A Note on Buyer's Agent Commission and Sale Price

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Abstract

The article examines whether and to what extent the level of a buyer's agent commission will affect the sale price of a house. The estimation results suggest that a higher commission rate leads to a higher sale price, although only for lower-priced houses. It is suggested that, at least for this market segment, there may be a principal-agent problem: buyer's agents do not act in the best interest of their clients because of the institutional structure of sales commissions.

Introduction

Several studies have examined the relationship between agents and clients and the effects on real estate prices and search duration of buyers (Janssen and Jobson, 1980; Jud, 1983; Jud and Frew, 1986; Zumpano, Elder and Baryla, 1996; and Elder, Zumpano and Baryla, 1999, 2000). This study adds to this literature on the interagency relationship between seller's and buyer's agents and the resultant effects on real estate prices. More specifically, this study addresses the question whether and to what extent a seller's agent can procure a higher sale price for his/her client's property by offering a higher sales commission to the buyer's agent. The answer to this question may have far-reaching consequences for the viability of the current principal-agent structure in real estate brokerage.

The study is organized as follows. The next section discusses the background of the study. It is followed by a description of the data and the estimation results. The final section is the conclusion.

Antecedents

In the larger and more sophisticated real estate markets, designated agency seems to have become the preferred policy of real estate brokerage firms. This policy allows the principal broker to designate certain agents as ''seller's agents'' and others as ''buyer's agents'' while reserving the role as a ''limited dual agent'' to the firm. The agent who lists a property for sale is designated as the seller's agent and all others, in or out of the firm, are considered buyer's agents. This is a

monumental change from the seller's agency/sub-agency modus operandi that existed for decades. Under the old system, the listing agency represented the seller by explicit contract and all other agents, inside or outside the listing agency, were sub-agents. This system, however, created confusion in that most buyers, and perhaps most agents, thought that the agent showing the property to a prospective buyer represented the buyer. The acts of the real estate agent accompanying the buyer often established an implied agency relationship with the buyer and resulted in an undisclosed, illegal dual agency. This illegal dual agency relationship was rather commonplace until changes were mandated by the actions of consumer advocacy groups such as the Consumer Federation of America, Ralph Nader and others (Brobeck, 1994; and Jennings, 1998: 362–65).

Agency representation involves the duties owed to a client by an agent. A seller's agent represents the seller, exclusively, and must act in the best interest of the seller. The duties owed to the seller include, but are not limited to, trying to obtain the highest price for the seller's property within the time span specified by the seller. The duty owed to the buyer by the buyer's agent includes trying to obtain the property at the lowest price possible.[1]

Early disclosure of agency representation, therefore, is of utmost importance. The buyer should be made aware that the seller's agent is obligated to pass on to the seller any information he/she can obtain that would put the seller in a superior bargaining position. Buyer's agents, in turn, must use the same diligence to obtain information that would put the buyer in a superior bargaining position. The trend, resulting from early disclosure requirements mandated by every state, is clearly toward a ''one agent-one client'' mode of operation in real estate brokerage wherein the seller and buyer are each represented by their own agent.

A typical scenario is that the listing agent negotiates a sales commission with the seller and gets the seller's permission to enlist the cooperation of other agents (buyer's agents) who are members of the Multiple Listing Service (MLS) and to share the commission with such agents. The amount of the commission to be shared with the buyer's agent is usually 50% of the total commission but is at the discretion of the listing (seller's) agent. The commission amount to be paid to the buyer's agent is revealed through the MLS or other means of inter-agency communication. Therefore, buyer's agents know, prior to showing a property, the amount of the commission associated with a particular property.

This situation begs an important question: Can a seller or his agent induce a higher price for his/her property by offering the buyer's agent a higher commission rate? If a positive correlation does indeed exist between the buyer's agent's commission and the sale price of a real estate property, one needs to raise the issue to what extent buyer's agents fulfil their obligations toward their clients, the buyers. Do they try to help them find a suitable house at the lowest price possible or do they try to influence them, in various ways, to buy a possibly less suitable house at an unnecessarily high price in order to receive a higher commission.[2]

If the latter could be confirmed, it may be necessary to reconsider the current structure of real estate brokerage. In particular, one may have to consider the following issues. Would it be to the advantage of the buyer to know if his/her agent is receiving a higher commission rate for a particular house? Should real estate agents be required to disclose their commission? If a buyer is going to use a buyer's agent, then should the seller's agent incur the expenses of advertising in public media? Alternatively, would he/she better serve his client by advertising the property through low cost interagency communications and offering a greater share of his commission as an incentive to a buyer's agent? In sum, the question whether and to what extent a higher buyer's sales commission induces a higher sale price has rather important implications for the institutional characteristics of real estate brokerage.

Data and Estimation Results

The study utilizes a data set of 592 house sales from the Orem (Utah) area for the years 1990 through 1997. Basic statistics and variable definitions are provided in Exhibit 1.

Exhibit 2 presents the results of estimating a number of alternative hedonic price functions on the data set. For each regression, the sale price is regressed on typical housing characteristics and the variable of particular interest in this study, the commission received by the buyer's agent (*COMM*). Model 1 uses the complete data set of 592 observations. The coefficient for *COMM* is statistically highly significant for this model. The coefficient suggests that an increase by one percentage point in the buyer's agent commission raises the sale price by an average of $3,708. The statistical fit of Model 1 is relatively good as measured by R^2 and the highly significant overall F-test. It is also reassuring that Ramsey's (1969) Reset test does not identify a problem with wrong functional form. However, the estimated equation suffers from both heteroskedasticity, as identified by the Breusch-Pagan (1979) test and non-normality in the residuals as identified by the Jarque-Bera (1987) test. Ordinarily, heteroskedasticity and non-normality in the residuals induce little response by the researcher other than the use of White's (1980) heteroskedasticity consistent variance-covariance estimator to adjust the standard errors. However, this response may not be appropriate if heteroskedasticity and non-normality are a sign of a deeper problem. The literature on neglected heterogeneity (*e.g.*, Hall, 1987) suggests that, for linear regression models, the combination of heteroskedasticity and non-normality may indicate that the data contain observations from various subgroups, each with a unique set of regression coefficients. In that case, the solution to heteroskedasticity and non-normality does not lie in a simple transformation of the variance-covariance matrix but rather in the estimation of separate regression equations for each of the subgroups.

In practical applications, the question of how to identify homogeneous subgroups arises. For the given data set and in the light of earlier evidence (Newsome and

Exhibit 1 | Variable Definitions and Basic Statistics

		Model 1			Model 2	Model 4
Variable	Definition	Mean	Min.	Max.	Mean	Mean
Dependent Variable	Sale price	151,013	100,900	224,900	122,812	166,366
COMM	Commission paid to buyer's agent, in percent	2.88	0	5	2.75	2.95
YEAR	Year house was built	1994.5	1990	1997	1994.9	1994.3
SQFT	Square footage	2,386.7	955	4,400	1,755.6	2,726.7
BEDR	Number of bedrooms	3.5	0	6	3.1	3.7
BATHR	Number of bathrooms	2.4	1	7	2.0	2.6
STYLE1	Ram / Ran	0.419	0	1	0.415	0.419
STYLE2	Split level	0.034	0	1	0.063	0.018
STYLE3	Tri-level	0.042	0	1	0.083	0.018
STYLE4	Two-story	0.155	0	1	0.073	0.200
STYLE5	Other	0.014	0	1	0.024	0.008
COOL1	Central air conditioning	0.412	0	1	0.283	0.482
COOL2	No air conditioning	0.316	0	1	0.429	0.253
COOL3	Window units	0.002	0	1	0	0.003

Notes: Model 1 is the full sample. Model 2 is the low price minus one. Model 4 is the high price.

Zietz, 1992) it appears useful to examine whether the impact of the buyer's agent commission varies by price. To identify subgroups by price, the data set is sorted by price and on this sorted data set rolling regressions are run with 100 observations each. For each rolling regression, the beginning and the end of the sub-sample of 100 observations are advanced by one observation each. The regression coefficients for the variable 'buyer's agent commission' are then compared across all rolling regressions. This method provides a fairly efficient way to locate changes in the regression coefficient as one advances from low to high housing prices. For the given data set, it points to a significant change in the coefficient for *COMM* at a housing price of about $134,000.

Models 2 to 4 of Exhibit 2 detail the regression results when the data set is split at a housing price of $134,000. Model 2 provides the results for housing prices at or below $134,000; Model 3 is a subset of the observations used for

Exhibit 2 | Hedonic Price Regressions Explaining the Sale Price

Variable	Model 1	Model 2	Model 3	Model 4
Constant	326,211	−335,425	−363,195	364,879
	(0.51)	(−0.64)	(−0.73)	(0.46)
COMM	3,708.1	2,698.6	2,735.7	3,601.7
	(3.15)	(4.36)	(4.40)	(1.31)
YEAR	−133.8	204.9	224.1	−156.4
	(−0.41)	(0.78)	(0.90)	(−0.39)
SQFT	16.1	38.0	28.8	25.7
	(3.28)	(5.12)	(3.94)	(2.72)
*SQFT*SQFT*	0.003	−0.008	−0.006	0.001
	(3.02)	(−3.96)	(−2.98)	(0.42)
BEDR	3,197.5	202.6	211.5	3,207.0
	(4.09)	(0.24)	(0.26)	(3.62)
BATHR	5,768.0	1,279.5	995.1	5,083.1
	(5.60)	(1.54)	(1.26)	(3.85)
STYLE1	−7,217.2	−2,935.4	−3,423.7	−6,517.8
	(−4.99)	(−2.80)	(−3.41)	(−3.31)
STYLE2	550.3	−1,451.0	−2,256.7	9,430.85
	(0.17)	(−0.81)	(−1.35)	(1.69)
STYLE3	−2,204.1	−121.6	−808.4	−1,008.1
	(−0.74)	(−0.07)	(−0.53)	(−0.18)
STYLE4	5,000.1	−3,234.6	−4,149.7)	7,268.2
	(2.58)	(−1.78)	(−2.44)	(3.17)
STYLE5	4,085.0	−6,279.9	−4,421.6	16,370.5
	(0.81)	(−2.20)	(−1.36)	(1.98)
COOL1	4,517.2	−75.0	128.4	5,846.1
	(3.02)	(−0.07)	(0.12)	(3.05)
COOL2	288.2	−1,232.1	−1,304.2	2,673.3
	(3.17)	(−1.10)	(−1.23)	(1.16)
COOL3	−29,227.1	0	0	−30,469.8
	(−2.12)			(−2.15)
R^2	0.7912	0.4595	0.3864	0.7079
Adj. R^2	0.7862	0.4197	0.3387	0.6968
Probability values:				
Overall F-test	0	0	0	0
BP Heteroskedasticity test	0	0.895	0.949	0.011
Jarque-Bera normality test	0	0.075	0.256	0
Reset functional form test	0.972	0.192	0.166	0.266
Number of observations	592	205	195	384
Min. price in sample	100,900	100,900	108,000	134,000
Max. price in sample	224,000	134,000	134,000	224,000

Notes: Model 1 is the full sample. Model 2 is the low price version one. Model 3 is the low price version two. Model 4 is the high price. The dependent variable is the sale price. *T*-values are reported in parenthesis. See Exhibit 1 for variable definitions.

Model 2;[3] and Model 4 includes all observations for housing prices above $134,000. It is apparent that the variable of interest in this study (*COMM*) remains statistically significant only for the lower price segment. The size of its coefficient is lower by a third relative to Model 1; yet, the coefficient is statistically better defined. The coefficients of *COMM* for Models 2 and 3 suggest that a one percentage point increase in the buyer's agent commission raises the sale price by about $2,700. Model 4 reveals that, for houses above $134,000, a higher commission for a buyer's agent has no statistically significant impact on housing price.

It is noteworthy that the statistics on heteroskedasticity and normality of the residuals improve markedly for Models 2 and 3. Neither of these models has any apparent statistical flaw. In comparing the estimated coefficients for Models 2 and 4 to those of Model 1, one can find sufficient evidence for neglected parameter heterogeneity in Model 1. Not only do the regression adequacy tests improve relative to Model 1, the estimated coefficients for Models 2 and 4 are also rather different, not only in statistical significance and size but for some variables (*e.g. STYLE5* and *STYLE6*) also in sign. There is another result that is typical for neglected heterogeneity: numerous coefficients of Model 1 are out of the range that is estimated for the subsamples. In particular, the coefficients for *COMM, BATHR, SQFT* and *SQFT2* in Model 1 are larger than any of the corresponding coefficients for the subsamples. This suggests that these coefficients are biased upward in Model 1.

Multicollinearity is an issue of common concern in hedonic price functions. The equations reported in Exhibit 2 are not different in this respect. The condition numbers for the equations reported in Exhibit 2 are typically above 4,000, which suggests a very significant amount of multicollinearity (Belsley, Kuh and Welsch, 1980). Fortunately, the multicollinearity issue does not arise for the variable *COMM*, which is of primary concern in this study. The variance inflation factor for this variable is less than 1.4 in all reported regressions.[4] In fact, the variance inflation factors are of concern only for the dummy variables identifying house style (*STYLE2-STYLE6*) and type of cooling equipment (*COOL2-COOL4*).[5] But this clearly does not interfere with the basic message of the results reported in Exhibit 2.

A final point of some concern is the sensitivity of the results with respect to the set of included variables. Although it is not feasible for the given data set to test for the impact of additional variables, such as lot size or neighborhood effects, it is easy to identify whether the elimination of regressor variables changes the results in a material way. As a fairly extreme test whether *COMM* is sensitive to variations in model specification, all four equations reported in Exhibit 2 are rerun with only a constant term and the variable *COMM* present. The results fully conform to those of Exhibit 2 and their interpretation. In particular, the coefficients are estimated to be 9536, 2932, 2427 and −2023 for Models 1 through 4, respectively. The coefficients for Models 1 through 3 are highly significant statistically, similar to the corresponding coefficients reported in Exhibit 2. The

fourth coefficient, which relates to higher priced homes, is not significantly different from zero at any reasonable level of statistical significance. One can conclude that the material results reported in Exhibit 2 with respect to the buyer's agent variable *COMM* are insensitive to the variables considered in this study. Since other potential regressors, such as lot size, are often correlated with at least some of the variables that are included in this study, it appears likely that the results are robust. However, given the importance of the subject matter, it would clearly be interesting to check whether the results can be replicated for a larger sample size, a larger set of regressor variables and alternative locations within the United States.

Conclusion

The purpose of this article has been to identify whether and to what extent the level of a buyer's agent commission will affect the sale price of a house. In contrast to the recent study by Elder, Zumpano and Baryla (2000) that identifies no association between sale price and buyer's agent commission, the results of this study suggest the existence of a positive association. On closer examination, however, it turns out that there is a positive impact of a buyer's agent commission on sale price only for houses at the lower end of the market. For higher-priced houses, there is no such effect.

The results suggest that the current structure of brokerage commissions may be compromising the allegiance of a buyer's agent to his/her client, although, it appears, only for properties in the lower price range. The reasons for this asymmetry are not immediately obvious but they should certainly be of interest for anyone who is thinking about restructuring the commissions in real estate brokerage in order to minimize the potential for principal-agent problems. One may speculate that buyers of higher priced properties are more experienced in dealing with real estate agents and are, therefore, more immune to their influences, such as steering, puffing, etc. Alternatively, it may be that a buyer's agent will only actively seek buyers for lower-priced properties when a minimum dollar amount can be earned. The higher commission could provide for this minimum and, therefore, get more buyer's agents to show an interest in a property. The increased interest for the property could, in turn, induce the seller or the seller's agent to resist low price offers.

Endnotes

[1] See a late edition of any popular Real Estate Principles textbook for a more complete description of the duties owed to clients.

[2] An interesting piece of the puzzle is the common pitch used by listing agents to offer a higher commission if a full price is obtained on the sale. This seems to be a rather overt intent to get buyer's agents to disregard their obligations toward their clients.

[3] Some observations are taken out at the very low end of the range of housing prices.

[4] A variance inflation factor of 10 or more is typically considered to be of concern (Belsley, Kuh and Welsch, 1980).

[5] The variance inflation factor for *SQFT* is above 10 only due to the presence of the non-linear term *SQFT*SQFT* in the regression. However, the collinearity between *SQFT* and its second power is irrelevant since the marginal contribution of *SQFT* on price is never assessed separately from that of *SQFT*SQFT.* Rather, the two square-footage terms are necessarily used together to calculate the contribution of square-footage to price.

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