

The Use of Rent Capitalisations in Real Estate Valuation in Areas with High Building Densities

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Key words: Real estate valuation, rental income, rent capitalisation interest rate

SUMMARY

In Turkey, although real estate valuation started to be discussed at an academic level in 1975, its use was not adopted by the real estate market until the year 2000. In the valuations carried out in the early years;

- a) the sales comparison method,
- b) the income method,
- c) the cost method

were used in plain or disorganised ways. However, on the way to the present day, these methods started to provide inaccurate results in valuations performed especially in areas where mass valuation is required.

The use of classical valuation methods together or alone would be inadequate in the central areas of the city and in settlements surrounded by attraction centres where buildings are dense. Certain other data that provide a basis for valuation need to be known in such areas. Probably the most important of these data is rental income.

In areas with high building densities, it is possible to obtain the building value by calculating the rent capitalisation interest rate, and to find the standard ground value using the building value. When calculating the rent capitalisation interest rates, it is necessary to subtract the depreciation and maintenance costs of the building and also to take the economic parameters (inflation rate, consumer price index, currency rates, etc.) into consideration.

In the present study, a district which is located in the city centre of Konya and considered for urban transformation was selected as the study area and it was endeavoured to calculate the ground values based on rental incomes.

ÖZET

Türkiye’de taşınmaz değerlemesi 1975 yılında akademik düzeyde ele alınmaya başlanmış, ancak piyasa tarafından kullanılmaya başlanması 2000 yılını bulmuştur. İlk yıllarda yapılan değerlemelerde;

- a) Karşılaştırma yöntemi,
- b) Gelir yöntemi,
- c) Maliyet yöntemi

yalın veya karışık olarak kullanılmıştır. Ancak günümüze gelindikçe, özellikle küme değerlemesinin yapılması gerektiği alanlarda bu yöntemler, değerlemede hatalı sonuçlar vermeye başlamıştır.

Yapıların yoğun olduđu, kentin merkezi yerlerinde ve çevresi cazibe merkezleriyle kuşatılmış yerleşmelerde bilinen klasik değerleme yöntemlerinin birlikte veya yalın kullanımı yetersiz kalır. Böylesi bölgelerde değerlemeye esas olacak başka verilerin bilinmesi gerekir. Bu verilerden belki de en önemlisi kira geliridir.

Yoğun yapılı bölgelerde kira kapitalizasyon faiz oranını hesaplayarak yapı değerine, bu değerden de birim zemin değerine ulaşmak mümkündür. Kira kapitalizasyon faiz oranlarını hesaplariken, yapıya ait yıpranma ve bakım giderlerini düşmek ayrıca ekonomik parametreleri (enflasyon oranı, tüketici fiyat endeksi, döviz oranı, ...) de dikkate almak gerekir.

Bu çalışmada, Konya kent merkezinde bulunan ve kentsel dönüşüm yapılması düşünülen bir bölge çalışma alanı olarak ele alınmış ve kira gelirlerinden zemin değerleri hesaplanmaya çalışılmıştır.

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1 INTRODUCTION

Today, in our country, a rapid migration is in progress to city centres due to reasons such as the inefficiency of the agricultural sector in providing for the needs of families and increasing advancement rate of higher education. As a natural result of this migration, cities have undergone a rapid and intensive settlement construction process. To meet this need and to put the city in order, municipalities open new areas to settlement through planning while they increase the plan densities in central parts of the city.

According to the Development Plan Law which is in effect in Turkey, it is obligatory that zoning plans in a settlement are made (based on population criteria) and put into effect by municipal administrations. However, zoning plans that are created according to the criteria stated in related laws and regulations cannot meet the changing social demands that arise due to high urbanisation rate after a short while; thereafter, a “change of plan” is in order on a local basis [1].

These changes in plans cause an increase in the densities of the core regions of the city. As a natural outcome of this increase, the way of use and densities of existing city blocks are also altered. While such changes in plans increase the value of the real estate, they also cause changes in values in the district through local interaction. The value of a real estate that increases through a change in plans increase still more with the implementation of the plan (The implementation of Art. 18, urban transformation, etc.).

2 VALUATION

2.1 Definition

Valuation is appreciating or appraising the value of an object, determining the value of a thing.

Real estate valuation is the process of determining the value of a real estate for a given date through assessing certain factors concerning the real estate in question, such as quality, utility, environment and conditions of use in an independent and objective way.

According to the Capital Market Board (SPK), valuation is the independent and objective assessment of the probable value of real estate, the real estate project and the rights and benefits attached to the property for a given date.

The concept of value has been defined in very different ways. The concept of value is indefinite and varies depending on point of view. William Stanley Miller, a former president of the New York City Tax Commission, defined the concept of “value” in more than fifty

ways and stated that this list would not come to an end. There are thirty seven different definitions of value in our country [2].

The main objective of valuation is to calculate the feasible *market value* by using the available data, which means the normal purchase and sale price.

We can say that market value is the estimated amount which is expected to be exchanged for a real estate between an independent and willing buyer and seller without any pressure and under conditions through which the parties will not be influenced by any relationship and within the context of an agreement by which they act knowingly, thoughtfully and in good faith [3].

Market value is more of an appraisal of a price by which a sale is closed on the date of valuation within the conditions that constitute its definition. Market value, within its definition, is the representation of a price which is not influenced by the fact that the buyer and the seller may have adequate time to seek other opportunities and alternatives in the market and the preparation of official documents and sales contracts takes time.

2.2 Market Value in Real Estate Valuation

Prices of objects can be easily determined through economic assessments, but everybody knows that the value of a real property cannot be easily determined. So, for a real estate, being valuable is assessed with the importance attached to the property through individual use and the property is valuable in proportion to the intensity of this importance. On the other hand, each individual views the parcel of land of the same quality and quantity through his own value criteria. For this reason, there is a need for a value which is valid for everybody. Although market value has been defined by many institutions based on their perspectives, all the definitions are the same in essence [4]:

- According to the 1982 Constitution, Expropriation Law No. 2942 and Property Tax Law No. 1319, market value is the normal (customary) purchase and sale value of a real estate on the date of nationalisation, expropriation or property declaration,
- According to German Zoning Law, market value is the value that must be acquired on the date of inquiry regardless of unusual and individual references concerning the position and quality of the property in the regular market,
- In the United States, market value is the price settled between a sincere buyer and a sincere seller providing that an adequate time and favourable economic conditions for the realisation of bargaining and sale exist,
- According to Walter SEELE, market value is the most probable customary price between serious sellers and serious buyers within the practice of reasonable markets,
- According to Ross and Brachman, market value is the real value, the sale price of a real estate.

The market value of a parcel involves the soil and land together with the parts on it, particularly with buildings and other annex structures. The extent to which the parcel and its building facilities will be included in value assessment depends on how they will affect the market price. All the actual, legal and economic factors that affect the market price of a parcel

in the regular market should be considered in the valuation process. These factors are particularly location, quality, size, shape of the parcel, the state of the infrastructure and legally approved type of use. Factors that determine the value are the rights that increase or decrease the value.

2.3 Valuation in Turkey

In Turkey, real estate valuation started to be discussed at an academic level in 1975, but its use by the real estate market started in the 1990s. Its common use was with the Licensing Exams of the Capital Market Board (SPK). In the valuations carried out in the early years;

- a) the sales comparison method,
- b) the income method,
- c) the cost method

were used [5].

The sales comparison method requires the occurrence of recent unstructured sales which particularly have similar valuation conditions (development right, distance to infrastructure areas, etc.). In case recent sales do not exist, sales that were closed on different dates can be updated with the help of the consumer price index (TUFEE).

The income method can be applied especially for real estate that generates rent and agricultural land. In this case, it is necessary that buildings are used in similar ways and in agricultural lands the land cultivation plans and agricultural areas are the same.

The cost method is applied for big commercial buildings like factories and hotels. However, current physical depreciation and physical wear need to be determined carefully in such buildings.

In the early years, these methods were used alone or in combination in our country. However, on the way to the present day, these methods started to provide inaccurate results in valuations performed especially in areas where mass valuation is required.

The use of classical valuation methods together or alone would be inadequate in the central areas of the city and in settlements surrounded by attraction centres where buildings are dense. Certain other data that provide a basis for valuation need to be known in such areas. Probably the most important of these data is *rental income*.

In the present study, a district which is located in the city centre of Konya and considered for urban transformation was selected as the study area and it was endeavoured to calculate the ground values based on rental incomes.

3 RENT CAPITALISATION

3.1 Rent Capitalisation Interest Rate

Rent capitalisation interest rate is the ratio of the one-year rental income of a property (residence, store, office, factory, land) to its market value. That is, the rate of return that the investor expects is the capitalisation rate, which is stated as the ratio of the annual rental income derived from the property and the value of that property. This can be expressed as a mathematical equation through the following relation [6]:

$$k = \frac{D_{kira}}{D_{satış}} \quad (3.1.1)$$

Properties that are comparable in definition need to have comparable capitalisation rates. If the assessor detects that the capitalisation rate he obtained for a property is reasonably lower or higher than the others, he should sort out this sample case.

3.2 Calculation of Rent Capitalisation Interest Rates

First of all, it is necessary to quite carefully determine the borders of the district whose rental income will be calculated. As there cannot be a single capitalisation rate that represents a large district, a calculation should not also be made for a small district.

The following should be as identical as possible for real estates located in the district for which the rent capitalisation rate will be calculated;

- a) Types of use,
- b) Sizes,
- c) Age of buildings,
- d) Unit rent values,
- e) Unit sale values,
- f) Distance to attraction centres,
- g) Social status and incomes of renters,
- h) Lengths of rental contracts.

After the borders of the district are determined, the *rental values* and *feasible sale prices* of properties should be obtained from the following in a controlled manner;

- a) Local real estate agencies,
- b) Construction companies,
- c) Credit agencies.

An adequate number of equal properties either sold or for which a valuation is calculated are needed for this purpose. Information that will be collected from equal properties that have such similar qualities would reflect the general characteristics of the rental properties in that district.

After the rental and market values of properties are added (or calculated), net income and net sale value should be calculated for each property. The necessary expenses for renting (ZG_{kira}) can be listed as:

- a) Estate agent's commission,

- b) Collection difficulty,
- c) Property tax,
- d) Contract expenses,
- e) Inventory expenses.

The ratio of the sum of all these expenses to annual income is 6% on average for Konya province. The necessary expenses for sale ($ZG_{\text{satış}}$) are:

- a) Estate agent's commission,
- b) Sales tax,
- c) Income tax.

The ratio of the sum of all these expenses to market value is 4% on average for Konya province.

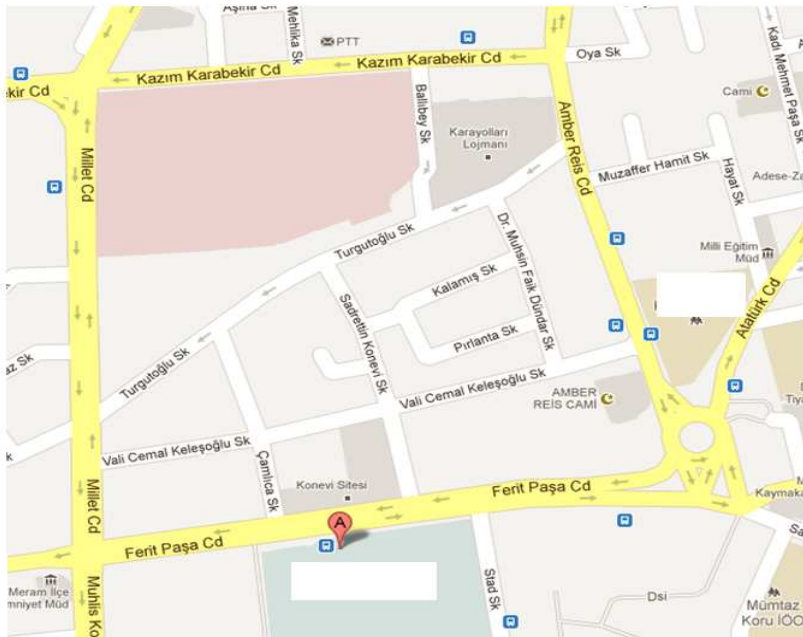
When the annual net rental value and net market value is calculated for each property, the relation in 3.1.1 turns into:

$$k = \frac{D_{\text{knet}}}{D_{\text{snet}}} \quad (3.2.1)$$

4. A CASE STUDY

The case study was conducted in a 26 daa district located 1 km away from the city centre of Konya province with approximately 40-year-old, 5-storey blocks of apartment buildings inhabited by people whose average annual net income is 50 000 TL (Map 1).

Map 1: Map of the Case Study Area:

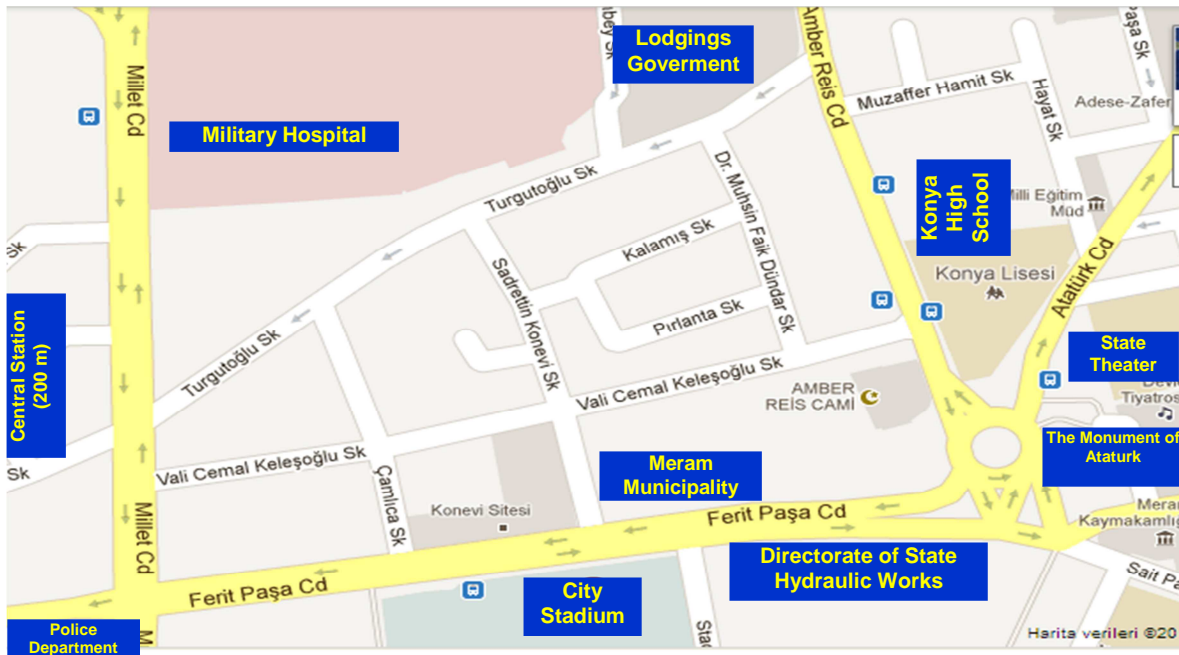


There are no empty parcels in this completely built-up district. Furthermore, the ground floors of some apartment buildings are small places of business. The district is surrounded by attraction centres [7].

- a) A military hospital and the dwelling of a public institution is in the north,
- b) Konya High School and the State Theatre are in the east,
- c) A public institution and the city stadium are in the south,
- d) The train station is 250 m west of the district.

In short, the real estates located in the district where the data was collected from are not superior to one another in terms of distance to attraction centres, building age and type of use (Map 2).

Map 2: Map of The Growth Centres



The distinction among;

- a) Ground floor,
- b) Top floor,
- c) Mid-floor

was taken into account in the data collection process (Map 3), because a customer who rents or buys an apartment as a residence also takes this distinction into account.

Map 3: Map Of Housing To Compare



We can calculate the annual net rental value (D_{knet}) by using this data as follows:

$$D_{knet} = D_k - ZG_{kira} \quad (4.1)$$

By dividing this value by area, we can find the unit rental value (D_{kbr}) as;

$$D_{kbr} = \frac{D_{knet}}{F} \quad (4.2)$$

In a similar way, net sale value (D_{snet}) can be calculated by way of;

$$D_{snet} = D_s - ZG_{satış} \quad (4.3)$$

By dividing this value by area, we can find the unit sale value (D_{sbr}) as;

$$D_{sbr} = \frac{D_{snet}}{F} \quad (4.4)$$

Afterwards, we can calculate the **rent capitalisation interest rate** by way of relation (3.2.1).

When we insert the collected data into tables based on the classification of;

- a) Ground floor,
- b) Top floor,
- c) Mid floor

we obtain the raw data given in Table 4.1, Table 4.2 and Table 4.3.

Table 4.1: Ground floor data

Flat No	F	D _k	D _s	CY
12	100	350	50000	N-S
14	180	500	150000	E-W-S
15	70	300	40000	W-N-S
18	80	300	45000	N-S
25	90	250	35000	N-S
31	90	400	50000	N-S-E-W

Table 4.2: Top floor data

Flat No	F	D _k	D _s	CY
4	140	450	65000	E-W
13	130	450	60000	N-S
21	120	450	65000	N-S-E
23	110	350	55000	N-E-W
28	110	350	55000	N-S
30	130	400	55000	N-S-E

Table 4.3: Mid floor data

Flat No	F	D _k	D _s	CY
1	100	400	85000	N-S-E-W
2	140	500	100000	N-S
3	140	550	130000	N-S-E-W
5	140	600	150000	E-N-S
6	210	900	350000	N-S-E
7	180	700	250000	N-S
8	150	500	130000	N-S
9	130	500	130000	N-S-E-W
10	180	750	200000	N-S-E-W
11	170	500	210000	N-S
16	180	700	300000	E-W
17	110	500	100000	N-S-W
19	90	350	55000	N-S
20	130	500	90000	N-S
22	110	400	65000	N-E-W
24	110	450	70000	E-W
26	100	400	60000	N-S
27	100	350	65000	E-W-S
29	90	400	55000	N-S
32	90	450	75000	N-S-E-W

is obtained. By using these data given in 4.1, 4.2, 4.3, 4.4 and the equation given in 3.2.1, the;

- Unit rent(D_{kbr}),
- Unit sale(D_{sbr}),
- Rent capitalisation interest rate k

of each real estate is calculated for each flat on its own (Table 4.1.1 – 4.2.1 – 4.3.1) and written in the mean value tables (Table 4.1.2 – 4.2.2 – 4.3.2) given below.

Table 4.1.1: Ground floor data operations

FlatNo	F	D _k	D _{kyl}	D _{knet}	D _{kbr}	D _s	D _{snet}	D _{sbr}	k (%)	CY
12	100	350	4200	3948	39.48	50000	48000	480	8.23	N-S
14	180	500	6000	5640	31.33	150000	144000	800	3.92	E-W-S
15	70	300	3600	3384	48.34	40000	38400	548.57	8.81	W-N-S
18	80	300	3600	3384	42.30	45000	43200	540	7.83	N-S
25	90	250	3000	2820	31.33	35000	33600	373.33	8.39	N-S
31	90	400	4800	4512	50.13	50000	48000	533.33	9.40	N-S-E-W

Table 4.1.2: Ground floor mean values

Means	Ground floor
D_{kbr}	40.49
D_{sbr}	545.87
k (%)	7.76

Table 4.2.1: Top floor data operations

Flat No	F	D_k	D_{kyl}	D_{knet}	D_{kbr}	D_s	D_{snet}	D_{sbr}	k (%)	CY
4	140	450	5400	5076	36.26	65000	62400	445.71	8.13	E-W
13	130	450	5400	5076	39.05	60000	57600	443.08	8.81	N-S
21	120	450	5400	5076	42.30	65000	62400	520	8.13	N-S-E
23	110	350	4200	3948	35.89	55000	52800	480	7.48	N-E-W
28	110	350	4200	3948	35.89	55000	52800	480	7.48	N-S
30	130	400	4800	4512	34.71	55000	52800	406.15	8.55	N-S-E

Table 4.2.2: Top floor mean values

Means	Top floor
D_{kbr}	37.35
D_{sbr}	462.49
k (%)	8.10

Table 4.3.1: Mid floor data operations

FlatNo	F	D_k	D_{kyl}	D_{knet}	D_{kbr}	D_s	D_{snet}	D_{sbr}	k (%)	CY
1	100	400	4800	4512	45.12	85000	81600	816	5.53	N-S-E-W
2	140	500	6000	5640	40.29	100000	96000	685.71	5.88	N-S
3	140	550	6600	6204	44.31	130000	124800	891.43	4.97	N-S-E-W
5	140	600	7200	6768	48.34	150000	144000	1028.57	4.70	E-N-S
6	210	900	10800	10152	48.34	350000	336000	1600	3.02	N-S-E
7	180	700	8400	7896	43.87	250000	240000	1333.33	3.29	N-S
8	150	500	6000	5640	37.60	130000	124800	832	4.52	N-S
9	130	500	6000	5640	43.38	130000	124800	960	4.52	N-E-W
10	180	750	9000	8460	47.00	200000	192000	1066.67	4.41	N-S-E-W
11	170	500	6000	5640	33.18	210000	201600	1185.88	2.80	N-S
16	180	700	8400	7896	43.87	300000	288000	1600	2.74	E-W
17	110	500	6000	5640	51.27	100000	96000	872.73	5.88	N-S-W
19	90	350	4200	3948	43.87	55000	52800	586.67	7.48	N-S
20	130	500	6000	5640	43.38	90000	86400	664.62	6.53	N-S
22	110	400	4800	4512	41.02	65000	62400	567.27	7.23	N-E-W
24	110	450	5400	5076	46.15	70000	67200	610.91	7.55	E-W
26	100	400	4800	4512	45.12	60000	57600	576	7.83	N-S
27	100	350	4200	3948	39.48	65000	62400	624	6.33	E-W-S
29	90	400	4800	4512	50.13	55000	52800	586.67	8.55	N-S
32	90	450	5400	5076	56.40	75000	72000	800	7.05	N-S-E-W

Table 4.3.2: Mid floor mean values

Means	Mid floor
D_{kbr}	42.44
D_{sbr}	894.42
k (%)	5.54

4.1 Reasons for Low Rent Capitalisation Interest Rates

Real estate is one of the most secure means of investment. Therefore, the capitalisation interest rate of the capital invested on real estate is much lower compared to that of other risky investments. In addition to this economic reason, there are also other non-economic reasons that lower the rent capitalisation interest rates more compared to the interest rates of other investments. These are:

- a) Desire for property; One's desire for property has an important role in possessing a real estate. The desire for property decreases the capitalisation interest rates of real estate larger than 160 m² (e.g., 6-7-11-16),
- b) At lease terms, property owners cannot raise the rents of old tenants higher than the consumer price index due to their long-time renter status,
- c) Social and political power; Property at the same time endows power to its owner. Some of the dwellers prefer this district for its social environment. For this reason, whether the rents or sale prices are high or low is not important for these people [8].

4.2 Conclusion and Suggestions

We create Table 5 in order to examine the data given in Table 4.1.2, Table 4.2.2 and Table 4.3.2 together.

Table 5: Mean values for the district

	D_{kbr}	Index	D_{sbr}	Index	k (%)	Index
Top floor	37.35	100	462.49	100	8.10	146.21
Ground floor	40.49	108.41	545.87	118.03	7.76	140.07
Mid floor	42.44	113.63	894.42	193.39	5.54	100

The following conclusions can be drawn from the data given in Table 5:

- a) The floors are ordered respectively as top floor, ground floor and mid floor based on unit rental values,
- b) The same conclusion given in **a** can be drawn for unit sale values,
- c) However, the order of rent capitalisation interest rates is in the *opposite direction*,
- d) The difference between floor values increases 13% for rent, whereas this increase is 93% for market value,
- e) Although the most ideal floor for investments seems to be the *middle floor*, it is the worst investment because it has the lowest rent capitalisation interest rate,
- f) The ideal floors for rent are *the top floor* and the *ground floor*, because they are 40% and 46% more valuable than the mid floor.

It is generally presumed that only one rent capitalisation interest rate method can be applied in an integrated fashion for the whole of each apartment block valued. However, as it can be seen in the present study, a single rent capitalisation interest rate cannot be determined for each apartment block. Instead, it emerged in this study that it is necessary to determine individual *rent capitalisation interest rates* on district basis by taking a number of apartment blocks and the top floor-ground floor-mid floor differences into consideration.

Based on these conclusions, the feasible market value of an apartment can be calculated considering the *floor* on which it is situated by using:

For top floor,
$$D_s = F \times 461.11 \quad (4.2.1)$$

For mid floor,
$$D_s = F \times 521.78 \quad (4.2.2)$$

For ground floor,
$$D_s = F \times 766.06 \quad (4.2.3)$$

5. ABBREVIATIONS

W	: West
CY	: Facade direction
E	: East
D_k	: Rental value (TL) / month
D_{kbr}	: Unit rental value (TL)
D_{knet}	: Annual net rental value (TL) / year
D_{kyl}	: Annual rental value (TL) / year
D_s	: Sale value (TL)
D_{sbr}	: Unit sale value (TL)
D_{snet}	: Net sale value (TL)
F	: Area m ²
S	: South
N	: North
k	: Rent capitalisation interest rate (%)
ZG_{kira}	: Necessary expenses for renting
ZG_{satis}	: Necessary expenses for sale

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Business Centres:

Konya High School:

Monument:

Public Institution:

City Stadium:

Train Station:

Military Hospital:

Public Institution Dwelling:

State Theatre:

Map of the Study Area:

Map of Attraction Centres:

BIOGRAPHICAL NOTES

Dr. Ayhan GOKTEPE was born in 1968 and graduated in 1991 as Dipl. Eng. in Surveying from Selcuk University and completed his doctorate degree in 2005 at Selcuk University of Konya.

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