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Impact of Homebuyer Characteristics on Service Quality in Real Estate Brokerage

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This study is the first to identify whether specific individual homebuyer characteristics, such as repeat versus first-time, local versus out-of-town, individual versus joint decision-makers, and Web versus non-Web users relate to the rating of a firm's overall service quality and whether or not the buyer will recommend the firm to others. A hedonic model reveals there is a significant linkage between repeat homebuyers and recommending the firm to others. Variations of the hedonic models are also examined. Specifically, multiple ways to measure each buyer characteristic are considered.

Keywords

service quality; homebuyer characteristics; brokerage

Introduction

The real estate brokerage industry is an integral part of local, regional, and national economies (Benjamin et al., 2000a; Chen et al., 1994; Johnson et al., 1988; Nelson and Nelson, 1988 and 1995; Sirmans and Sirmans, 1991).

Moreover, residential real estate accounts for as much of the world's wealth as all stock markets combined (Grupe, 2000). As real estate customers evolve in this ever changing, interactive, high customer contact industry, so too must the quality of the services provided. Even with real estate's economic importance, and the fact that the industry has a high level of homebuyer contact, focus on how well real estate brokers are meeting homebuyer needs is almost non-existent (Johnson et al., 1988; Nelson and Nelson, 1995; Zumpano et al., 1996; and Seiler et al., 2000). Hence, more attention needs to be directed toward providing quality services.

Few studies have considered the role that the individual characteristics of homebuyers play in the home buying process. The primary goal of this study is to identify the particular characteristics of homebuyers that result in higher levels of service quality provided by residential real estate firms. The specific homebuyer attributes considered in this study include first-time versus repeat buyers, local versus out-of-town buyers, individual versus joint decision-makers, and Web searchers versus non-Web searchers.

Buyer Search Theory

When a person buys a home, the goal is to maximize the level of expected utility given a certain level of spending. The more the buyer spends, the higher the level of expected utility that should be derived from the purchase. In order to identify a sample of available properties that might satisfy the buyer's expected utility maximizing model, a buyer must engage in a search. This search involves a cost to the buyer. Over time, as the buyer continues to search, the buyer will gain a better and better understanding of the distribution of available properties and their corresponding list prices. Equally important, the buyer will gain insight into the characteristics of each property and will translate those characteristics into specific levels of expected utility that each home will provide¹.

As the buyer searches for more properties, the cost continues to increase, but so too does the buyer's understanding of the true underlying distribution of available home prices and their expected utilities. In the beginning, the buyer experiences tremendous gains in marginal information at relatively lower levels of marginal costs. However, if the search process goes on for too long, the buyer learns marginally little compared to the relatively higher marginal search cost. Somewhere in the middle, the buyer should have stopped searching and made an offer on a home. Buyer search theory states that

¹ Real estate is a heterogeneous asset where buyers and sellers with heterogeneous preferences place differential values on various home attributes. As such, the asking price of a home does not directly translate into expected utility levels.

buyers will search for a home up until the point where marginal search costs exactly equal, or offset, the marginal expected utility gained from a search.

As buyer search theory relates to this study, we extend the discussion to differentiate between “informed” and “uninformed” buyers. An “uninformed” buyer starts his search for a home with no knowledge of the underlying distribution of available properties, their corresponding prices, and their expected utilities. This results in longer search times, and therefore a higher cost to achieve the same level of expected utility. As a result, overall levels of satisfaction with the home buying process are lower than average.

An informed homebuyer, on the other hand, is defined as someone who has a much better understanding of the local real estate market, the homebuying process, or anything else that would make the buying process going more smoothly. Buyer search theory maintains that an informed buyer would be able to identify the optimal expected utility maximizing home at a fraction of the search cost. This lower search time will result in higher levels of overall satisfaction.

Informed versus Uninformed Buyers

A review of the extant literature reveals several ways to define informed versus uninformed homebuyers. Informed homebuyers are those who have already been through the homebuying process and those who already live in the area. We also differentiate between buyers who only have to maximize their own utility versus those who have to simultaneously maximize the joint utility of themselves and their partner. Finally, we consider buyer differentiation based on the efficiency of their search process. It is not only important to consider overall search time, but how well was that time spent? As a result, we have identified four homebuyer attributes that are hypothesized to contribute to overall levels of buyer satisfaction. These four attributes are discussed below.

First-time versus repeat buyers

The first homebuyer attribute considered in this study is first time versus repeat buyers. Wright and Lynch (1995), Smith and Swinyard (1988), and Marks and Kamins (1988) agree that there is no substitute for familiarity. Sirmans and Ferreira (1995), Raymond and Tanner (1994), Oliver and Swan (1989), and Bearden and Teel (1983) extend the argument by theorizing that repeat purchasing behavior is a function of satisfaction from prior experiences. Since satisfaction with the previous purchase is necessary to become a repeat buyer, it is reasonable to expect repeat buyers to rate service quality higher with the current purchase than with previous purchases. For

this reason alone, repeat buyers are likely to rate overall service quality higher than first-time buyers.

Gibler and Nelson (2003) explain that first-time homebuyers are less knowledgeable about the buying process. In fact, first-time buyers are not even sure of their search criteria. Conversely, repeat buyers already know what types of property they are looking for and should therefore be better able to convey with a higher degree of certainty their preferences to real estate agents. This will result in a more efficient search and higher satisfaction levels.

Local versus out-of-town buyers

Relocating from another city adds an additional element of uncertainty when buying a home. Turnball and Sirmans (1993) and Jud (1983) theorize that there exist great differences between buyers who already live in, and therefore know, the area and those who are moving in from out-of-town. That is, there is much more new information for the buyer to digest when relocating from out-of-town. For out-of-town buyers, the added burden of having to learn a new city, identify desirable community attributes, as well as deal with the regular home purchase decisions, should lead to a lower rating of service quality when compared to local homebuyers.

Individual versus joint decision-makers

Okoruwa and Jud (1995) theorize that married buyers are less satisfied than single buyers when a high price/high involvement purchase is involved. This theory is based on the notion that each person involved in the purchase decision has his own set of complex utility functions that must be satisfied. Adding more people to the decision-making process decreases the likelihood that all of these utility functions can be maximized simultaneously. Gibler and Nelson (2003) add that not only are the search criteria different between the spouses, but that the relative importance of each criterion must be determined as well by the real estate agent in order to maximize service quality. Therefore, it is reasonable to expect that decisions made by individuals will lead to a higher rating of overall service quality than decisions made jointly.

Web versus non-Web users

In recent years, the Web has become an extremely efficient source for gathering information (Jud et al., 2002; Bond et al., 2000; Bardhan et al., 2000; Bean and Guttery, 1997; and Tuccillo, 1997). This statement is particularly true in the residential real estate market where potential

homebuyers can find mortgage rates, neighborhood characteristics, pictures of properties, as well as other property characteristics all at the click of a mouse (Miller, 1996). Benjamin et al. (2000b) theorize that the increase in search efficiency offered by the Web allows buyers to gain the same knowledge with lower search costs. This increase in search efficiency should lead to more satisfied homebuyers and will likely result in a higher rating of overall service quality.

Data

In the fall of 2002, a list of 6000 recent (within the last 6 months) homebuyers from Cuyahoga County, Ohio, USA, was obtained from the Center for Housing Research and Policy located in Cleveland². The person most involved in the homebuying process was asked to complete the survey which includes the following questions: number of homes purchased through any firm, number of homes purchased through this firm, whether the homebuyer was local or out-of-town prior to the purchase, number of miles the new home is from previous the address, whether an individual or joint decision was made when purchasing the home, total search hours, total search hours on the Web, overall firm quality rating, and the likelihood of recommending the firm to others. These last two variables are measured on a scale from one to seven. The survey is shown in Table 1.

In order to increase the response rate, three weeks after the initial surveys were mailed a second survey was sent to the homebuyer. A total of 1190 questionnaires were returned for an overall response rate of 19.8%. However, 177 of the surveys were not usable for reasons such as no real estate agent was used in the purchase (either the home was for-sale-by-owner or the homebuyer was also a real estate agent), the respondent was too busy, the real estate agent is a good friend or family member and the respondent does not want to complete the survey for fear of biasing the results, and so forth. Thus, the useable response rate was slightly lower at 16.9% [(1190-177)/6000].

Any time a survey is conducted, it is possible that a non-response bias exists. The testing of non-response bias in this study is based on the procedure formally established by Henry (1990). The procedure involves creating two groups of respondents. The first group consists of those who return the questionnaire after the first mailing. The second includes those who return the survey after the second mailing wave (or follow-up postcard/letter/phone

² While this sample size is more than five times larger than any other conducted in the service quality area, it should be stated that due to the geographic concentration of the sample, results should not be generalized to apply to the rest of the world.

call). Responses to key questions are then compared between the two groups using a t-test to determine if responses are statistically different. If responses are not different, then non-response bias does not exist. The underlying assumption, therefore, is that those who respond late are similar to those who do not respond at all. Independent Samples T-Test results indicate that no non-response bias exists for any of the total 16 variables tested.³ Summary statistics associated with the conducted survey are found in Table 2.

Table 1: Surveying instrument for recent homebuyers

Part A:

1. How would you rate the overall quality of the service you received from this real estate firm?

1 2 3 4 5 6 7
poor excellent

2. Would you recommend this real estate firm to others?

1 2 3 4 5 6 7
definitely definitely
no yes

Part B:

Please answer these final eight questions about your individual characteristics. The information will only be used to classify homebuyers.

1. How many homes have you purchased in your lifetime?
_____ homes
2. How many homes have you purchased through this firm?
_____ homes
3. When you searched for your home, did you already live in the area?
Yes ___ No ___
4. How many miles is your new home from your previous address?
_____ miles
5. How would you describe the decision-making process when buying your home?
individual decision _____
joint decision (spouse, significant other, etc.) _____
6. Did you search on the Web before buying your home?
Yes ___ No ___
7. If so, how many total hours did you spend searching on the Web?
_____ hours
8. How many total hours (Web + non-Web) did you spend researching the purchase of a residence before committing to buy your specific home?
_____ hours

³ These results are suppressed here for the sake of brevity, but are available from the authors upon request.

Table 2: Descriptive statistics from the survey of recent homebuyers

	Sample size	Mean	Std. deviation
Overall quality of firm	1010	5.45	1.514
Recommend to others	1008	5.31	1.974
Number of homes purchased (total)	1010	2.20	2.504
Number of homes purchased (through this firm)	1010	1.16	0.670
Local or out-of-town	1010	0.63	0.484
Number of miles to new home	998	90.3	444.9
Individual or joint decision	1005	0.30	0.457
Search on the web	1010	0.76	0.429
Web search hours	983	21.31	50.391
Non-Web search hours	777	58.40	143.149
Total search hours	789	77.93	156.122
Percent of search time on the Web	754	0.3080	0.25784
Miles dummy	998	0.81	0.391
People dummy	985	0.52	0.500
First-time or repeat	1010	0.11	0.312

Methodology

Two hedonic models are used to examine the linkage between buyer characteristics and their rating of service quality and willingness to recommend the firm to others. In the first model, the four homebuyer characteristics are hypothesized to significantly positively affect the overall service quality rating. The hedonic model can be expressed as:

$$OVERALL_i = \alpha_i + \beta_1 * REPEAT_i + \beta_2 * LOCAL_i + \beta_3 * DECISION_i + \beta_4 * WEB_i + \varepsilon_i \quad (1)$$

where

- OVERALL_{*i*} = Overall quality rating of the firm by respondent *i*;
- α_i = Intercept term;
- β_i = Coefficient for each buyer characteristic for respondent *i*;
- REPEAT_{*i*} = Repeat versus first-time buyer (1 = repeat buyer, 0 otherwise for respondent *i*);
- LOCAL_{*i*} = Local versus out-of-town buyer (1 = local buyer; 0 otherwise, for respondent *i*);
- DECISION_{*i*} = Individual versus joint decision (1 = individual; 0 otherwise, for respondent *i*);
- WEB_{*i*} = Web versus non-Web user (1 = Web user; 0 otherwise for respondent *i*);
- ε_i = Error term.

In the second model, the linkage between these four homebuyer characteristics and the buyer's willingness to recommend the real estate firm to a friend is examined. The second model can be represented as follows:

$$\text{RECOMMEND}_i = \alpha_i + X_{1i} * \text{REPEAT}_i + X_{2i} * \text{LOCAL}_i + X_{3i} * \text{DECISION}_i + X_{4i} * \text{WEB}_i + \varepsilon_i \quad (2)$$

where

OVERALL_i = Overall quality rating of the firm by respondent i ;

α_i = Intercept term;

X_i = Coefficient for each buyer characteristic for respondent i ;

REPEAT_i = Repeat versus first-time buyer (1 = repeat buyer, 0 otherwise for respondent i);

LOCAL_i = Local versus out-of-town buyer (1 = local buyer; 0 otherwise, for respondent i);

DECISION_i = Individual versus joint decision (1 = individual; 0 otherwise, for respondent i);

WEB_i = Web versus non-Web user (1 = Web user; 0 otherwise for respondent i);

ε_i = Error term.

Variations of both of these models are also examined. Specifically, seven additional ways to code the four homebuyer characteristics are considered.

Results

Regressions

Table 3 contains the results from estimating Equation (1). The initial estimation reveals that none of the four independent variables are statistically significant. Accordingly, subsequent regressions are estimated, each time removing the least significant variable from the model⁴. After four iterations, the results indicate that none of the four independent variables remain. Alternatively stated, none of the four homebuyer characteristics significantly influence the overall quality rating assigned to the firm in the manner hypothesized.

A similar analysis was performed in Table 4, this time using the respondent's intention to recommend the firm to a friend as the dependent variable. In the initial regression, both repeat buyers and out-of-town buyers were found to be significant. However, after completing the iterative process of deleting non-significant variables, only the repeat buyer variable remained.

⁴ See Seiler (2004) for a discussion.

Table 3: Regression results for overall service quality

Overall model statistics:			
<i>F</i> -stat (<i>p</i> -value)	2.243 (0.063)		
<i>R</i> ²	0.009		
Independent variables:	Unstand. beta	<i>t</i>-stat	<i>p</i>-value
Constant	5.691	46.652	0.000
First-time or Repeat	0.266	1.740	0.082
Local or Out-of-town	-0.111	-1.114	0.266
Individual or Joint Decision	-0.078	-0.738	0.461
Web or Non-Web	-0.230	-2.049	0.041

Table 4: Regression results for recommending the firm to others**Part A: Initial model**

Overall model statistics:			
<i>F</i> -stat (<i>p</i> -value)	3.283 (0.011)		
<i>R</i> ²	0.013		
Independent variables:	Unstand. beta	<i>t</i>-stat	<i>p</i>-value
Constant	5.603	35.212	0.000
First-time or repeat	0.508	2.547	0.011
Local or out-of-town	-0.261	-2.015	0.044
Individual or joint decision	-0.165	-1.205	0.228
Web or non-Web	-0.175	-1.195	0.323

Part B: Final model

Overall model statistics:			
<i>F</i> -stat (<i>p</i> -value)	6.163 (0.013)		
<i>R</i> ²	0.006		
Independent variables:	Unstand. beta	<i>t</i>-stat	<i>p</i>-value
Constant	5.251	79.761	0.000
First-time or repeat	0.494	2.483	0.013

Since the results from these two regressions are less than convincing, a further examination is in order. Because the four buyer characteristics are dichotomous, or dummy variables, a series of independent samples *t*-tests are conducted. These results are shown in Table 5.

The mean overall firm quality rating assigned by first-time homebuyers is 5.42, while those who have used the firm in the past rate the firm higher with a mean score of 5.69. While these results are not statistically significant, they do have the hypothesized directional relationship. This is not the case for the remaining buyer characteristics. Buyers who already live in the area surprisingly rate the firm lower than out-of-town buyers (5.41 versus 5.51) although this result is not statistically significant. Also counter-intuitive is

the finding that individual decision-makers rate the overall quality of the firm lower than joint decision-makers (5.41 versus 5.47), although this is not significant either. Finally, homebuyers who did not use the Web as a search tool rated the firm higher than those who at least partially searched for their home on the Internet (5.39 versus 5.63) and this difference is significant at the 99% level of confidence. The results are quite similar for the recommend rating. Moreover, the repeat buyer variable shows a much more robust difference in respondent's willingness to recommend the firm to a friend.

Table 5: Independent samples *t*-test results for all independent variables

Buyer characteristic	Buyer characteristic	Sample size	Mean overall rating	<i>t</i> -test (<i>p</i> -value)	Mean recommend rating	<i>t</i> -test (<i>p</i> -value)
First time or repeat buyer?	First-time Repeat	897 110	5.42 5.69	1.794 (0.073)	5.25 5.75	2.698 (0.008)
Local or out-of-town?	Local Out-of-town	633 374	5.41 5.51	-1.072 (0.284)	5.21 5.47	-1.967 (0.049)
Individual or joint decision?	Individual Joint	298 704	5.41 5.47	-0.581 (0.561)	5.20 5.36	-1.216 (0.224)
Web or non-Web user?	Web user Non-Web user	765 241	5.39 5.63	-2.172 (-0.030)	5.26 5.46	-1.390 (0.165)

Recoding buyer characteristic variables

All homebuyer characteristics have been coded thus far as dummy variables. This method of representing each may be responsible for the lackluster results. In order to investigate further, other representations of each variable are considered. For example, with the variable "repeat versus first-time buyer," respondents are coded as either having used the firm before or never having used the firm before. But would it be better to measure this categorical variable as a continuous variable instead? In order to answer this question, the variable is recoded to represent the number of times the buyer has used the firm in the past. Using analysis of variance (ANOVA) and subsequent Post Hoc tests, it is found that this variable still does not significantly relate to the overall firm rating.⁵

A third way to capture a person's familiarity with the homebuying process is to ask if the respondent has ever purchased a home through any firm, not just from this firm. While the theory supporting the notion that the buyer will be more satisfied is weakened, it is still possible that experience with the homebuying process, in general, will cause them to be more satisfied with the overall quality of the firm. After an extensive examination of correlations

⁵ This, as well as all subsequent tests to determine if recoded variables provide further explanatory power to the hedonic models are suppressed for the sake of brevity, but are available from the authors upon request.

and crosstabs, there is no identifiable relationship between homebuying experience and the overall quality rating given to the firm.

In sum, the repeat versus first-time homebuyer characteristic is best captured by a dichotomous variable that differentiates between those who have purchased a home through the firm before and those who have not. Measuring this variable on a continuous scale or measuring the number of all previous home purchases does not contribute to an understanding of the buyer's rating of the firm's overall quality.

The second homebuyer characteristic examined is whether or not the buyer is moving from within the area or is from out-of-town. In the previous analysis a dummy variable was used. Respondents directly indicated their status of either local or out-of-town. The buyer was also asked to indicate the number of miles he moved from his previous address. This represents a continuous variable. After again estimating the regressions using this newly represented variable, the results remain non-significant. A correlation test as well as multiple independent samples *t*-tests, where the sample was divided by the distance from the previous address, all confirm that representing the "local versus out-of-town" variable in this way is not fruitful.

The third variable, "individual versus joint decision-maker" is dichotomous by nature. As such, it cannot be altered or represented in another way. The fourth variable centers on the respondent's use of the Internet as a potential searching mechanism. Originally, the sample was split between those who searched on the Web and those who did not. This representation not only results in a counter-intuitive directional relationship, but a significant one as well. However, there are four other ways to capture the concept of search time.

The first way to capture search time is to measure it directly. Respondents were asked to indicate the number of total hours they spent searching for a home before buying one. The two components of this variable are total hours spent searching on the Web and the total number of hours searching that did not involve the Internet. Finally, the fourth way to incorporate Web searching is to measure the percentage of time the homebuyer searched for real estate on-line. Through an extensive number of range correlation tests, an interesting discovery was made. Recall that the theory states too few search hours will result in unsatisfied homebuyers. It seems that not only too little, but also too much time searching for a home will cause respondents to lower their rating of the firm. That is, consistent with the extant literature, there appears to be an optimal search time to maximize the satisfaction of buying a home. In this study, the number of ideal total search hours is in the range of 40-50. This result is supported when examining a breakdown by

Web and non-Web search hours. Ideal Web search hours are found to be in the range of 25 to 35, while non-Web search hours are optimized when in the range of 20 to 25. The ideal percentage of time to spend searching on the Web, as opposed to non-Web, is nearly 70%. In sum, consistent with buyer search theory, we find that too little or too much time spent looking for a home can detract from the home buying experience. The Web variable was coded in several additional ways such as using natural logs and quadratic terms. None of the transformations yielded a significant variable in either regression.

Placing buyers into sixteen different characteristic categories

Up until this point, each of the four homebuyer characteristics has been considered in isolation from the others. But each respondent must possess exactly one set, or one of 16 (2^4), different buyer characteristic combinations. For this reason, the data is recoded into 16 groupings. Table 6 shows the mean overall and recommend ratings for each combination along with the number of buyers who fall into each group. The ratings certainly are different from group to group, but are those differences statistically significant? An ANOVA test is conducted separately for each dependent variable. The results reveal that when taken as a group, the ANOVA test does not find that there are significant differences across buyer category. This does not mean, however, that they are all the same. A more detailed examination is performed in Table 7.

Table 6: Breakdown of overall and recommend ratings

Category	Description of buyer characteristics	Sample size	Mean overall rating	Mean recommend rating
1	Repeat, Local, Individual, Web	15	5.93	5.93
2	Repeat, Local, Individual, Non-Web	11	6.27	6.27
3	Repeat, Local, Joint, Web	42	5.12	5.31
4	Repeat, Local, Joint, Non-Web	13	6.31	6.15
5	Repeat, Out-of-town, Individual, Web	6	5.83	5.50
6	Repeat, Out-of-town, Individual, Non-Web	2	5.00	5.00
7	Repeat, Out-of-town, Joint, Web	14	6.07	6.14
8	Repeat, Out-of-town, Joint, Non-Web	7	5.86	6.00
9	First-time, Local, Individual, Web	127	5.12	4.80
10	First-time, Local, Individual, Non-Web	51	5.51	5.25
11	First-time, Local, Joint, Web	296	5.41	5.20
12	First-time, Local, Joint, Non-Web	76	5.63	5.48
13	First-time, Out-of-town, Individual, Web	55	5.56	5.49
14	First-time, Out-of-town, Individual, Non-Web	30	5.53	5.38
15	First-time, Out-of-town, Joint, Web	207	5.45	5.47
16	First-time, Out-of-town, Joint, Non-Web	50	5.50	5.24

Table 7: ANOVA and post hoc results for the breakdown of overall and recommend ratings by homebuyer category summarized in matrix form

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2	N															
3	N	Y1														
4	N	N	Y1													
5	N	N	N	N												
6	N	N	N	N	N											
7	N	N	Y1	N	N	N										
8	N	N	N	N	N	N	N									
9	B	B	N	B	N	N	B	N								
10	N	N	N	N	N	N	N	N	N							
11	N	N	N	Y1	N	N	N	N	N	N						
12	N	N	N	N	N	N	N	N	B	N	N					
13	N	N	N	N	N	N	N	N	Y2	N	N	N				
14	N	N	N	N	N	N	N	N	N	N	N	N	N			
15	N	N	N	Y1	N	N	N	N	B	N	N	N	N	N		
16	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	

NOTE 1:

“N” indicates that these two categories **ARE NOT** statistically significantly different at the 95% level for both the overall mean rating as well as the mean recommend rating.

“Y1” indicates that these two categories **ARE** statistically significantly different at the 95% level for the overall mean rating.

“Y2” indicates that these two categories **ARE** statistically significantly different at the 95% level for the mean recommend rating.

“B” indicates that these two categories **ARE** statistically significantly different at the 95% level for both the overall mean rating as well as the mean recommend rating.

NOTE 2:

The 16 categories represent the following homebuyer classifications: (1) Repeat, Local, Individual, Web; (2) Repeat, Local, Individual, Non-Web; (3) Repeat, Local, Joint, Web; (4) Repeat, Local, Joint, Non-Web; (5) Repeat, Out-of-town, Individual, Web; (6) Repeat, Out-of-town, Individual, Non-Web; (7) Repeat, Out-of-town, Joint, Web; (8) Repeat, Out-of-town, Joint, Non-Web; (9) First-time, Local, Individual, Web; (10) First-time, Local, Individual, Non-Web; (11) First-time, Local, Joint, Web; (12) First-time, Local, Joint, Non-Web; (13) First-time, Out-of-town, Individual, Web; (14) First-time, Out-of-town, Individual, Non-Web; (15) First-time, Out-of-town, Joint, Web; and (16) First-time, Out-of-town, Joint, Non-Web.

Table 7 summarizes the results of 240 Post Hoc tests that were conducted to measure statistical differences between mean scores for all 16 category combinations. This was done separately for both “overall quality” and “recommend to others” dependent measures. The letter “N” within the table represents that the two categories referenced by the cell do not have significantly different mean values. “Y1” reveals a significance in the overall rating tests. “Y2” shows significance in the recommend tests. The letter “B” indicates that significant differences are found in both tests. Eighteen of the 240 tests conducted reveal significant differences. The category with the most differences is Category 9. This category is defined as containing first-time, local, individual decision-making, Web searchers. The

fact that three of these four characteristics were hypothesized to result in higher scores, yet Category 9 has one of the lowest scores, reveals the importance of the only negatively hypothesized buyer characteristic – first-time buyer. This drives home the earlier result that being a repeat buyer is by far the most important, in fact the only, buyer characteristic examined that affects overall service quality and recommending the firm to a friend.

Equations (1) and (2) considered the four buyer characteristics in isolation, but because it is not possible to possess just one of the characteristics, the regressions are estimated again, this time using the 16 homebuyer categories as independent variables. Table 8 displays the results for both the initial and final models. In the initial model, none of the categories are significant. However, after the sequential removal of the most non-significant variable, Categories 4 and 9 become statistically significant. Category 4 (repeat, local, joint, non-Web) has a positive coefficient, while Category 9 (first-time, local, individual, Web) has a negative sign. These results are not surprising given the earlier finding that the repeat buyer variable is showing promise as a positively correlated variable; while the other hypothesized relationships are reversed empirically.

Equation (2) is estimated again this time using the 16 homebuyer categories. As shown in the final model of Table 9, Categories 9 (first-time, local, individual, Web) and 11 (first-time, local, joint, Web) are found to be significant negative predictors of recommending the firm to a friend. This result supports the earlier revealed relationship that first-time buyers evaluate their experience significantly lower than repeat buyers and that out-of-town and non-Web searchers rate the firm higher.

Conclusions

Of the four homebuyer characteristics that might affect the purchase process (repeat versus first-time, local versus out-of-town, individual versus joint decision-makers, Web versus non-Web user), being a repeat buyer is the only variable found to significantly explain a greater inclination to recommend the firm to others. This is a very important result given that real estate is a high contact, high involvement business whose success is based largely on referrals.

The results of this study hold even after great lengths were taken to measure all the homebuyer characteristics in numerous ways. Accordingly, future studies need not focus on collecting each variable in numerous ways. Instead, efforts can be focused on collecting additional explanatory variables that might explain and predict how better to make customers more satisfied with the real estate purchasing process.

Table 8: Regression results by sixteen homebuyer dummy categories for overall service quality

Initial model				Final model		
Overall model statistics:				Overall model statistics:		
<i>F</i> -stat (<i>p</i> -value)	1.492 (0.101)			<i>F</i> -stat (<i>p</i> -value)	5.451 (0.004)	
<i>R</i> ²	0.022			<i>R</i> ²	0.011	
Independent variables	Unstand. beta	<i>t</i> -stat	<i>p</i> -value	Unstand. beta	<i>t</i> -stat	<i>p</i> -value
Constant	5.492	27.967	0.000	5.487	107.392	0.000
Category 1	0.442	1.013	0.311			
Category 2	0.781	1.577	0.115			
Category 3	-0.372	-1.223	0.222			
Category 4	0.816	1.766	0.078	0.840	1.96	0.050
Category 5	0.342	0.529	0.597			
Category 6	-0.492	-0.453	0.650			
Category 7	0.580	1.293	0.196			
Category 8	0.366	0.606	0.544			
Category 9	-0.373	-1.571	0.116	-0.369	-2.579	0.010
Category 10	0.018	0.063	0.949			
Category 11	-0.079	-0.369	0.712			
Category 12	0.135	0.515	0.607			
Category 13	0.072	0.255	0.799			
Category 14	0.042	0.124	0.902			
Category 15	-0.037	-0.168	0.867			

NOTE:

The 15 categories represent the following homebuyer classifications: (1) Repeat, Local, Individual, Web; (2) Repeat, Local, Individual, Non-Web; (3) Repeat, Local, Joint, Web; (4) Repeat, Local, Joint, Non-Web; (5) Repeat, Out-of-town, Individual, Web; (6) Repeat, Out-of-town, Individual, Non-Web; (7) Repeat, Out-of-town, Joint, Web; (8) Repeat, Out-of-town, Joint, Non-Web; (9) First-time, Local, Individual, Web; (10) First-time, Local, Individual, Non-Web; (11) First-time, Local, Joint, Web; (12) First-time, Local, Joint, Non-Web; (13) First-time, Out-of-town, Individual, Web; (14) First-time, Out-of-town, Individual, Non-Web; and (15) First-time, Out-of-town, Joint, Web.

Table 9: Regression results by sixteen homebuyer dummy categories for recommending the firm to others

Initial model				Final model		
Overall model statistics:				Overall model statistics:		
<i>F</i> -stat (<i>p</i> -value)	1.482 (0.104)			<i>F</i> -stat (<i>p</i> -value)	7.074 (0.001)	
<i>R</i> ²	0.022			<i>R</i> ²	0.014	
Independent variables:	Unstand.			Unstand.		
	beta	<i>t</i> -stat	<i>p</i> -value	beta	<i>t</i> -stat	<i>p</i> -value
Constant	5.254	20.519	0.000	5.480	67.554	0.000
Category 1	0.679	1.194	0.233			
Category 2	1.018	1.577	0.115			
Category 3	0.055	0.139	0.889			
Category 4	0.900	1.493	0.136			
Category 5	0.246	0.292	0.771			
Category 6	-0.254	-0.180	0.857			
Category 7	0.889	1.520	0.129			
Category 8	0.746	0.948	0.343			
Category 9	-0.459	-1.481	0.139	-0.685	-3.566	0.000
Category 10	0.001	0.002	0.999			
Category 11	-0.058	-0.208	0.835	-0.284	-2.032	0.042
Category 12	0.226	0.660	0.510			
Category 13	0.237	0.642	0.521			
Category 14	0.125	0.280	0.779			
Category 15	0.217	0.746	0.456			

NOTE:

The 15 categories represent the following homebuyer classifications: (1) Repeat, Local, Individual, Web; (2) Repeat, Local, Individual, Non-Web; (3) Repeat, Local, Joint, Web; (4) Repeat, Local, Joint, Non-Web; (5) Repeat, Out-of-town, Individual, Web; (6) Repeat, Out-of-town, Individual, Non-Web; (7) Repeat, Out-of-town, Joint, Web; (8) Repeat, Out-of-town, Joint, Non-Web; (9) First-time, Local, Individual, Web; (10) First-time, Local, Individual, Non-Web; (11) First-time, Local, Joint, Web; (12) First-time, Local, Joint, Non-Web; (13) First-time, Out-of-town, Individual, Web; (14) First-time, Out-of-town, Individual, Non-Web; and (15) First-time, Out-of-town, Joint, Web.

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