

# Atypicalities and Apartment Rent Concessions

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**Abstract.** This paper examines the use and value of rental concessions using a 1988 sample of apartment rents in the Greensboro/High Point/Winston-Salem (North Carolina) MSA. The first section develops an approach to the problem and the second section estimates a logit model to predict the use of concessions as a pricing strategy based on characteristics of the apartment. The third section employs a hedonic pricing model to measure the average value of rental concessions in the Greensboro market. The final section summarizes relevant findings.

## Introduction

Increasing educational requirements have delayed entry into the labor force for many young adults in recent years. At the same time, an increase in the retired population has augmented the number of households for whom apartment living is a possible housing choice. These trends, coupled with spiraling prices of single-family homes in many regions, have created an apartment demand pool that has led to the construction of many new apartment complexes in the recent past.

As multifamily dwelling has become more widespread in the United States, large apartment complexes have begun to approach the size of small neighborhoods, sometimes including sizable "common areas" which go beyond the clubhouse, pool and tennis courts to include parks, jogging trails, and organized activities for many age groups. These amenities are designed to lengthen the period of their lives during which small families will feel comfortable in rental housing. Congruent with this trend is the customization of living units to go beyond the bedroom, bath, kitchen and living area "box" to include laundries, storage closets, garages, fireplaces, and even dens. Short of purchasing a single-family unit, these facilities have previously been available only by owning a rowhouse or condominium.

Developers of these "modern neighborhoods" face a common problem. They need a way to generate enough "traffic" from young and old adults who will seriously consider paying the rent premium associated with the costs of providing these "extras." Advertising the conveniently located amenities, along with automatically provided lawn care and attractive neighbors, is not always sufficient, given the intense competition that exists in many areas between the variety of new complexes, and the consequent difficulty in comparing prices and services.

The ultimate goal is to recruit a core group of long-term tenants who are comfortable

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enough in the custom apartments to stay for the "long term," five years or more. This group will share an interest in the quality of the "neighborhood" and hence not abuse common areas, while at the same time paying the rent premium required to maintain them. Otherwise, developers will have to follow the traditional strategy of building "standard" apartments and competing head-to-head with the existing structures, which were often built at lower construction costs and mortgage interest rates.

The additional marketing requirement is a reduced "front end" (first year) rent that is not much greater than a year's rent for the "standard" apartment. This is quite attractive to the limited budget consumers who are likely to become longer-term tenants. This technique de-emphasizes the fact that spending more for an apartment means less savings are available for a mortgage downpayment for the "traditional" home and also invites prospective tenants to compare the custom to the standard apartment as "equally priced" housing. This is especially useful when apartments are "over-supplied" and competition between sellers is intense.

Besides reducing the initial cost in order to generate a "thicker market" and hence increasing the probability of producing a "match" between renter and landlord, a way must be found to discriminate between prospective and previously existing tenants. This rules out the otherwise obvious solution of outright rent reduction which would lead to arguments about why existing tenants should pay higher rents. This is especially true of large complexes which have a great number of existing tenants. The ideal marketing technique will also allow the seller to differentiate between prospective tenants as well, so that different "reductions" can be employed for those who will only rent if the more valuable reduction is offered. The custom design of a complex gives the rental agent the "monopoly power" that enables him or her to vary the price and still rent apartments. (This would not be possible in a perfectly competitive market with an equilibrium price.)

Like financial aid at universities, reductions should be just large enough to capture the whole amount each consumer is willing to pay for the service. For example, one renter may be enticed through the offer of a microwave oven or the payment of moving expenses, while another may be attracted by a gift certificate from a local department store. Each concession can vary in value. Moreover, using special concessions and rebates makes comparison shopping by consumers more difficult and thus helps forestall price competition by competitors who might otherwise offer to match outright rent reductions.<sup>1</sup>

This monopoly power and imperfect information provide the conditions needed for price discrimination<sup>2</sup> through rental concessions. But, of course, this strategy is not costless; more time is required on the part of the rental agent to negotiate with renters, so marginal costs can be expected to rise. Nevertheless, the use of concessions is justified if profits are thereby increased (i.e., if total rental revenue is ultimately increased by more than the value of the concession).

This leads to a second necessary condition for the use of rent concessions: the apartment project must have sufficient rental activity to justify these increased transaction costs. For example, for some small apartment projects, the value of the concession benefit may not exceed the higher cost of providing it.

## **The Use of Rental Concessions**

As discussed in the first section, there are two necessary conditions for the use of rental concessions as a strategy in the pricing of apartment rentals: (1) the landlord must have

some degree of monopoly power and (2) the rental turnover in the apartment project must be high enough to justify the extra costs of concession pricing.

The first condition is highly related to the number of substitutes that renters find available to them in the local market. To measure this aspect of apartment demand, an index of "atypicality" as developed by Haurin [1988] is employed. Haurin's index takes the deviations of an apartment's observed attributes from levels typical to the local market and aggregates these deviations by applying hedonic price theory. The index is measured in dollars and is constructed as the sum over all attributes of the product of each attribute's measure of atypicality and the implicit marginal price of the attribute:

$$I = \sum_i^m p_i | a_i - a | \quad (1)$$

where there are  $m$  attributes ( $a_i$ ), and the  $p_i$  are the implicit prices. The hedonic price index used to construct this index is discussed in the following section.<sup>3</sup>

To test this explanation of the use of rental concessions, assuming that the probability function describing the odds that a landlord will decide to offer rental concessions is logistic, it follows that:

$$\ln [\text{prob}(rcon_i) / (1 - \text{prob}(rcon_i))] = C = B_0 + B_1 * Atyp_i + B_2 * Size_i \quad (2)$$

where

$rcon_i$  = a binary variable (1 = yes, zero otherwise) representing the availability of rental concessions on unit type  $i$ . The specific nature of these concessions varies greatly between units and projects. They may include such things as the offer of free moving expenses, department store gift certificates, and discounts on the first month's rent.

$Atyp_i$  = the atypicality of  $i$ th unit as measured by the Haurin index,

$Size_i$  = the number of units in the apartment project in which the  $i$ th unit is located.

Data to estimate equation (2) were taken from a survey of apartment projects in the Greensboro/High Point/Winston-Salem (North Carolina) MSA conducted during the third quarter of 1988. A total of 257 apartment projects were surveyed. Usable responses were received from 155 projects, representing 439 separate types of rental units. Apartment managers reported that rental concessions were available on 29% of the unit types surveyed.<sup>4</sup>

The estimated logit equation appears below, with asymptotic  $t$ -ratios in parentheses:

$$c = -1.846 + 0.006 * Atyp_i + 0.003 * Size_i$$

(6.78) (2.23) (4.27)

log likelihood = -258.38

number of observations = 439

cases with  $rcon_i = 1$  is 136

Both the size of the apartment complex and the atypicality of the apartment units are found to be statistically significant determinants of the probability of the use of concessions

as a pricing strategy. The probability of using concessions is estimated to rise 0.6% for every one unit increase in the atypicality of a unit (as measured by the Haurin index) and 0.3% for every one unit increase in the size of the apartment complex. The positive relationships between the use of concessions and atypicality, and concessions and project size are as expected. The logit model suggests that landlords who have more atypical units and greater scales of rental activity are more likely to adopt rental concessions as a pricing strategy.

### The Value of Rental Concessions

To estimate the value (or implicit price) of a rental concession, the following hedonic rent model is estimated:

$$R_i = r(N_{ij}, C_{ij}, P_{ij}, rcon_i) \quad (3)$$

where,

$R_i$  = the nominal monthly rent for unit type  $i$ ,

$N_{ij}$  = a set of neighborhood characteristics for unit type  $i$ ,

- (a) the  $X$  distance (east/west distance) from the center of the MSA to the apartment project,
- (b) the  $X$  distance squared,
- (c) the  $Y$  distance (north/south distance) from the center of the MSA to the apartment project,
- (d) the  $Y$  distance squared,
- (e) the average income in the census tract in which the project is located (in \$1,000s).

$C_{ij}$  = a set of characteristics for unit type  $i$ ,

- (a) square footage,
- (b) number of bath rooms,
- (c) age (in years),
- (d) electricity included,
- (e) term of the lease (in months),
- (f) lease term squared,
- (g) vaulted ceilings,
- (h) hardwood floors,
- (i) microwave oven,
- (j) dishwasher,
- (k) fireplace,
- (l) window treatments,

$P_{ij}$  = a set of characteristics of the apartment project,

- (a) swimming pool,
- (b) jog track,
- (c) exercise room,
- (d) special units for handicapped,
- (e) facilities for elderly,

$rcon_i$  = a binary variable (1 = yes, zero otherwise) representing the availability of rental concessions on unit type  $i$ .

Ordinary least squares estimates of equation (3) are shown in Exhibit 1.<sup>5</sup> The estimates were produced using the White adjustment for consistent standard errors in the presence of unknown heteroskedasticity [White 1982]. A table of means and standard deviations is included in the Appendix.

All of the significant coefficients have the expected signs. Rental rates fall with distance and rise with neighborhood income. Rents are positively associated with amenities of the unit (square footage, number of baths, etc.) and amenities of the project (pool, jog track, etc.).

As shown in Exhibit 1, the availability of a rental concession on a specific apartment type substitutes statistically for (lower) contract rents. The implicit price of a rental concession to the tenant is \$9.91 per month. That is, landlords who offer concessions charge an average of \$9.91 more rent per month. The prospective tenants decide whether the value of the rental concession is worth the extra rental cost. Since the typical apartment in the sample rents for \$393.14 per month, the rental concession is associated with a 2.5% higher average rent.<sup>6</sup>

Thus, partly because of imperfect information, these landlords are able to use concessions to charge higher rents. The present value of the higher earnings stream minus the current value of the concession equals the net profit landlords earn through pursuing this strategy.

### Exhibit 1 Monthly Apartment Rents

Variable	Coefficient	t-value
Constant	53.17*	2.60
X Distance	-6.75*	-7.02
X Squared	-0.69*	-2.18
Y Distance	2.71*	0.77
Y Squared	-5.09*	-2.94
Ave. Income (in \$1,000s)	1.55*	4.37
Square Footage	0.14*	10.92
No. of Baths	59.98*	8.65
Age (years)	-0.02	-0.06
Electricity	31.56*	3.27
Lease Term (mos.)	-0.98	-0.27
Lease Term Squared	0.10	0.41
Vaulted Ceilings	20.57*	2.24
Hardwood Floors	41.81*	2.28
Microwave Oven	15.68*	1.78
Dishwasher	29.16*	3.45
Fireplace	13.80	1.32
Window Treatments	25.09*	4.78
Pool	16.88*	2.45
Jog Track	24.43*	2.59
Exercise Room	27.78*	4.07
Special Units for Handicapped	30.09*	4.95
Facilities for Elderly	64.45*	4.34
Rental Concession	9.91*	1.94
Adjusted $R^2$	0.75	
N	439	

\*indicates significance at the  $p=0.05$  level (one-tail test)

## Conclusions

This paper examines the use and value (or implicit price) of concessions in the rental housing market. It draws on a theory that was developed to explain the use of concessions as a pricing strategy in the rental housing market. The theory suggests that the existence of atypical customer units creates monopolistic elements in the rental market. Landlords can therefore employ rental concessions to increase total profits, if the scale of their rental activity is sufficient to justify the increased costs concomitant with the use of concessions.

A conditional logit model was estimated using data from a 1988 survey of apartments in the Greensboro MSA. The estimates of this model conform to expectations that the use of rental concessions is positively associated with the atypicality of a unit and project size.

A hedonic price model of apartment rents was estimated to examine the average value of rental concessions offered in the Greensboro market. This model suggests that the average rental concession is statistically equivalent to a 2.5% higher rent.

## Notes

<sup>1</sup>The existence of concessions implies that posted rents may no longer be an adequate indicator of market conditions. Theoretically, rent levels are a key variable determining changes in supply and market absorption rates. But with concessions, average rents may not be straightforward. See Barnes [1986] for implications of rental concessions on cash flows and commercial property values.

<sup>2</sup>Economists have long recognized that such concessions increase profits in markets that are characterized by monopoly power and imperfect information. See Cassady [1946], Machlup [1955], and Pigou [1920]. Automobile retailing, airline service, and antique sales are other examples of the use of concessions. Within the rental housing market, monopoly power is conferred by the custom design of the complex and its location. Imperfect information is also present and accounts for the prevalence of apartment locator services, appraisers, etc. These agents flourish by collecting information and channeling it to their clients.

<sup>3</sup>The hedonic price equation used to construct the index was the same as that shown in Exhibit 1 (discussed later) with the exception that the rental concession variable (*rccon*) was not included.

<sup>4</sup>A full discussion of the survey methodology and results is available in Jud and Puryear [1988].

<sup>5</sup>As discussed in Frew and Jud [1988], the coefficient estimates may be improved by including vacancy rates and estimating a vacancy equation simultaneously with equation (3). However, we did not have vacancy data available for this study.

<sup>6</sup>This compares to an estimate of the value of concessions of \$19.47 in the Baton Rouge market in 1987 (see, Sirmans, Sirmans and Benjamin [1989]). It is not surprising that the value of the average rental concession was found to be higher in Baton Rouge than in Greensboro, given the substantially higher vacancy rate in Baton Rouge. The vacancy rate in 1987 in Baton Rouge was reported to be 14%, compared to an 8.5% rate in Greensboro.

## References

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### Appendix Means and Standard Deviations

Variable	Mean	Std. Dev.
Monthly Rent	\$393.14	\$91.83
X Distance	-0.26	2.69
X Squared	7.28	8.31
Y Distance	-0.00	0.81
Y Squared	0.65	1.50
Ave. Income	\$33,964.19	\$8,004.18
Square Footage	888.70	267.33
No. of Baths	1.40	0.47
Age (years)	11.93	9.14
Electricity	0.07	0.25
Lease Term (mos.)	11.19	2.74
Lease Term Squared	132.81	42.55
Vaulted Ceilings	0.10	0.30
Hardwood Floors	0.03	0.16
Microwave Oven	0.09	0.29
Dishwasher	0.87	0.33
Fireplace	0.09	0.28
Window Treatments	0.57	0.50
Pool	0.78	0.42
Jog Track	0.07	0.26
Exercise Room	0.17	0.38
Special Units for Handicapped	0.49	0.50
Facilities for Elderly	0.03	0.18
Rental Concession	0.29	0.46
Number	439	