; Hughes & Sirmans, 1993).

In studies researching the impact of all variable groups on house prices, in general, structural variables dependent on residence and building such as type of residence, presence of a basement, age of building, number of rooms, number of
bathrooms, view, fireplace and garage; neighborhood variables such as the distance from the CBD, accessory and recreation areas, the density of residences, socio-economic features, crime rate; environmental variables such as environmental pollution and noise have been analyzed and it has been observed that they have an influence on house prices (Li & Brown, 1980; Tse & Love, 2000). In the study examining the subject in Istanbul with the hedonic price analysis, it has been detected that the environmental and physical factors that have an impact on the rent and sale values are different from each other (Dökmeci et al, 2003).

Studies found in the literature have also analyzed the effect on house prices of exercises towards economic development such as investments in new housing, provision of home ownership, new investments in existing deprived residences and residential areas, profits out of the potentials of the historical residential areas while protecting their qualities, all of which have played a role in the process of the revitalization of the neighborhood unit.

In studies analyzing the impact on the house prices of the residences in the immediate environment of new housing constructed by incentives provided in order to increase home ownership, it has been concluded that the newly constructed residences have acted to raise the prices of the residences in their immediate surrounding (Ding & Knaap, 2003). The fact that the renovation or reconstruction of decaying buildings and the restoration works in historical buildings will, in the long run, increase home ownership, decrease the stagnation in the area, change the physical structure and provide increases in property prices is a common conclusion of studies (Ding et al, 2000; Abraham, 2001; Criekingen & Decroly, 2003; Fang & Zhang, 2003).

The realization that rehabilitation and gentrification processes, coupled the modifications in the physical structure, caused important changes in the social structure, have led to studies aimed at analyzing the residential property in the gentrification process, especially investigating the social impacts of the process and the socio-economic structure of the residence (Atkinson, 2000; Milanovich, 2001; Dutton, 2003; Levine, 2004).

In the studies aiming to determine the variety in house prices in the zones with historical quality or to analyze the impact of conservation decrees on house prices, it was found that the historical qualities of zones have an influence on the rise of house prices (Cooper & Morpeth, 1998; Leichenko et al, 2001).

Generally speaking, the studies analyzing the relation between the transformation processes and housing prices in the American example have taken into account the objectives, strategies, application methods and impacts on housing prices of applied housing programs that serve different purposes. Meanwhile, in studies of the subject in European examples, the emphasis has generally been on social
transformations such as residents leaving the region and studies of those populations in countries going through a change of regime; the emphasis of these studies have moved towards the changes in the roles assumed by public and private sectors and the privatization policies. The hedonic price analysis has become the statistical method preferred in these later studies. Consequently, on the international level it has been perceived that the factors that have an impact on house prices in the historical residential areas that are undergoing functional and physical transformation have not been quantitatively analyzed in developing countries. For this reason, quantitative analysis in the example of a developing country has been chosen as the subject of this study, in order to guide the investments to be done in this field.

THE HISTORICAL DEVELOPMENT OF BEYOĞLU

Beyoğlu, one of the historical quarters of İstanbul, is situated in the northern part of the CBD, on the elevated ridge of a high promontory between the Golden Horn and the Bosphorus Strait. Beyoğlu has a reigning position over the Bosphorus, Marmara Sea and the Golden Horn. Beyoğlu was developed by the impact of European culture in the city and was mainly occupied by Europeans and non-Muslim minority groups. In addition to its central position in the city and the fact that it possesses the traces of different cultures, it is also an important example because of the social, structural and functional transformation process that it has experienced (Dökmeci & Çıracı, 1988; Özuş & Dökmeci, 2005a).

While in the mid-16th century, Beyoğlu was mostly comprised of orchards, it developed as a suburb of Galata, which was then an international trade center (Dökmeci & Çıracı, 1990). The embassies established in Beyoğlu in the 16th and 17th centuries played an important role in giving the district a European identity. In the 18th century the European influence gradually increased, and it became a quarter with luxurious shops offering European luxury goods, artist residents and a European social life. Beyoğlu has maintained this impression of being a European city in the Ottoman land (Dökmeci & Çıracı, 1990).

The 19th century witnessed the beginning of a new age in the history of Beyoğlu. Many traditions were adopted from the Western world, including laws and regulations related to the city planning issues, city designing principles aiming to create a monotone urban pattern, new building types and new architectural styles (Çelik, 1998). Beyoğlu became an international trade center as a result of the growth of the Ottoman foreign trade in 19th century, development of the communication system and the integration of the country with the world capitalist system. Just as it gained the quality of being the entertainment center of Istanbul with its theaters, restaurants and cafes, Beyoğlu also became the trade center of
İstanbul with its shops and bureaus. While some foreign enterprises such as foreign mail services, schools, stock exchange building and research institutes settled at the vicinity of the embassies, banks, translation agencies, printing houses and blocks of offices gathered in the Galata area.

A modern municipality was established in order to bring modern life into Beyoğlu, and municipal services such as communications, health and fire departments were first developed in this district. While Beyoğlu was initially an unhealthy and badly structured area with narrow and winding roads, after a series of disastrous fires, in the first half of the century it was rebuilt more orderly and acquired wider roads (Akin, 1994). A rapid change occurred in the Beyoğlu residential areas in the 19th century. Instead of independent, houses, attached stone and brick houses, which could bring income, were built, and the first apartment buildings began to appear in Beyoğlu (Akin, 2002). With the destruction of the city walls and the construction of modern stone houses instead of traditional wooden ones, Beyoğlu started to visually resemble more the modern European cities.

In the succeeding Republican period, the abolition of the capitulations by the Lausanne Treaty put an end to the activity of foreign capital, therefore great foreign firms, merchants, insurance companies, bankers and post offices left Beyoğlu. By the relocation of the embassies in Ankara, many of the non-Christian minorities who had worked with privilege in their vicinity also left Beyoğlu (Dökmeci & Çıracı, 1990). After the 1950s, the rapid expansion of İstanbul by the rural exodus and speedy urbanization, the development of new settlements, the movement of the trade and of the high-income group to the peripheral sub-centers and the cultural metamorphosis that was experienced caused the attention accorded to Beyoğlu to decrease and some neighborhoods to turn into blighted zones. Beyoğlu, which once had been the reflection of the Western culture, became the home of rural migrants, with important changes witnessed both in the social structure and the spatial structure (Dökmeci & Çıracı, 1990).

With the impact of various measures such as the establishment of the Association of Beautification and Preservation of Beyoğlu (Beyoğlu Güzelleştirme ve Koruma Derneği) in 1985, the preparation of the preservation plan in 1986, the widening of Tarlabaşı Avenue in 1988 and the pedestrianization of İstiklal Avenue in 1990, the attractiveness of the Beyoğlu started to increase (Tekeli, 2001). Within this process, old apartment buildings and residences started to be bought and repaired, especially by intellectuals and artists, while some publishing houses have also moved from Çağaloğlu to Beyoğlu. Newly-opened cafes and restaurants, hotels, cultural buildings, bookstores, cinemas, theaters, various activities and festivals have played an effective role in this revitalization. The projects applied or put on the agenda in Beyoğlu’s acquiring new functions, and in the
overall revitalization of the area together with the arousing of interest of the business circles and intellectuals around these projects, have been effective in the rise of the values of the residential and commercial properties. Nowadays, Beyoğlu, although it has lost some of its commercial and social characteristics of the previous centuries, especially with its multi-colored cultural dimension, continues its role as being the center of Istanbul (Özuş & Dökmeci, 2005b).

MODEL APPLICATION

The process of general metamorphosis undergone by Beyoğlu is best reflected in the residential areas between Siraselviler and the Bosphorus shoreline. Therefore, this zone has been selected as the study area. The demand for housing in this zone has been increased by the influence of factors such as proximity to the sea and the view. Since the beginning of the 1990s, the residential areas of Beyoğlu with a view of Bosphorus, such as Gümüşsuyu and Cihangir, have become popular residential locations.

Data in this study were obtained by doing a survey in the historical residential area of the Siraselviler-Bosphorus line (Asmalı Mescit, Huseyin Aga, Katip Mustafa Celebi, Sahkulu, Tomtom, Şehit Muhtar, Gümüşsuyu, Firuzaga, Cihangir, Kılıç Ali Paşa, Ömer Avni), which was chosen considering the criteria of economic and socio-cultural structures, spatial characteristics, tendencies of the property market and spatial integrity of the study. The field study done in the October-November period, where the Istanbul property market brisks up, all the real estate agencies (48 units) in the zone were interviewed and information was acquired about 211 residential units presently on sale. In addition to this, face-to-face interviews were done with housing experts who are active in the zone.

The number of real estate agencies in the area is fairly large and it has been found that the house prices range within a very wide interval. While apartment buildings predominate, the occupancy rate of these buildings is also high. The fact that there are no unoccupied lots in the zone, the consequence of which is the impossibility of undertaking a new construction, while the demand continues still, has acted to increase the occupancy rate and prices in the zone, and has increased the importance of the housing market in the general house market of İstanbul.

In the application of model of the study, hedonic price analysis, where the house price is determined according to the structural/physical characteristics of the residence, the characteristics of the neighborhood unit and the environment, has been preferred. Next to the fact that the asset analyzed is the residence property, which has many different components, both internally and externally, the aim that the model should overlap with the purpose of the study by covering the base of measuring the factors influencing the price and their degree of influence and this has played a significant role in the choice of this model.
As a result of the transformed reduced application of the model, a powerful relation is witnessed between the logarithm of the house price and the statistically significant independent variables selected ($R=0.706$). The variables included in the model explain 49.8% of the change in the dependent variable of the house price ($R^2=0.498$). At the end of Anova test, the F value was calculated as 28.82 and the sig. value as 0.00 and it has been concluded that the model is generally significant ($F=28.824$ and sig; $0.00<0.05$). The Durbin-Watson coefficient is 1.780, therefore there is no relation between the residuals, the $T, F$ and $R^2$ values of the model are reliable (Durbin-Watson=1.780). Table 1 presents the results from the model.

### Table 1. Regression Coefficients

<table>
<thead>
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<th>UNSTANDARDIZED COEFFICIENTS</th>
<th>STANDARDIZED COEFFICIENTS</th>
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<tbody>
<tr>
<td>(Constant)</td>
<td>3.483795368</td>
<td>22.59507833</td>
</tr>
<tr>
<td>a</td>
<td>0.101462071</td>
<td>0.012646547</td>
</tr>
<tr>
<td>b</td>
<td>0.040547616</td>
<td>0.007371848</td>
</tr>
<tr>
<td>c</td>
<td>-0.376243208</td>
<td>-0.064977024</td>
</tr>
<tr>
<td>d</td>
<td>-0.277361921</td>
<td>-0.062604092</td>
</tr>
<tr>
<td>e</td>
<td>0.038204754</td>
<td>0.012832985</td>
</tr>
<tr>
<td>f</td>
<td>0.092883857</td>
<td>0.040692078</td>
</tr>
</tbody>
</table>

The semi-logarithmic equation, set up with the variables selected by the use of the stepwise method, is formulated as seen below.

\[
\log y = 3.483 + 0.101a + 0.040b - 0.376c - 0.277d + 0.038e + 0.092f
\]

Where;

- $y$: house price (USD/sqm.)
- $a$: expanse of sea view
- $b$: number of unoccupied flats in the building
- $c$: type of building
- $d$: distance from manufacturing facilities
- $e$: number of floors in the building
- $f$: presence of heat insulation
It has been detected that the most influencing variable on the house price is the *expanse of sea view*, and that the other variables according to their degree of influence rank as thus: type of building, number of unoccupied flats in the building, distance from manufacturing facilities, number of floors in the building and presence of heat insulation. The position of the area and the wide range of view that it possesses because of its slope have played an efficient part in the presence of a very active house market in the area, thus becoming the most important factor in the determination of prices. The wider the range of sea view the residence gets, the higher the sale price of the residence gets.

The second factor that has an impact on the house sale prices is the *type of building*. The house sale price reaches definitely higher values in the case of a residence in a detached house than in a housing unit in an apartment building. The fact that the residence is detached (with all other variables constant) produces a difference of 37% in the sqm. house sale price of an apartment unit. That the sale prices of detached houses are higher than those of flats is a natural consequence, as detached houses provide individuals the opportunity of using the whole building and to renew it according to their own style. The fact that the detached houses in the area possess a higher possibility of having historical value than apartment-type residences also has an influence in this result.

The number of unoccupied flats in the building is another factor influencing the house prices. It is observed that a one-unit increase in the number of empty flats in the building (with all other variables constant) corresponds to a 4% increase in the sqm. sale price of the residence. This consequence, which doesn’t comply with the literature of general house price, is a reflection of the transformation process in the area and its impact on housing prices. The fact that the number of unoccupied flats is high in a building means that the number of flats where renovation works may be done is also high and a process of general renovation in the building causes a rise in the house sale prices. Therefore, an occupied flat in the building presents a potential future increase in value for other residences in the building. The fact that the number of unoccupied flats in the building is a price-raising factor for residences is correlated with the tendency to *hold residences for some time in order to reach the highest price*, which is witnessed in the area at the same time.

The factor, which is found to be the fourth important factor on the house sale prices, is the *distance from manufacturing facilities*. The farther the distance from manufacturing facilities is, the higher house prices get, and if any manufacturing facilities exist in the vicinity of the residence, it is concluded that the house prices get lower. The house sale prices of residences that have manufacturing facilities in the walking distance are (with all other variables constant) -27% lower than those that do not have. This obtained value is a natural result of the negative
impact on prices of output such as noise, smoke and pollution caused by manufacturing facilities in the vicinity of residential areas.

The increase in the number of floors has a positive influence on the house sale prices in the area. A one-unit increase in the number of floors in the building (with all other factors constant) causes a 3% increase in the sqm. house sale price. The fact that the higher floors have a greater share out of the advantage of view that the area possesses is influencing this consequence. With the model outputs and the degree of influence of variables are taken as a base, it is observed that the sale prices of detached houses are higher than those of the residences in apartment buildings; while in apartment buildings, residences in higher floors have higher sale prices than those in lower floors.

The factor with the least degree of importance on house prices that influences the house sale prices positively is the presence of heat insulation. Heat insulation, which is considered as technical equipment in the building, has an impact of 9% on house sales price (with all other variables constant). Because of the fact that the examples analyzed do not possess such technical equipment, it is an expected consequence that residences that have this facility are to be sold at higher prices than those who have not, and it also means that new customers who are planning to renovate the residence have one less item to spend their money on.

CONCLUSION

This study has, as its purpose, to guide new investment plans, by determining with the help of hedonic price analysis, the physical and functional factors influencing house sale prices and the degree of influence of these factors on price, in Beyoğlu, one of the historical residential areas where the transformation process that Istanbul is experiencing can be justly observed. Beyoğlu, with its positional/spatial characteristics, its quality of being a historical city center, and with the fact that it grants the opportunity of clearly watching the functional and structural transformation process being experienced around the city, has been chosen as the field of study. It is seen that Beyoğlu, which has for centuries borne the feature of being an example of a European city in Istanbul, is different from the city in general with its social and spatial structure. Beyoğlu, once a center of diplomacy because of the settlement of embassies and related institutions in the area, had also become the center of Ottoman trade with its port activity.

In the second half of the 20th century, while some neighborhoods became twilight areas because of suburbanization, the establishment of the Association of Beautification and Preservation of Beyoğlu (Beyoğlu Güzelleştirme ve Koruma Derneği), the preparation of the conservation plan, the pedestrianization of İstik-
lal Avenue and the widening of Tarlabaşı Avenue have revitalized the area and Beyoğlu has again acquired the quality of being the center of cultural activities.

As a consequence of this revitalization, Beyoğlu has become the area of preference of middle and rich social groups in order to reflect their lifestyle and the buildings, which were decaying as a result of the process, are being bought, overhauled and renovated. The process, which the residential areas of Beyoğlu is undergoing, is in many ways similar to other examples observed in the literature, both by the socio-economic structure of the first users and their leaving the area afterwards, by the group that arrives in the area to renovate and its characteristics, and finally by the housing market activities, tendencies and actors.

As a result of the descriptive statistical analysis of the data obtained by the application of survey and the information obtained by face-to-face interviews, it is determined that the transformation process has had an impact on Beyoğlu historical residential areas by economic reflections (active house market, increasing demand, high occupancy rate, the wide ranging housing sales prices that are high at the base of mean, the increasing number of postponed/waiting sales of residence and the densification of profit-aimed investment firms), physical reflections (spatial decomposition, density observed in the restoration works, increase in renovation works based on organization and project, rise in the number of companies choosing a place for their cultural units in order to obtain prestige), social reflections (change in residents, fall in crime rate, rise in voluntary associations and funding, fortification of neighborhood consciousness, project-based applications and increasing tendency to preserve of the local population who have grown an affection for the area) and functional reflections (increasing importance of the function of residence as a result of the differentiation in the rate of return, the separation of commercial activities other than food sector from residential areas).

The model outputs point out that the factors acting a part in the house sale prices in the historical residential areas of Beyoğlu are, according to their degree of influence; width of view, type of building, number of unoccupied flats in the building, distance from manufacturing facilities, number of floors in the building and presence of heat insulation.

The results obtained in the whole of study may be useful in guiding the process of deciding of the actors who are involved in the property market. It can be a guide in the observation of present situation, the evaluation of the factors and the determination of house sale prices for both investors and house owners and for experts who offer mediation services and who do valuation studies. With a more general point of view, it can be effective in the phase of evaluation of the experienced process and of determination of new strategies, and in various-sized decisions and applications to be undertaken by local administrations. In addition to this, the acquired information about the historical residential areas of Beyoğlu
during the period of analysis may constitute a database for other scientific studies.

In the next step of the study, it may be beneficial to obtain the housing sales prices data for April-June season which shows the same activity in the field of property market as September-November season, thus compare and contrast the periodical actions. Furthermore, repetition of similar analyses for one or more other historical residential areas that have also experienced structural and functional transformation process may provide ground for spatial, structural and positional comparisons, therefore an opportunity for the studies to reach more general results.

REFERENCES


