

WORKABLE COMPETITION AND THE LIFE INSURANCE MARKET: A QUANTITATIVE ANALYSIS

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ABSTRACT

Thirty-one years ago, Mark S. Dorfman (1972) concluded that workable competition did not exist in the market for life insurance products because of industry marketing practices that tended to exacerbate the insurance consumer's ignorance and the problem of information asymmetry inherent in the industry. Utterances by both industry representatives and industry critics suggest Dorfman's assessment may still linger today. This paper constructs a linear probability model to determine the current validity of that assessment. Although the model is tested using data extracted from a study designed for a different purpose, the results would seem to validate Dorfman's finding. However, given the ad hoc nature of the data, we could only view the results presented here as being preliminary. Be that as it may, the results allow us to suggest a policy solution to the industry's unique information asymmetry problem.

INTRODUCTION

The search for a real world version of perfect competition led the American economist, J.M. Clark (1940) to broach the idea of a less stringent model called workable competition. In this more earthly framework, the exacting preconditions required for the ideal market structure are just approximated, not precisely duplicated. It is believed these approximations will create a structure that may be short of perfection but would still be endowed with an ability to tend towards the maximization of social welfare, the attainment of which is guaranteed under perfect competition.

More than thirty years ago, Dorfman (1972) set out to determine if the life insurance industry could fit into Clark's new invention. He did this by first specifying norms or prerequisites that must be satisfied for workable competition to exist. Based on suggestions culled from the works of Edwards (1949, pp. 128-129), Oxenfeldt (1951, pp. 91-92), Smith (1951, pp. 412-416), Sosnick (1964, p. 99), Stigler (1942, pp. 2-4) and others, his specification included (a) the existence of standards for product development, (b) the provision of adequate information to consumers, and (c) reasonable limits to product variety.

Using previously published criticisms of the industry to qualitatively evaluate the industry's performance and finding it wanting in all three norms, he concluded the industry fell short of workable competition. He concluded further that "these shortcomings perpetuated and aggravated the problems associated with

consumer ignorance that is at the very root of the industry's woes". Although it can be inferred from Brenner (2000) and Goch (2000) that e-marketing and direct selling may have already started to transform the industry towards a more informed and truly competitive market, recent pronouncements both from industry representatives (Dynia, 1990; Egler and Malak, 1993) and industry critics (Updegrave, 1992; Quin, 1999) suggest the life insurance market is essentially in the same state as it was in the early 1970s when Dorfman made the study.

The purpose of this study is to construct and test a model of what the authors still believe to be the prevailing market structure of the insurance industry. It differs from Dorfman's study in two respects. First, the 1972 study was purely qualitative and highly informal. This study approaches the problem more formally and quantitatively. Secondly, the 31-year old study attributes the existence of the less than competitive structure wholly to the insurance industry's marketing practices. In contrast, this study attributes the problematic structure as the combined effect of the industry's marketing practices and human nature especially as it applies to the young or healthy insurance consumer.

In the next section, the problem will be described and stated in literal terms. This will then be followed by the specification of a model to quantify the literal version and a discussion of the data used in the estimates. The OLS estimates will be presented and interpreted next and the paper will be capped with the inevitable concluding observations.

THE PROBLEM

There are two basic types of life insurance products. The first one, called term life, provides coverage for a specified period, is purely for protection purposes, and does not build cash value. The other type is permanent life. Although there are several variations (whole life, universal life, variable life and variable-universal life), they all provide protection for as long as the insured lives and pays the premium. Unlike the term life variety, they all have a savings or investment component that builds cash value over time.

While the insurance industry presents insurance as the best way to protect families from financial ruin as a consequence of the breadwinner's untimely demise, i.e., they emphasize the protection function¹, the reality at the point of sale is different. For at that point, the bundling of savings or investment and protection in the permanent life insurance product and the higher commission that goes with its sale naturally predispose the agent to promote permanent life instead of the cheaper term life (Updegrave, 1992). In fact, sales agents are known to actually denigrate the latter (Quinn, 1999).

The insurance salesman's predisposition is complemented by the tendency of most insurance consumers especially when still young and healthy to believe in their good health and long life and to loathe talk about the possibility of death. Faced with a choice between protection or term life and capital accumulation or permanent life, this natural inclination would also predispose the insurance consumer to choose the latter which is precisely what the sales agent wants. Unlike Dorfman who attributes the permanent life bias wholly to the industry's marketing practices, we think it is the combination of the two – the industry's marketing practices and human nature - that serves to distort the ability of the prospective buyer to distinguish between insurance

as protection and insurance as investment. In our view, the result of this distortion is to cause the consumer to view insurance as investment.

In addition to this inaccurate perception, the excessive variation of the insurance product caused by, among other things, the “fantastic proliferation” of policy forms and the extremely large number of exceptions usually included in the complicated language accompanying every life insurance policy makes the subject of insurance very confusing to the average consumer (Belth, 1970, Black and Skipper, 2000). Given that both buyer and seller agree higher premiums serve both their interests well, this complexity is bound to further predispose the average consumer’s reliance on the sales agent for advice.

The foregoing considerations suggest two related hypotheses. First, the decision to buy a permanent life policy is positively related to the magnitude of the premium. If the consumer correctly perceives insurance as a protective device as it truly is rather than as an investment tool, the decision to buy the more expensive permanent life would be negatively related to the premium. Secondly, the consumer is very likely to rely on the sales agent for expert advice. Given the agent’s understandable self-interest in promoting the high commission product, the consumer’s reliance on his advice will most likely result in the purchase of a permanent life policy.

THE MODEL

The appropriate framework to test the foregoing hypotheses is a linear probability model that explains why permanent life is preferred over the term life variety (Studenmund and Cassidy, 1987, pp. 173-174). In this model, the dependent variable is denoted TYPE with a value of 0 if the prospective insurance consumer prefers and plans² to buy term insurance and 1 if the permanent life variety is preferred. In effect, TYPE is a dummy dependent variable measuring the probability of purchasing a permanent life policy.

The preceding section’s discussion suggests the hypotheses are tested by the inclusion of two specific explanatory variables. The first one is the premium outlay (PRMOUTL) or cost per thousand dollars of planned coverage. If the life insurance product is incorrectly perceived as an investment, then a higher PRMOUTL is also incorrectly perceived as a higher rate of capital accumulation. And since TYPE is assigned the higher of two values, 0 and 1, when a permanent life policy is preferred, the expected relationship between the two would be positive.

To test the second hypothesis, we include another variable, RELY, which shall assume a value of 0 if the consumer does not rely on the agent for advice and 1 if he does. Since reliance on the sales agent is most certain to result in the purchase of a permanent life for which TYPE assumes the higher value of 1, it is expected the two will also be positively related.

Although PRMOUTL and RELY are the only two variables necessary to test the model, we suspect the following factors also influence the probability of purchasing a permanent life insurance policy:³

AMOID is the amount of insurance desired. A higher amount of desired insurance requires a higher premium cost outlay. But if the cost outlay is perceived as a higher rate of capital accumulation, a permanent life is suggested. It is therefore expected the coefficient accompanying this variable will be positive. But an inverse relationship may also be possible. This alternative expectation is based on Beliveau’s (1984) work which showed that the amount of coverage desired is positively

correlated with the insured's probability of incurring the insured loss. It can be inferred from this empirical finding then that people desiring larger coverage are those who expect to die sooner. And, if this is the case, a term life policy is a cheaper way to get a lot of protection. Hence, a larger desired coverage is associated with a term life suggesting a negative relationship between the two. Either sign may therefore accompany the coefficient of AMOID.

ASSET is sources that combined with insurance would provide the necessary annual income that meets the household's income objective. The presence of assets reflect wealth which may well be the result of risk-taking. If true, then the consumer would not be averse to the more risky term life policy and will therefore be expected to be negatively related to TYPE. On the other hand, the wealth may have been the result of a lifetime of saving and frugality that is compatible with a risk averse personality. Since a risk averse person would be more comfortable with a more certain permanent life policy, the two could possibly be directly related. It is therefore possible the coefficient is accompanied by either a positive or a negative sign.

ESTPL is established insurance plan. Since one purpose of a plan is to reduce uncertainty, those who plan must be more risk averse and would therefore be more inclined to prefer the more certain permanent life policy. The coefficient of this explanatory variable is therefore expected to be positive.

AMOIH is the amount of insurance in hand. If large enough and additional insurance needed is small, the risk involved in the additional purchase is small and term insurance could be acceptable. If amount of insurance on hand is small and a larger amount is needed, a more certain investment is required and a whole life policy would be in order. All these suggest an expectation of a negative coefficient.

IMP is importance of insurance. One reason why a person would firmly believe in the importance of insurance is if he does not have enough accumulated wealth to provide for his old age. If this were the case, then he would prefer the more certain permanent life rather than the term life. On the other hand, if a respondent thinks he has assets and other sources of income to fall back on during his old age, then he would be more likely to think insurance is not important and would be more tolerant of risk and could possibly consider buying term life. The expected sign is therefore positive.

SEX is gender. Since females are known to be more risk averse than males and since they also live longer, they would harbor a preference for capital accumulation which is satisfied by the purchase of a permanent life insurance policy. Since this is a dummy variable for which a 0 is assigned to females and 1 for males, the expected sign accompanying the coefficient is negative.

MARST is marital status. It is reasonable to assume that single people are less risk averse and could therefore tolerate the purchase of a term life policy while married people are more risk averse and would therefore prefer the surer investment of a permanent life policy. Since a single respondent is assigned a value of 0 and 1 when married, it is expected to be positively related to TYPE. But it is also possible that single people look at their status as a permanent one and would therefore prefer a permanent life policy while married people already have secured retirement plans that they can supplement with the purchase of cheaper term life policies. In this context, a negative relationship would exist between MARST and the dependent variable. It is therefore possible for a negative or a positive sign to accompany this variable's coefficient.

EDUC is years of schooling. Since there is a direct relationship between income and years of schooling, incomes of people with less schooling would be lower

than those with more years. If lower income people are more risk averse, they would tend to prefer permanent life over term life. The coefficient accompanying it would therefore be expected to be negative.

AGE is age of the respondent in years. Since younger people tend to be less risk averse than older ones, they would be more likely to prefer term life over permanent life. On the contrary, older people are more risk averse and would therefore prefer the more certain whole life policy. It is therefore expected the coefficient would bear a plus sign.

DEP is the number of dependents. It could be postulated that respondents with dependents especially when there are many and young would consider permanent life very expensive and would then prefer term life. The expected sign would therefore be negative. But it could also be argued that a multi-children family would want to be able to have a resource from which to borrow future educational needs in which case the preference would be for investment-laden permanent life. Under this circumstance, the expectation would be a positive sign. A positive or a negative sign is thus possible.

In summary, the model we propose is as follows:

$$\begin{aligned} \text{TYPE} = f[\text{PRMOUTL}(+), \text{RELY}(+), \text{AMOID}(+,-), \text{ASSET}(+,-), \\ \text{ESTPL}(+), \text{AMOIH}(-), \text{IMP}(+), \text{SEX}(-), \text{MARST}(+,-), \\ \text{EDUC}(-), \text{AGE}(+), \text{DEP}(+,-)] \end{aligned} \quad (\text{Equation 1})$$

The sign or signs inside the parentheses after each variable is the expectation for each coefficient. A minus sign suggests a preference for term life and a plus sign, a preference for permanent life. The appearance of both a plus and a negative sign indicate the expectation could be either one.

Although more refined techniques such as the probit method may be more appropriate in estimating equations with a dichotomous dependent variable, the large size of our sample (779) makes the ordinary least squares method just as good (Goodman, J.L. Jr., 1976). The empirical model is therefore given by the following:

$$\begin{aligned} \text{TYPE} = a_0 + a_1(\text{PRMOUTL}) + a_2(\text{RELY}) + a_3(\text{AMOID}) \\ + a_4(\text{ASSET}) + a_5(\text{ESTPL}) + a_6(\text{AMOIH}) + a_7(\text{IMP}) \\ + a_8(\text{SEX}) + a_9(\text{MARST}) + a_{10}(\text{EDUC}) + a_{11}(\text{AGE}) \\ + a_{12}(\text{DEP}) + u \end{aligned} \quad (\text{Equation 2})$$

In Equation (2), u is the error term. The theoretical considerations already specified in Equation (1) lead us to expect the following: $a_1 > 0$, $a_2 > 0$, $a_3 > 0$ or < 0 , $a_4 > 0$ or < 0 , $a_5 > 0$, $a_6 < 0$, $a_7 > 0$, $a_8 < 0$, $a_9 > 0$ or < 0 , $a_{10} < 0$, $a_{11} > 0$, and $a_{12} > 0$ or < 0 .

THE DATA

Except for one piece of information procured elsewhere, all of the data used in this study are either lifted directly or constructed from the answers provided by respondents to a survey conducted by Elliott and members of his principles of insurance classes at Northwestern State University, Natchitoches, Louisiana, from 1993 to 1997⁴. The purpose of that survey was to determine the preferred method for determining the amount of insurance the respondent plans to purchase and the preferred type of insurance to meet that need. Collected through interviews by mail, personal contact or by telephone, the randomly selected sample yielded 779 usable

replies from a five-state area consisting of Arkansas, Louisiana, Mississippi, Tennessee and Texas. For the sample, the average age was 38 years and the average amount of insurance was \$64,000.00. Also, 73% of the respondents owned whole life or its variations and 27% owned term life. Since all these characteristics mirror the nation as a whole as revealed in ACLI (1999) and LIRMA (1998), the sample would seem to be representative.⁵

Of all the variables specified in the model, measurements for AMOID and PRMOUTL could not be obtained directly from the responses because the questions were not asked. As a result, we had to construct proxy measures. In constructing the proxy data for amount of insurance desired (AMOID), we assumed it is directly related to the preferred method which the respondent is asked to indicate in Item #3 of the survey questionnaire. Since the perpetuity method yields the highest amount of coverage, followed by the capital liquidation approach and then by both the needs and the multiples of salary approaches, we assigned a ranking. If the preferred method is the perpetuity approach, the assumption suggests AMOID would be assigned a value of 3. If the capital liquidation approach is indicated, the variable assumes a value of 2. If the preferred method is either the needs or the salary multiple approach, a value of 1 is used. This variable would thus assume a value of 1, 2 or 3 depending upon the preferred method.

To construct a proxy measure for PRMOUTL, we multiplied the proxy measure of AMOID as described in the preceding paragraph by the quoted annual premium per thousand dollar coverage for the policy type preferred by the respondent. This preferred type is directly provided by the answer to Item #4 in the survey instrument and the quote for each type was supplied by a nationally known insurance company⁶.

The measure of the explanatory variable, RELY, is provided by the reply to question #7 which asks the respondent to indicate if he or she relies on the insurance agent for expert advice and insurance planning. Three responses are elicited, namely, very much, some and none. By assigning a value of 0 if the response is none and 1 when the response is either very much or some, we made RELY a dummy explanatory variable.

Question #10 asks the respondent to answer yes or no if he or she has assets or income available that combined with the desired amount of insurance will provide the necessary annual income that meets financial planning objectives. This required us to make ASSETS a dummy variable with a value of 0 if the answer is no and 1 if yes.

The measure of IMP is also suggested by the way the question is framed. In this regard, Question #2 asks if insurance is an important method of providing financial security to one's family and requires an answer from strongly agree, agree, disagree and strongly disagree. By assigning a value of 0 for the last two responses and 1 for the first two, IMP became a dummy variable.

Question #8 wants to establish if the respondent has an established insurance plan to accomplish his or her objectives by answering the question either yes or no. To make this a dummy variable, we assigned ESTPL a value of 0 if the answer is no and 1 if yes.

AMOIH is measured directly by the response to Question #1 which asks the respondent how much life insurance is currently owned. The respondent answered by checking a range of values ranging from less than \$10,000 to over \$200,000.00.

SEX is a dummy variable which assumes the value of 0 when the response is female and 1 when the response is male. Likewise, MARST is another dummy variable measured as 0 if the response is single or divorced and 1 when married.

Since the responses to the questions on EDUC, AGE and DEP are quantitative, all are measured directly by the numbers provided by respondents.

A summary of the data measurements are presented in Table 1 below:

Table 1
The Data Measurements

Variable	How Measured
PRMOUTL	Proxy, constructed
RELY	Dummy, 0 if no, 1 if yes
AMOID	Ranking, 1 to 3
ASSET	Dummy, 0 if none, 1 if present
IMP	Dummy, 0 if not, 1 if important
ESTPL	Dummy, 0 if none, 1 if present
AMOIH	In tens of thousands
SEX	Dummy, 0 if female, 1 if male
MARST	Dummy, 0 if single, 1 if married
EDUC	Years of schooling
AGE	Years
DEP	Number of dependents

THE OLS RESULTS

The estimated results are presented in Table 2. For cross-section data, an adjusted R^2 value of .4905 is still indicative of a good fit. The F-Ratio of 63.42 also suggests the equation is statistically significant at a very high level. The model is thus very robust.

Four of the 12 explanatory variables including AMOIH, IMP, EDUC and DEP have coefficients bearing the expected signs but are not statistically significant. These four would therefore seem not to matter at all. Perhaps a more purposefully and statistically designed study would yield data showing otherwise.

The eight variables shown to exert a significant effect on the probability of purchasing a permanent life policy are PRMOUTL, RELY, AMOID, ASSET, ESTPL, SEX, MARST and AGE. More specifically, Table 2 shows that PRMOUTL, AMOID, SEX and MARST are significant at the 1% or better level, ESTPL and AGE at the 5% level and RELY and ASSET at the 10% level. Besides being statistically significant, the signs accompanying each one of these variables are theoretically justified

In terms of the improvement it adds to the model's explanatory power, PRMOUTL is the single most dominant variable in the equation. This is evident from the stepwise analysis of variance shown in Table 3. The table shows that this variable adds 27.51 percentage points or 55% of the model's adjusted R^2 squared value of 49.05%. We believe this result is perhaps a reflection of the fact that PRMOUTL coalesces the intention of both the seller and the buyer. Although not as dominant as PRMOUTL, AMOID is also shown as a major contributor to the model's explanatory power. A calculation of its contribution yields

Table 2
The Ols Results

VARIABLE	COEFFICIENT	T-VALUES	p-VALUE
CONSTANT	0.6633	11.81***	0.0000
PRMOUTL	0.3368	26.20***	0.0000
RELY	0.0447	1.86*	0.0593
AMOID	-0.3007	-16.75***	0.0000
ASSET	0.0511	1.85*	0.0620
ESTPL	0.0653	2.28**	0.0218
AMOIH	-0.0048	-1.30	0.1908
IMP	0.0314	1.52	0.1245
SEX	0.1323	-5.51***	0.0000
MARST	-0.0724	-2.68***	0.0074
EDUC	-0.0013	-0.24	0.7949
AGE	0.0020	1.94**	0.0504
DEP	0.0033	0.38	0.7076
F-VALUE	63.42 (p=0.0000)	NOBS= 779	
R ²	0.4984	DF = 766	
Adjusted R ²	0.4905	Missing cases - 23	
RMS	0.1019		

*** Significant at the .01 level or better.
 ** Significant at the .05 level.
 * Significant at the .10 level.

Table 3
Stepwise Analysis Of Variance

SOURCE	IND. SS	CUM DF	CUM SS	CUM MS	ADJ.R ²
Constant	408.340				
PRMOUTL	42.451	1	42.451	42.451	0.2751
RELY	0.702	2	43.172	21.586	0.2755
AMOID	28.405	3	71.577	23.859	0.4577
ASSET	0.329	4	71.907	17.976	0.4592
ESTPL	0.5858	5	72.491	14.498	0.4622
AMOIH	0.8409	6	73.332	12.222	0.4670
IMP	0.1906	7	73.523	10.503	0.4675
SEX	3.0547	8	76.578	9.572	0.4867
MARST	0.5510	9	77.129	8.570	0.4896
EDUC	0.0271	10	77.156	7.716	0.4891
AGE	0.4052	11	77.561	7.051	0.4911
DEP	0.0143	12	77.575	6.465	0.4905

the result that it is responsible for more than 37% of the model's adjusted R-squared value. This is important because we believe it underlines one of the important features of Beliveau's (1984) study of the insurance industry. That study revealed evidence showing the amount of coverage desired by an insured is positively correlated with the insured's probability of incurring the insured loss. The fact that this variable is negatively related to the probability of purchasing a permanent policy suggests that consumers seeking higher amounts of insurance prefer term life to permanent life. These two findings are consistent and both contribute to the problem of adverse selection which is a well known source of market failure in the insurance industry.

CONCLUDING OBSERVATIONS

Since the data is not the result of a purposefully designed survey, we could only view the results presented here as being preliminary. Only when the study is replicated using data from an appropriately designed survey would we be able to consider the results definitive.

Be that as it may, the results shown in Table 2 would seem to confirm this study's hypotheses. The positive sign accompanying the coefficient of PRMOUTL and the high statistical significance of the estimated coefficient is a strong confirmation of the first hypothesis. That hypothesis asserts the prospective consumer perceives the permanent insurance policy as an investment tool and the premium as a rate of capital accumulation. Although significant at a much lower but still acceptable level, the positive sign accompanying RELY is likewise a confirmation of the second hypothesis which asserts that sales agents do influence the buying decisions of insurance consumers. Under these circumstances, it cannot be said that the life insurance consumer is independent and well informed. This is a violation of a key condition for the existence of pure competition, which in effect is what Dorfman (1972) concluded thirty-one years ago.

In its failure to approximate perfect competition, it is presumed the insurance market lacks the ability to attain allocative efficiency. This observation raises two issues. One, is there any symptom to indicate the industry is in fact inefficient? Two, what should the policy maker do?

On the first issue, we proffer the existence of severe underinsurance, as a good indication workable competition does not exist. All things equal, the optimum amount of protection or face value of a life insurance policy should be approximately equal to the present value of the income stream over the insured person's remaining productive life. In 2000 as in any other year, the average amount of life insurance for households in the largest insured age group seems way below what it should be. In that year, the average amount of life insurance for households in the largest insured group headed by 35-to 39-year olds was \$196,200.00 (American Council of Life Insurers, 2001, pp. 93-104). Clearly, this amount is way below the present value of the earnings of this age group's remaining 21 to 25 years of productive life. In terms of the definition of allocative efficiency, the existence of severe underinsurance is a sign the right amount of protection is not being consumed. Since this means the product is not being consumed in the right amounts, it is clearly a case of resource misallocation.

With respect to the second issue, it is important to note that the classic problem confronting life insurers is the asymmetry of information, defined as a situation where the insurer does not know what the prospective consumer knows about his health. As

a consequence, the industry finds it necessary to first vet the prospective consumer before agreeing to make a sale.

Our results suggest that the prospective consumer does not have a clear perception of what life insurance is and must therefore rely on the insurance salesman for advice in arriving at this decision. In other words, the insurance consumer does not really know what he is buying. If this is the case, the information asymmetry problem facing insurers is symmetric, i.e., the insurer does not know what the consumer knows about himself but the consumer also does not know much about the product being sold to him.

This symmetry suggests that if the government allows insurers to intrude into the prospective consumer's privacy by asking him personal questions that must be answered correctly and under oath, is it not also appropriate that the government should require the insurer to fully educate the prospective consumer about the product before closing the deal? Based on the market failure theory of the appropriate role of government, we think so. The question is, what form shall this intervention take?

The solution we proffer is this: Let consumer groups, industry representatives and state regulatory agencies get together to determine the content of the educational material to be provided the prospective life insurance consumer. We specifically recommend this material must include a primer on what is known as "buying term and investing the difference". This material can then be put in video or pamphlet form which the insurance salesman should then be required by law to provide the prospective consumer who would then be required also to declare under penalty of law that he viewed the video or read the pamphlet and fully understands the nature of the product he is buying.

The foregoing solution is no different from what actually happens when one buys a car. In this case, the buyer is assumed to know how to operate a vehicle and the seller will know this when a valid driver's license is presented. Obviously, it would not be practical to require the consumer to present a certificate of attendance of a session or sessions during which the video is presented or the pamphlet read. A declaration under penalty of law should be sufficient.

NOTES

1. As a matter of fact, people in the industry have traditionally considered themselves to be morally superior business persons because it is their fraternity that is always first to come to the succor of those widows and orphans left after a breadwinner unexpectedly dies (Farmer, R. N., 1966).
2. The questionnaire which yielded our data asked the respondent to indicate what type of insurance she or he prefers and plans to buy to augment already existing policies. Although we realize what consumers plan to do is not always what they end up doing, we nevertheless think that for the most part, plans are the best indications of what they will actually decide to do. Hence, it is still useful to analyze buying plans.
3. In the specifying the remaining variables, we found some guidance in Beliveau's (1984) classification of factors affecting the market for insurance into alterable characteristics and unalterable traits such as gender and age. Accordingly, the first six are of the first kind with the rest being of the second. Note that the respondent's income is conspicuously absent. It is excluded because the study which produced our data (described in the next footnote) did not include a question to extract that information. Be that as it may, its effect may have been picked up by some of the variables for which the study provided data and which are positively correlated to income. These variables could possibly include ESTPL, IMP, AMOIH, and ASSETS.
4. See Elliott (1974) for a description of the procedure and an analysis of the results of the initial run.
5. A copy of the questionnaire and the survey results are available upon request.
6. The quotes were obtained through the auspices of Greg Smith, an agent for a major national insurance company who is based in the Shreveport, Louisiana office of the firm. The quotes he provided are for an initial annual contract premium for a \$100,000.00-term life policy for a 25-year old adjusted for type and sex. Under this policy, the dollar cost for a female is \$1.18 per thousand dollars of coverage. For a 25-year old male, the cost is \$1.33. For whole life, the figures are \$9.08 and \$10.65 for female and male, respectively. The respective figures for variable life are \$8.22 and \$9.29.

REFERENCES

- American Council of Life Insurers (ACLI), 2001 Life Insurance Fact Book. Washington, D.C., published annually.
- Beliveau, Barbara C. "Theoretical and Empirical Aspects of Implicit Information in the Market for Life Insurance". Journal of Risk and Life Insurance 51 (June 1984): 286-307.
- Belth, J. M. "Remarks at a conference sponsored by the Institute of Life Insurance," Chicago, June 15, 1970.
- Black, K., Jr. and H. Skipper, Jr. Life and Health Insurance. Englewood Cliffs, New Jersey: Prentice-Hall, 2000, pp. 10-13.
- Brenner, J. D. "Why Life Insurance is Still Important?". Journal of Financial Service Professionals 54 (May, 2000): 54-58.
- Clark, J. M. "Toward a Concept of Workable Competition". American Economic Review 30 (March 1940): 241-256.
- Dorfman, Mark S. "Workable Product Life Competition in the Life Insurance Market". Journal of Risk and Insurance 39 (December 1972): 613-625.
- Dynia, M. V. "The Perception Dilemma". Life Insurance Marketing and Research Association's Market Facts. Hartford, CT (1990): 24-30.
- Edwards, C.D. Maintaining Competition. New York: McGrawHill, 1949, pp.128-129.
- Egler, F.N. and P.J. Malak. "The Individual Life Insurance Sales Practice Case: A Litigation Primer". Federation of Insurance and Corporate Counsel Quarterly, Iowa City. (Fall, 1999).
- Elliott, R.S. "Estimating Life Insurance Needs: An Empirical Investigation of Buyer Preferences". Proceedings of the 25th Annual Meeting of the Midwest Decision Sciences Institute, April 24-26, 1994. Cleveland, Ohio, pp. 20-22.
- Farmer, R. N. "The Long Term Crisis in Life Insurance". Journal of Risk and Insurance 33 (December, 1966): 621-629.
- Goch, Lynna. "Identify Crisis". Bests' Review 100 (April, 2000): 61-66.
- Goodman, J. L., Jr. "Is Ordinary Least Squares Estimation with a Dichotomous Dependent Variable Really That Bad?". Urban Institute Working Paper No. 216. 1976.
- Life Insurance Marketing and Research Association (LIMRA). The 1998 Buyer Study of the United States. Hartford, CT, published annually.
- Oxenfeldt, A. R. Industrial Pricing and Market Practices. New York: Prentice-Hall, 1951, pp. 91-92.
- Quinn, J. B. "Talking Back to Insurance Agents". In Money Watch column, Good Housekeeping (September, 1999): 90.
- Smith, B. "Effective Competition". New York University Law Review 26 (July 1951): 412-416.
- Sosnick, S. "Operating Criteria for Evaluating Market Performance" in Paul L. Farris (ed.). Market Structure Research, Ames, Iowa: Iowa State University Press, 1964, p. 99.
- Stigler, G. J. "Extent and Basis of Monopoly". American Economic Review, 32 (June 1942): 2-4.
- Studenmund, A.H. & Cassidy, H.J. Using Econometrics: A Practical Guide. Little Brown & Company: Boston and Toronto. 1987.
- Updegrave, W.L. "The Money Life Insurance Test". Money 21 (1992): 120-131.