Economic Analyses of Homeowners' Attitudes Toward Formosan Subterranean Termite (FST) Control Programs in Louisiana

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Abstract

we collected survey responses regarding the attitudes of home owners toward Formosan Subterranean Termite (FST) control.   Median value for willingness to pay for a termite control program is found to be $0.16 per square feet per year. A contingent ranking analysis indicated that most homeowners opt for a minimum cost control alternative for FST control

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In contingent valuation, respondents are presented a hypothetical scenario and asked hypothetical questions based on the scenario. Respondents' answers are also based on a hypothetical scenario. A controversy exists among economists regarding a valuation in a hypothetical market. Often asked question is whether hypothetical answers represents respondents' true willingness-to-pay. Studies have been conducted in the past to test if a respondent's hypothetical willingness-to-pay represents her/his true payment. Most studies show that there is a difference between hypothetical willingness-to-pay and real commitment, commonly known as hypothetical bias. Our study is different than the previous studies because we are evaluating the willingness to pay for a private good which is currently paid by the government. Therefore, this presents an interesting case of moral hazard when comes to finding the willingness to pay for goods and services.

We like to explore whether or not there exists a hypothetical bias regarding willingness to pay for termite control in Louisiana, assuming that termite control is a private good that has public good characteristics beyond some threshold level. Private goods that have been used in previous hypothetical versus real willingness to pay studies have included maps and paintings (Neill *et al., 1994)*, electric juice makers, chocolate boxes and calculators (Cummings *et al.,* 1995), a box of chocolate (Johannesson *et al.*, 1997), antique prints (Paradiso and Trisorio, 2001), and Christmas gift items (List and Shogren, 2002). Some experiments were conducted with public goods or club goods such as an informative leaflet regarding an otter –an endangered species (Botelho and Pinto, 2001) and a Citizen's Guide booklet (Taylor, 1998). Termite control has been treated as a private good because

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homeowners were held responsible for termite control on their own properties. After the start of the invasion of FST, especially in the French Quarter of New Orleans, Federal and State funding was used for termite control. Therefore, the undertaking of termite control might gain public good aspects. If termite infestation is beyond individual homeowner's control level, we expect homeowners are willing-to-pay less.

Survey methods

We asked a double bounded question (First phase: dichotomous, second phase: open ended) to find if homeowners were willing to pay more than $0.56 per square foot per year that guarantees 100% termite prevention. Only 290 (26.8%) respondents chose yes, but only 150 respondents assigned more than $0.56 with an average of $0.72. Therefore, if more than $0.56 is unreasonable to them, they assigned any amount less than $0.56. A total of 572 homeowners were willing to pay less than $ 0.56 with an average of $0.21, including 47 persons protested with zero dollar WTP. Protest here means homeowners' zero bids for reasons other than a true zero value. Finally, homeowners' above and below $0.56 WTP amount were combined. A total of 722 homeowners' combined average willingness to pay was $0.32 per square foot per year. Combined figures were hypothetical WTP because these amounts were not the real payments for termite control.

Real payment for termite control was estimated from homeowners' existing contracts with pest control operators. Approximately one-half of homeowners (47%) have a termite control contract. The contract cost consists of an initial installation fee that is applied up front at the start of the service period and the annual renewal fee. The initial installation fee covers initial inspection and application. The

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contract period is assumed to be for five years. Contract period includes initial fee plus annual inspections for 5 years. Homeowners were asked to state their initial installation fees in six categories starting from $0-$400 and followed by $401-$800, $8001-$1200, $1201-$1600, $1601-$2000 and more than $2000. The mid point of each category was $200, $600, $1,000, $1,400, $1,800, and $2,200. Those homeowners who responded, "do not know" were categorized into $0-$400 category. The mid-points of these categories were divided by five years to obtain its annual rate.

When asked homeowners for their existing annual renewal fee, in addition to five categories of $99 or less, $100-$199, $200-$299, $300-$399, $400 or more, there was a "I do not know" category. Homeowners indicating, "I do not know" were categorized into the first category. The mid point of each category was calculated as $49.5, $149.5, $249.5, $349.5, and $449.5 respectively. Both the initial installation fee and the annual renewal fee were added together to obtain total annual cost for a contract. This total annual cost was divided by the mid point of respective living space categories of homeowners. The living space of home was divided into four categories, starting from less than 1,499 square feet, followed by 1,500-1,999 square feet, 2,000-2,999 square feet, and 3000 square feet or more. Thus, mid points of each category were 750, 1750, 2500 and 3000 square feet.

Models and Data Analysis Methods

The SURVEYREG procedure available in SAS was used for regression analysis because of its superiority to handle complex survey sample designs such as stratification, clustering, and unequal weighing (An and Watts, 2002). Further, it has an inbuilt correction factor for finite population samples. It treats each of the categories of explanatory variables as dummy variables and estimates the marginal

effect of each variable. Expected signs of explanatory variables for the WTP for termite control are presented below. Similar signs are expected for both the hypothetical and the real WTP model.

LOCATION is a categorical variable for survey location representing higher to lower termite-infested area; New Orleans the most infested area followed by Baton Rouge, Monroe and Alexandria. By the same token, highest WTP amount is expected from homeowners in New Orleans followed by Baton Rouge, Monroe and Alexandria. The differences in the WTP are expected to be due to homeowners' knowledge and experience on termites.

OWNLENGTH is a categorical variable for the length of ownership of current home owned by the homeowner. In general, a negative relationship between WTP and the length of home ownership is expected. However, the relationship may be negative for less than 5 years of ownership because most new homes are treated at the time of construction.

LIVSPACE is a categorical variable for home living space. A positive relationship of WTP with living space is expected. In general, high-income people own bigger homes. It is evident from Chi-square test that living space is significantly associated with income.

MKTVAL is categorical variable for homeowners' estimates of the market value of their home. A positive relation is expected between homeowners' WTP for termite control and market value of their home.

HOMCONST is a categorical variable for a type of home construction. A positive relationship between WTP and home with wood frame with solid wood siding is expected because wood structures are more prone to termite infestation. However, HOMCONST may correlate with income. Typically, wood frame/wood siding are older, cheaper homes owned by the poor.

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HOMSELL is a dummy variable for homeowners' plan for selling home. A negative relation is expected between WTP and plan to sell because of negative endowment effect.

TERMFND is a dummy variable for termite have been found in home while respondent has been the owner or previous owner. A positive relation is expected between termite found in home and WTP for termite control.

TERMNEIGH is a categorical variable for the homeowner's perception of termite to be an existing problem for her/him in neighborhood. Certainly, a higher WTP is expected from those homeowners who consider termites to be an existing problem in their neighborhood. They probably perceive the risk of damage as higher, therefore they are more likely to buy "insurance" in the form of a termite prevention/control contract. But, termite control efforts might have public good properties because; treating "my home" will not solve the termite problem if "others" are not treating.

FSTHEARD is a dummy variable for whether or not a homeowner has heard of the FST (1=yes). A higher WTP is expected from those who heard FST.

GENDER is dummy variable for respondent's gender (1=female, 0=male). No prior assumption of relationship is made for gender effect on WTP.

AGE is a continuous variable for respondent's age. No prior assumption of relationship is made between age and WTP for termite control.

EDUCATION is a categorical variable for the respondent's level of education. Assuming, more educated people earn higher income, more educated people are willing to pay higher for termite control. Since in this case these two variables are significantly associated.

INCOME is a categorical variable for homeowners' annual pretax total household income. A positive

relationship is expected between WTP and income.

ETHNIC is a dummy variable for a homeowner's ethnic background. No prior assumption is made about

the relationship between ethnic background and WTP except to hypothesize that there may be a

difference in WTP based on ethnicity.

Three different models of ordinary least squares are utilized to estimate the marginal effects of

willingness to pay.

$WTP_H =$ *f(LOCATION, OWNLENGTH, LIVSPACECATE, , MKTVALCATE, HOMCONST, HOMFOUND, HOMSELL, TERMFND, TERMNEIGH, FSTHEARD GENDER, AGE, EDUCATION, INCOME, ETHNIC)*

$WTP_R =$ *f(LOCATION, OWNLENGTH, LIVSPACECATE, , MKTVALCATE, HOMCONST, HOMFOUND, HOMSELL, TERMFND, TERMNEIGH, FSTHEARD GENDER, AGE, EDUCATION, INCOME, ETHNIC)*

$WTP_D =$ *f(LOCATION, OWNLENGTH, LIVSPACECATE, , MKTVALCATE, HOMCONST, HOMFOUND, HOMSELL, TERMFND, TERMNEIGH, FSTHEARD GENDER, AGE, EDUCATION, INCOME, ETHNIC)*

Where WTP_R , WTP_H area real, hypothetical willingness to pay and WTP_D is the difference

between real and hypothetical willingness to pay. Other variables are shown as defined earlier.

Results and Discussions

We have found that homeowner's hypothetical and real WTP for termite control are significantly

different. Approximately 47% (n=417) homeowners are paying an average of $0.152 per square foot per

year whereas approximately 58% (n=722) homeowners are willing to pay $0.32 per square foot per year.

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Area wise speaking, New Orleans homeowners are willing to pay more for termite control in both hypothetical and real measures. Baton Rouge homeowners' average real WTP was 15 cents followed by Alexandria 14 cents and Monroe 13 cents. The second highest hypothetical WTP, however, was from Monroe homeowners (31 cents), followed by Alexandria (30 cents) and Baton Rouge (29 cents). Total real and hypothetical willingness to pay was estimated for Monroe, Alexandria, Baton Rouge and New Orleans metropolitan areas utilizing these average WTP per square foot per year. The estimated total hypothetical WTP for termite control in four metropolitan areas was $102,530,742 whereas the total real WTP was estimated to be $39,465,497. The estimated hypothetical WTP is approximately 2.6 times higher than the estimated real WTP, which is quite consistent with the previous research results (List and Shogren, 2002).

The regression model for hypothetical and real WTP and the model for the difference between hypothetical and real WTP are significant at 0.5% level. However, only 9.4%, 50.2%, and 27.3% of the variation in hypothetical WTP, real WTP and the difference between the two is explained by the model, which is evident from the R-square value of respective models. All the variables except AGE and AGESQ are dummy variables. The highest category is the base for categorical variables that is inbuilt in SURVEYREG procedure. The results of these three models are presented in. Model specific results and interpretations are presented in the following paragraphs.

In this model, 12 variables are significant, namely OWNLENGTH2, LIVSPACE1, LIVSPACE2, LIVSPACE3, MKTVAL1, MKTVAL2, MKTVAL3, MKTVAL4, TERMNEIGH, FSTHEARD, TERMCONT and EDUCATION4. Holding other variables constant, homeowners owning homes for 6 to 10 years are willing to pay 3.4 cents more as compared to homeowners owning

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homes for 20 years or more. This was significant at 6% level. Here the ownership length category more than 20 years is the base. Although other ownership length such as less than 5 years, 11 to 15 years, and 16-20 years were insignificant, homeowners with these categories are willing to pay 1 cent, 1.6 cents, and 0.4 cents more respectively as compared to base. An explanation could be that most homes with less than 5 years of ownership are new. The foundations of these new homes are treated with chemicals. Therefore, this category of homeowners are willing to pay less as compared to 11 to 15 years category. For the category more than 11-15 years or 16-20 years, home value would be low because of age hence homeowners are willing to pay less.

Living space categories namely LIVSPACE1, LIVSPACE2, LIVSPACE3 are significantly different with base living space category 3,000 square feet or more. In general, results show that homeowners with smaller houses are willing to pay more on a per unit area basis. Homeowners having less than 1,500 square feet living space are willing to pay 33.3 cents higher as compared to the largest living space category as base, which is significant at 1% level. Homeowners with 1,500 to 1,999 square feet and 2,000 to 2,999 square feet living spaces, however, are willing to pay only 7 cents and 3.1 cents more as compared to base category. This is partly due to basis of contract, which might not fully base on per unit area.

Market value of homes was found to be significant in all categories namely MKTVAL1, MKTVAL2, MKTVAL3, MKTVAL4 as compared to base category of $300,000 or more. Signs are found to be as expected. In general, homeowners with higher valued homes are willing to pay more. Homeowners with home market value with less than $50,000 are willing to pay 21.1 cents less per square foot per year as compared to base, which is significant at 1% level. Similarly, homeowners with

home market value category $50,000 to $99,999, category $100,000 to $199,999 and category

$200,000 to $299,999 are willing to pay 4.3 cents, 4.1 cents and 3.2 cents less than the base category

respectively. All of these categories are significant at 5% level.

Variable TERMNEIGH is significant at 5% level. Homeowners considering termite to be an

existing problem in their neighborhood are willing to pay 2.3 cents more as compared to homeowners

not considering it. Similarly, homeowners who heard FST are willing to pay 2.3 cents more as

compared to those who do not heard. The level of significance, however, is only 15%. The variable

TERMCONT is significant at 5% level. Homeowners who have termite control contract are willing to

pay 6.2 cents less than those who do not have. It seems that homeowners who did not have contract,

wants to have it with premium payment that guarantees 100% for termite prevention. Otherwise they

would not purchase the contract.

Although only EDUCATION4 is significant, signs of all other education variables are as

expected, except EDUCATION1. The college graduates were willing to pay significantly less, 3.1

cents per square foot per year, than homeowners with graduate degree. Sign of other homeowners

education category level namely EDUCATION2, EDUCATION3 are as expected, however, these

are not significant. Although insignificant, homeowners with 'some high school or less ' education are

willing pay one cents more as compared with graduate degree, which is unexpected.

The signs of variables INCOME2, INCOME3 are unexpected, where homeowners with

income category $40,000 to 79,999 and category $80,000 to $124,999 are willing to pay more as

compared to homeowners with household income $125,000 or more as base are. Although

insignificant, Caucasians are willing to pay one cents less than non-Caucasians.

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Although LOCATION is not significant, New Orleans homeowners are highest paying followed by Baton Rouge, Monroe and Alexandria homeowners, which is as expected.

Hypothetical WTP model

The results of this model are presented in the second column in Table 7. As results indicate, hypothetical WTP was significantly influenced by (1) living space (LIVSPACE3), (2) homeowners attitude about termite to be an existing problem in their neighborhood (TERMNEIGH), (3) termite control contract with pest control operator (TERMCONT), (4) homeowners' gender (GENDER), (5) pretax annual household income (INCOME), and (6) homeowners' ethnic background (ETHNIC)". These variables were significant respectively at 13%, 8%, 6%, 6%, 4% and 0.2% level. Holding other variables constant, a homeowner with living space 2,000-2,999 square feet is willing to pay 6.2 cents more per square foot for termite control as compared to a homeowner with 3,000 square feet. Although, LIVSPACE1 and LIVSPACE2 are not significant, a homeowner with living space less than 2,000 square feet category or 1,500 to 1,999 square feet category is willing to pay 4 cents and 2 cents more as compared to living space 3000 square feet or more categories. Homeowners with smaller house are willing to pay more for termite control in per unit area basis. The proportion, however, is not the same across the categories.

Similarly, homeowners with termite contract are willing to pay 4.3 cents more as compared to those who do not have termite control contract. This is expected because termite aware homeowners would be willingness to pay higher. Female homeowners are willing to pay 4.4 cents more than males.

In general, homeowners with higher income are willing to pay more for termite control, which is

quite expected. Homeowners with annual pretax household income $40,000 or less are willing to pay

10.6 cents less per square foot as compared to homeowners with $125,000 income or more. This is

expected, because the utility for higher income people is low for same amount of dollars. Similarly,

homeowners with annual pretax household income category $40,000 to $79,000 are willing to pay 7.1

cents less per square foot as compared to homeowners with income $125,000 or more. Caucasians

are willing to pay 10 cents less as compared to non-Caucasian. This may partly be due to termite prone

house structures of non-Caucasians. Because, higher proportion of non-Caucasians lived in a wood

frame house with solid wood siding and raised construction as home foundation.

Variable related to location, LOCATION1, LOCATION2, LOCATION3 are not found to be

significant. However, Baton Rouge, Monroe and Alexandria homeowners were willing to pay 4.1

cents, 2.4 cents and less than 1 cent less than the New Orleans homeowners were, which was as

expected.

Difference Model

Results of this model are presented in the fourth column of Table 7. This model explains the factors that

are contributing to the difference between homeowners hypothetical WTP and real WTP (i.e.

hypothetical bias) for termite control in Louisiana. Variables related to length of ownership, living space,

income and ethnic background significantly explains the hypothetical biases, where hypothetical WTP is

significantly higher than real WTP. Homeowners' attitude about termite to be an existing problem

(TERMNEIGH) is also significant to explain hypothetical bias. Hypothetical bias is 9.9 cents less for

homeowners with less than 5 years length of ownership (OWNLENGTH1) per square foot per year as

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compared to base length of ownership category of more than 20 years. Similarly, homeowners with 5 to 10 years, 11-15 years and 16-20 years of length of ownership are respectively contributing 9.2 cents, 4.6 cents, and 6.5 cents less to the hypothetical biases of WTP as compared to base category.

Homeowners with living space category less than 1,500 square feet (LIVSPACE1) are contributing 35.2 cents less to hypothetical bias as compared to the base category of 3,000 square feet or more which is significant at 1% level. Other living space categories are, however, not significant.

Homeowners who think termites as an existing problem in their neighborhood (TERMNEIGH) are contributing 5.2 cents in the difference as compared to those who do not consider termite as an existing problem.

INCOME1, INCOME2 and INCOME3 are significant at 5%, 10% and 5% level. As compared to base income category ($125,000 or more), homeowners with income category of below $40,000, $40,000 to $79,999 and $80,000 to $124,999 are respectively contributing 15.5 cents, 10.9 cents and 11.7 cents less to the hypothetical bias. Caucasians are contributing 10.2 cents less to the hypothetical bias as compared to non-Caucasians.

Comparison of three MODELS

Only, variables related to living space (LIVSPACE), termite contract (TERMCONT), gender (GENDER), income (INCOME) and ethnic background (ETHNIC) are found to be significant in Hypothetical WTP Model. Besides those variables, variables related to length of home ownership (OWNLENGTH), termite problem in neighborhood (TERMNEIGH), FST heard (FSTHEARD), were found to be significant in Real WTP Model. Length of home ownership (OWNLENGTH), living

space (LIVSPACE), homeowners' attitude about termite problem in their neighborhood

(TERMNEIGH), homeowners pretax family income (INCOME), homeowners ethnic background

(ETHNIC) were found to be significant in the Difference Model.

Conclusions

We have found that the differences between real and hypothetical willingness to pay exists even in the

private good with public good implications. Policy makers should target the factors that were found to

be significant in real willingness to pay for measures needed for termite infestation decrease. As we

have found here, there are many things that make the differences in the two measures of payments.

References (To be expanded later)

Neill et al. 1994

Cummings et al. 1995

Johanesson et al. 1997

Paradiso and Trisorio 2001

List and Shogren 2002

Botelho and Pinto 2001

Taylor 1998

An and Watts 2002

Table 1. Frequency distribution of homeowners who are willing to pay more than $0.56 per square foot per year for termite control that guaranteed 100% termite prevention

Willing to pay	Frequency	Percentage
Yes	290	26.8
No	794	73.2

Table 2. Initial Installation fee for termite service contract

Category	Mid point	Frequency	Percentage
Less than $400	$200	209	37.4
$401-$800	$600	121	21.7
$801-$1,200	$1,000	42	7.5
$1,200-$1,600	$1,400	30	5.4
$1,601-$2,000	$1,800	15	2.7
Greater than $2000	$2,200	9	1.6
I do not know	$200	133	23.8

Table 3. Home living space categories

Category	Midpoint	Frequency		Percentage
0-1,499 square feet	750 square feet	226	18.7	
1,500-1,999 square feet	1750 square feet	418	34.6	
2,000-2,999 square feet	2500 square feet	391	32.3	
3000 square feet or more	3000 square feet	175	14.5	

Table 4. Homeowners' hypothetical and real willingness to pay for termite control and the difference between these two measures of payments ($/per square foot /year)

Variable	N	Mean	SD	t-value
More than $0.56 WTP	150	0.723	0.171	34.47
Less than $0.56 WTP	572	0.215	0.149	26.01
Combined WTP*	722	0.320	0.257	33.39
Real WTP	417	0.152	0.135	26.27
Difference	280	0.206	0.284	13.36

*this is considered to be hypothetical WTP.

Table 5. Total WTP estimates

WTP	Mean WTP	No. of homes times mean living space	Total WTP
Hypothetical	$0.320	278,111(0.58)* 1986.36	$102,530,742
Real	$0.152	278,111(0.47)*1986.36	$39,465,497
Difference			$63,065,245

* 58% of homeowners willing to pay for termite control.

** 47% of homeowners have termite prevention contract.

Table 6. Description of variables

Variable	Description	Mean	SD
Dependent variable			
WTP_H	Hypothetical WTP	$0.320	0.257
WTP_R	Real WTP	$0.152	0.135
WTP_D	Difference between WTP_H and WTP_R	$0.206	0.282
Independent variable			
1. Homeownership			
LOCATION1	Survey area Monroe (1=yes)	0.25	0.43
LOCATION2	Survey area Alexandria (1=yes)	0.22	0.41
LOCATION3	Survey area Baton Rouge (1=yes)	0.28	0.45
OWNLENGTH1	Length of home ownership <5 year (1=yes)	0.22	0.41
OWNLENGTH2	Length of home ownership 6-10 years (1=yes)	0.19	0.39
OWNLENGTH3	Length of home ownership 11-15 years (1=yes)	0.13	0.33
OWNLENGTH4	Length of home ownership 16-20 years (1=yes)	0.10	0.31
LIVSPACE1	Home-living space <1,500 square feet (1=yes)	0.18	0.39
LIVSPACE2	Home-living space 1,500-1,999 square feet (1=yes)	0.33	0.47
LIVSPACE3	Home-living space 2,000-2,999 square feet (1=yes)	0.31	0.46
MKTVAL1	Home's market value <$50K (1=yes)	0.08	0.27
MKTVAL2	Home's market value $50-$99K (1=yes)	0.33	0.47
MKTVAL3	Home's market value $100-$199K (1=yes)	0.36	0.48

Variable	Description			
MKTVAL4	Home's market value $200-$299K (1=yes)		0.10	0.29
HOMCONST1	Wood frame house with wood siding (1=yes)		0.15	0.36
HOMCONST2	Wood frame house with non-wood siding (1=yes)		0.73	0.44
HOMCONST3	Others (1=yes)		0.09	0.29
HOMSELL	Plan to sell home in future (1=yes)		0.32	0.47

2. Knowledge of termites

Variable	Description			
TERMFND	Termite found in home (1=yes)	0.39		0.48
TERMNEIGH	Termite-existing problem in neighborhood (1=yes)		0.46	0.50
FSTHEARD	Heard FST (1=yes)		0.75	0.43
TERMCONT	Have a termite control contract (1=yes)	0.47	0.50	

3. Socio-demography

Variable	Description			
GENDER	Female (1=yes)	0.41	0.49	
AGE	Age of respondent in years		55.2	14.4
AGESQ	Age squared		3258	1641
EDUCATION 1	Education; some highschool or less (1=yes)		0.04	0.19
EDUCATION 2	Education; highschool graduate (1=yes)	0.19	0.39	
EDUCATION 3	Education; some college (1=yes)		0.27	0.44
EDUCATION 4	Education; college graduate (1=yes)		0.24	0.43
INCOME1	Income less than $40K (1=yes)	0.28	0.45	
INCOME2	Income $40K-$79K (1=yes)		0.30	0.46
INCOME3	Income $80K-$124K (1=yes)		0.15	0.36

| ETHNIC | Caucasian (1=yes) | 0.79 | 0.40 |

Table 7. Parameter estimates of Hypothetical WTP, Real WTP and Difference WTP models for termite control ($/square foot/year)

	Estimates		
Variables	Hypothetical WTP (t-value)	Real WTP (t-value)	Difference (t-value)
1. Homeownership			
INTERCEPT	0.591***	0.219***	0.723***
	(3.36)	(2.18)	(2.16)
LOCATION1	-0.024	-0.010	-0.026
	(-0.68)	(-0.68)	(-0.48)
LOCATION2	-0.0001	-0.010	0.056
	(0)	(-0.56)	(0.88)
LOCATION3	-0.041	-0.008	-0.055
	(-1.34)	(-0.57)	(-1.16)
OWNLENGTH1	-0.002	0.010	-0.100**
	(-0.05)	(0.72)	(-1.75)
OWNLENGTH2	-0.010	0.34**	-0.092**
	(-0.31)	(1.87)	(-1.70)
OWNLENGTH3	0.038	0.016	-0.047
	(0.93)	(0.83)	(-0.78)
OWNLENGTH4	-0.028	0.004	-0.065
	(-0.74)	(0.24)	(-1.02)
LIVSPACE1	0.038	0.333***	-0.352***
	(0.70)	(8.53)	(-3.50)
LIVSPACE2	0.020	0.070***	-0.054
	(0.44)	(4.85)	(-0.79)
LIVSPACE3	0.062*	0.031***	0.011
	(1.52)	(2.94)	(0.20)
MKTVAL1	-0.701	-0.211***	0.16
	(-0.89)	(-4.43) (0.95)	
MKTVAL2	-0.015	-0.043***	-0.055
	(-0.26)	(-1.98)	(-0.61)
MKTVAL3	-0.048	-0.042***	-0.024
	(-0.92)	(-2.81)	(-0.32)
MKTVAL4	-0.040	-0.032***	-0.030
	(-0.78)	(-2.35)	(0.42)

HOMCONST1	-0.036	0.014	-0.062
	(-0.71)	(0.57)	(-0.63)
HOMCONST2	0.012	0.015	-0.025
	(0.26)	(0.72)	(-0.28)
HOMSELL	0.026	-0.007	0.047
	(1.10)	(-0.55)	(1.23)
2. Knowledge of termites			
TERMFND	-0.019	-0.013	-0.021
	(-0.78)	(-1.27)	(-0.61)
TERMNEIGH	0.38	0.022***	0.052*
	(1.75)	(2.20)	(1.63)
FSTHEARD	0.009	0.023*	-0.002
	(0.31)	(1.45)	(-0.04)
TERMCONT	0.043**	-0.062	0
	(1.86)	(-2.34)***	(0)
3. Socio-demography			
GENDER	0.044**	0.010	0
	(1.95)	(0.98)	(0.01)
AGE	-0.007	-0.002	-0.008
	(-1.24)	(-1.00)	(-0.81)
AGESQ	0	0	0
	(1.44)	(1.17)	(0.92)
EDUCATION 1	0.012	0.009	0.008
	(0.16)	(0.26)	(0.04)
EDUCATION 2	-0.051	-0.009	-0.065
	(-1.32)	(0.40)	(-1.05)
EDUCATION 3	-0.019	-0.019	-0.029
	(-0.57)	(-1.28)	(-0.63)
EDUCATION 4	-0.04	-0.031***	0.024
	(-1.39)	(-2.55)	(0.58)
INCOME1	-0.106***	-0.002	-0.155***
	(-2.05)	(-0.11)	(-2.13)
INCOME2	-0.071*	0.008	-0.108
	(-1.55)	(0.68)	(-1.80)

INCOME3	0.061	0.014	-0.117
	(-1.43)	(1.23)	(-2.10)
ETHNIC	-0.100***	-0.010	-0.102**
	(-3.11)	(-0.57)	(-1.75)

*, **, *** indicate coefficient significant at 0.15, 0.10, and 0.05 level respectively.