Do Independent Agent Insurers Provide Superior Service? The Insurance Marketing Puzzle

James Barrese
Helen I. Doerpinghaus
Jack M. Nelson

ABSTRACT

Prior research suggests that, within the property-liability insurance industry, independent agency insurers have higher expense ratios than insurers using other distribution systems. Consistent with these findings, the independent agents' share of the property-liability market declined from 69 percent in 1970 to 59 percent in 1990. Defenders of the independent agency system argue that higher expense ratios are attributable to a differential in services offered to consumers. Using private passenger automobile insurance complaint data, this study tests for evidence of a perceived service differential between insurers using the independent agency and other distribution systems.

Introduction

Property-liability insurance in the United States is marketed through several distribution systems, including the exclusive agency system, the independent agency system, the salaried employee distribution system, and mail marketing and specialty distribution systems (see Flanigan et al., 1979, for a discussion of alternative marketing methods). Exclusive agencies distribute insurance through agents representing only one insurer. The salaried employee (or salaried representative) distribution system is similar to the exclusive agency system in that marketers represent only one insurer, but the salaried employee system uses employees of the company, not agents, to sell and service policies. Insurers using mail order systems distribute insurance directly through the mail, without the involvement of an agent or other intermediary. Insurers using specialty marketing distribution directly contact selected populations such as

---

James Barrese is Associate Professor of Economics at The College of Insurance, New York. Helen I. Doerpinghaus is Associate Professor of Insurance at the University of South Carolina. Jack M. Nelson is Robert F. Corroon Professor of Insurance and Risk Management at the College of Insurance.

individuals affiliated with the armed services or franchise operators of a particular corporation.

By contrast, independent agents represent and market policies for several insurers. Unlike other distribution systems, the independent agency system gives agents the rights to policy renewal, which means that the insurer cannot contact the policyholder directly to solicit renewal business. The agent determines which of the several insurers represented will receive the renewal business, and typically independent agent renewal commissions are higher than renewal commissions in other distribution systems. In addition, some insurers adopt a mixed approach using more than one type of distribution system.

Research suggests that independent agents have higher expense ratios than exclusive agency insurers (see, e.g., Joskow, 1973; Cummins and VanDerhei, 1979; Doherty, 1981; Johnson, Flanigan, and Weisbart, 1981; Cather, Gustavson, and Trieschmann, 1985; Berger, Kleindorfer, and Kunreuther, 1989; Barrese and Nelson, 1992; Flanigan, Winkler, and Johnson, 1993). Higher expenses are consistent with the hypothesis that the independent agency system is less efficient in the provision of insurance or the hypothesis that the independent agency system provides superior policy service. The agency theory literature provides a theoretical explanation for the relative cost inefficiency of the independent agency system (see, e.g., Mayers and Smith, 1981; Marvel, 1982; Sass and Gisser, 1989). Independent agency insurers may need to engage in costly monitoring because, relative to exclusive agents, independent agents have an incentive to switch policyholders to different insurers at renewal time since renewal commissions vary across insurers.

Defenders of the independent agency system argue that the expense differential between independent and exclusive agency insurers is attributable to superior policy service provided by independent agency insurers. Pauly, Kunreuther, and Kleindorfer (1986) argue that the expense differential is not a deadweight loss but is due to greater service intensity of independent agency firms. Barrese and Nelson (1992) argue that independent agents may deal more effectively with certain types of agency conflicts (between policyholder and insurer) and receive rents (via higher expense ratios) as compensation for this service. But empirical evidence in support of the view that independent agency firms offer superior or additional services is mixed (see, e.g., Etgar, 1976; Cummins and Weisbart, 1977; Doerpinghaus, 1991; *Consumer Reports,* 1988; A. M. Best, 1989).

Consistent with the arguments and evidence on the expense advantage of exclusive agency insurers, the total market share of independent agency firms declined from 69 percent in 1970 to 59 percent in 1990 (see Table 1). However, despite the declining market share, the independent agency system survives; from 1970 to 1990, direct premiums written by independent agency insurers grew by 435 percent (while the consumer price index increased by 236 percent). In those lines of property-liability insurance where the policies as well as the underwriting and claims settlement practices are more standardized—such as private passenger automobile and homeowners lines—independent agents have lost a significant portion of their initial market

share. However, in those lines requiring more customer contact and underwriting and contracting flexibility—such as ocean marine insurance—independent agents have retained market share. The evidence that independent agents have retained market share in lines requiring more individual customer service is consistent with the hypothesis that each distribution system has an advantage but in different lines of insurance.[1]

Table 1
Percent Market Share for Independent Agency Insurers

Type of Insurance	1970	1975	1980	1985	1990
Private Passenger Automobile					
Bodily Injury Liability	56.9	47.4	39.3	37.7	32.7
Homeowners Multiple Peril	74.7	65.8	54.8	50.3	44.1
Workers' Compensation	73.2	75.9	77.3	76.4	79.0
Inland Marine	86.0	83.5	78.1	71.0	69.5
Commercial Automobile Bodily					
Injury Liability	n.a.	88.8	80.5	78.9	79.2
Commercial Multiple Peril	94.2	93.1	88.0	82.9	80.5
Ocean Marine	90.6	93.2	90.1	86.9	91.1
Surety	99.4	96.3	85.1	63.4	87.8
All Lines	69.0	n.a.	61.3	58.1	59.2

Source: A. M. Best, *Aggregates and Averages,* and A. M. Best, *Property and Liability Review* (June issues).

This study further investigates the insurance marketing puzzle: although independent agents appear to be less efficient in providing certain lines of insurance, they nevertheless continue to exist. Here we investigate whether independent agency insurers provide superior service, which would explain both the cost differential and the resiliency of the independent agency system. The study improves on prior service quality research through use of a more extensive data set and by including economic and marketing variables not previously utilized. The results of the study provide evidence that the independent agency system provides superior service for private passenger automobile insurance, but the continuing loss of market share suggests that the service differential is not sufficiently valued to offset the greater cost of coverage.

Prior Research

In an early study of service quality differences, Etgar (1976) surveyed 116 California insurers and found no evidence of a service differential. For example, independent agents typically offered more generous claim settlements, but exclusive agents provided faster routine claims processing. Cummins and

[1] Marvel (1982) and Cummins and Weiss (1992) provide evidence that, while independent agents are losing market share in the aggregate, their experience differs across lines of insurance. Cummins and Weiss also show that expense ratio differentials are much narrower in lines where independent agents retain high market share.

Weisbart (1977) sampled 470 insurers and found similar results: no distribution system had a clear service advantage.

Empirical investigation of service quality differences has been limited, largely due to difficulties in identifying empirical measures of service quality. In order to avoid the problems of using survey data and comparing dissimilar services across insurers, Doerpinghaus (1991) used publicly available state insurance department complaint data to investigate cross-firm service differences. Firms receiving more complaints from consumers provide poorer service all else equal. Fields, Venezian, and Jou (1990) also use complaints as a proxy for service. However, they use the measure as an independent variable in a traditional test of cost differentials. Doerpinghaus (1991) found some evidence of cross-firm service quality differentials but no clear evidence of a service differential between independent agencies and other insurers. Firms insuring high risk (or substandard) drivers were found to have higher complaint levels than firms not writing substandard risks, but the substandard variable did not differentiate between firms specializing in substandard risks and those writing only minimal amounts of substandard coverage. Because of the way states report complaint data, firms against whom no complaints were registered were not included in the data set, thus omitting some superior service firms. Finally, the model did not control for differences associated with firm size or market share.

Other explanations of the insurance marketing puzzle have been posited. Berger (1988) argues that word-of-mouth bias leads first-time insurance buyers toward the agent recommended by friends, a bias exacerbated by a reluctance to change agents later. Zeckhauser and Samuelson (1989) suggest that, even with negative experiences, insureds are unlikely to change insurers or agents because they believe the alternative will be no better and that incurred search costs will not be recouped. D'Arcy and Doherty (1990) present a supply argument where institutional limits inhibit the growth of exclusive agency insurers, but suggest that this explanation does not satisfactorily explain a market share decline that exceeds five decades.

Data and Econometric Model

This study examines possible service differences in the private passenger automobile insurance market, where underwriting and claims settlement practices are relatively standardized and where cost differentials between independent agents and other insurers are relatively high. Complaint data for 1988 and 1989 were gathered from the state insurance commissions of California, Connecticut, Illinois, New York, and Texas—states known to collect firm-specific data and representing a range of regulatory environments. For consistency across states, complaint data were summarized at the insurance group level.[2]

---

[2] Kim, Mayers, and Smith (1993) note that, if the distribution system choice is made at the group level, then employing firm-level data overstates the number of independent observations. Other decisions made at the group level may also affect firm-level complaint rates. For example, a group may refer high risk or substandard business to a member firm that specializes in writing

Use of complaint data as a measure of service quality warrants some explanation. In a competitive market—such as the property-liability market—buyers make price-quality tradeoffs and purchase insurance based on expected full price (see, e.g., Joskow, 1973, and Winter, 1988). Expected full price equals the premium plus the complaint price, where the complaint price is the loss in value to the insured of not receiving expected service (see DeVany and Saving, 1983, for an economic model of firm service quality determination in a competitive market). Complaint price, proxied here by state complaint data, can include implicit and nonpecuniary costs to the insured of not receiving good service.

Publicly available complaint data have several limitations. Although a measure of service quality would ideally differentiate between agent and insurer service, publicly available, nonsurvey data that recognize this distinction are not available. Ideally, complaint price would differentiate between complaints made by both first- and third-party claimants. Evidence suggests that people are more likely to be satisfied with their own (first-party) insurer since first-party claims are handled more quickly (*Consumer Reports*, 1988). These data are not available however, and there is no *a priori* reason to expect that one insurer would have more third-party claims than another. Finally, complaint data measure disappointed expectations rather than actual service provided and, where insureds expect higher quality service (due to advertising or word-of-mouth recommendations), there could be higher rates of complaints, all else being equal. To the extent that independent agency associations widely advertise superior service and raise policyholder expectations, the results of this study are enhanced.

The complaint data from the five states were supplemented by data from *Best's Executive Data Service* and *Best's Annual Property-Liability Reports* to allow identification and inclusion of insurer groups not receiving any service complaints. This improves upon Doerpinghaus (1991), which only includes firms against whom complaints were filed, which excluded some "superior service" firms. Note that *Best's Executive Data Service* reports only insurers having at least 0.1 percent of the state market. Consequently, insurers with a very small market share are excluded unless identified as an insurer against whom a complaint has been lodged. The compiled data set contains 565 observations, the largest sample used to date for testing for a perceived service differential across distribution systems. *Best's Key Rating Guide* provided information on firm organization and marketing method.

Tobit regression analysis is employed for hypothesis testing.[3] The tobit model is preferred to ordinary least squares because it better accommodates the dependent variable that ranges from O through 1,827, with a modal value of O (191 of 565 observations are 0). That is, the proxy for service quali-

---

ty—complaints—can be positive or zero. Because the dependent variable is censored, ordinary least squares results would be biased and inconsistent.

The model is estimated by state as well as with pooled data. The model is specified as

$$Y_i^j = \beta_0 + \beta_1 \text{ INDAGNT} + \underline{\beta}_{2,\dots,6} \underline{X}_i + e_i, \text{ for } j=1,\dots,5,$$

where $Y_i^{1,\dots,5}$ = the natural logarithm of the number of automobile complaints registered with the state insurance department against the ith insurer group for the five states,[4]

Y_i^6 = the natural logarithm of the number of pooled automobile complaints registered with the state insurance departments against the ith insurer across the five states, except California,[5]

Y_i^7 = the natural logarithm of the number of pooled automobile complaints registered with the state insurance departments against the ith insurer across all five states, including California,

INDAGNT = the percent of direct auto premiums written by affiliates of the group relying on the independent agency system,

$\underline{X}_l$ = a vector of independent variables,

$\underline{\beta}$ = a vector of regression coefficients, and

e_i = a random error term assumed to be distributed $N(0, \sigma^2)$.

Independent Variables and Expected Variable Effects

Following the traditional marketing cost literature, the independent variables listed below are used to isolate differences associated with group organizational form, marketing method, size of the group, and the effect of writing high risk drivers on group complaint rates.

INDAGNT = the percent of direct auto premiums written by affiliates of the group relying on the independent agency system,

---

[4] In order to accommodate the logarithmic transformation of the dependent variable, complaints are set equal to (1 + the number of complaints).

[5] A pooled model excluding California data is estimated since the data provided by the California insurance commission are somewhat suspect. Significant complaint values are listed for life insurers that do not write auto business in California. Similarly, virtually every firm writing business in California has at least one complaint registered against it, which is inconsistent with the experience of every other state. In most states, approximately 20 percent of the insurance groups have no complaints registered against them.

However, the purpose of this study is to investigate the direction of complaints against independent agency groups versus exclusive agency groups. As long as the California bias is random, the results with respect to the coefficient of INDAGNT will be off by size rather than by direction. Thus, the full five-state model including California data is also estimated.

INDSIZE   = the product of the independent agency identification variable
                 and the size variable,
OTHRMKTR = a dichotomous variable set to 1 for mass marketers and spe-
                 cialty marketers, O for all others,
LnSTSIZE   = the natural logarithm of direct personal lines automobile pre-
                 miums written in the state by the ith insurance group,
MKTSHR   = in-state direct automobile premium written by the ith insur-
                 ance group as a percentage of all in-state direct automobile
                 premiums written,
STOCK   = a dichotomous variable set to 1 for stock insurers, O for
                 mutual insurers, and
SUBSTD   = percent of premiums written by the ith group's affiliate spe-
                 cializing in substandard risks by state.

Finally, in the pooled models, a set of indicator variables identifying Connecti-
cut, Illinois, New York, and Texas are included for control purposes.

Marketing variables. Following Barrese and Nelson (1992), a continuous
independent agency marketing variable is used to measure the direct premiums
written by affiliates of the group using the independent agency system to total
direct premiums written. Since this independent agency variable (INDAGNT)
may take the value of zero for exclusive agency and other types of firms, a
dichotomous variable, OTHRMKTR is used to distinguish between exclusive
agency insurers and salaried representative, mail, and specialty marketers.[6] The
INDSIZE variable tests for the possibility that independent agency firms are
subject to differential size-complaint pressures.

Size variables. The LnSTSIZE variable is a proxy for the number of the firm's
policyholders. Since larger insurers cover more policyholders, they are likely
to have more claims and thus more complaints (in absolute number). Also,
organizational complexies may slow the larger insurers' ability to respond to
clients, contributing to complaint rates. On the other hand, firms providing
better service may be rewarded by increasing sales and size, and market share
increases through word-of-mouth recommendations coupled with a reticence by
policyholders to change insurers. Consequently, another size variable,
MKTSHR, is included to capture this reward effect. In the models where
pooled data are used, MKTSHR corrects for the fact that the same dollar
amount of premium does not imply the same market share in different states.[7]

Organizational form variable. The dichotomous variable, STOCK, controls
for any inherent service differences between stock and mutual insurers.[8] If any

---

[6] Barrese and Nelson's method is modified here to include specialty marketers since an insuffi-
cient number of specialty marketers in California and Illinois make differentiation impractical.
Estimates differentiating specialty marketers using pooled data across all states did not yield
significantly different results.

[7] Tests were performed to check for multicollinearity between LnSTSIZE and MKTSHR, and
there is no evidence of multicollinearity.

[8] Other studies have examined the effect of organizational form on expense ratios but not
specifically on perceived service differentials (see, e.g., Joskow, 1973; Boose, 1990; Barrese and

member of a group was a mutual in a particular year, the entire group was considered a mutual that year. Mutual insurers provide policy service to owners (who are also policyholders), while stock insurers must balance the conflicting incentives of owners and policyholders. A negative sign on the coefficient estimate for STOCK would be consistent with mutuals providing better service for owners/policyholders, and a positive sign would be consistent with stock insurers emphasizing cost efficiency at the expense of policyholder service.

Substandard risk variable. A continuous variable indicates the percent of total business of the insurance group attributable to the high-risk market.[9] A positive relation between SUBSTD and the number of complaints is expected since more claims are expected for high-risk drivers, leading to more opportunities for complaints. Also more nonclaim complaints from high-risk drivers are expected due to more frequent policy cancellations or higher priced coverage.

Empirical Results

The empirical results of the estimated tobit regression equations are summarized in Table 2, where the dependent variable equals the natural logarithm of total complaints filed against the ith insurance group in each state. The results indicate that independent agency insurers provide better service, all else being equal. Most of the coefficient estimates for the independent agent variable across states and in the pooled models are negative and some are statistically significant. An anomaly is noted in Texas, where the coefficient is positive and significant. Each model with a negative independent agent coefficient reveals evidence of an erosion of this service advantage. That is, the coefficient of the independent agent size variable is positive and significant. In sum, the pooled model provides evidence that independent agents offer better service, but that the service advantage is eroded as the size of the insurer increases. The negative coefficients for the mass marekting and specialty marketing variable are consistent with salaried representatives and mail marketers providing better service.

Across states and in both pooled models, the coefficient estimates for the LnSTSIZE variable (measuring the number of the firm's policyholders) are positive and statistically significant. Insurance groups writing more automobile premiums receive a greater absolute number of complaints. Consistent with Doerpinghaus (1991), the coefficient estimates for the SUBSTD variable (measuring the percent of premiums written by the ith group subsidiary specializing in substandard risks by state) are generally positive and statistically significant. Insurance groups that write relatively more high-risk drivers receive higher complaint levels.

Nelson, 1992; Kim, Mayers, and Smith, 1993).

[9] This improves upon Doerpinghaus (1991), which used a dichotomous variable that does not distinguish between firms specializing in substandard risks and those writing only minimal amounts of substandard coverage.

Table 2
Tobit Regression Equations
Dependent Variable: Ln(Complaints)

	California	Connecticut	Illinois	New York	Texas	Pooled (Excluding California)	Pooled (Including California)
Intercept	-5.396	-6.918	-9.608	-7.288	-9.604	-7.867	-6.572
	(-2.16)	(-5.27)	(-1.64)	(-3.42)	(-3.16)	(-6.83)	(-6.56)
INDAGNT	3.715	-0.801	-21.175	-8.121	6.547	-3.518	-2.292
	(1.41)	(-0.52)	(-2.65)	(-3.46)	(2.05)	(-2.65)	(-2.02)
INDSIZE	-0.395	0.044	2.253	0.683	-0.729	0.319	0.204
	(-1.52)	(0.29)	(2.71)	(3.10)	(-2.37)	(2.51)	(1.88)
OTHRMKTR	0.012	-0.445	0.059	-1.258	-1.854	-0.683	-0.547
	(0.016)	(-1.03)	(0.04)	(-1.57)	(-2.47)	(-1.73)	(-1.55)
LnSTSIZE	0.839	0.916	0.975	1.144	1.217	1.078	0.981
	(3.36)	(7.20)	(1.59)	(5.25)	(4.06)	(9.94)	(10.49)
MKTSHR	-0.027	0.009	0.080	-0.074	-0.054	0.011	0.017
	(-0.27)	(0.52)	(0.65)	(-0.68)	(-0.84)	(0.46)	(0.75)
STOCK	0.098	0.192	0.093	-0.558	0.756	-0.162	-0.442
	(0.18)	(0.64)	(0.09)	(-1.24)	(1.42)	(-0.63)	(-0.19)
SUBSTD	1.450	0.247	2.155	0.279	0.656	0.587	0.607
	(2.86)	(0.74)	(2.51)	(0.47)	(1.30)	(2.06)	(2.39)
Connecticut						-0.402	-0.994
						(-1.44)	(-4.07)
Illinois						-1.106	-1.673
						(-3.50)	(-5.98)
New York						0.098	-0.358
						(0.37)	(-1.58)
Texas							-0.497
							(-1.75)
n	93	146	83	183	60	472	565
Pseudo R^2	0.150	0.379	0.230	0.281	0.236	0.264	0.241

Note: T-statistics are in parentheses.

Conclusion

Why does the independent agency system continue to survive despite an expense disadvantage relative to insurers using other distribution systems? The results of this study provide evidence that the independent agency system provides superior service for private passenger automobile insurance and that the service differential decreases with insurer size. Evidence here supports the argument made by defenders of the independent agency system that higher expense ratios and persistency of the system are at least partially attributable to better customer services.

The results of the study are enhanced to the extent that the study uses private passenger automobile insurance data, a line that does not require much individual underwriting or claims handling expertise. That is, evidence suggests that independent agents provide better service even in a line that requires little specialized service. Results of the study are further enhanced to the extent that independent agency associations widely advertise superior service and raise policyholder expectations. That is, we would expect higher rates of disap-

pointed expectations and complaints against independent agency firms, but the results of the study do not show this. Nevertheless, the continuing loss of private passenger automobile insurance market share suggests that the service differential provided by independent agency insurers is not sufficiently valued by policyholders to offset the cost of the service package.

References

A. M. Best Company, 1989, 1990, *Best's Annual Property-Liability Reports* (Oldwick, N.J.: A. M. Best).

A. M. Best Company, 1989, 1990, *Best's Executive Data Service* (Oldwick, N.J.: A. M. Best).

A. M. Best Company, 1989, 1990, *Best's Key Rating Guide* (Oldwick, N.J.: A. M. Best).

A. M. Best, Company, 1989, Policy Service Earns Applause, *Best's Review: Property/Casualty Edition,* 90(5): 11.

Barrese, James and Jack M. Nelson, 1992, Property-Liability Insurance Distribution Systems, *Journal of Risk and Insurance,* 59: 375-397.

Berger, Lawrence A., 1988, Word of Mouth Reputations in Auto Insurance Markets, *Journal of Behavior and Organization,* 10: 225-234.

Berger, Lawrence A., Paul R. Kleindorfer, and Howard Kunreuther, 1989, A Dynamic Model of the Transmission of Price Information in Auto Insurance Markets, *Journal of Risk and Insurance,* 56: 17-33.

Boose, Mary Ann, 1990, Agency Theory and Alternative Prediction for Life Insurers: An Empirical Test, *Journal of Risk and Insurance,* 57: 499-518.

Cather, David, Sandra Gustavson, and James Trieschmann, 1985, Profitability Analysis of Property-Liability Insurers Using Alternative Distribution Systems, *Journal of Risk and Insurance,* 52: 321-332.

Consumer Reports, 1988, Which Companies Offer Better Service? 53(10): 626-29.

Cummins, J. David and Jack VanDerhei, 1979, A Note on the Relative Efficiency of Property-Liability Distribution Systems, *Bell Journal of Economics,* 10: 709-719.

Cummins, J. David and Steven N. Weisbart, 1977, *The Impact of Consumer Services on Independent Insurance Agency Performance* (Glenmont, N.Y.: IMA Education & Research Foundation).

Cummins, J. David and Mary A. Weiss, 1992, The Structure,Conduct, and Regulation of the Property-Liability Insurance Industry, in: A. W. Kopcke and R. E. Randall, eds., *The Financial Condition and Regulation of Insurance Companies* (Boston: Federal Reserve Bank of Boston).

D'Arcy, Stephen P. and Neil A. Doherty, 1990, Adverse Selection, Private Information, and Lowballing in Insurance Markets, *Journal of Business,* 63: 145-164.

DeVany, Arthur S. and Thomas R. Saving, 1983, The Economics of Quality, *Journal of Political Economy,* 91: 979-1000.

Doerpinghaus, Helen I., 1991, An Analysis of Complaint Data in the Automobile Insurance Industry, *Journal of Risk and Insurance,* 58: 120-127.

Doherty, Neil A., 1981, The Measurement of Output and Economies of Scale in Property-Liability Insurance, *Journal of Risk and Insurance,* 48: 390-402.

Etgar, Michael, 1976, Service Performance of Insurance Distributors, *Journal of Risk and Insurance,* 43: 487-499.

Fields, Joseph A., Emilio C. Venezian, and D. G. Jou, 1990, Price Variability in Automobile Insurance, Working Paper, Storrs, Connecticut.

Flanigan, George B., Joseph E. Johnson, Ellen P. Thrower, and Steven N. Weisbart, 1979, Marketing Systems Employed in Property and Liability Insurance: An Empirical Analysis, *CPCU Journal,* March: 77-83.

Flanigan, George B., Daniel T. Winkler, and Joseph E. Johnson, 1993, Cost Differences of Distribution Systems by Line in the Property and Liability Insurance Industry, *Journal of Insurance Issues,* 2: 59-73.

Grabowski, Henry, W. Kip Viscusi, and William N. Evans, 1989, Price and Availability Tradeoffs of Automobile Insurance Regulation, *Journal of Risk and Insurance,* 56: 275-299.

Johnson, Joseph E., George B. Flanigan, and Steven N. Weisbart, 1981, Returns to Scale in the Property and Liability Insurance Industry, *Journal of Risk and Insurance,* 48: 18-45.

Joskow, Paul L., 1973, Cartels, Competition, and Regulation in the Property-Liability Insurance Industry, *Bell Journal of Economics and Management Science,* 4: 375-427.

Kim, Joong Wong, David Mayers, and Clifford W. Smith, Jr., 1993, On the Choice of Insurance Distribution Systems, Working Paper, Rochester, New York.

Marvel, Howard P., 1982, Exclusive Dealing, *Journal of Law and Economics,* 25: 1-25.

Mayers, David and Clifford W. Smith, Jr., 1981, Contractual Provisions, Organizational Structure, and Conflict Control in Insurance Markets, *Journal of Business,* 54: 407-434.

Pauly, Mark, Howard Kunreuther, and Paul Kleindorfer, 1986, Regulation and Quality Competition in the U.S. Insurance Industry, in: Jörg Finsinger and Mark Pauly, eds., *The Economics of Insurance Regulation* (New York: St. Martin's Press), 65-107.

Sass, Tim and Micha Gisser, 1989, Agency Costs, Firm Size, and Exclusive Dealing, *Journal of Law and Economics,* 32: 381-400.

Tobin, J., 1958, Estimation of Relationships for Limited Dependent Variables, *Econometrica,* 31: 24-36.

Winter, Ralph A., 1988, The Liability Crisis and the Dynamics of Competitive Insurance Markets, *Yale Journal on Regulation,* 5: 455-499.

Zeckhauser, Richard and William Samuelson, 1989, Status Quo Bias and Insurance Markets, *John Liner Review,* 3: 38-50.