Difficult to Show Properties and Utility Maximizing Brokers

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Abstract

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Brokers have long believed that difficult to show properties sell at lower prices and take longer to sell. Where difficult to show properties are defined as those properties that present extraordinary difficulties for a broker in arranging or showing the listing to a particular buyer. Buyers' recent access to online real estate applications may make the cost of avoiding these properties prohibitive to brokers. Employing a hedonic pricing model and duration modeling techniques, this study finds that property price and marketing time are not significantly affected for these properties. The results suggest that brokers possess limited market power.

Introduction

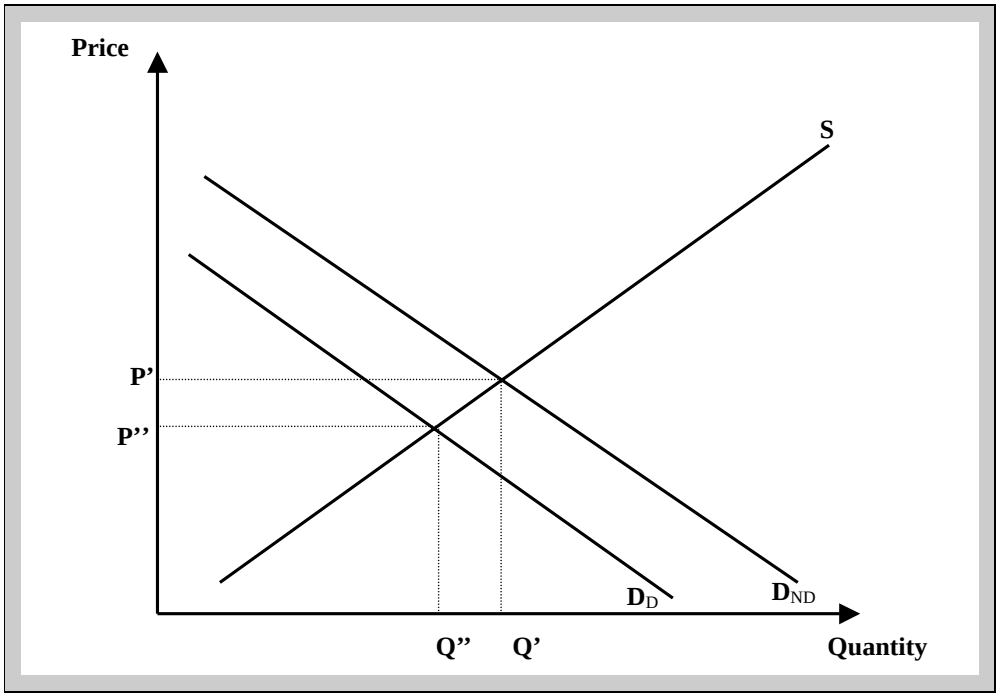
The majority of properties that are listed and marketed by brokers are not sold by the property's listing broker. In most cases, the property in question is sold by a cooperating broker, either from another firm or another broker within the listing firm.[1] The term ''broker'', though not technically correct, is used in this study to represent all the licensed salespeople and associate brokers working within a given Multiple Listing Service (MLS).

Today, most real estate firms, and their brokers that specialize in the selling of residential properties, are members of a MLS. Properties marketed by a broker are placed in the MLS and made available to all other member brokers. The listing broker makes an array of information about the subject listing available to potential selling brokers. This information includes, but is not limited to, particulars such as the property list price, the number of bedrooms, number of baths, car storage, school zones, exterior and interior amenities, kitchen features and a listing broker comments.[2] Showing instructions are also made available through the MLS. These instructions typically include owner contact information

and other information, including the presence of a pet, which is designed to facilitate the showing of the property by potential cooperating brokers.

There is a long held belief among practicing brokers that, ceteris paribus, difficult to show properties translate into lower prices and longer marketing times. Where difficult to show properties are defined as those properties that present extraordinary difficulties for a broker in arranging or showing the listing to a particular buyer. The idea is simple and incorporates two long accepted economic paradigms, utility maximization and the law of supply and demand. It is hypothesized that in order to maximize their utility, showing brokers in effect create two demand schedules. One schedule reflects the demand for properties that are not difficult to show. A second schedule reflects the demand for difficult to show properties.[3] The second schedule is located inside the first, creating an equilibrium price that is lower for difficult to show properties (see Exhibit 1).[4] A corollary to this hypothesis is an extension in property marketing time due to fewer showings.

Exhibit 1 | Equilibrium Price



Here $\mathbf{D}_{ND}$ and $\mathbf{D}_D$ represent the demand schedules for properties that are not difficult to show and properties that present difficulties in showing, respectively. The equilibrium price for not difficult to show properties, **P'**, is greater than the equilibrium price for properties that are difficult to show, **P''**.

At one time or another all brokers have been cornered in a bathroom by an unfriendly dog, chased an escaped cat, found it difficult to arrange a showing time with an owner who requires an appointment be set in advance, had to drive across town to pick-up a key for just one of many showings, etc. In addition, brokers typically arrange several showings and delays at one showing often produce delays at others. These problems are not trivial and, in fact, produce an increase in the marginal cost of showing difficult to show properties. Therefore, selling brokers view the marginal cost of including many of these difficult to show properties in the feasible set of potential purchases as being greater than the properties' marginal benefit from inclusion. Accordingly, these properties are dropped from consideration and thus face a different demand schedule than less difficult showings.

While this trade-held hypothesis might be true, there is another possible and competing hypothesis. Specifically, the trade held hypothesis implicitly assumes that showing brokers exert some significant level of market power over consumers of real estate services. Where market power is operationally defined as the ability of brokers to suppress otherwise competitive market forces, specifically many sellers and buyers of a relatively homogenous product, which should yield a single equilibrium price. Under this market power scenario, selling brokers can maximize their own utility by avoiding difficult to show properties at the expense of market participants resulting in price reductions and extended marketing times for difficult to show properties. If on the other hand, the market power of these brokers is limited, property price and marketing time may not be affected.[5]

A recent spate of articles, including but not limited to Baen and Guttery (1997), Tuccillo (1997), Bardhan, Jaffee and Kroll (2000), Bond, Seiler, Seiler and Blake (2000) and Jud, Winkler and Sirmans (2002), and, hint at a possible source for limiting brokers' market power. All of these articles address to one extent or another the impact of the Internet on residential brokerage. Baen and Guttery along with Tuccillo explicitly argue that the growing use of Internet real estate applications reduce information and transactions costs, speed transactions and will ultimately lead to lower commissions by reducing the demand for brokerage services.

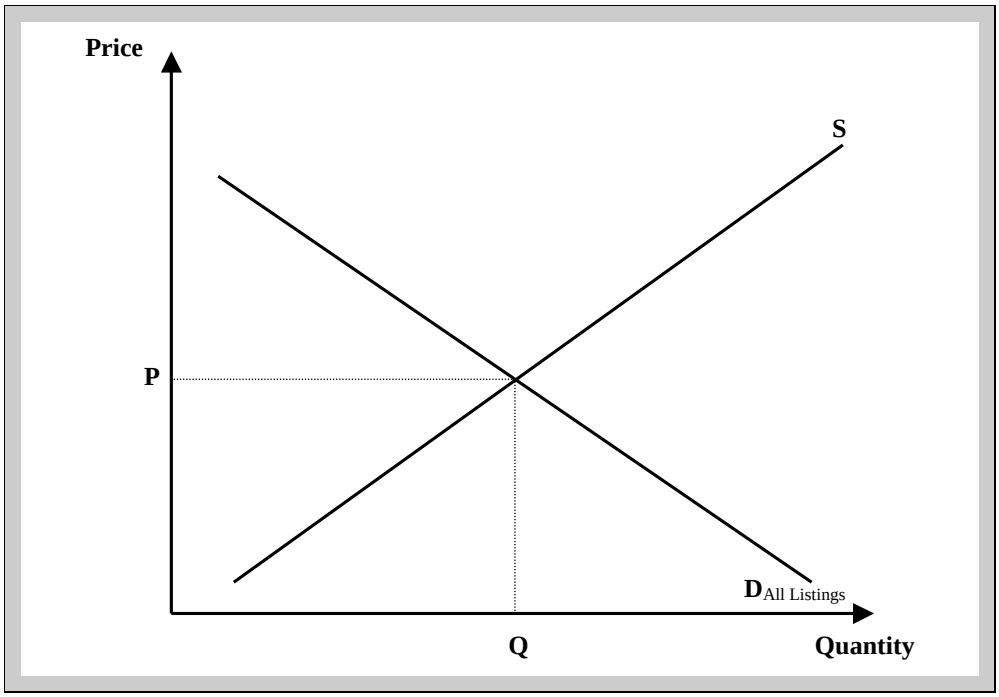
Today, the Internet provides buyers with numerous online real estate applications that allow buyers to prescreen potential properties via searchable databases and virtual tours, as well as to prequalify themselves with mortgage calculators. Showing brokers, fearing that buyers may learn of potential purchases from Internet listings of other broker listed properties and no longer being able to count on the inefficient nature of media, such as classified advertising, could now find it sensible to include difficult to show listings in the feasible set of showings presented to buyers. Said another way, the rational utility maximizing broker, seeing that the expected marginal benefit of showing difficult to show properties is greater than the marginal cost of avoiding these properties, now includes them

in the feasible showing set. In effect, this creates one demand schedule for all properties and a single uniform equilibrium price no matter what the showing instructions for a listed property (see Exhibit 2).[6] The extended corollary from this line of thought suggests that marketing time for these difficult to show properties would not be impacted by their showing instructions.

Are the prices of difficult to show listings affected adversely? Does the marketing time for these properties extend, relative to similar properties? Alternatively, are market forces afoot, perhaps online real estate applications, which can change the showing patterns of rational utility maximizing brokers? These are the questions examined in this study.

Employing comparable sold data from the Montgomery, Alabama area, this study investigates the efficacy of the above arguments. A contiguous area is sampled in order to create a homogenous product and lower overall variability in the housing product. A hedonic pricing model is developed to investigate the effect, if any, of difficult to show listings on property selling price. In addition, duration modeling techniques are used to investigate for ''time on the market'' effects. Three proxies

Exhibit 2 | Market Forces on Equilibrium Price



Market forces exert themselves and consumers view only one demand schedule creating one equilibrium price.

are posited for difficult to show properties in the hedonic pricing model and in the duration model. *PETS*, *KEYINOFF* and *APP* represent properties that have pets, require key retrieval from the listing broker and require prearranged showing times, respectively. Any one, or a combination of these three showing instructions, increases the difficulty of arranging a showing for the broker. In the trade held hypothesis, the proxies for difficult to show properties will sign negative and significant in the pricing model and positive and significant in the duration model. Conversely, if the competing hypothesis holds, the proxies for difficult to show properties instituted as controls in the models should prove benign.

Literature Review

The literature is replete with studies that examine the impact of brokers on residential property price. In the interest of brevity and exposition, this study does not digress into a detailed discussion of these works. Interested readers can consult Yavas (1994) and Benjamin, Jud and Sirmans (2000) for a detailed explanation of this area of research.

The impact of brokers on property time on the market is less extensive. These studies can be broken into two distinct categories based on the methodology employed. Most early, and some more recent studies, attempted to model property marketing time via ordinary least squares (OLS) estimation. For representative studies employing OLS estimations, the reader should consult Belkin, Hempel and McLeavy (1976), Janssen and Jobson (1980), Asabere, Huffman and Mehdian (1993), and Allen, Faircloth, Forgey and Rutherford (2000), among others.

However, the estimation of time on market models is evolving. Duration modeling techniques are becoming the standard. These techniques, though new and not completely accepted, recognize certain deficiencies in employing OLS modeling. For example, OLS modeling is ill suited because of non-normality of the error term, which can lead to bias in the model's estimates of coefficients. Kiefer (1988) provides an excellent presentation on OLS verses duration methodology. For a representative sample of works that employ duration modeling, the reader can consult Yang and Yavas (1995), Jud, Seaks and Winkler (1996) and Johnson, Salter, Zumpano and Anderson (2001), among others.

The literature virtually ignores questions concerning detailed MLS marketing information. Haag, Rutherford and Thomson (2000) provide one exception to this rule and investigate the impact of broker comments found in the remarks section of MLS listing on property price and marketing time. The study finds that negative, as well as some positive comments, are associated with a price reduction. The authors suggest these results indicate that many comments offered by brokers, in the remarks section of MLS listing, are more hype than substantive. To date, however, there has not been an examination of property showing instructions on either property price or marketing time. This study addresses this issue.

Data and Methodology

Data

Two data sources provide the essential data for this study. The Montgomery Area Association of Realtors MLS provides data on housing characteristics, such as the number of bedrooms, baths, and other physical characteristics including the variables of interest *PETS* (properties with pets), *KEYINOFF* (properties that require a key to be retrieved to be shown) and *APP* (properties which require an appointment time be arranged with the owner prior to showing). The Montgomery County Tax Assessor Office provides the needed information on property size (square footage) and age.

The original data set consisted of all conventional residential closings (2,716) that occurred during the calendar year 1998 in Montgomery, Alabama. In order to insure that the data contained a complete set of housing characteristics for each observation, observations that did not appear in both databases were eliminated. Next, obvious data entry errors from the MLS database such as negative time on the market, zero bedrooms or baths, no indication of type of siding, etc were also eliminated. In addition, given that this study is concerned with the impact of difficult to show properties, newly constructed and vacant properties were eliminated. Finally, in a further effort not to muddle the question of the market being studied, any tenant occupied properties were also eliminated.

This results in a final database of 945 observations on which this study is conducted. Descriptive statistics and a legend for the variable definitions are presented in Exhibits 3 and 4, respectively.

Hedonic Pricing Model

In order to test for the impact of difficult to show properties on property price, the following hedonic pricing model is specified.

$$\begin{aligned}\mathrm{Ln}SP = {} & \beta_0 + \beta_1 \mathrm{Ln}AGE + \beta_2 \mathrm{Ln}SQFT + \beta_3 \mathrm{Ln}BED \\ & + \beta_4 \mathrm{Ln}BATH + \beta_5 LEE + \beta_6 LANIER + \beta_7 CARVER \\ & + \beta_8 GAR + \beta_9 CPT + \beta_{10} FP + \beta_{11} GB \\ & + \beta_{12} SEPSHOW + \beta_{13} POOL + \beta_{14} DOUBOVN \\ & + \beta_{15} EIFS + \beta_{16} PETS + \beta_{17} KEYINOFF \\ & + \beta_{18} APP + \varepsilon. \end{aligned} \tag{1}$$

Exhibit 3 | Summary Statistics

Variable	Mean	Median	SE Mean
SP	118,329	103,000	1,802
TOM	82.640	64.000	2.260
AGE	21.640	19.000	0.581
SQFT	1,833	1,706	17.800
BED	3.237	3.000	0.020
BATH	2.207	2.000	0.020
JD	0.516	1.000	0.016
LEE	0.335	0.000	0.015
LANIER	0.132	0.000	0.011
CARVER	0.016	0.000	0.004
GAR	0.289	0.000	0.015
CPT	0.231	0.000	0.014
DRIVE	0.480	0.000	0.017
FP	0.782	1.000	0.014
GB	0.307	0.000	0.015
SEPSHOW	0.306	0.000	0.015
POOL	0.133	0.000	0.011
DOUBOVN	0.094	0.000	0.010
EIFS	0.048	0.000	0.007
PETS	0.091	0.000	0.009
KEYINOFF	0.018	0.000	0.004
APP	0.119	0.000	0.011
N	945		
N - PETS	86		
N - KEYINOFF	17		
N - APP	112		

In this model, Ln*SP* represents the natural log of the sales price. The regressors Ln*AGE*, Ln*SQFT*, Ln*BED* and Ln*BATH* act as continuous predictors representing the property's age, square footage, number of bedrooms and number of bathrooms, respectively. Location proxies are estimated through the use of four high school zones. There are three indicator variables in the model: *LEE*, *LANIER* and *CARVER*, which are equal to one if the property is located in the Lee, Lanier or Carver High School zones, respectively. They are zero otherwise. The reference indicator, which is omitted from the model, is Jefferson Davis High School (*JD*) and is reflected in the constant term. The model also includes indicator variables

Exhibit 4 | Legend for Variable Definitions

SP	= Contract sales price of the property;
TOM	= Time on market in days;
AGE	= Age of the property;
SQFT	= Square footage of the property;
BED	= Number of bedrooms in the property;
BATH	= Number of baths in the property;
JD	= One if the property is in the Jefferson Davis school zone, zero otherwise;
LEE	= One if the property is in the Lee school zone, zero otherwise;
LANIER	= One if the property is in the Lanier school zone, zero otherwise;
CARVER	= One if the property is in the Carver school zone, zero otherwise;
GAR	= One if the property has a garage, zero otherwise;
CPT	= One if the property has a carport, zero otherwise;
DRIVE	= One if the property has a driveway only, zero otherwise;
FP	= One if the property has a fireplace, zero otherwise;
GB	= One if the property has a garden bath, zero otherwise;
SEPSHOW	= One if the property has a shower separate from the tub, zero otherwise;
POOL	= One if the property has a pool, zero otherwise;
DOUBOVN	= One if the property has a double oven, zero otherwise;
EIFS	= One if the property is clad in EIFS, zero otherwise;
PETS	= One if the property has pets, zero otherwise;
KEYINOFF	= One if retrieving key from listing broker is required, zero otherwise; and
APP	= One if setting an appointment is required, zero otherwise.

for three types of parking. *GAR* (garage) and *CPT* (carport) are specified explicitly in the model, while DRIVE (driveway only) is specified implicitly in the base term. *GAR*, *CPT* and *DRIVE* take on values of one if the property has garage, carport or driveway only parking. Otherwise, the observation in question receives a value of zero.

In addition to these conventional regressors, controls for varying levels of quality among the differing properties are placed in the model. This is done through the inclusion of five quality variables. *FP* (fireplace), *GB* (garden bath), *SEPSHOW* (separate shower), *POOL* (in-ground swimming pool) and *DOUBOVN* (double oven) are characteristic of higher-quality properties in the sample area and are available for use in the model. Each of these indicators receives a value of one if the quality characteristic is present and zero otherwise.

Johnson, Salter, Zumpano and Anderson (2001), employing an expanded version of this data set, find that *EIFS* (exterior insulation and finish systems) is positive

and significantly related to *SP* (sales price). EIFS is an exterior siding that has encountered a significant amount of bad press as of late. The siding, though originally hailed for its superior insulation quality, has proven to be permeable to water, which has in turn caused significant structural damage over time. Seemingly, EIFS-clad properties should be discounted by the market. However, given the presence of uninformed buyers in the test market and *EIFS*'s high correlation with quality, the positive and significant relationship between *EIFS* and price is not surprising. Accordingly, EIFS is placed in the model.

Finally, *PETS*, *KEYINOFF* and *APP*, which control for the presence of pets, key retrieval by the showing broker and arranged appointments, respectively, act as proxies for difficult to show properties in the pricing model. All else being equal, any one, or a combination of these three categories of showing instructions, increases the difficulty in showing for a broker, and lowers the broker's expected utility if included in the feasible set of potential purchases due to higher marginal cost. If the offered trade held hypothesis holds, the coefficients of these predictors will be negative and significant. If on the other hand, rational utility maximizing selling brokers now find it beneficial to include difficult to show properties in the feasible showing set, perhaps because of expanded Internet use, these predictors will be nonnegative.[7]

Duration Model

As mentioned earlier, the standard for modeling a property's time on the market (TOM) has shifted from OLS modeling to employment of nonlinear techniques. Often referred to as duration modeling, this methodology provides a measure of the probability of time on the market for a property. The following Weibull operational model is specified.

$$\begin{aligned}\exp(X\beta) = {} & \beta_0 + \beta_1 \mathrm{Ln}AGE + \beta_2 \mathrm{Ln}SQFT + \beta_3 \mathrm{Ln}BED \\ & + \beta_4 \mathrm{Ln}BATH + \beta_5 LEE + \beta_6 LANIER \\ & + \beta_7 CARVER + \beta_8 GAR + \beta_9 CPT + \beta_{10} FP \\ & + \beta_{11} GB + \beta_{12} SEPSHOW + \beta_{13} POOL \\ & + \beta_{14} DOUBOVN + \beta_{15} EFIS + \beta_{16} PETS \\ & + \beta_{17} KEYINOFF + \beta_{18} APP + \varepsilon. \end{aligned} \tag{2}$$

The flexible nature of the Weibull allows the function to be either monotonically increasing or decreasing. If the scale parameter (α), which indicates duration dependence, is greater than one, positive duration dependence is indicated. That is to say, the probability of a property selling is increasing through time. If the scale parameter is less than one, the chance of a property selling decreases through time. Interestingly, a unique quality of the Weibull hazard function occurs when the scale parameter equals one. If α equals 1, the specified hazard function reduces

to the exponential hazard function (*i.e.*, the probability of a sale is constant through time). The interested reader can consult Greene (1997) for a detailed discussion on this topic, in addition to the works mentioned earlier in the Literature Review section. All of the independent predictors in this model are as defined in the hedonic pricing model.

If, as brokers suspect, difficult to showing properties lead to extended marketing times, the regressors *PETS*, *KEYINOFF* and *APP* will be positive and significant. Conversely, nonpositive results will suggest a single demand schedule and uniform *TOM* no matter what the property showing instructions. Benign results will also suggest limited market power on the part of brokers.

Empirical Results

Exhibits 5 and 6 formally report the findings of the specified pricing and duration models. Exhibit 7 reports the results of a nonspecified OLS model of TOM as

Exhibit 5 | Hedonic Pricing Model

Predictor	Coef	Std. Dev.	*T*	*P*	VIF
Constant	8.742	0.214	40.880	0.000	
Ln*AGE*	−0.030	0.010	−2.990	0.003	1.4
Ln*SQFT*	0.258	0.029	8.870	0.000	1.3
Ln*BED*	0.351	0.043	8.110	0.000	1.3
Ln*BATH*	0.450	0.033	13.680	0.000	1.5
LEE	−0.027	0.017	−1.610	0.107	1.2
LANIER	−0.086	0.024	−3.530	0.000	1.3
CARVER	−0.147	0.060	−2.450	0.014	1.1
GAR	0.217	0.018	11.730	0.000	1.4
CPT	0.105	0.019	5.630	0.000	1.2
FP	0.133	0.020	6.750	0.000	1.3
GB	0.067	0.019	3.470	0.001	1.5
SEPSHOW	0.135	0.020	6.770	0.000	1.6
POOL	0.090	0.022	4.050	0.000	1.1
DOUBOVN	0.071	0.026	2.710	0.007	1.1
EIFS	0.158	0.036	4.340	0.000	1.2
PETS	0.034	0.026	1.330	0.184	1.1
KEYINOFF	0.023	0.055	0.410	0.683	1.0
APP	0.014	0.023	0.630	0.531	1.1

Notes: The dependent variable is Ln*SP*. $N = 945$; Adj. $R^2 = 71.8$; and Adj. $R^2 = 71.2$.

Exhibit 6 | Duration / Weibull

Predictor	Coef	Std. Error	*Z*	*P*
Intercept	3.162	0.853	3.710	0.000
Ln*AGE*	−0.022	0.040	−0.560	0.576
Ln*SQFT*	0.128	0.117	1.090	0.275
Ln*BED*	0.173	0.182	0.950	0.340
Ln*BATH*	0.180	0.127	1.420	0.157
LEE	−0.140	0.068	−2.060	0.040
LANIER	0.110	0.100	1.100	0.272
CARVER	0.297	0.240	1.240	0.216
GAR	0.060	0.076	0.790	0.428
CPT	0.021	0.076	0.270	0.786
FP	0.124	0.081	1.530	0.127
GB	0.053	0.078	0.680	0.494
SEPSHOW	−0.170	0.080	−2.140	0.032
POOL	0.018	0.089	0.200	0.842
DOUBOVN	−0.103	0.106	−0.970	0.331
EIFS	0.279	0.147	1.890	0.058
PETS	−0.023	0.106	−0.220	0.829
KEYINOFF	−0.209	0.228	−0.910	0.361
APP	−0.059	0.094	−0.630	0.528
α	1.122	0.023		

Note: The dependent variable is Ln*TOM*. The 95% CI of the scale parameter is $1.066 < \alpha < 1.182$ implying the Weibull distribution is preferable to the exponential distribution. $N = 945$. The log likelihood = −1412.2.

well. The explanatory power (R^2) of the pricing model is 71.8%, and the model is highly significant, as indicated by its *F*-Statistic (not reported) of 130.95 (*p*-value < .00011). The coefficients for the control variables, excluding the variables of interest, are all correctly signed and statistically significant. The model's variance inflation factors (VIF) are reported formally in Exhibit 5 and are all within accepted levels of tolerance.

The continuous regressor (*AGE*) is negative and significantly related to SP as expected. The remaining continuous regressors *SQFT*, *BED* and *BATH* are all positive and significantly related to *SP*, again as expected. As in all hedonic pricing models, there is a need to control for property location. Specifically, the Jefferson Davis (*JD*) school zone is needed to represent the preferred school zone in the study area. Consultation with local real estate professionals indicates that

Exhibit 7 | Duration / OLS

Predictor	Coef	Std. Dev.	*T*	*P*	VIF
Constant	2.524	1.215	2.080	0.038	
Ln*AGE*	0.081	0.056	1.440	0.149	1.4
Ln*SQFT*	0.112	0.165	0.680	0.497	1.3
Ln*BED*	0.082	0.246	0.330	0.738	1.3
Ln*BATH*	0.244	0.187	1.310	0.191	1.5
LEE	−0.184	0.096	−1.910	0.057	1.2
LANIER	0.052	0.139	0.370	0.711	1.3
CARVER	0.629	0.340	1.850	0.065	1.1
GAR	−0.185	0.105	−1.760	0.079	1.4
CPT	−0.023	0.106	−0.220	0.828	1.2
FP	0.184	0.112	1.650	0.100	1.3
GB	0.115	0.110	1.050	0.292	1.5
SEPSHOW	−0.292	0.113	−2.580	0.010	1.6
POOL	0.110	0.126	0.870	0.385	1.1
DOUBOVN	−0.006	0.149	−0.040	0.966	1.1
EIFS	0.335	0.206	1.620	0.105	1.2
PETS	−0.017	0.146	−0.110	0.910	1.1
KEYINOFF	−0.191	0.315	−0.610	0.545	1.0
APP	0.087	0.131	0.670	0.505	1.1

Note: The dependent Variable is Ln*TOM*. $N = 945$; $R^2 = 3.5$; and Adj $R^2 = 1.6$.

the general preference ordering of school zones are Jefferson Davis, Lee, Lanier and Carver, respectively. Consequently, these regressors should sign negative with increasing orders of magnitude for the zones *CARVER*, *LANIER* and *LEE*, respectively. These are the results. In addition, the coefficients for the location proxies are all significantly related to *SP*.

Driveway only (*DRIVE*) is specified as the base case for parking type. Properties with driveway only parking should be the least preferable, while garage parking should be the most preferable. Thus, the coefficients for *GAR* and *CPT* should be positive and significantly related to *SP*, with GAR having the greater magnitude. Again, these results are found.

Turning to the model's dichotomous controls, the regressors for the presence of a fireplace (*FP*), garden bath (*GB*), separate shower (*SEPSHOW*), in-ground swimming pool (*POOL*), double oven (*DOUBOVN*) and exterior insulation and finish systems (*EIFS*) are all positive and significantly related to *SP* as expected.

Finally, this study examines *PETS*, *KEYINOFF* and *APP* for their impact on property price. Interestingly, none of these variables are significant. These results tends to discredit the popular belief among brokers of lower prices for difficult to show properties and lend support to the competing hypothesis. These results also have practical implications. Specifically, when confronted with a seller who does not want to board their pets or insists on being difficult about their property's showing arrangements, listing brokers no longer need to worry about lower sales prices and hence commissions. Selling brokers, on the other hand, would be well advised to market all properties equally, irrespective of their perceived difficulties in showing.

This study's duration model is examined next. A 95% confidence interval on the scale parameter, $1.066 \leq \alpha \leq 1.182$, suggests positive duration dependence and that the Weibull model is preferred to the exponential model. The model indicates three statistically significant factors affecting selling time. Properties located in the Lee school zone sell significantly faster than properties in other location proxies. This result is somewhat surprising, given the speculation by brokers in this market that the *JD* location proxy is preferable. Interestingly, when combining this result with the pricing model, this study finds, that while properties located in the JD school zone receive a pricing premium, they take longer to sell on average than properties located in the Lee school zone. These combined results may be indicative of a shift in demand patterns and should prove helpful to local brokers in the Montgomery area. The control for *SEPSHOW* is also significant and negative. This result is expected, as a separate shower is a preference item among buyers in the study area leading to a shorter selling time.

EIFS on the other hand, is statistically significant and positive, suggesting that properties with EIFS take longer to market. This result, when combined with the pricing model, is consistent with the hypothesis put forth in Johnson, Salter, Zumpano and Anderson (2001) and is not surprising. Specifically, sellers in this market, perhaps on the advice of their brokers, perceive of the existence of uninformed EIFS buyers. Therefore, sellers of EIFS-clad properties do not discount their price and wait for an uninformed buyer. The end result is a nonnegative pricing impact from the presence of EIFS, but property marketing time is extended. These results suggest that while sellers of EIFS-clad properties may not receive a discount in their prices; the present value of their final proceeds is less due to extended marketing time.[8]

All three of the proxies for difficult to showing properties are insignificant. These results suggest that the long held belief of extended marketing times for difficult to show properties is not warranted.[9] Again, these findings lend support to the competing hypothesis, suggesting limited marketing power on the part of brokers.

Conclusion

This study seeks to examine two competing hypotheses. Under both hypotheses, selling brokers use a marginal cost benefit analysis to determine which properties

to include in the set of feasible purchases presented to buyers. The first hypothesis argues that brokers, without scientific investigation, believe that difficult to show properties receive lower prices while witnessing extended marketing times due to the increase in the marginal cost of presenting difficult to show properties to buyers. Two different demand schedules are then presented with the demand schedule for difficult to show properties being inside the demand schedule for properties that do not present difficulties in showing. Ceteris paribus, the resulting equilibrium price for difficult to show properties is lower than the price for other properties. A corollary to this hypothesis is that fewer buyers will visit these properties thus extending their marketing time. Significant market power on the part of brokers is a necessary condition for this hypothesis to hold.

The competing hypothesis suggests that the casual beliefs of brokers may not hold. Specifically, it may be possible that, due to online real estate applications such as buyer searchable databases of available properties, virtual tours and mortgage calculators, brokers may not be able to effectively maximize their own utility by avoiding difficult to show properties. Under this scenario, a single demand schedule is present resulting in uniform pricing. A corollary to this competing hypothesis is that difficult to show properties should not witness extended marketing times. This would be true if brokers possess limited power over the market.

Using comparable sold data from the Montgomery, Alabama area, three categories of difficult to show properties are classified. *PETS*, *KEYINOFF* and *APP* represent properties that have pets, require key retrieval from the listing broker, and require prearranged showing times, respectively. Any one, or a combination of these three categories, increases the difficulty of a sale for the broker. These proxies for difficult to show properties are specified in a hedonic pricing and duration model to test for their impact on property price and marketing time.

The statistical results indicate that none of the proxies for difficult to show properties influence either property price or marketing time. These results suggest that brokers have limited market power, at least less than previously suspected, and the casual beliefs of brokers concerning property price and marketing time for difficult to show properties is misplaced. Buyers are now informationally empowered as never before, and the logical cause for this reduction in market power of brokers appears to be the Internet. In addition, the results have practical applications. Past perceptions of difficult sellers causing longer marketing times, lower sales prices and thus lower commissions for listing brokers, do not seem to hold. Selling brokers, on the other hand, would be well advised to show all properties irrespective of any showing difficulties involved.

A few words of caution seem warranted. First, it would be beneficial to test if the casual beliefs of brokers ever held. Specifically, did difficult to show properties experience a price discount and extended time on the market prior to recent Web technologies? Second, it may be possible that the ratio of difficult to show properties to properties that do not present difficulties in showing could alter the

results of this study. Said another way, the marginal analysis performed by brokers to determine the feasible set of alternatives presented to buyers could vary depending on the makeup of available properties. Third, a comparison of the number of showings across difficult and alternative listings could provide additional insight. Unfortunately, the data needed for these additional tests is not available. All comparable data prior to 1998 has been purged from the Montgomery area MLS system for data storage reasons, making the first two suggestions impractical. A count of the number of showings for the differing properties would be possible if all of the listings in the test area were equipped with electronic lockboxes. This recent technology is becoming available in some markets but was not available in 1998 for the test market. Taking all of these limitations into account, the findings in this study, while suggestive of limited market power on the part of brokers, need additional research to be confirmed. Notwithstanding these concerns, the empirical results of this study strongly indicate that difficult to show properties do not experience either a discount in price or extended marketing time.

Endnotes

[1] The data employed for this study contains 945 comparable sales. The listing and selling broker were the same individual in only 78 cases or approximately 8.3% of the total number of observations. Consultations with brokers in other markets revealed that, at least casually, this rate of ''double dipping,'' as it is often referred to in the trade, seems reasonable. Quite simply, listing brokers, though possessing certain synergistic advantages, are overwhelmed by the vast number of competing cooperating brokers in the market. Finally, the term listing broker, when used in this study, represents the broker who has listed the property. The terms selling, showing or cooperating broker represents a broker aiding buyers in locating property.

[2] In fact, it is not uncommon for an MLS to have upwards of 300 profiled features available for any listing. A listing of all of these features would prove exhaustive and in the interest of brevity and space is omitted.

[3] This second demand schedule can be thought of as a tax that has been placed on the seller of property. The resulting tax incidence debate is another research question worthy of interest. The dynamics of this question are not so straightforward, however, because listing and selling brokers interest are not so perfectly aligned. Therefore, this additional issue is set aside for the moment and addressed in future research in order to concentrate on the question at hand. Said another way, this work makes the simplifying assumption of no conflict of interest between the listing and selling brokers.

[4] An alternative explanation for this trade held hypothesis is that the supply of properties is perfectly inelastic in the short run. Exhibit 1 obviously takes a long run view of the market. The results, however, are robust no matter the elasticity of the supply schedule. Specifically, **P''** is lower than **P'** regardless of the time frame considered for the model.

[5] Frew (1987) provides an alternative explanation. Frew argues that brokers, seeking to maximize their income, may ''holdback'' prime listings. This strategic move on the part of listing brokers could easily influence the resulting price and time on market estimations. However, ''holdbacks'' are inextricably intertwined with the tax incidence question outlined in Endnote 3 and are reserved for future research.

[6] A point of clarification is perhaps warranted. Some may question the demand side impact in both Exhibits 1 and 2 as opposed to a supply side effect. This is so because the focus here is on the rational behavior of brokers who work with buyers and hence impact demand. Listing brokers impact the market via the supply schedule. Their rational utility maximizing behavior is held in check in order to investigate the demand side effects in isolation. See Endnotes 3 and 5 for further explanation.

[7] With thanks to an anonymous reviewer, it may be the case that high probability of sale properties are significantly and positively related to difficult to show properties suggesting some degree of selection bias. This study, however, explicitly holds all other factors, including a property's inherent probability of sale, which might influence a listing's marginal cost equal. However, future research concerning difficult to show properties should investigate this potential bias.

[8] Johnson, Salter, Zumpano and Anderson (2001) find EIFS-clad properties on average experience extended marketing times of an additional 28 days. The average cost of replacing EIFS siding and any necessary structural damage was not available for the study. However, conversations with local brokers, home inspectors and contractors indicated that these repairs far exceeded any lost value in proceeds due to extended marketing time.

[9] Alternate versions of both pricing and duration models were specified, and the results remained consistent across all versions. Difficult to show properties did not suffer a pricing discount, and they did not experience extended marketing times.

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