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E-COMMERCE AND THE REAL ESTATE HOUSING MARKET: PERCEPTIONS OF BROKERS AND SALESPERSONS

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Abstract

In most markets around the country, real estate professionals are employing a new strategy that involves marketing homes for sale through the Internet as well as the traditional Multiple Listing Service (MLS). This strategy is thought to enhance the number of inquiries and may result in reduced marketing times for existing homes, with prices determined by competitive forces. The purpose of this study is to examine current usage and perceptions regarding the Internet among real estate salespeople and brokers. The results indicate that while most brokers and salespersons surveyed utilize the Internet and believe that it has increased the efficiency of home sales, many perceive it as serious challenge to traditional market models and fee structures.

Keywords: E-commerce, perceptions, logistic regression, ANOVA

Introduction

In this paper we examine the perceptions of real estate agents and brokers in a large metropolitan multiple listing service regarding the use of the Internet to market residential real estate. The use of the Internet has quickly evolved in the real estate industry and some believe that it threatens the current means of marketing residential real estate. Various Internet websites such as *realtor.com*, *homes.com*, *homeseekers.com*, and *homeadvisor.com* have been formed in recent years to offer new avenues to listing single-family residential properties. The largest site, *realtor.com*, is the official site of the National Association of Realtors (NAR) and attracts more than 1.6 million unique visitors per month to its 1.3 million property listings (Realtor.com 2000). Given this substantial attention, it is important to examine how, and to what degree of significance, the Internet is impacting residential real estate markets.

According to data collected by NAR, on a national level, 23% of all potential homebuyers have searched for a home on-line, rising from only 2% of buyers in 1995 (National Association of Realtors 1999). Similarly, nearly three-quarters of Realtors report that their firm has a website and 30% have personal web pages. More than seventy percent of residential brokerages which are members of NAR reported that on-line leads had generated revenue, although the revenue levels were small as the vast majority of those who had reported revenue indicated that the level was between 1% to 5% of total sales.

In Texas, where our survey was conducted, the percentage is somewhat lower. A 1999 study of Texas Association of Realtor members by the Real Estate Center at Texas A&M University indicated that 52% had websites (Dotzour and Maler 2000). Interestingly, the percentage of respondents who earned 10% or more of their business from the Internet is slightly higher outside of the 4 largest metro areas in the state (Houston, Dallas, San Antonio, and Austin) at 9% of respondents, compared to 5% to 7% for these metro areas. The percentage for El Paso was 1%.

Many of the Internet websites began as nationwide listings of homes for sale. Recent innovations to these sites have included mortgage calculators and online mortgage loan applications, neighborhood demographic and quality of life data, 360° virtual tours, and useful information for new homeowners such as home improvement guides (Higgins 2000). The outlook for real estate on the Internet includes complete online transaction management and a shift toward paperless real estate transactions. Approval of electronic signatures should facilitate this process.

Although the infancy of Internet real estate marketing has prevented in-depth academic study, Bond, et al., (2000) confirms many of the NAR findings regarding real estate brokerage usage of Internet websites. They report that most brokerages operate their own websites or place their listings on larger industry websites, and nearly all that have not done so plan to in the near future. Moreover, only 4% reported such disillusionment with the Internet as a marketing tool that they discontinued the site.

Other research has focused on the potential changes technology will have on the structure of the real estate industry. Baen and Guttery (1997), Tuccillo (1997), and Crowston and Wigand (1998) theorized that technological improvements such as the Internet will liberate information from the narrow possession of real estate professionals as well as streamline the search and purchase process, leading to a decreased demand for real estate industry employment and lower commission structures. In addition, the role of the real estate professional is expected to change to more of a facilitator and interpreter of real estate information rather than the primary information supplier. Aalberts and Townsend (1999) document the adaptation real estate professionals are making to add value to the transaction through online transaction management. We attempt to expand the understanding of the role of the Internet in residential real estate by focusing on a large metropolitan multiple listing service and the perceptions of the brokers and sales agents in this local market.

Survey of Realtors in the D/FW Metroplex

In the Spring of 2000, a survey of agents listing residential properties on the North Texas Regional Multiple Listing Service (NTRMLS) was conducted. NTRMLS covers the Dallas/Fort Worth Metropolitan with Dallas, Denton, Collin and Tarrant counties making up the majority of the activity. In 1999, NTRMLS reported 60,021 sales with a dollar volume of \$8,889,169,873. The purpose of the survey was to determine the current usage patterns as well as perceptions of real estate agents and brokers regarding the Internet in marketing single-family residential properties. A random sample of 1,000 Realtor names was taken from the NTRMLS sales database. In order to be eligible for inclusion in the survey, the Realtor must have had a minimum of 4 listings sold in 1999. No other stratification was made. The reason for 4 listing is that we wanted to sample agents that were active in the market. This narrowing of the eligible Realtors provided a list of 4,462 from which the 1,000 were randomly chosen. The mailing addresses for the sample were obtained by matching the Realtor names with the directory information published by the NTRMLS. A questionnaire was designed and mailed out in March 2000. Eighty of the mailed questionnaires were returned with outdated addresses leaving a total sample of 920. No attempts were made to re-send the surveys with updated addresses.

The responses were returned throughout the months of March and April 2000. A total of 152 completed questionnaires were returned for a response rate of 16.5%.¹ The sampling error from the survey was 7.9% at the 95% confidence level.

Survey Results

Table 1 presents the descriptive statistics from the survey. The respondents to the Realtor survey were very experienced, with more than half having a real estate license 11 or more years. Only 11% had a license 2 years or less. One-third of the respondents were brokers, with the balance being salespersons. The respondents were varied in regards to their sales activity, with 10% reporting selling \$400,000 or less in 1999, 35% selling between \$400,000 and \$3 million, 30% selling between \$3 million and \$6 million, and 25% selling \$6 million or higher.

In terms of demographics, the sample was 62% female and 91% Anglo, non-Hispanic. Nearly twenty-five percent were below age 40, while 55% were aged 55 or higher. Approximately twenty percent indicated they possessed a graduate or professional degree, 37% reported having only a college degree and the remaining 43% reported some vocational or college education.

The questionnaire contained questions regarding the Realtors current usage of the Internet as a tool in marketing single-family residential properties. In addition, a series of questions concerning the Realtors' perceptions of the impact of the Internet were included.

¹Other surveys, most notably Elder, Zumpano and Baryl (2000) and Bond (2000), had response rates of 14.5% and 13.8%, respectively. Our response rate compares favorably.

More than 90% of the respondents indicated that their firms maintain a website. Approximately 43% of these sites had been operational for more than 2 years and another 40% operational for 1-2 years. These websites include various features such as listing information (80%), mortgage calculators (54%), 360° virtual tours (45%) and mortgage qualifying (43%).

The respondents generally place their MLS listings on the Internet site maintained by the Regional/Local MLS. More than 93% of the respondents place at least some MLS listings on the Internet site maintained by the Regional/Local MLS and 88% of the Realtors place all their listings on that site. Only 2% stated that they never place listings on the Internet. Exposure to a greater number of people was cited as the major advantage of placing a listing on the Internet (63%). Other advantages mentioned included easy buyer access (14%), and being a good listing tool (4%). Only 3% of the respondents did not see any advantage in placing a listing on the Internet through the MLS. The major disadvantage noted was that the information on the Internet sites was not updated frequently enough. More than a third noted no disadvantages.

Approximately 41% of the Realtors attributed one or more sales primarily due to a listing being on the Internet. The quantity of such sales was low, with 71% indicating the number sold was 1 to 5. However, 5% indicated that they had sold more than 20 listings primarily due to the Internet.

Over 74% of the respondents said that, in their personal experience, placing a listing on the Internet had increased the number of inquiries about that listing and 29% replied that it had decreased time on the market for it. Only 10% believed that Internet listings have increased the eventual sales price. Regarding how the sampled group perceives the effect on all Realtors, 78% believed that Internet listings had increased the number of inquiries while 35% believed these listings have a shorter time on the market. However, only 11% of the Realtors believed that Internet listings have resulted in an increased sales price. More than half (56%) of the Realtors surveyed believed that other Realtors might withhold a listing from the MLS Internet site if the listing Realtors expect a quick sale.

While nearly 83% of the Realtors believed that the Internet will increase their number of sales in the future, a similarly large number (88%) believed that the Internet marketing will be a challenge to the traditional real estate model. Only 28% of the respondents believed that the Internet will have a negative effect on the commission fee structure over the short term (2 years), yet 53% believed it will decrease the commission fee structure over the long term (5-10 years).

Finally, the Realtors were asked for their general comments on the usage and effectiveness of the Internet in marketing real estate. The leading response (37%) was that the Internet was a useful listing tool. However, 19% believed that the Internet was not an appropriate method for selling houses. Another 8% feared that the Internet will make Realtors redundant.

Analysis of Variance

The following sections of this paper present additional analyses of the survey results, utilizing one-way analysis of variance (ANOVA) and logistical regression of key variables. The purpose of these analyses was exploratory in nature.

ANOVA was conducted to test a series of hypotheses regarding the Realtor perceptions and experiences. These hypotheses included:

H_A: Realtors whose firms' have websites differ from those who do not in terms of perceptions of the Internet and demographic/business characteristics.

H_B: Realtors who have sold properties primarily through listing on the Internet differ from those who do not in terms of perceptions of the Internet and demographic/business characteristics.

H_C: Realtors who believe that placing a listing on the Internet has decreased time on the market differ from those who do not in terms of perceptions of the Internet and demographic/business characteristics.

H_D: Realtors who believe that placing a listing on the Internet has increased the selling price differ from those who do not in terms of perceptions of the Internet and demographic/business characteristics.

Table 2 presents the ANOVA results. Generally, the factors which produced significantly different responses at the .10 level included: (1) believing that the Internet will increase their sales in the future; and, (2) the level of prior year sales activity.

Hypotheses H_A and H_D resulted in statistically significant differences with respect to the factor (3) ethnicity. In addition, hypotheses H_A and H_B revealed statistically significant differences with respect to the factor (4) believing that placing a listing on the Internet has decreased time on the market, and, for hypothesis H_B , the factor (5) believing that placing a listing on the Internet has increased the selling price and (6) age. Each of these factors will be discussed below.

The factors of believing that the Internet will be a challenge to the traditional real estate model and of believing that the Internet will have an effect on the market-based fee structures, either in the short-term or long-term, as well as characteristics such as the longevity of having a real estate license, gender and educational attainment were not found to be statistically significant.

(1) Believe Internet Will Increase Future Sales

Each of the ANOVA results was significant with respect to believing the Internet will increase sales in the future. The Realtors whose firms' have websites, attribute at least one of their listings selling due primarily to being listed on the Internet, and believe that placing listings on the Internet have decreased the marketing time and increased the selling price, generally believe this compared to those who do not have these characteristics.

(2) Level of Prior Year Sales Activity

Each of the ANOVA results was significant with respect to prior year sales levels. The Realtors whose firms' have websites, attribute at least one of their listings selling due primarily to being listed on the Internet, and believe that placing listings on the Internet have decreased the marketing time and increased the selling price, generally reported higher levels of sales activity in 1999 compared to those who do not have these characteristics.

(3) Ethnicity

The ANOVA results were significant with respect to ethnicity for two hypotheses, H_A and H_D . The Realtors whose firms' have websites and who believe that placing listings on the Internet have increased the selling price generally are Anglo compared to those who do not have believe these potential effects.

(4) Believe Placing a Listing on the Internet has Decreased Time on the Market

The ANOVA results were significant with respect to believing that placing a listing on the Internet has decreased marketing time for two hypotheses, H_A and H_B . Note that hypotheses H_C and H_D were not tested against this factor as they measure the same concept. The Realtors whose firms' have websites and who attribute at least one of their listings selling due primarily to being listed on the Internet generally believe this compared to those who do not have these characteristics.

(5) Believe Placing a Listing on the Internet has Increased the Selling Price

The ANOVA results were significant with respect to believing that placing a listing on the Internet has decreased marketing time for one hypothesis, H_B . Note that hypotheses H_C and H_D were not tested against this factor as they measure the same concept. The Realtors who attribute at least one of their listings selling due primarily to being listed on the Internet generally believe this compared to those who do not attribute a sale to this technology.

(6) Age

The ANOVA results were significant with respect to age for one hypothesis, H_B . The Realtors who attribute at least one of their listings selling due primarily to being listed on the Internet generally are in the less than 50 age range compared to those who do not attribute a sale to this technology.

Logistic Regression

Hypotheses H_A and H_B were also tested utilizing logistic regression analysis of key independent variables, as the dependent variables--whether Realtor firms have a website and whether Realtors attribute a listing selling due primarily to being listed on the Internet (LISTSOLD)--are binary, discrete choice (0,1) variables.

The discrete choice is a probability function, which can be converted to linear form through the logit transformation. Logits are the natural logarithms of the odds of participation versus non-participation (Menard 1995). The parameters for the probability model are estimated through maximum likelihood methods, and the model takes the form:

$$\text{Prob(event)} = e^z / 1 + e^z$$

where e is the base of the natural logarithms and Z is the linear combination of the coefficients and independent variables $B_0 + B_1X_1 + \dots + B_nX_n$.

The categorical questions (longevity of having a real estate license, level of prior year sales activity, gender, ethnicity, age and educational attainment) were transformed into a series of dummy variables. The dependent variable (WEBSITE) for Model (1) analyzes the factors which contribute to the probability of a Realtor's firm having a website, with the independent variables being:

- LICENSE = dummy variable, coded 1 for having a license 0-5 years;
- SALESLEVEL1 = dummy variable, coded 1 for selling less than \$800,000 in 1999;
- SALESLEVEL2 = dummy variable, coded 1 for selling \$800,000 - \$1.5 mil. in 1999;
- SALESLEVEL3 = dummy variable, coded 1 for selling \$1.5 mil. - \$3 mil. in 1999;
- GENDER = dummy variable, coded 1 for males;
- ANGLO = dummy variable, coded 1 for non-Hispanic Anglo race/ethnicity;
- AGE1 = dummy variable, coded 1 for under age 40;
- AGE2 = dummy variable, coded 1 for age 40 - 50;
- EDU1 = dummy variable, coded 1 for Vocational/Some College educational attainment;
- EDU2 = dummy variable, coded 1 for College Degree.

Model (2) was formulated similarly, the only difference being that the dependent variable (INTERNET_SOLD) analyzes the factors which contribute to the probability of a Realtor attributing one or more listing having sold primarily due to being listed on the Internet.

Model (1) Results

Table 3 presents the results. Model (1) diagnostics were adequate, as the model chi-square was 37.45 with a significance level of .000. Thus, the null hypothesis that the coefficients of the independent variables equal 0 was rejected and, therefore, the independent variables provided better predictions than a model with only the constant term (Menard 1995).

The classification table indicated that 94.0% of the predicted outcomes matched observed outcomes. This compared favorably to the naïve model, or assigning the mode to all cases. The naïve model resulted in 15 incorrectly classified cases, compared to 9 with the current model. Thus, the predictive efficiency λ_p equaled .400, a moderate relationship between the observed and the predicted classifications of the cases, and the binomial d was 1.63 (Menard 1995).

The variables which were significant at the .05 level included age, ethnicity, length of time the Realtor has been licensed, and level of sales activity in the previous year. Gender and education levels were not statistically significant.

The signs of the coefficients for the age and sales activity variables were negative; thus, Realtors over 50 years of age and having sales levels greater than \$3 million are more likely to be in firms which have websites than those under age 50 or with lower sales levels. Conversely, the signs of the coefficients for the variables ethnicity and license duration were positive, indicating that Anglos and newly licensed Realtors were more likely to be in firms with websites.

Model (2) Results

Table 4 presents the results. Model (2) diagnostics were adequate, as the model chi-square was 27.76 with a significance level of .002. Thus, the null hypothesis that the coefficients of the independent variables equal 0 was rejected and, therefore, the independent variables provided better predictions than a model with only the constant term.

The classification table indicated that 71.1% of the predicted outcomes matched observed outcomes. This compared favorably to the naïve model, which resulted in 62 incorrectly classified cases compared to 43 with the current model. Thus, the predictive efficiency λ_p equaled .306, a moderate relationship between the observed and the predicted classifications of the cases, and the binomial d was 3.16.

The variables which were significant at the .05 level included age and level of sales activity in the previous year. Gender, ethnicity, length of time the Realtor has been licensed, and education levels were not statistically significant.

The sign of the coefficients for the sales activity variable was negative. Realtors having sales levels greater than \$3 million are more likely to attribute one or more listings selling primarily due to being on the Internet than those with lower sales levels. Conversely, the signs of the coefficients for the variable age was positive, indicating that Realtors over age 50 were less likely to attribute the Internet with selling a listing.

Summary and Conclusions

The purpose of this article was to examine the perceptions and current usage patterns of the Internet by Realtors in marketing residential real estate. The exploratory results indicate that while the majority of Realtors are employing the newer technologies in their professional practices, a great deal of uncertainty remains about the effectiveness and long-term effects of these tools. Hypothesis testing also indicates that significant differences exist among Realtors regarding their experiences with and perceptions of the Internet.

It is important to note that the data collected period for this research was at the crest of the Internet “bubble”, just before the stock market crash and resulting shakeout in the technology sectors. Further research needs to be conducted to determine if perceptions of the effectiveness and impacts of the Internet have changed in the succeeding period.

In addition, follow-up research should address the issue of empirically testing the impacts of real estate listings on the Internet through tracking and analysis of actual sales. Such empirical analysis could identify the effects placing listings on the Internet has on marketing time and eventual sales price, and would test whether the perceptions of the Realtors are true.

References

- Aalberts, Robert J. and Townsend, Anthony M. “Residential Real Estate on the Web: New Challenges and New Opportunities for Real Estate Professionals.” *Real Estate Finance Journal* (15), 1999, 66-68.
- Baen, John S. and Guttery, Randall S. “The Coming Downsizing of Real Estate: Implications of Technology.” *Journal of Real Estate Portfolio Management* (3), 1997, 1-18.
- Bond, Michael T., Sieler, Michael J., Sieler, Vicky L., and Blake, Ben. “Uses of Websites for Effective Real Estate Marketing.” *Journal of Real Estate Portfolio Management* (6), 2000, 203-210.
- Crowston, Kevin and Wigand, Rolf. “Use of the Web for Electronic Commerce in Real Estate.” *Proceedings of the 1998 Association for Information Systems Americas Conference*, 1988.
- Dotzour, Mark and Maler, Gary. “Technology Use by Realtors.” *Texas Realtor* (53), 2000, 16-17.
- Higgins, Kelly Jackson. “The Web Brings Real Estate Transactions Home.” *Informationweek* (781), April 10, 2000, 106-121.
- National Association of Realtors. *Realtors and the Internet: The Impact of Online Technologies on the Real Estate Industry*, Chicago: National Association of Realtors, 1999.
- National Association of Realtors. *Realtors and Technology: Realtors and the New Business Environment*, Chicago: National Association of Realtors, 1999.
- Realtor.com. <http://www.realtor.com/forrealtors/MyiLEAD/stats.asp?CatName=Home&CatURL=/forrealtors/default.asp>, (June 26, 2000).
- Tucillo, John A. “Technology and the Housing Markets.” *Business Economics* (32), 1997, 17-20.

Table 1. Descriptive Statistics

| Response Category | | Frequency | Percentage |
|---|------------------------------|-----------|------------|
| Maintain website | | 137 | 90.1% |
| Length of time website has been operational | | | |
| | 0-6 months | 6 | 4.4% |
| | 6-12 months | 17 | 12.4% |
| | 1-2 years | 55 | 40.1% |
| | More than 2 years | 59 | 43.1% |
| Sold a listing due to Internet | | 62 | 41.1% |
| Number of listings sold through Internet | | | |
| | 1-5 | 43 | 70.5% |
| | 6-10 | 14 | 23.0% |
| | 11-20 | 1 | 1.6% |
| | More than 20 | 3 | 4.9% |
| Internet listing decreased time on the market | | 37 | 28.9% |
| Internet listing increased sales price | | 13 | 9.7% |
| Internet will increase number of sales in future | | 120 | 82.8% |
| Internet a challenge to the traditional real estate model | | 129 | 87.8% |
| Effect of Internet on short-term market based fee structure | | | |
| | Decrease | 40 | 28.4% |
| | Increase | 19 | 13.5% |
| | No Effect | 82 | 58.2% |
| Effect of Internet on long-term market based fee structure | | | 53.2% |
| | Decrease | 75 | 18.4% |
| | Increase | 26 | 28.4% |
| | No Effect | 40 | |
| Length of time real estate license held | | | |
| | 0-2 years | 17 | 11.2% |
| | 3-5 years | 16 | 10.5% |
| | 6-10 years | 32 | 21.1% |
| | 11+ years | 87 | 57.2% |
| Salesperson or broker license | | | |
| | Salesperson license | 100 | 66.2% |
| | Broker license | 51 | 33.8% |
| Total sales in 1999 | | | |
| | \$400,000 or less | 15 | 10.2% |
| | \$400,000-\$800,000 | 3 | 2.0% |
| | \$800,000-\$1,500,000 | 11 | 7.5% |
| | \$1,500,000-\$3,000,000 | 38 | 25.9% |
| | \$3,000,000-\$6,000,000 | 44 | 29.9% |
| | \$6,000,000+ | 36 | 24.5% |
| Gender | | | |
| | Male | 57 | 38.0% |
| | Female | 93 | 62.0% |
| Ethnicity | | | |
| | Anglo (non-Hispanic) | 126 | 90.6% |
| | African American | 5 | 3.6% |
| | Asian/Pacific Islander | 2 | 1.4% |
| | Hispanic | 2 | 1.4% |
| | Other | 4 | 2.9% |
| Age | | | |
| | Under 30 years old | 5 | 3.5% |
| | 30-40 years old | 28 | 19.6% |
| | 40-50 years old | 32 | 22.4% |
| | More than 50 years old | 78 | 54.5% |
| Education | | | |
| | Vocational/some college | 61 | 43.0% |
| | College degree | 52 | 36.6% |
| | Graduate/professional degree | 29 | 20.4% |

Table 2. Results of One-Way ANOVA (F Prob.)

| Dependent variable | H_A Firm has Website | H_B Listing Sold Due to Internet | H_C Decreased Time On Market | H_D Increased Sales Price |
|---|---|---|---|--|
| Placing listing on the Internet decreased time on the market | 0.0202 ^a | 0.0000 ^a | | |
| Placing a listing on the Internet increased the eventual sales price | 0.2372 | 0.0001 ^a | | |
| Internet will increase number of sales in the future | 0.0245 | 0.0001 ^a | 0.0037 ^a | 0.0998 ^b |
| Internet will be a challenge to the traditional real estate model | 0.1715 | 0.4465 | 0.9123 | 0.2136 |
| Internet will increase the market-based fee structure in the short-term | 0.4915 | 0.5867 | 0.7633 | 0.6024 |
| Internet will increase the market-based fee structure in the long-term | 0.4165 | 0.3166 | 0.3427 | 0.6637 |
| Length of time real estate license held | 0.9274 | 0.7027 | 0.1956 | 0.5865 |
| Total sales in 1999 | 0.0043 ^a | 0.0007 ^a | 0.0879 ^b | 0.0449 ^a |
| Gender | 0.4694 | 0.8123 | 0.2780 | 0.9892 |
| Ethnic background | 0.0028 ^a | 0.4869 | 0.5476 | 0.0453 ^a |
| Age | 0.3338 | 0.0391 ^a | 0.2885 | 0.2199 |
| Education level | 0.7254 | 0.4511 | 0.8972 | 0.4405 |

^aSignificant at the .05 level, ^bSignificant at the .10 level

Table 3. Results of Logistic Regression Analysis: Model (1)

| Variable | Coefficient Estimate | Standard Error | Wald | Significance | Odds Ratio |
|---------------------------------------|----------------------|----------------|---------|--------------------|------------|
| Dependant: WEBSITE | | | | | |
| INTERCEPT | 2.5099 | 1.2470 | 4.0513 | .0441 ^a | |
| GENDER | -.5478 | .7583 | .5218 | .4701 | .5782 |
| AGE1A | -2.0200 | .9827 | 4.4795 | .0343 ^a | .1594 |
| AGE2 | -.4248 | .9188 | .2138 | .6438 | .6539 |
| ANGLO | 2.8340 | .8195 | 11.9579 | .0005 ^a | 17.1029 |
| LICENSE | 3.7013 | 1.3297 | 7.7478 | .0054 ^a | 40.4985 |
| SALESLEVEL1 | -3.7812 | 1.3255 | 8.1380 | .0043 ^a | .0228 |
| SALESLEVEL2 | -3.2127 | 1.3779 | 5.4361 | .0197 ^a | .0402 |
| SALESLEVEL3 | -3.1835 | 1.1033 | 8.3252 | .0039 ^a | .0414 |
| EDU1 | -.2430 | .8482 | .0821 | .7745 | .7842 |
| EDU2 | 1.0063 | 1.0039 | 1.0048 | .3161 | 2.7356 |
| Diagnostics | | | | | |
| Chi-Square | 37.450 | | | | |
| Predictive Efficiency (λ_p) | .400 | | | | |
| Correct Prediction Percentage | 94.00% | | | | |

^a Significant at .05 level ^b Significant at .10 level

Table 4. Results of Logistic Regression Analysis: Model (2)

| Variable | Coefficient Estimate | Standard Error | Wald | Significance | Odds Ratio |
|---------------------------------------|----------------------|----------------|---------|--------------------|------------|
| Dependant: INTERNET_SOLD | | | | | |
| INTERCEPT | -.8311 | .6964 | 1.4244 | .2327 | |
| GENDER | -.3826 | .4001 | .9147 | .3389 | .6821 |
| AGE1 | 2.1346 | .6540 | 10.6529 | .0011 ^a | 8.4533 |
| AGE2 | .9587 | .4779 | 4.0241 | .0449 ^a | 2.6084 |
| ANGLO | .7775 | .5602 | 1.9264 | .1652 | 2.1760 |
| LICENSE | -.6992 | .6110 | 1.3097 | .2524 | .4970 |
| SALESLEVEL1 | -2.3827 | .8711 | 7.4816 | .0062 ^a | .0923 |
| SALESLEVEL2 | -1.6654 | .8987 | 3.4341 | .0639 ^b | .1891 |
| SALESLEVEL3 | .2591 | .4198 | .3808 | .5372 | .1257 |
| EDU1 | -.4007 | .4921 | .6628 | .4156 | .6699 |
| EDU2 | -.4653 | .5014 | .8610 | .3535 | .6280 |
| Diagnostics | | | | | |
| Chi-Square | 27.760 | | | | |
| Predictive Efficiency (λ_p) | .306 | | | | |
| Correct Prediction Percentage | 71.10% | | | | |

^a Significant at .05 level ^b Significant at .10 level