
THE RELATION BETWEEN INTEGRATION VALUES AND LAND VALUES FROM SPATIAL CONFIGURATION CHARACTERISTICS: the Galata-Pera example

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Abstract

This study aims to reveal the relation between the configuration characteristics and land values with respect to the functional classification of the Galata-Pera district. Space syntax analysis model has been utilized in this study, the relation between the land values and configuration parameters integration values is calculated by simple correlation. These calculations and integration value analysis have been conducted with the computer program called Axman and based on the space syntax analysis model. Due to the difficulties in finding the land value data, the analysis has been carried out on a single time section for our date. In conclusion, it was found that there is a high degree of correlation between the integration values of configuration and the land values of the sub functional districts of the trade areas of the Galata-Pera district and that there is no correlation between the two values.

Introduction

The interaction between spatial configuration characteristics and land values differ in different functional areas (housing, housing-trade, trade). Land values show the demand for these areas in the functional structuring of the urban areas trade districts. As demand increases so does the land value in direct proportion. It is assumed that the trade areas where there is more demand is the pieces of land where natural movement, that is integration values, are high. In this context there has to be some correlation between trade areas and integration values. Housing area land values are effected more by other factors relate to the selection of area, rather than the configuration structure of the area that controls natural movement. This shows that there is a correlation between spatial configuration and land value according to the types of land use. The purpose of the study is to prove the hypothesis that there is a correlation between the integration value and the land value in areas where trade usage of land dominates, and that there is no correlation between the integration value and the land value in areas of housing usage.

Method

A correlation analysis of the land values and the global integration value of the Galata-Pera district has been done to investigate the correlation between the integration values and the land values. First the official land unit prices were obtained, then new data bases were obtained by entering the land values in the table of configuration parameters prepared using Axman computer program, to prepare a land value map of the district and to compare these values with the spatial configuration characteristics on a street basis. The correlation graphics have been prepared according to the correlation analysis between integration values (R-n) and land values.

“Galata-Pera district” of the Beyoğlu sub district of Istanbul central business area has been selected as the study area. This district which is the historical CBA of Istanbul is now a sub district of the CBA. Beyoğlu is an area surrounded by Şişli on the north, Beşiktaş and the Bosphorus on the east, Haliç bridge on the south and Eyüp district on the west. The area which is designated as the study area, the Galata-Pera (Beyoğlu) district; is the area the boundaries of which is designated as Beyoğlu urban site, by the decision of Istanbul Conservation Committee.

The Correlation of Spatial Configuration Characteristics with Land Values Land Usage Characteristics

The section of the document related to the Beyoğlu district, pertaining to the plot and land unit values of the 2002 general declaration period and prepared by collecting the land values on a quarter basis and street scale by the Financial Office of Ministry of Finance has been used for evaluating the land values of all streets of the Galata-Pera district (Mal.Bk.Ist.Def., 2002). Unit prices of land per square meter have been marked on the present maps on a street basis, to be compared to axial maps. Then the official unit land price of each street has been added to the configuration parameters table of the district for the correlation of the integration values of each line and the land values. The land values line network map prepared for the correlation analysis between the land values and the integration values.

Configuration Characteristics and Land Usage

The correlation between integration values and land values of 7 functional sub districts determined as trade, trade-housing-equipment and housing areas according to the structuring analysis in the area as a whole in order to prove the hypothesis that there is no correlation between integration value and land value in housing areas and that there is a correlation between integration value and land value in areas of high trade usage, and that the correlation between spatial configuration and land value is different in different functional areas (housing, housing-trade, trade).

1. Functional sub district: the trade area between İstiklal Avenue and Tarlabası streets
2. Functional sub district: Galata Tower and its surroundings trade area
3. Functional sub district: The trade area between Rihtım and Kemeraltı streets
4. Functional sub district: Trade-housing-equipment area between Sıraselviler and İstiklal streets.
5. Functional sub district: Trade-housing-equipment area between the north of Galata Tower and Meşrutiyet street.

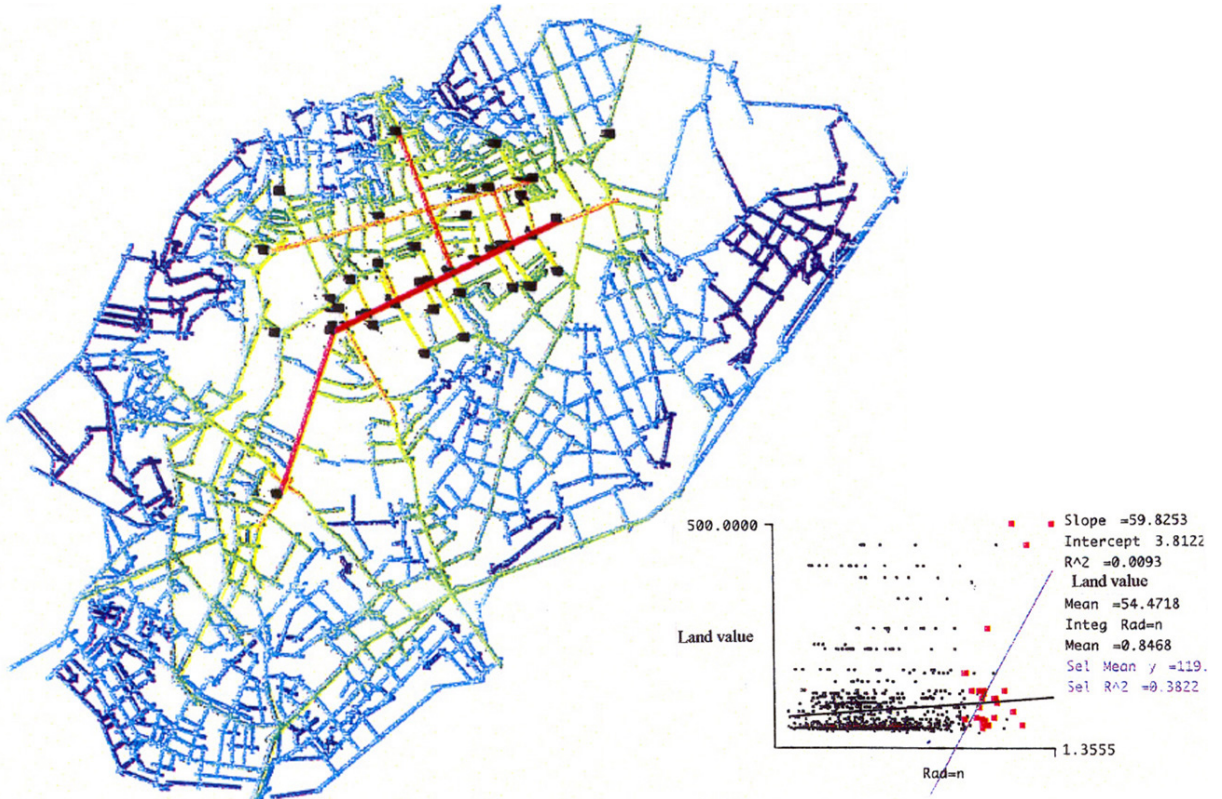
6. Functional sub district: Housing area between Tarlabası and Kurtuluş streets
7. Functional sub district: housing area between Siraselviler and Meclis-i Mebusan streets.

Functional sub district boundaries selected on the land usage map are shown in Figure 1.



Figure 1:
Galata-Pera district
functional sub district
boundaries

109-03



I. Functional sub district (Trade); The district between İstiklal street and the Tarlabası axis that displays dense trade functional structure has been selected. First the lines on the axial map have been selected according to trade structuring and thus the area has been formed. Then the correlation between the integration values (R-n) and land values has been evaluated. The correlation graphics of integration values- land values and the selected area can be seen in Figure 2 in this graphic, the black regression curve and dots show the correlation between the land values and integration values of the whole of the Galata-Pera district. The blue regression curve and the red dots show the correlate, on of the selected I. district. The R2 value for the selected district is 0.3822. It is known that factors like the distance from the main axis (İstiklal street) and building quality etc. Effect land value in addition to the integration value. When all of these factors are considered, the calculated R2 value of this trade functional district shows that there is correlation between integration values and land values.

II functional sub district (Trade): It is the district that embraces the area from Tersane street which is the first settlement area of Galata to the Galata tower including Bankalar, Perşembe Pazarı, Şair Ziya Paşa, Okçu Musa, Büyük Hendek streets that form the axis and secondary axis and dense with offices, banks and retail trade areas. R2 value of the selected area being 0.4625, shows that there is correlation between the integration values and the land values of this district where there is dense trade function. The land values of lines increase as the integration values increase, in other words, land value increases, as centralism increases.

III. Functional sub district (Trade): Necatibey and Maliye streets located between Rıhtım and Kemeraltı street and secondary axis with a concentration of trade and offices has been selected. The functions that take place in this area are among the main functions of the CBA area. R2 value for the selected district is 0.6431. this value shows that there is correlation between the integration values and land values of the selected area. As the integration value of lines increase so will their land values.

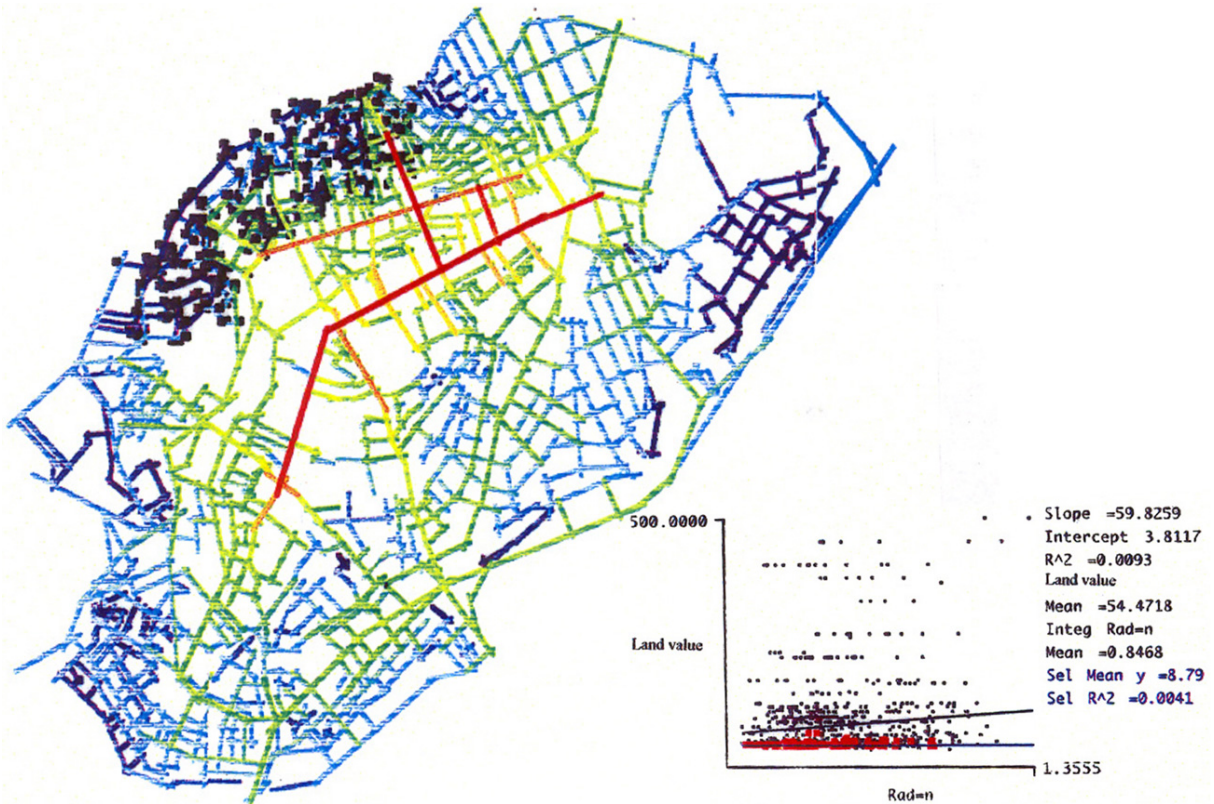
IV. Functional sub district (Trade-Housing): in the area between Maç, Ağa Hamamı streets parallel to Siraselviler and the streets parallel to İstiklal street has been selected as a district where there is trade on the lines near Siraselviler and İstiklal streets and housing and equipment on the other lines. R2 value for the selected district is 0.0872. This shows that there is no correlation between the integration values and the land values of the IV. Functional sub district where trade-housing- equipment coexist.

V. Functional sub district (Trade-Housing): The area starting at the higher side of the Galata tower and extending to Lüleci Hendek street Kumbaracıbaşı ramp and Asmalı Mescit and Meşrutiyet streets has been selected as a district of more trade-housing and some equipment functionally. In figure 3 in this graphic R2 value for the selected district is 0.2382. This shows that there is no correlation between the integration values and the land values of the V. Functional sub district where trade-housing-equipment coexist. As the integration value of the lines increase, the land value doesn't rise as much as the raise of the correlation value. There are many factors that effect land value. It is foreseen that along with economical development like restorations in the district, the change will attract more central business area functions like trade etc.

VI. Functional sub district (housing): The district between Tarlabası and Kurtuluş streets and encompassing Kalyoncuoğlu, Bostan, Sururi, Yahya Kemal wards has been selected functionally as a housing sub

district. R2 value for the selected district is 0.0041. This shows that there is no correlation between the integration values and the land values of the VI. Functional sub district of housing. As known, there are other factors like view, closeness to the center etc. that effect land value in housing areas. For this reason the low correlation value is an anticipated result.

Figure 3:
Functional sub district (housing)



109-05

VII. Functional sub district (housing): This is the district between Siraselviler street and Meclis-i Mebusan street that is selected as a housing area functionally. The district has been outlined, leaving the Meclis-i Mebusan trade axis out. R2 value for the selected district is 0.0305. This shows that there is no correlation between the integration values and the land values of the VII. Functional sub district.

When the correlation between land values and spatial configuration characteristics according to functional classification is observed, it is seen that there is correlation between the land values and global integration values (R-n) in trade areas; and that there is no correlation between land values and integration values in housing and housing-trade areas. It is also observed in the correlation analysis of districts that the correlation values are especially high in the functional (trade) sub districts which are the oldest settlement areas. This result proves that there is correlation between the integration values and land values of trade areas.

Conclusion

The areas with the highest integration values, in other words the areas with the greatest centralization are the most demanded areas. As demand grows for trade areas, land values also rise in direct proportion. In this context, it was foreseen that there should be a correlation between the spatial configuration characteristics and land values. And a high degree of correlation between the land values and integration values in the trade areas sub district of the Galata-Pera district. The difference between housing areas and trade areas is that

in housing areas, view, direction, slope, etc, are more dominant factors that determine land value. For this reason, a correlation between spatial configuration and land values has not been foreseen and the results of the correlation between land values and integration values of the housing functional sub districts have proven this foresight.

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109-06