When Small is Sometimes Large and Spacious: Objective vs. Subjective Size Descriptions in Real Estate Listings

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Abstract

This paper examines Multiple Listing Service descriptions of more than 400,000 homes that sold in the Charlotte, NC area. Frequently the agent remarks use the words large or spacious to describe some feature or attribute of the home. Additionally, property information includes the objective measure of the home's size in square feet. We consider three main questions of interest: 1) does size matter, 2) what do large and spacious modify and 3) do markets attach the same value to large and spacious when homes are objectively of different size? A central finding is that context is important. Specifically, the terms large and spacious appear to help when describing small houses but are primarily hype for large homes. One lesson for realtors is they must be careful when using subjective descriptors that relate to objective measures or facts presented in the property information.

1. Introduction

Residential listings include information that objectively measures the size of certain attributes of the property. Details include square footage of the home, number of bedrooms, number of bathrooms and lot dimension. This information gives the potential buyer a good idea of the home's size as well as value of the property. Selling agents also affix to the listing a description of the property. The agent's remarks often include subjective descriptors of size such as "large" and "spacious." The juxtaposition of quantitative and qualitative size measures suggests three main questions of interest: 1) does size matter, 2) what do large and spacious modify and 3) do markets attach the same value to large and spacious when homes are objectively of different size?

Due to relatively small samples, previous studies examine the effect of categories rather than individual words on the sale price of a home. Haag, Rutherford and Thomson (2000) classify words into factually verifiable and opinion categories. Factually verifiable comments include whether a property is a foreclosure, vacant, near a golf course or lake, updated or has new paint, carpeting, roof work or repairs. Haag, et al (2000) classify comments such as motivated, good buy, good location or good condition as statements of opinion. They find that some verifiable comments have a positive impact on selling price (properties near a lake, golf course or updated) but that foreclosure and repairs have the largest impact and decrease price, on average, 16% and 8.5%. While opinion comments also affect housing prices, homes described as a good buy lead to a decrease in value. As a result, Haag, et al (2000) conclude that "some comments may be more hype than help."

Goodwin, Waller and Weeks (2014) examine the impact of comments on price, time-on-the-market and the probability of a sale. Positive opinion phrases tend to increase a home's price, time-on-the-market and the probability of a sale. Moreover, after correcting for self-selection, the authors find signal variables (bring offer, motivated, price reduced and vacant) have a positive

effect on sale price and days on the market. In a follow-up study, Goodwin, Waller and Weeks (2018) provide evidence that suggests how an agent describes the property can either encourage or discourage buyers from viewing a property.

More recently, Brunson, Buttimer and Swidler (2019) examine a transaction data set that is a magnitude larger than any of the previous studies. This allows the authors to consider the effect of individual words on a home's sale price and time on market. The analysis shows that several words positively affect home price with "adorable" producing the largest effect. Words that lead to a higher home price, generally take longer to sell; however, positive comments make it more likely the home will sell. On the other hand, homes with listings using the words "distressed," "investment," "motivated" and "reduced" fetch lower prices and take longer to sell.

Brunson, et al (2019) show that agent comments frequently include the words "large" and "spacious," in addition to the listing's documentation of the home's area (square feet), lot size and number of bedrooms. They suggest that future research should examine the use of subjective size descriptors when objective measures are known and see whether buyers view the subjective words cynically (hype) or as a source of additional information (help).

In the following analysis, we segment the data by size (square footage) and display the frequency that large and spacious appear in comments. We then consider the words that large and spacious most often modify, and finally examine the effect of subjective measures of size on home price, holding objective size measures constant.

2. Data

A. Sample Description and Frequency of Size Modifiers

Our analysis examines MLS data provided by the Charlotte Regional Realtors Association and is similar to the sample in Brunson, et al (2019). The listings cover the period 2001-2018 and include properties located in eight counties in the Charlotte area, six in North Carolina and two in

South Carolina. During this period, more than 400,000 homes listed on the MLS sold in the greater Charlotte area.

In looking at agent remarks, two adjectives that describe size, large and spacious, appear in a number of property descriptions. Both words occur in descriptions of homes that vary in size. To give the flavor of how often either word appears for a given size home, Table 1 lists word appearance by square foot decile.

The word large appears in descriptions of 23.67% of the homes in decile 1, the smallest properties in our sample. Usage increases to 31.25% in decile 2 and then remains in the nearly 35% to 38% range for the remaining deciles. We find a similar pattern for spacious with an appearance in 6.19% of remarks for homes in decile 1, 11.33% in decile 2 and then leveling off in the approximately 15.5 to 19% range for homes in decile 3-10.

B. Words that Large and Spacious Modify

Table 2 illustrates the words large modifies by size decile. While similar words appear in each decile, patterns differ depending upon size. Whereas large most often modifies "kitchen" for the smallest homes in deciles 1 and 2, large modifies "master" most frequently for larger homes in deciles 3-10. In fact, master is only fifth on the list for decile 1 homes in the sample and suggests that master suites/bedrooms/bathrooms are less likely to be found in the smallest homes. Also noteworthy is that for homes in deciles 9 and 10, "bonus" is the second most modified word and drops in frequency as homes get smaller. Bonus does not appear on any of the lists for deciles 1-3 and likely indicates that few, if any, of the smaller homes in the sample even have bonus rooms.

On the other hand, large often modifies (back) yard or lot related items of smaller homes. "Fenced," "back," "corner" and "backyard" are all in the top ten list of words that appear after large for homes in decile 1. "Fenced," the second most often modified word for the smallest homes, drops in frequency as homes increase in size and disappears from the top ten list for homes

in deciles 8-10. More generally, yards and lot size do not appear to be frequently described as large for larger homes. One implication may be that large homes should have large lots so that further comments are unnecessary.

Table 3 reports words that appear after the word spacious. Here "kitchen" is the number one modified word for homes in size deciles 1-8. Only in the largest homes, deciles 9 and 10, is "master" the word that most appears after spacious. "Master" is the second most frequently modified word by spacious for deciles 2-8 but drops to fourth for the smallest homes. As with large, this implies that few of the smallest homes have master suites, bedrooms or bathrooms. Instead, "bedrooms" is the second most frequent word that appears after spacious for decile 1 homes, and again suggests that fewer small homes have what might be described as a master suite. For deciles 2-8, "bedrooms" remains the third most frequent word that appears after spacious but drops to fourth for deciles 9 and 10. Taken as a whole, Table 3 implies that realtors believe that buyers value spacious "kitchens" and "master suites" or "bedrooms."

Given that master appears often after either large or spacious, Table 4, further examines the word that occurs after master. For small homes in deciles 1-4, "bedroom" most frequently follows "large master," while "suites" is the most frequent successor for deciles 5-10. This finding is consistent with the earlier conjecture that small homes have bedrooms, while large homes have suites. Panel B considers words after "Spacious Master," and with the exception of decile 5, provides additional evidence that small homes contain master bedrooms, whereas large homes include master suites.

The category "other" represents the remainder of terms following (large or spacious) master. This residual group includes, "master closet" and phrases like "master with a sitting area" and "master with a trey ceiling." Finally, for both large and spacious, "bathroom" follows master the

fewest number of times across all deciles. This suggests that the size of the master bathroom does not appear to be an attribute that agents feel is of relative importance.

3. Regression Analysis: The effect of Large and Spacious on Home Price

In the context of agent remarks, the question does size matter translates to whether subjective size comments enhance a home's value (help) or instead lead to buyer cynicism and possible decline in price (hype). To answer that question, we estimate a hedonic model that is a function of a home's attributes. In addition to objective size measures, location and other home characteristics, we include dummy variables for the use of "large" or "spacious" in agent remarks. The dummy variables consider the square footage of the house so that we can examine whether the effect of "large" or "spacious" on home value is a function of relative size.

Let $log(P_{i,t})$ be the natural logarithm of price for home *i* in time period *t*. Then,

$$log(P_{i,t}) = \alpha + \beta X_{i,t} + \gamma Large_i + \delta \text{Spacious}_i + QY_t + C_i + \epsilon_{i,t} \quad (1)$$

where $X_{i,t}$ is a vector of housing attributes for home *i* in period *t*; $Large_i$ is a dummy vector such that a variable equals 1 if agent remarks for home *i* include the word large and the home is in size decile d, otherwise the variable equals 0; $Spacious_i$ is a dummy vector such that a variable equals 1 if agent remarks for home *i* include the word spacious and the home is in size decile d, otherwise the variable equals 0; QY_t equals the quarter-year fixed effect; C_i is the county fixed effect and $\epsilon_{i,t}$ is the error term. From the standpoint of measuring the effect of qualitative information about size, we focus on γ and δ which contain the coefficients for the estimated dummy variables for large and spacious. Each dummy variable corresponds to a size decile and whether the MLS description uses the word large or spacious. Given the interactive nature of the dummy variables, equation (1) can include dummy variables for each of the ten deciles without causing any multicollinearity problem.

Table 5 reports the estimated coefficients of interest in our hedonic model. The specification of the two equations is identical except that the second column includes a Days on Market (DOM) variable. Previous studies note the endogeneity of both sale price and the number of days it takes to sell the property. However, in a survey paper, Benefield, Cain, and Johnson (2014) find wide

variation in methodologies, instruments, and results. Because of the disparities and for simplicity, the second equation simply treats DOM as an exogenous variable.[1]

As it turns out, including DOM in the equation has little effect on the estimated coefficients of interest, γ *and* δ. We therefore focus on the complete regression that adjusts for DOM and whose results appear on the right-hand side of the table. Looking first at the objective measure of size, we find that Ln Sqft is significant and positively related to price as expected. For the typical home in our sample, an additional square foot increases the value of the home by $113.54.

Turning to properties with MLS descriptions that use the word large, Table 5 shows that for the smallest decile homes, the word large increases the value of the home. In decile 1 (average value, $87,799), a home described as having a large feature or attribute increases the price by $7,739.32 (8.8%). For deciles 2 and 3, the marginal effect remains positive but decreases with size.

Beginning with decile 4, describing a house feature as large decreases the selling price of the home. The larger the physical size of the home, the more negative the dollar effect large has on home price. The exception to a monotonic decline in value is the slight difference between deciles 6 and 7. For decile 10 (average price, $631,489), describing a home as having a large attribute reduces the price by $19,306.18 (-3.1%).

In Brunson, et al (2019), describing a home as large lowers price by an average of $2600. However, the analysis here suggests that size matters, not only as a direct driver of value, but also in setting the context of certain descriptive words. Conditioned upon the actual physical size of the home, describing a home feature as large may increase or decrease the value of the property. Thus, saying a house feature is large has different contextual value based on whether the home itself is large or small.

The results for spacious largely mirrors the effects of using the word large. For size deciles 1 and 2, describing a home attribute as spacious increases home price $3,742.70 and $5,005.69, respectively. For decile 3, the coefficient for spacious is not statistically significant. Starting with decile 4, the effect of using spacious is negative and monotonically declines. Homes in decile 10

[1] To control for endogeneity, we have separately estimated a 2SLS model where stage 1 estimates DOM with right hand side variables that include the indicator, "country," denoting properties that include the word country. In stage 2, the estimated days on market value is then included in the right hand side of the price equation. This follows the analysis of Brunson, et al (2019) and produces price results similar to Table 5. A copy of the 2SLS system estimates may be obtained from the authors.

that have a spacious feature, on average, sell for nearly $30 thousand less. Once more, size matters when it comes to describing a house as having a spacious attribute.

4. Concluding Remarks

Real estate agents frequently use the words large and spacious when describing homes for sale. More than 35% of MLS descriptions for the Charlotte market contain the word large, whereas 15% describe the property as having a feature that is spacious. These subjective descriptors appear alongside the home's objective size measure in square feet. The natural question is does size matter when describing a home as either large or spacious.

The multivariate analysis implies that context is very important. A large or spacious feature found in a small home is important information that pays to publicize. On the other hand, buyers discount large or spacious attributes in homes that themselves are large perhaps, in part, because they expect large homes to have large features. In short, the terms large and spacious appear to help when describing small houses but are largely hype for large homes.

Finally, the relationship may not simply be a matter of context as what is frequently being described as large or spacious sometimes differs between small and large homes. For example, large often describes a bonus room for large homes, but that is not true for smaller homes that may be less likely to have a bonus room. In the end, realtors must be careful in their remarks when using subjective descriptors that relate to objective measures or facts presented in the property information.

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Table 1: Word Appearances by Square Foot Decile

Deciles	Large	Spacious
1	10,102 (23.67%)	2,642 (6.19%)
2	13,339 (31.25%)	4,834 (11.33%)
3	14,853 (34.80%)	5,923 (13.88%)
4	15,658 (36.69%)	6,648 (15.58%)
5	16,138 (37.81%)	7,332 (17.18%)
6	16,318 (38.23%)	7,684 (18.00%)
7	16,432 (38.50%)	7,746 (18.15%)
8	16,577 (38.84%)	8,053 (18.87%)
9	16,267 (38.11%)	7,652 (17.93%)
10	14,815 (34.71%)	7,003 (16.41%)

[a] N = 426,816 observations

[b] Deciles by square feet where Decile 1 are the smallest homes and Decile 10 are the largest homes.

Table 2: Words After "Large"

Deciles										
1	kitchen (943)	fenced (926)	deck (823)	living (440)	master (424)	storage (364)	back (334)	corner (292)	level (292)	backyard (291)
2	kitchen (1338)	master (1311)	deck (1150)	fenced (1009)	walk (658)	great (561)	living (561)	bedrooms (368)	back (367)	open (334)
3	master (1833)	kitchen (1518)	deck (1261)	walk (870)	fenced (853)	great (742)	living (646)	bedrooms (468)	private (367)	laundry (363)
4	master (2029)	kitchen (1497)	deck (1245)	walk (962)	fenced (865)	great (795)	living (607)	bedrooms (578)	bonus (401)	private (397)
5	master (2167)	kitchen (1471)	deck (1215)	walk (1030)	fenced (789)	bonus (782)	great (720)	bedrooms (672)	living (516)	family (505)
6	master (2319)	kitchen (1653)	walk (1172)	deck (1118)	bonus (893)	bedrooms (761)	great (676)	fenced (630)	family (503)	open (448)
7	master (2329)	kitchen (1610)	bonus (1206)	walk (1109)	deck (1090)	bedrooms (799)	great (589)	open (571)	family (550)	fenced (536)
8	master (2173)	kitchen (1799)	bonus (1547)	walk (1101)	deck (1058)	bedrooms (840)	open (586)	family (576)	great (572)	island (561)
9	master (1933)	bonus (1751)	kitchen (1522)	walk (1045)	deck (1036)	island (855)	bedrooms (804)	open (619)	family (534)	great (451)
10	master (1486)	bonus (1393)	kitchen (1150)	island (927)	walk (755)	deck (741)	bedrooms (667)	open (528)	family (439)	private (404)

[a] N = 426,816 observations

[b] Deciles by square feet where Decile 1 are the smallest homes and Decile 10 are the largest homes.

Table 3: Words After "Spacious"

Deciles										
1	kitchen (509)	bedrooms (287)	living (208)	master (130)	rooms (129)	great (113)	fenced (69)	backyard (66)	deck (65)	back (58)
2	kitchen (833)	master (476)	bedrooms (343)	great (302)	living (285)	rooms (162)	family (161)	open (146)	ranch (124)	floor (94)
3	kitchen (836)	master (608)	bedrooms (437)	great (426)	living (309)	open (231)	rooms (229)	home (179)	ranch (131)	family (129)
4	kitchen (860)	master (721)	bedrooms (567)	great (406)	living (278)	home (259)	open (250)	rooms (229)	ranch (178)	family (159)
5	kitchen (911)	master (890)	bedrooms (519)	home (333)	great (305)	open (294)	living (287)	rooms (270)	ranch (169)	secondary (166)
6	kitchen (944)	master (901)	bedrooms (686)	home (443)	great (315)	open (292)	rooms (269)	family (225)	secondary (207)	living (199)
7	kitchen (921)	master (885)	bedrooms (588)	home (506)	open (324)	great (293)	secondary (267)	rooms (258)	bedroom (198)	family (171)
8	kitchen (910)	master (872)	bedrooms (590)	home (520)	open (342)	rooms (303)	secondary (267)	great (249)	bedroom (224)	bonus (196)
9	master (860)	kitchen (788)	home (511)	bedrooms (463)	open (334)	rooms (270)	secondary (232)	bonus (222)	great (201)	family (181)
10	master (712)	kitchen (592)	home (447)	bedrooms (372)	rooms (337)	open (267)	secondary (255)	great (220)	bonus (166)	family (145)

[a] N = 426,816 observations

[b] Deciles by square feet where Decile 1 are the smallest homes and Decile 10 are the largest homes.

Table 4: Words After "Master"

Deciles				
Panel A: Large Master				
1	bedroom (47.97%)	other (25.54%)	suite (17.66%)	bathroom (8.83%)
2	bedroom (41.34%)	suite (26.33%)	other (23.02%)	bathroom (9.31%)
3	bedroom (35.36%)	suite (31.38%)	other (21.69%)	bathroom (11.57%)
4	bedroom (33.68%)	suite (33.33%)	other (22.89%)	bathroom (10.10%)
5	suite (35.37%)	bedroom (30.43%)	other (24.28%)	bathroom (9.93%)
6	suite (40.02%)	bedroom (28.19%)	other (22.84%)	bathroom (8.96%)
7	suite (40.29%)	bedroom (25.96%)	other (23.80%)	bathroom (9.95%)
8	suite (43.43%)	bedroom (23.81%)	other (22.23%)	bathroom (10.53%)
9	suite (45.13%)	other (24.76%)	bedroom (20.52%)	bathroom (9.58%)
10	suite (50.54%)	other (22.28%)	bedroom (17.64%)	bathroom (9.54%)
Panel B: Spacious Master				
1	bedroom (46.15%)	suite (25.38%)	other (22.31%)	bathroom (6.15%)
2	bedroom (36.73%)	other (26.96%)	suite (26.75%)	bathroom (9.55%)
3	suite (34.78%)	bedroom (33.95%)	other (24.25%)	bathroom (7.02%)
4	suite (33.98%)	bedroom (32.59%)	other (24.37%)	bathroom (9.05%)
5	bedroom (35.88%)	suite (35.42%)	other (21.98%)	bathroom (6.72%)
6	suite (36.63%)	bedroom (31.24%)	other (23.37%)	bathroom (8.76%)
7	suite (40.89%)	bedroom (26.08%)	other (24.37%)	bathroom (8.66%)
8	suite (46.12%)	bedroom (23.41%)	other (23.17%)	bathroom (7.30%)
9	suite (47.36%)	other (25.56%)	bedroom (19.46%)	bathroom (7.62%)
10	suite (48.87%)	other (25.85%)	bedroom (18.36%)	bathroom (6.92%)

[a] N = 426,816 observations

[b] Deciles by square feet where Decile 1 are the smallest homes and Decile 10 are the largest homes.

Table 5: Hedonic Results with "Large" and "Spacious" Effects by Size Decile

Word	Estimate	Marginal Effects	Word	Estimate	Marginal Effects
Ln Sqft Total	1.04***	$113.37	Ln Sqft Total	1.042***	$113.54
	(373.581)			(374.011)	
Large D1	0.088***	$7,700.55	Large D1	0.088***	$7,739.32
	(24.98)			(25.112)	
Large D2	0.054***	$6,571.96	Large D2	0.054***	$6,570.33
	(17.831)			(17.831)	
Large D3	0.008***	$1,095.58	Large D3	0.008***	$1,083.74
	(2.666)			(2.638)	
Large D4	-0.011***	-$1,819.77	Large D4	-0.011***	-$1,842.78
	(-3.927)			(-3.978)	
Large D5	-0.032***	-$6,084.09	Large D5	-0.032***	-$6,095.44
	(-11.594)			(-11.619)	
Large D6	-0.033***	-$7,235.85	Large D6	-0.034***	-$7,255.04
	(-11.938)			(-11.973)	
Large D7	-0.028***	-$7,100.52	Large D7	-0.028***	-$7,095.73
	(-10.06)			(-10.056)	
Large D8	-0.038***	-$11,219.97	Large D8	-0.038***	-$11,107.43
	(-13.493)			(-13.361)	
Large D9	-0.037***	-$13,878.21	Large D9	-0.037***	-$13,684.10
	(-13.046)			(-12.867)	
Large D10	-0.032***	-$19,898.36	Large D10	-0.031***	-$19,306.18
	(-10.288)			(-9.983)	
Spacious D1	0.042***	$3,719.95	Spacious D1	0.043***	$3,742.70
	(6.483)			(6.524)	
Spacious D2	0.041***	$4,976.94	Spacious D2	0.042***	$5,005.69
	(8.41)			(8.461)	
Spacious D3	-0.005	-$716.54	Spacious D3	-0.005	-$694.86
	(-1.131)			(-1.097)	
Spacious D4	-0.022***	-$3,675.10	Spacious D4	-0.022***	-$3,670.51
	(-5.284)			(-5.279)	
Spacious D5	-0.033***	-$6,168.12	Spacious D5	-0.033***	-$6,193.80
	(-8.082)			(-8.118)	
Spacious D6	-0.042***	-$9,040.52	Spacious D6	-0.042***	-$9,052.71
	(-10.45)			(-10.467)	
Spacious D7	-0.039***	-$9,967.99	Spacious D7	-0.039***	-$9,929.85
	(-9.939)			(-9.903)	
Spacious D8	-0.044***	-$13,145.45	Spacious D8	-0.044***	-$13,089.25
	(-11.347)			(-11.302)	
Spacious D9	-0.057***	-$20,987.49	Spacious D9	-0.056***	-$20,787.97
	(-14.053)			(-13.923)	
Spacious D10	-0.048***	-$30,006.48	Spacious D10	-0.047***	-$29,574.56
	(-11.332)			(-11.171)	
(Intercept)	3.756***		(Intercept)	3.778***	
	(57.556)			(57.896)	
Quarter-Year Dummies	Yes		Quarter-Year Dummies	Yes	
County Dummies	Yes		County Dummies	Yes	
Additional Words	Yes		Additional Words	Yes	
Addl. Physical Property Attributes	Yes		Addl. Physical Property Attributes	Yes	
Includes DOM	No		Includes DOM	Yes	
R^2	0.787		R^2	0.787	
F-Statistic	9,356.539		F-Statistic	9,307.968	
N	426,816		N	426,816	

Notes:

*** indicates significance at 1% level, ** indicates significance at 5% level, * indicates significance at 10% level

[a] Additional Physical Property Attributes include: age of the home, age squared, number of full bathrooms, number of half bathrooms, number of bedrooms, log of the lot size, and a dummy variable indicating if the home is new construction. Also in the regression are a dummy for heating system (central unit, heating pump, window unit, furnace, or other), unheated square footage, dummy for septic tank, dummy for green certification, dummy for exterior (brick, siding, or other), dummy for floor type (carpet, tile, or wood), and dummy for parking type (garage, carport, or other)

[b] In addition, it includes year-quarter and county fixed effects, as well as a dummy for whether the home is a distressed listing, one dummy for each of the top 42 words (does not include dummy variable for the word "large" and does not include dummy variable for the word "spacious"), and one dummy each if there is 0, 1, 2, 3, 4, or 5+ exclamations marks included in the MLS remarks section.

[c] D* stands for the nth decile. For example, D1 is the first square footage decile (lowest SF), D2 is the second square footage decile, etc. This means Large D1 is equal to 1 if the sold home includes the word "large" and is in the first (lowest) square footage decile.