

Flanigan, G. B., [D. T. Winkler](#), and [J. E. Johnson](#). "Cost Differences of Distribution Systems by Line in the Property and Liability Insurance Industry," *Journal of Insurance Issues*, vol. 16, no. 2, October 1993, pp. 59-73. Made available courtesy of [Western Risk and Insurance Association](#).

## **COST DIFFERENCES OF DISTRIBUTION SYSTEMS BY LINE IN THE PROPERTY AND LIABILITY INSURANCE INDUSTRY**

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### **Abstract**

This study identifies changes in aggregate market share between 1976 and 1988 for property and liability companies classified by distribution system. Evidence is presented that distribution system type produces differences in relative total expense levels. Market share changes suggest independent agency companies are most effective in lines where claimed higher levels of service are important, such as in workers' compensation and the commercial insurance lines. The independent agency companies have been less effective in maintaining market share in standardized lines such as homeowners and personal automobile. In standardized lines, cost appears more important and claimed higher levels of service and professionalism are less likely to have an impact.

### **Introduction**

The insurance industry is classified in numerous overlapping ways such as line of business, form of legal organization, territory of operation, and marketing or distribution system. A central dimension of an insurer's business strategy and the focus of this study is the selection of the distribution system. In an early study of cost effectiveness, Joskow [1973] suggested that independent agency companies are not as cost effective as "direct writer" companies. Independent agents claim they provide better service and more professionalism to insurance clients. In particular independent agents suggest that their ability to provide coverage from more than one company in a particular line of business is especially valuable to insureds with underwriting and loss control problems; this is common in both property and liability insurance commercial lines. Independent agents also claim to have an

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**advantage with insureds who have unusual or non-standard insurance needs where access to multiple markets is an advantage over one company representation. These qualities and abilities are referred to as claimed higher levels of service and professionalism.**

**This paper examines market share and operating efficiency of property and liability insurers by distribution system for eight selected lines. Insurers are classified by dominant distribution system: independent agency, exclusive agency, salaried representative, and mail order. Market shares are reported for 1976 and 1988 by distribution system for grouped lines, and shifts in market share by line can be identified. These market share changes may be attributable to cost efficiency and to claimed higher levels of service and professionalism. An investigation into the cost efficiency issue reveals statistically significant differences in relative total expenses by line among insurers when classified by distribution system and even after controlling for the effects of premium output.**

### **Research Background**

**Joskow [1973] studied structural characteristics, pricing behavior, and economies of scale in 1971-72 using firm size, form of business organization, and distribution system for firms in "automobile" and "fire and allied lines". Joskow's analysis of expense ratios indicated that "direct writers" (exclusive agency and salaried employee companies together in his analysis) had lower costs and were more efficient than independent agents. Flanigan, et. al., [1979] pointed out that Joskow used the "direct writer" classification which combines three distribution systems which have substantially different characteristics and demonstrated how Joskow's findings were unreliable. Cummins and VanDerhei [1979] also faulted Joskow for only considering underwriting expenses and not loss adjustment expenses. After allowing for loss adjustment expenses, they conclude that the differences are less pronounced than Joskow reported but found that the independent agency distribution system remained more costly.**

**Johnson, et. al., [1981] analyzed operating expenses of 262 property and liability insurers during 1976. They found decreasing returns to scale for small to medium size insurers and increasing returns to scale for large insurers. Independent agency companies had the highest relative cost and salaried companies had the lowest relative cost; however, they concluded the major contributing factor to cost differences was insurance product output and not distribution system.**

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For life insurance companies, Harrington [1982] used a multiple regression analysis to compare standard expense ratios averaged during 1974-75 for 76 life insurers. Independent variables were used to control for size, home office wage rates, degree of specialization in ordinary life insurance and annuities, relative amount of permanent to total life insurance in force, and for ownership. Harrington tests both a semi-log and log-linear specification using OLS and maximum likelihood (ML). His findings suggest relative expenses decrease at a decreasing rate, with scale economies particularly pronounced for other than independent agency insurers.

Zweifel and Ghermi [1990] examined the performance of exclusive and independent agency companies during 1980-85 in the Swiss market. Their study compared premium growth, underwriting expense ratios, and the settled claim ratios for insurers. Underwriting expense ratios were found to decrease with increases in premiums written, suggesting some economies of scale. They also found independent agency companies had lower underwriting expense ratios and loss ratios not statistically different from those of exclusive agency companies.

### Data

The sample consists of 2,549 company observations in eight lines of business as listed in [Best's Aggregates and Averages 1988](#). The eight lines are commercial auto liability (CAL), commercial auto property damage (CAPD), commercial multi peril (CMP), homeowners (HMP), other commercial liability (OL), private passenger auto liability (FPAL), private passenger auto physical damage (PPAPD), and workers' compensation (WC). From the initial sample, 246 observations had missing expense data. The final sample consists of 2,303 company observations with the following number of insurers in each line (shown in parentheses): CAL (252), CAPD (163), CMP (286), HMP (285), OL (263), PPAL (407), PPAPD (350), and WC (297). All companies were included except those with missing or incomplete data.

The final sample of 2,303 company observations in the eight lines was classified by distribution channel as follows: 1,901 independent agency companies; 231 salaried employee companies; 141 exclusive agency companies; and 30 mad order companies. The distribution system was identified from [Best's Insurance Reports](#) when not possible from the authors' knowledge. A telephone inquiry was made for 53 insurers that could not be otherwise identified. Some companies employ more than one distribution system. In those instances,

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**the company was coded according to the predominant distribution system.<sup>1</sup>**

**Table 1 contrasts market share by distribution system for the four combined classes between 1976 and 1988. In order to present a consistent distribution system comparison of market share between 1976 and 1988, the eight lines were combined into four: homeowners, automobile (commercial and private passenger), workers compensation, and commercial.<sup>2</sup>**

The market shares reported in the table suggest that the independent agents' claimed greater professionalism, service, and access to markets has proven important in lines where these companies have held market share.. While market share increased slightly in the workers' compensation line, independent agents lost a large market share in homeowners and automobile lines. Corresponding market share gains were made primarily by salaried employee companies in these lines.

Table 1

Earned Premiums and Percent Market Share by  
Distribution System by Line - 1976 and 1988<sup>1</sup>

<u>Grouped Lines</u>	<u>Independent</u>		<u>Exclusive</u>	
	<u>1976</u>	<u>1988</u>	<u>1976</u>	<u>1988</u>
Workers' Comp.	\$4,423,196 (73.80%)	\$18,337,163 (74.42%)	\$117,764 (1.96%)	\$977,949 (3.97%)
Commercial <sup>2</sup>	\$5,833,450 (88.83%)	\$28,469,156 (84.22%)	\$265,185 (4.04%)	\$2,021,979 (5.98%)
Automobile <sup>3</sup>	\$8,872,098 (46.93%)	\$34,202,105 (42.29%)	\$5,380,188 (28.46%)	\$20,978,026 (25.83%)
Homeowners	\$2,244,148 (56.94%)	\$7,074,650 (45.29%)	\$1,023,217 (25.96%)	\$4,445,029 (28.46%)

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Table 1 (Cont.)

<u>Grouped Lines</u>	<u>Salaried Employee</u>		<u>Mail Order</u>	
	<u>1976</u>	<u>1988</u>	<u>1976</u>	<u>1988</u>
Workers' Comp.	\$1,452,802 (24.24%)	\$5,326,562 (21.62%)	\$000 (0.00%)	\$000 (0.00%)
Commercial <sup>2</sup>	\$468,327 (7.13%)	\$3,311,179 (9.80%)	\$000 (0.00%)	\$000 (0.00%)
Automobile <sup>3</sup>	\$3,594,218 (19.01%)	\$21,091,153 (26.08%)	\$1,057,592 (5.59%)	\$4,701,009 (5.81%)
Homeowners	\$559,723 (14.20%)	\$3,486,592 (22.32%)	\$114,494 (2.90%)	\$613,125 (3.93%)

<sup>1</sup> Sum of percents in row for year do not always equal 100 percent due to rounding.

<sup>2</sup> Includes commercial multi-peril and other commercial liability.

<sup>3</sup> Includes commercial auto liability, commercial auto property damage, private property auto liability, and private property auto physical damage.

### Methodology

This study seeks to determine by line of insurance the relative price differentials between companies using independent, exclusive, and salaried employee distribution systems. It is reasonable to expect independent agency companies will concentrate on product lines in which customers require more service, professionalism, and multiple company market access. Independent agency insurers have more latitude to tailor the particular needs of the customer to a diverse product line. Thus one would expect independent agency insurers to develop cost efficiency on lines requiring greater specialization, service, and professionalism.

Independent agency company efficiency efforts should be measurable through changes in efficiency and market share in specific lines. If the independent agency system is more expensive but delivers higher levels of service and professionalism, one would expect insurers using this system to have greater ability to retain market share in lines where service and professionalism are important. Similarly one would expect that in lines where service and professionalism are not as important as pricing, low cost operation would become a more important factor, and salaried employee and exclusive agency companies would have greater

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**possibilities to increase market share. This study seeks to identify changes in market share since 1976 and to identify cost efficiency implications by line.**

Previous research on relative efficiency in the property-liability insurance industry confirms the importance of scale of output in explaining costs. Cummins and VanDerhei [1979] test efficiency using a Cobb-Douglas production function and measure product output by direct premiums written. Zweifel and Ghermi [1990] compare underwriting expense ratios of exclusive and independent agency insurers and measure output using gross premiums written. Johnson, et. al. [1981], used earned premiums to measure output. The writers of this paper tested several measures of output and found the total expense model employed in this study is robust to all of the aforementioned output measures but found net premiums written offered the best specification of output. Consistent with previous studies on cost efficiency, a log specification for net written premiums is appropriate. It should be noted that Cummins and Vanderhei [1979] found that expenses of exclusive agency companies are lower in absolute and relative terms when loss adjustment costs are considered.

Cost efficiency is measured by a trade basis expense ratio defined as: (underwriting expenses/written premiums) plus (loss adjustment expenses incurred/premiums earned). This measure matches underwriting expenses appropriately to when premiums are booked and, likewise, loss adjustment expenses more closely to when they are incurred; this procedure is consistent with Best's reporting practices. Expenses are allocated between lines by Best's in the same way the companies file them on a by line basis in the NAIC Annual Conventions statement.

The model specification for examining relative cost efficiency for alternative distribution channels for each line is:

$$RTC_i = \alpha + \beta_1 NPW_i + \beta_2 CHAN_i + \epsilon_i \tag{1}$$

where:

- $RTC_i$  = the total expense ratio which includes underwriting and loss adjustment expenses for company i.
- $NPW_i$  = the total net premiums written for company i.
- $CHAN_i$  = a dummy variable for the type of distribution channel for company i.
- $\epsilon_i$  = the error term.

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The model specification in Equation 1 compares two distribution channels for five combinations. The use of regression permits a test of the mean total cost ratio for each distribution system while controlling for economies of scale as measured by the output measure. Although equation (1) has fewer degrees of freedom than a model with multiple channel dummy variables, both collinearity problems among the independent variables and the intercept are minimized by its use. Thus the coefficients in equation (11) are easy to interpret.<sup>3</sup>

### Results

Table 2 presents the difference in relative total expenses for independent agency companies versus salaried employee companies in each of the eight lines. The coefficient "independent" indicates the higher or (lower) percentage costs of independent agency companies in relation to salaried employee companies; for example, independent agency companies have 5.371 percent higher costs than salaried employee companies in CAL.<sup>4</sup> The premium output variable, Ln(NPW), defined as the natural logarithm of net written premiums, provides clear evidence of such economies. The negative signs of six of eight regression models are statistically significant, consistent with the expectation that relative costs decline

Table 2

Regression Results for Eight Lines of Property-Liability Insurer Total Expense Ratios: Salaried Employee Versus Independent Agency Distribution Systems

	<u>CAL</u>	<u>CAPD</u>	<u>CMP</u>	<u>HMP</u>
Intercept	44.224 (7.059) <sup>a</sup>	34.598 (3.942) <sup>a</sup>	40.162 (6.224) <sup>a</sup>	41.195 (8.892) <sup>a</sup>
Ln(NPW)	-1.002 (-1.681) <sup>c</sup>	-0.670 (-0.762)	-0.012 (-0.021)	-0.868 (-1.943) <sup>b</sup>
Independent	5.371 (2.858) <sup>a</sup>	5.443 (2.527) <sup>b</sup>	6.403 (2.608) <sup>a</sup>	10.442 (7.443) <sup>a</sup>
F-Value	5.781 <sup>a</sup>	3.607 <sup>b</sup>	3.402 <sup>b</sup>	30.543 <sup>a</sup>
Adjusted R <sup>2</sup>	3.85%	3.19%	1.72%	18.46%
Observations	240	159	275	262

Table 2 (Cont.)

	<u>OL</u>	<u>PPAL</u>	<u>PPAPD</u>	<u>WC</u>
Intercept	83.140 (8.905) <sup>a</sup>	54.609 (12.285) <sup>a</sup>	38.998 (8.146) <sup>a</sup>	41.259 (6.173) <sup>a</sup>
Ln(NPW)	-2.998 (-3.571) <sup>a</sup>	-1.589 (-3.912) <sup>a</sup>	-0.906 (-2.063) <sup>b</sup>	-1.749 (-3.164) <sup>a</sup>
Independent	-1.680 (-0.452)	-0.139 (-0.095)	3.357 (2.170) <sup>b</sup>	5.716 (2.611) <sup>a</sup>
F-Value	6.417 <sup>a</sup>	7.743 <sup>a</sup>	5.340 <sup>a</sup>	8.935 <sup>a</sup>
Adjusted R <sup>2</sup>	4.08%	3.67%	2.79%	5.35%
Observations	256	355	303	282

- a. Significant at the 1 percent level.
- b. Significant at the 5 percent level.
- c. Significant at the 10 percent level.

**KEY:** The total expense ratio for each product line is designated for each regression. The expense ratio labels for the eight product lines are commercial auto liability, (CAL); commercial auto property damage, (CAPD); commercial multi peril, (CMP); homeowners, (HMP); other commercial liability,(OL); private property auto liability,(PPAL); private property auto physical damage, (PPAPD); and workers' compensation, (WC). The independent variable measuring output is net premiums written, NPW. The t-values are shown in parentheses.

with size. The analysis uses the semi-log regression form used by Harrington (1982).<sup>5</sup> The differences in the mean total expense occurs in homeowners (10.442 percent higher), commercial multi peril (6.403 percent higher), workers' compensation (5.716 percent higher), commercial auto property damage (5.443 percent higher), commercial auto liability (5.371 percent higher), and private passenger auto physical damage (3.357 percent higher). The private passenger auto liability and other commercial lines show mean relative expenses insignificantly different from zero.

Table 3 presents the analysis of relative total expenses for salaried employee versus exclusive agent companies. Only one of eight lines has statistically different costs.

A coefficient of -5.918 percent for private passenger auto liability suggests that exclusive agency companies, after allowance for premium output, have significantly lower costs in this line. Although all other lines except private passenger auto property damage are positive, the coefficients are not significant, perhaps because of the small samples.

Table 3

Regression Results for Eight Lines of Property-Liability Insurer Total Expense Ratios: Salaried Employee Versus Exclusive Agency Distribution Systems

	<u>CAL</u>	<u>CAPD</u>	<u>CMP</u>	<u>HMP</u>
Intercept	65.941 (3.964) <sup>a</sup>	58.100 (2.940) <sup>b</sup>	23.705 (1.565)	38.298 (3.646) <sup>a</sup>
Ln(NPW)	-3.156 (-1.931) <sup>b</sup>	-3.088 (-1.528)	1.623 (1.089)	-0.576 (-0.554)
Exclusive	0.889 (0.201)	4.035 (0.683)	0.570 (0.147)	4.099 (1.400)
F-Value	1.866	1.199	0.636	1.023
Adjusted R <sup>2</sup>	4.36%	1.51%	-2.19%	0.10%
Observations	39	27	35	48
	<u>OL</u>	<u>PPAL</u>	<u>PPAPD</u>	<u>WC</u>
Intercept	118.904 (3.444) <sup>a</sup>	56.948 (7.234) <sup>a</sup>	40.827 (5.561) <sup>a</sup>	38.886 (1.948)
Ln(NPW)	-6.476 (-1.947) <sup>c</sup>	-1.813 (-2.460) <sup>b</sup>	-1.082 (-1.565)	-1.523 (-0.814)
Exclusive	7.619 (-0.806)	-5.918 (-2.394) <sup>b</sup>	-2.323 (-1.114)	7.281 (1.264)
F-Value	2.357	7.284 <sup>a</sup>	1.873	1.377
Adjusted R <sup>2</sup>	9.13%	13.58%	2.65%	1.55%
Observations	28	81	65	49

- a. Significant at the 1 percent level.
- b. Significant at the 5 percent level.
- c. Significant at the 10 percent level.

KEY: The total expense ratio for each product line is designated for each regression. The expense ratio labels for the eight product lines are commercial auto liability, (CAL); commercial auto property damage, (CAPD); commercial multi peril, (CMP); homeowners, (HMP); other commercial liability,(OL); private property auto liability,(PPAL); private property auto physical damage, (PPAPD); and workers' compensation, (WC). The independent variable measuring output is net premiums written, NPW. The t-values are shown in parentheses.

**By combining salaried and exclusive samples as direct writers, an aggregated analysis of distribution systems is possible. Table 4 suggests that the differences between salaried**

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Table 4

Regression Results for Eight Lines of Property-Liability  
 Insurer Total Expense Ratios: Direct Versus  
 Independent Agency Distribution Systems

	<u>CAL</u>	<u>CAPD</u>	<u>CMP</u>	<u>HMP</u>
Intercept	45.674 (7.590) <sup>a</sup>	34.821 (4.102) <sup>a</sup>	37.449 (6.057) <sup>a</sup>	40.747 (9.317) <sup>a</sup>
Ln(NPW)	-1.133 (-1.971) <sup>b</sup>	-0.663 (-0.787)	0.290 (0.501)	-0.649 (-1.555)
Independent	5.215 (3.140) <sup>a</sup>	5.152 (2.574) <sup>b</sup>	6.095 (2.934) <sup>a</sup>	8.758 (7.543) <sup>a</sup>
F-Value	7.387 <sup>a</sup>	3.900 <sup>b</sup>	4.375 <sup>b</sup>	32.081 <sup>a</sup>
Adjusted R <sup>2</sup>	4.88%	3.46%	2.31%	18.11%
Observations	250	163	286	282
	<u>OL</u>	<u>PPAL</u>	<u>PPAPD</u>	<u>WC</u>
Intercept	79.149 (8.764) <sup>a</sup>	49.948 (12.630) <sup>a</sup>	36.655 (8.872) <sup>a</sup>	42.681 (7.445) <sup>a</sup>
Ln(NPW)	-2.814 (-3.425) <sup>a</sup>	-1.415 (-3.852) <sup>a</sup>	-0.801 (-2.078) <sup>b</sup>	-1.675 (-3.166) <sup>a</sup>
Independent	0.465 (0.143)	2.795 (2.509) <sup>b</sup>	4.674 (4.229) <sup>a</sup>	3.532 (1.913) <sup>a</sup>
F-Value	5.933 <sup>a</sup>	12.407 <sup>a</sup>	13.487 <sup>a</sup>	6.937 <sup>a</sup>
Adjusted R <sup>2</sup>	3.63%	5.49%	6.90%	4.51%
Observations	263	394	338	297

- a. Significant at the 1 percent level.
- b. Significant at the 5 percent level.
- c. Significant at the 10 percent level.

KEY: The total expense ratio for each product line is designated for each regression. The expense ratio labels for the eight product lines are commercial auto liability, (CAL); commercial auto property damage, (CAPD); commercial multi peril, (CMP); homeowners, (HMP); other commercial liability,(OL); private property auto liability,(PPAL); private property auto physical damage, (PPAPD); and workers' compensation, (WC). The independent variable measuring output is net premiums written, NPW. The t-values are shown in parentheses.

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and exclusive distribution systems are less pronounced than the differences between salaried and independents. When exclusive and salaried samples are combined as direct writers, the coefficients are somewhat lower than the salaried employee differential shown in Table 2 for commercial auto liability, commercial auto property damage, commercial multi peril, homeowners, and workers' compensation.

Table 5 shows the four lines represented by mail order companies. Only the private passenger auto liability and the private passenger auto property damage regressions are statistically significant. The mean difference in the total expense ratio was -7.625 percent percent in the PPAL line. Once again, larger firms had lower relative costs than smaller ones.

Table 5

Regression Results for Four Lines of Property-Liability  
Insurer Total Expense Ratios: Salaried Employee Versus  
Mail Order Agency Distribution Systems

	<u>CAL</u>	<u>HMP</u>	<u>PPAL</u>	<u>PPAPD</u>
Intercept	67.516 (3.217) <sup>a</sup>	45.254 (3.007) <sup>a</sup>	62.103 (5.825) <sup>a</sup>	48.591 (4.700) <sup>a</sup>
Ln(NPW)	-3.312 (-1.601)	-1.278 (-0.849)	-2.308 (-2.293) <sup>b</sup>	-1.829 (-1.861) <sup>c</sup>
Mail Order	-4.402 (-0.484)	-2.607 (-0.447)	-7.625 (-1.908) <sup>c</sup>	-2.467 (-0.796)
F-Value	1.320	1.465	5.695 <sup>a</sup>	2.425 <sup>a</sup>
Adjusted R <sup>2</sup>	2.09%	-3.70%	14.81%	6.50%
Observations	31	31	55	42

- a. Significant at the 1 percent level.
- b. Significant at the 5 percent level.
- c. Significant at the 10 percent level.

KEY: The total expense ratio for each product line is designated for each regression. The expense ratio labels for the eight product lines are commercial auto liability, (CAL); homeowners, (HMP); private property auto liability,(PPAL); and private property auto physical damage, (PPAPD). The regressions for CAPD, CMP, OL, and WC lines had zero observations for the mail order distribution system. The independent variable measuring output is net premiums written, NPW. The t-values are shown in parentheses.

**Table 6 shows a comparison of total relative expenses for the independent and exclusive agency companies. The independent variable measuring output is net premiums**

Table 6

Regression Results for Eight Lines of Property-Liability Insurer Total Expense Ratios: Exclusive Agency Versus Independent Agency Distribution Systems

	<u>CAL</u>	<u>CAPD</u>	<u>CMP</u>	<u>HMP</u>
Intercept	42.823 (6.438) <sup>a</sup>	30.908 (2.910) <sup>a</sup>	37.047 (5.141) <sup>a</sup>	43.360 (9.181) <sup>a</sup>
Ln(NPW)	-0.818 (-1.398)	-0.133 (-0.147)	0.396 (0.655)	-0.668 (-1.569) <sup>b</sup>
Independent	4.942 (1.683) <sup>c</sup>	3.994 (0.844)	5.433 (1.508)	6.330 (3.881) <sup>a</sup>
F-Value	2.573 <sup>a</sup>	0.405	1.292	10.282 <sup>a</sup>
Adjusted R <sup>2</sup>	6.39%	-0.86%	0.22%	6.84%
Observations	221	140	262	254

  

	<u>OL</u>	<u>PPAL</u>	<u>PPAPD</u>	<u>WC</u>
Intercept	45.980 (8.311) <sup>a</sup>	42.885 (10.406) <sup>a</sup>	33.240 (7.513) <sup>a</sup>	45.152 (8.303) <sup>a</sup>
Ln(NPW)	-1.929 (-4.436) <sup>a</sup>	-1.033 (-2.752) <sup>b</sup>	-0.577 (-1.424)	-1.421 (-2.951) <sup>a</sup>
Independent	-0.814 (-0.257)	6.053 (4.403) <sup>a</sup>	5.889 (4.240) <sup>a</sup>	-1.548 (-0.584)
F-Value	9.837 <sup>a</sup>	15.359 <sup>a</sup>	11.443 <sup>a</sup>	4.655 <sup>a</sup>
Adjusted R <sup>2</sup>	6.83%	7.56%	6.37%	2.71%
Observations	243	352	308	263

- a. Significant at the 1 percent level.
- b. Significant at the 5 percent level.
- c. Significant at the 10 percent level.

KEY: The total expense ratio for each product line is designated for each regression. The expense ratio labels for the eight product lines are commercial auto liability, (CAL); commercial auto property damage, (CAPD); commercial multi peril, (CMP); homeowners, (HMP); other commercial liability,(OL); private property auto liability,(PPAL); private property auto physical damage, (PPAPD); and workers' compensation, (WC).

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written, NPW. The t-values are shown in parentheses. Only four lines show statistically higher costs for the independent channel versus the exclusive agency channel. The mean differential is 4.942 percent for commercial auto liability, 6.053 percent for private passenger auto liability, 5.889 percent for private passenger auto property damage, and 6.330 percent for homeowners lines.

## Conclusions

The claimed superior service versus greater cost efficiency issue has generated considerable attention in the literature. In the lines where claimed service and professionalism should logically be more important, the independent agency companies are holding market share even as they are less cost efficient. These lines are workers' compensation and commercial insurance. The independent agency system lost substantial market share where one would expect service and professionalism strengths to be less important, notably homeowners and automobile lines.

The findings suggest independent agency companies are more effective in some lines. When compared with salaried employee companies, independent agency companies have higher relative total expenses in six of eight lines only. Independent agency coefficients for private passenger auto liability and other commercial liability are not statistically significant. Independent agency companies appear more costly in the more simple and standardized personal lines such as homeowners.

The findings also show exclusive agency companies are more cost efficient than independent agency companies in commercial auto liability, homeowners, and personal automobile lines. Holding constant the effects of premium output, the total expense ratio for exclusive agency companies is statistically lower than for independent agency companies for four of eight lines.

This research differs from much of the other work on insurer efficiency by looking at the total expense ratios on a line-by-line basis. As with all studies, there are limitations. The measurement of service and professionalism is beyond the scope of this study. The regression model in this study controls for premium output, however, other potential factors such as form of business organization and territory have not been investigated.

One implication of this study is that the developments in the industry are consistent with allocational efficiency. Because cost efficiency appears greatest on average for salaried

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**employee and exclusive agency companies and cost per unit declines with output, it is reasonable to suppose cost efficiency will guide the industry for standardized products (homeowners, personal auto) to large firms with a salaried employee and to a lesser extent exclusive agency distribution channels.**

### Endnotes

- 1. For example, Allstate Insurance Company, which is classified as a salaried agent company, has appointed independent and exclusive agents to represent it where there are no Sears stores. Since the majority of its business is produced through salaried agents, it is classified as a salaried employee company with a salaried employee distribution system. A list of companies by distribution system is available from the authors on request.**
- 2. Combining eight lines to four was necessary to be consistent with market share reporting by Flanigan, et al. (1979). Instead of using insurer groups as reported by Flanigan, et. al. (1979), the 1988 market shares shown in Table 1 combine specific lines for individual insurers, therefore, the two studies' data sources are not strictly comparable. However, large differences in market share between 1976 and 1988 are unlikely to be caused by these sample differences.**
- 3. Separate samples for independent, exclusive, and mail order distribution systems were initially combined for each line. However, excessive collinearity between indicator variables for independent and exclusive distribution systems produced excessive standard errors in the regressions. Separate regressions controlled for the collinearity problem.**
- 4. Heteroscedasticity was identified using a test developed by White (1980). Reported findings are corrected regressions using the procedure recommended by White.**
- 5. Regression specifications were tested using net premiums written and the natural logarithm of net premiums written. The latter transformation substantially improved the regression model's explained variability and statistical significance.**

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