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# The Distribution of Property/ Liability Insurance in Canada: Costs and Market Structure

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**Abstract:** Studies in the U.S. show that insurers that operate as exclusive writers have lower expense ratios than agency writers. In addition, exclusive and commodity writers dominate personal lines of insurance and agency writers dominate commercial lines. In contrast, Canadian agency writers dominate both personal and commercial lines. Furthermore, in Canada, a firm's distribution method does not affect its relative expenses. We conjecture that the higher fixed costs faced by exclusive and commodity writers in Canada counterbalance the lower variable costs faced by these firms. The lack of dominance in personal lines by Canadian exclusive writers is a rational response to the smaller market size in Canada and the higher level of government intervention. [Key words: Distribution methods and costs, Canada and United States, property/liability insurance.]

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## INTRODUCTION

**D**istribution methods for property/liability (P/L) insurance can be classified into three broad categories: insurers that sell through independent agents or brokers (agency writers); insurers that distribute insurance through their own sales force or via exclusive agents (exclusive

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writers); and insurers that distribute their products directly to the consumer through commodity channels such as mail order, call centres, or the Internet (commodity writers). There is a rich literature, both theoretical and empirical, on the performance of and preferences for the distribution channels of insurance in the United States. Historically, in the United States, exclusive and commodity writers exhibited expense ratios significantly lower than those of agency writers (Joskow, 1973; Cummins and VanDerhei, 1979; Barrese and Nelson, 1992; and Kim, Mayers, and Smith, 1996).

In addition, in terms of the markets served and the products sold, systematic differences exist with respect to the different distribution channels: agency writers dominate commercial lines whereas exclusive and commodity writers dominate personal lines. Regan (1997) and Regan and Tennyson (1996) conjecture that different distribution methods are best suited to different products or markets, depending on the product complexity or the need for relationship-specific investments. In particular, Regan finds that agency writers underwrite more complex lines of business and operate in markets with greater uncertainty than do exclusive writers.

We apply these two streams of literature to the Canadian marketplace. Using an analysis similar to Joskow (1973), Cummins and VanDerhei (1979), and Barrese and Nelson (1992), we study the relationship between the insurer expenses, distribution technology, and other structural and institutional features for Canadian P/L insurers between 1995 and 2003. Secondly, following from Regan and Tennyson (1996) and Regan (1997), we examine the relationship between fixed and variable costs, product lines underwritten, and distribution channels used by Canadian insurers.

Although the Canadian and U.S. markets are similar in many ways, including the business and economic environments and the products sold, the market structure in Canada is distinctly different in terms of the use of distribution channels. In the Canadian market, unlike that in the U.S., agency writers dominate both personal and commercial lines of insurance, and there is no discernible difference in expenses between exclusive, commodity, and agency writers. Furthermore, we show that variations in expenses between insurers are not adequately explained by organizational form, distribution network, or lines of business underwritten. Although Regan and Tennyson (1996) and Regan (1997) predict that exclusive writers should underwrite less complex lines of business and operate in markets with greater certainty, this is not evident in Canada.

This paper examines the factors that contribute to this U.S. / Canadian difference. Specifically, we discuss how market size and competition, government intervention into insurance markets, and cost structure have allowed agency writers to maintain their market share and made it difficult for exclusive and commodity writers to significantly increase theirs. With

respect to the cost structures, it appears that the smaller market in Canada has impeded commodity and exclusive writers from achieving a level of economies of scale that would result in a cost advantage over agency writers.

The paper is organized as follows. The next section provides a literature review that summarizes related research in P/L insurance distribution. Following this, we analyze the costs of distribution in the Canadian P/L insurance marketplace. We examine the Canadian landscape and discuss important factors that have contributed to the dominance of agency writers in personal and commercial lines. We then conclude with a discussion of our results.

## LITERATURE REVIEW

The literature examining the existence of different distribution channels for P/L insurance generally falls into two categories: (1) Studies that analyze the expenses of the different channels, and (2) studies that provide explanations for the coexistence of different systems despite differing costs. These latter studies rely on the fact that agency writers and exclusive writers serve different markets or sell different products.

Many studies provide evidence of the historic difference in expense ratios between exclusive and agency writers in the United States. Joskow (1973) examines the P/L insurance industry for the years 1970 to 1971 and finds that exclusive writers have underwriting expense ratios that are more than 10 percentage points lower than those for agency writers. Cummins and VanDerhei (1979) build on this research, including both underwriting costs and loss adjustment expenses in their measure of expenses for the years 1968 through 1976. They find that, all things being held the same, the underwriting expenses of exclusive agency companies are 15 to 23 percent less than those of agency writers. However, the relative efficiency differential is reduced when accounting for loss adjustment expenses, suggesting that the independent brokers add value by their ability to help the agency writer in the claims settlement process. Barrese and Nelson (1992) extend the analysis of Cummins and VanDerhei (1979) by developing a framework linking empirical evidence with agency theory. Their results indicate that while exclusive writers exhibit lower expenses, the differential is smaller than previous studies suggested. They also find that commodity writers have statistically lower costs than face-to-face delivery methods.

The continued existence of the agency system despite higher costs is explained by differences in what services agency writers provide and products they offer. Early defenders of the agency system held that agency

writers produce higher product quality or greater service intensity or reduce policyholder search costs; thus higher expenses arise naturally because brokers offer more services to clients. Empirical support for this argument is mixed: Doerpinghaus (1991) fails to find empirical support, while Berger, Cummins, and Weiss (1997) find strong support for the hypothesis that agency writers produce higher-quality outputs.

Another explanation for the coexistence of different distribution systems is offered by Regan (1997) and Regan and Tennyson (1996). They argue that the agency system offers advantages to insurers when agent effort is important for risk placement, products are complex, underlying uncertainty is higher, or relationship-specific investments are less important. In contrast, when relationship-specific investments, such as advertising and electronic data processing equipment, are more important, exclusive dealing should be used. Supporting this argument, Regan (1997) finds that, on average, agency writers underwrite more complex lines of business and operate in markets with greater uncertainty than do exclusive writers. This leads to the conclusion that different distribution methods are best suited to different products or markets.

Posey and Yavas (1995) rely on the heterogeneity of consumers to explain the coexistence of different distribution channels for a given product line. Different distribution channels allow individual consumers to access whichever method they find most suitable. In this model, consumers with relatively low search costs purchase from exclusive writers, and consumers with higher search costs purchase through agency writers. There is some anecdotal support for this argument. Whyte (1999) notes that, in the U.S. market, one-third of P/L personal insurance customers prefer relationship selling, one-third prefer commodity selling, and one-third show no preference.

Another stream of research discusses the relationship between products sold, distribution technology used, and ownership structure. Regan and Tzeng (1999) argue that the independent agency distribution method and stock ownership structure are strategic complements, as they are suited to both complex lines of business and more risky underwriting environments. They suggest that firms might first choose a business strategy (products offered) and then choose its organizational structure and its distribution system. Empirically, they find no significant direct association between ownership form and distribution system choice in an endogenous framework. The authors suggest that organizational structure and distribution system are clearly correlated but seem to be related indirectly. Baranoff and Sager (2003), in an empirical study of life insurance companies, find support for the hypothesis that products offered by insurers drive both the capital choices and distribution methodologies used by a firm.

They find that stock ownership is related to greater financial and asset risk taking, and agency distribution is related to lower risk taking.

In summary, sufficient evidence now exists to support a number of arguments explaining why agency writers have remained a major distribution channel in the United States. What is less clear is an explanation for the difference between the Canadian and U.S. markets with respect to expense ratios and markets shares of different distribution systems. In the next section we provide an overview of the Canadian P/L market and then analyze expense ratios by distribution method. The results provide evidence that, despite a lack of cost difference between agency and exclusive writers, other factors are important in understanding the difference in market structure.

## **COSTS OF DISTRIBUTION IN THE CANADIAN INSURANCE MARKET**

The literature on distribution channels leads to the general conclusion that agency writers are expected to be more prevalent in complex, commercial lines while exclusive writers are expected to dominate in personal lines. To examine whether this holds true in the Canadian market, we assembled company-level data for 217 firms for the period 1995 to 2003, for a total of 1,420 observations. Data for 1995 to 1999 are provided by AM Best WinTrac P/C. Data for 2000 to 2003 are provided by MSA Research. The data account for approximately 85 to 90 percent of direct written premiums in the private P/L marketplace in Canada. Both AM Best and MSA Research files are compiled from company-level annual statements filed with the federal regulator, the Office of the Superintendent of Financial Institutions (OSFI).

We find that agency writers dominate both commercial and personal lines primary insurance markets in Canada, underwriting 64 percent of personal lines and 76 percent of commercial lines (see Table 1). The market shares of each distribution method have not changed dramatically since 1995. The overall market share of agency writers fell slightly in personal lines between 1995 and 2003, while their share of commercial lines remained relatively constant. Commodity insurers increased their market share in both personal and commercial lines within the last decade (accounting for 12.95 percent of personal lines and 6.89 percent of all commercial lines written in 2003), and the market share of exclusive writers increased slightly over this time period.

There are very few multiple-channel writers in Canada<sup>1</sup> (only twenty-one companies in our dataset). Between 1995 and 2003, these insurers had

**Table 1. Percentage of Market Share by Line of Insurance and Distribution System—Excluding Public Insurers**

Distribution system	Personal lines		Commercial lines	
	1995	2003	1995	2003
Multiple-channel writers	9.55%	6.65%	13.54%	9.80%
	(13)	(15)	(16)	(13)
Exclusive writers	15.33%	16.64%	4.92%	6.79%
	(18)	(16)	(16)	(17)
Agency writers	67.30%	63.75%	77.44%	76.52%
	(88)	(77)	(98)	(93)
Commodity writers	7.82%	12.95%	4.10%	6.89%
	(8)	(15)	(9)	(14)

The 1995 dataset is collected by AM Best WinTrac P/C. It consists of 194 firms that account for 85 percent of the private insurance market in Canada. The 2003 data are collected by MSA Research. These 170 companies account for 90 percent of the private insurance market in Canada. The figures in parentheses below each percentage is the number of firms that report direct written premiums for each distribution method and lines of business.

a 37 percent growth in direct written premiums for commercial lines and a 19 percent growth in direct written personal premiums. However, because the overall commercial market grew 103 percent and the personal lines market grew 67 percent, multiple-channel writers lost market share between 1995 and 2003.

Similar to the Canadian market, the U.S. marketplace also saw little change in the market shares of distribution methods over the past decade. The agency writer market share for commercial lines remained stable around 75 percent until 1998 (Swiss Re, 2004). Subsequent declines in agency writer share to 69 percent in 2002 are the result of the strong growth in offshore insurance markets. In contrast to Canada, the U.S. agency writer market share for personal lines has remained relatively constant around 30 percent since the early 1990s.

We find other differences between the Canadian and U.S. markets when we examine the relationship between size, organizational structure, product lines, and costs. In the U.S., exclusive writers are generally larger firms, organized as mutuals, which predominantly sell personal lines and have a lower cost of distributing insurance. The independent agency system is used, on average, by smaller firms, often organized as stock firms,

**Table 2. Descriptive Statistics for Selected Variables, 1995–2003**

	Entire sample Mean	Multiple- channel writers Mean	Commodity writers Mean	Exclusive writers Mean	Agency writers Mean
UWE / NPW	35.59%	34.30%	36.31%	35.58%	35.68%
(UWE + LAE) / NPW	44.91%	44.13%	43.14%	43.70%	45.54%
UWE (000s)	36,257	32,992	29,349	37,740	37,672
UWE + LAE (000s)	49,051	45,908	37,382	54,217	50,604
NPW (000s)	122,836	127,556	109,233	138,446	121,657
Incurred losses and LAE (000s)	87,040	96,732	68,671	107,579	85,021
NPW / DPW*	1.322	1.196	3.457	0.862	1.064
Herfindahl index by line of business	58.03	57.51	76.59	69.48	53.02
Herfindahl index by region	56.24	56.78	61.27	67.00	53.48
% of personal lines written	54.75%	53.49%	61.88%	69.74%	51.16%
Number of companies	217	21	6	33	157
Number of observations	1,420	149	159	165	947
Number of purely Canadian firms in sample	48 firms (430 observations)				
Number of mutual firms	51 firms (315 observations)				
Number of firms in first two years of operation	8 firms (14 observations)				
Number of firms belonging to a financial group	191 firms (1119 observations)				

Data for 1995 to 1999 were provided by AM Best WinTrac P/C. Data for 2000 to 2003 were provided by MSA Research. The data covers approximately 85 to 90 percent of direct written premiums in the private P/L marketplace in Canada.

\*The ratio of NWP/DWP should be less than or equal to 1, and indeed is so for 86 percent of our observations. Observations of greater than 1 arise from underwriting arrangements between group members and from reinsurers who are included in our sample because they have some direct written premiums.

which distribute more complex lines of insurance and have relatively higher expenses. As shown in Table 2, these relationships between size, organizational structure, and product lines are not evident in Canada.

The distinct differences between the U.S. and Canadian P/L insurance market structures raise the issue of why exclusive writers have been

successful in dominating personal lines in the U.S. but not in Canada. One explanation is that exclusive writers in Canada do not exhibit lower expenses. Table 2 presents expense ratios for the entire sample of insurers and for each distribution channel. The average underwriting expense ratio (UWE/NPW) for firms over the nine years is 35.59 percent, and there is little variation by distribution channel. The expense ratio when loss adjustment expenses (LAE) are included is almost ten percent higher, at 44.91 percent. We find that, using pair-wise t-tests, there are no statistically significant differences in underwriting expense ratios or in the underwriting and loss adjustment expense ratios between any of the distribution channels. Hence, the absence of lower costs for exclusive writers may be one explanation for their lower market share in personal lines.

To further test this, we use OLS regression to account for structural and institutional features that may be indirectly related to the distribution method used and may affect the expenses incurred by insurers. Drawing on earlier research, we use two measures of expenses: the ratio of underwriting and loss adjustment expenses to net premiums written (Cummins and VanDerhei, 1979; Barrese and Nelson, 1992) and the natural logarithm of the dollar amount of underwriting and loss adjustment expenses (Cummins and VanDerhei; Barrese and Nelson).<sup>2</sup>

To account for operational characteristics of insurers that are expected to affect expenses, we include variables to capture the effects of size, corporate organization (stock or mutual), reliance on reinsurance, type of insurance products offered, geographic and product line diversification, and ownership structure (Canadian or internationally owned). The variables we use, and their expected relationship with expenses, are described below.

*Distribution method:* Theoretical arguments imply that exclusive writers will have lower costs than agency writers because of lower agency costs and greater efficiency. However, the fact that agency writers have continued to dominate the Canadian personal lines market suggests that Canadian exclusive writers may not have lower expenses. Commodity writers are expected to have lower expense ratios than either exclusive or agency writers because of centralized distribution centers and differing compensation schemes for those that sell policies. Firms that deliver insurance through multiple channels might be expected to have higher expenses because they bear the relatively higher commissions associated with agency writers and assume the higher fixed costs associated with exclusive and commodity writers. Indicator variables are used to denote exclusive writers (combining those that use exclusive agents and those that use their own sales force), commodity writers, and companies that use multiple distribution channels.

*Output / size:* Company size may be expected to affect expenses, owing to economies of scale.<sup>3</sup> To measure size, two variables are used: net premiums written and incurred losses. Since net premiums written (NPW) captures both price and output, incurred losses is arguably a better measure. If scale economies exist, the coefficient should be less than one when measuring expenses by the logarithm of dollar amounts. When measuring expenses by a ratio, the coefficient should be negative. A one percent growth in size is expected to result in a less than one percent growth in expenses.

*Organizational form:* There are several theories relating insurer expenses, distribution methods, and organizational form. Baranoff and Sager (2003) and Regan and Tzeng (1999) predict that a higher level of monitoring exists for stock firms, implying higher costs. In addition, Kim, Mayers, and Smith (1996) and Regan and Tzeng suggest that stock ownership and independent agency distribution are strategic complements, implying that most stock companies should be agency writers, and most mutual companies should be exclusive or commodity writers. To account for the potential effect of organizational form on insurer expenses, an indicator variable for mutuals is included and is expected to be negative.

*Reliance on reinsurance:* The extent to which companies cede or retain risk will also affect expenses. Companies that retain more risk incur more expenses settling claims. Thus cost measures that include loss adjustment expenses should be positively correlated with the amount of risk retained. As noted by Regan and Tzeng (1999), the use of a retention measure is also important when examining company-level data because it also accounts for reinsurance transactions that take place between companies within a group. Reliance on reinsurance is measured as the ratio of net to direct premiums written.

*Geographic diversification:* In Canada, solvency is regulated at the federal level for federally registered firms and at the provincial level for provincially registered firms.<sup>4</sup> Products and practices are regulated at the provincial level for all firms, with personal auto insurance products being the most regulated in terms of policy wordings, benefits, and premiums. To account for the complexity and cost of doing business across provinces, a Herfindahl measure is included to quantify insurers' geographic concentration.<sup>5</sup> Since a higher index value denotes higher concentration, this variable is expected to be negatively related to expenses.

*Types of insurance underwritten:* An important factor that will affect underwriting expenses is the type of insurance underwritten. Personal lines are less complicated to underwrite and therefore less expensive to write than commercial lines. To capture this, we include a variable that measures the proportion of personal lines written (calculated as personal

property plus automobile direct written premiums divided by total direct written premiums). This is expected to be negatively related to expenses. As in the case of geographic diversification, the more diverse the product offerings by insurers, the greater the expenses are expected to be. Thus, a Herfindahl measure is included to account for how diversified an insurer is across all lines of business; it is also expected to be negatively related to expenses.

*Domestic insurers:* The majority of insurers operating in Canada are members of international, and in some cases national, financial conglomerates.<sup>6</sup> Such firms are expected to face different competitive pressures than Canadian domestic insurers and thus may have different expense structures. Firms that are members of a large conglomerate might also benefit from expense sharing across member companies. We include an indicator variable for domestic insurers and expect that this variable will be positively related to expenses.

*New company:* Companies in their first years of operations may have higher-than-expected expenses. To account for this, we assign an indicator variable of one if a company is in its first two years of operation and anticipate that this will be positively correlated with expenses.

## METHODOLOGY, DATA, AND RESULTS

The relationship between expenses and individual company characteristics is examined using data for the period 1995–2003. The dataset consists of 1,420 observations over nine years. Of the 217 insurers in the sample, 96 have data for the entire nine years and 22 insurers have data for only one or two years. In the sample, there are 157 agency writers, 33 exclusive writers, 6 commodity writers, and 21 multiple-channel writers.

A panel regression model is used and four separate models are run: two for each of the two dependent variables, using one measure of output (incurred losses or net premiums written) at a time. Descriptive statistics for selected variables are given in Table 2 for the entire sample and for each distribution channel. Detailed results from the regressions are reported in Table 3.

As noted previously, the average expense ratio,  $(UW+LAE)/NPW$ , is 44.91 percent, and this does not vary significantly across distribution channels. Using pair-wise t-tests, there are also no significant differences in firm size between any of the distribution methods when measuring size by net premiums written. If size is measured by incurred losses, commodity writers are significantly smaller than firms using other distribution methods.

**Table 3. Regression Results**

Variable	Expected sign	Dependent Variable			
		(UWE + LAE)/ NPW	(UWE + LAE)/ NPW	Log (UWE + LAE)	Log (UWE + LAE)
Exclusive writer	0	-0.0139	-0.0138	-0.0017	-0.0427
Commodity writer	-	-0.0330*	-0.0311	0.1500*	-0.0238
Multiple channel writer	+	-0.0024	-0.0028	-0.1428*	-0.0469
Size measure: NPW	-		-1.096E-07*		
	<1				0.8924
Size measure: losses	-	-1.227E-07*			
	<1			0.7982*	
Mutual company	-	0.0009	0.0003	-0.1797*	-0.0694
Reinsurance reliance	+	-0.0011	-0.0011	-0.0056	-0.0027
Geographic diversification	-	0.0051	0.0022	-0.1563*	0.0140
% of personal lines written	-	-0.0538*	-0.0515*	-0.0521	0.0510
Line of business diversification	-	0.0386	0.0327	-0.1277	-0.2863*
Domestic insurer	+	0.0249*	0.0248*	0.1480*	0.0280
First two years in operation	+	0.0116	0.0092	-0.1623	0.0732
Adjusted R <sup>2</sup>		6%	7%	88%	93%

\* Significant at 5%

With respect to products underwritten, the level of concentration by distribution channel is significantly different, with agency writers being the least concentrated, followed by multiple-channel writers, exclusive writers, and finally commodity writers. Both exclusive and commodity writers sell more personal lines of insurance than do multiple-channel or agency writers. Exclusive writers are significantly more concentrated geographically than either multiple-channel writers or agency writers, and commodity writers are significantly more concentrated than agency writers.

For regressions in which the dependent variable is a ratio, the adjusted R<sup>2</sup> values are less than 8 percent, indicating that very little of the variation

in expense ratios is explained by the independent variables included. The models using expense levels as the dependent variable fit much better; however, most of the fit is explained by the size variable.

The results do not support the argument that it is less costly to distribute insurance via exclusive writers. This finding is in contrast to the U.S. studies that provide evidence that distributing insurance via one's own sales force or an exclusive agency network is more cost-efficient. There is weak evidence that multiple-channel writers have lower expenses than agency writers.

The coefficient for the commodity variable is positive and significant when using the log of expenses, but negative and significant when measuring expenses related to NPW, and when size is measured by losses. We expect that this is due to the centralized nature of many commodity writers. They rely more on external adjustors and spend, on average, more to adjust losses than insurers that use face-to-face distribution methods. However, this higher expense is compensated for in the setting of premiums, thus leading to the negative coefficient when expenses are measured by the expense ratio. Thus it appears that there is a cost disadvantage to consumers when insurance is sold via commodity writers: although the distribution may be efficient, this method does not lead to an efficient way to settle claims. And this cost is borne by the purchasers of insurance.

To test for economies of scale, the coefficients for the size variables are compared to one (zero) when the dependent variable is the logarithm of expenses (expense ratio). For all models, the coefficients are statistically significant, implying that economies of scale exist. The coefficient for the mutual indicator variable is negative and significant only when expenses are measured by dollar amounts and size is measured as losses. These results are in line with Cummins and VanDerhei (1977), who find a positive relationship between expenses and stock companies.

The reinsurance variable is not significant. This result contrasts with the U.S. studies that found that the reinsurance variable was significant in most model specifications. This difference may be explained by the fact that size is measured by NPW in this study, whereas the U.S. studies used DPW as a size measure.

The next set of independent variables relates to the lines of business written and diversification of insurers. When expenses are measured as the log of costs, there is some evidence that firms that are concentrated either geographically or by line of business have lower expenses than firms that underwrite in more provinces or that underwrite more lines of business. The percentage of personal insurance written is negative and significantly related to expenses in the regressions that use the expense ratio as

the dependent variable, reflecting the lower costs of underwriting these products.

In three of four models, the variable for domestic insurers is positive and significant, indicating that these insurers have higher expenses than those belonging to an international conglomerate. And finally, the indicator variable for firms in their first two years of operations is not significant in any model.

In summary, there are no significant differences between the cost structures of agency writers and exclusive writers, and weak evidence of a difference between agency writers and both multiple-channel writers and commodity writers. There is strong evidence that insurers exhibit economies of scale, and that domestic insurers face higher expenses. There is weak evidence that mutual insurers have lower expenses. In terms of business written, there is some evidence that insurers that are more diversified by line or by region have higher expenses and that insurers that concentrate in personal lines have lower underwriting expenses.

These results suggest that insurer size is an important determinant of costs and that the degree of concentration or diversification also is relevant. In the next section we describe how the size of the market and how it is regulated have influenced the market structure of the Canadian P/L insurance market.

## **THE COEXISTENCE OF DISTRIBUTION SYSTEMS: THE CANADIAN LANDSCAPE.**

There are two factors that are important in understanding the differences between the Canadian and U.S. market structures: first, the relationship between market size—NPW of 43,160 million USD versus NPW of 603,108 USD for the United States in 2004 (Swiss Re, 2005)—and the costs to distribute insurance; and second, the differences in regulation between the two countries.

The former has two effects. First, commodity and exclusive writers in Canada are currently operating at diseconomies of scale: the lower variable costs traditionally associated with commodity and exclusive writers are overshadowed by higher fixed costs per premium dollars written. And growth may not be feasible because the high cost of advertising relative to the potential premium dollars available has restricted the ability of commodity and exclusive writers to capture greater market share.

The implication of regulation is twofold. In provinces in which personal automobile insurance is sold by government-run monopolies, insurers sell a variety of lines of insurance in order to maintain a large enough

premium volume to ensure their viability in these provinces.<sup>7</sup> In provinces in which the private market provides automobile insurance, the high level of government intervention has made these markets unattractive for exclusive and commodity writers because of the volatility that arises in highly regulated insurance markets (Harrington, 2002).

### Fixed and Variable Costs

The cost to distribute insurance can be separated into variable costs, the largest being commissions, and fixed costs, such as salaries, advertising, and electronic data processing (EDP) expenditures, that do not vary directly with the dollar value of net insurance sold.<sup>8</sup> The proportion of fixed and variable costs is expected to differ by distribution method. Table 4 displays the average commission paid by each distribution channel. Pair-wise t-tests indicate that there is not a significant difference between commissions paid by exclusive writers and agency writers. However, commodity writers have significantly lower commissions than either exclusive or agency writers. Multiple-channel writers, of whom the majority sell both through face-to-face channels and through commodity channels, have significantly lower commissions than both exclusive and agency writers. The fact that exclusive writers do not have significantly lower commissions than agency writers may explain the lack of significant difference in expense ratios for the two channels.

With respect to fixed costs, Regan (1997) hypothesizes that exclusive writers should invest relatively more, per premium dollar written, in advertising and EDP. She found that U.S. exclusive writers have significantly higher advertising ratios than agency writers, but not significantly higher EDP expenditures.<sup>9</sup>

Table 4 contains Regan's results for the U.S. and a similar expense analysis of Canadian insurers for the period 1997–2002.<sup>10</sup> Using pair-wise t-tests, we find expenditures for advertising are significantly higher for exclusive and commodity writers than for agency writers or multiple-channel writers. There is no significant difference between the advertising ratios of exclusive and commodity writers nor between agency and multiple-channel writers. With respect to expenditures on EDP, both agency writers and multiple-channel writers spend significantly less than exclusive writers. All other electronic data processing expenditure relationships are insignificant at the 5 percent level.

Although direct comparisons are difficult to make because of the time periods of the two datasets are different, the notable difference in the magnitude of the advertising and EDP ratios between exclusive writers in Canada and the U.S. suggests that there might be significant economies of scale in these fixed costs.<sup>11</sup> Combined with the lack of statistical difference

**Table 4. Expense Ratios, Fixed-Cost Ratios, and Commissions Paid by Distribution System, 1995–2003**

	Canadian Insurers 1995–2003			U.S. Insurers 1980–1990		
	Multiple- channel writers	Commodity writers	Exclusive writers	Agency writers	Exclusive writers	Agency writers
Commissions/ DPW	12.67% (99)	10.73% (99)	15.08% (110)	15.94% (696)		
Advertising ratio	43.68 (87)	2,933.58 (109)	339.86 (112)	51.81 (601)	32.49	13.77
EDP ratio	83.89 (106)	610.41 (125)	141.56 (113)	94.58 (668)	118.74	100.684
Complexity ratio	46.51% (141)	38.12% (154)	30.26% (159)	48.79% (919)	16.73%	41.39%

The number in parentheses below each ratio is the number of observations collected. Advertising, EDP, and complexity ratios are net of reinsurance arrangements. The commission ratio is before reinsurance. Advertising and EDP dollar amounts are reported by each firm in page 80.20 of the Canadian Annual Statement (PC-1 for Canadian firms and PC-2 for branch offices).

U.S. data, as reported by Regan (1997), are collected at group level. Advertising and EDP ratios for both Canadian and U.S. firms have been multiplied by 10,000 for tractability.

in commissions between exclusive and agency writers, there is no obvious cost advantage that allows exclusive writers to capture market share.

We conclude that the combination of a smaller market and economies of scale in advertising make it more difficult for commodity and exclusive writers in Canada to build brand presence and market share in personal lines.

## PRODUCT COMPLEXITY AND GOVERNMENT INTERVENTION IN INSURANCE MARKETS

As discussed previously, theory suggests that the use of independent agents or brokers is beneficial when underwriting complex lines of businesses. Regan compared the proportion of complex lines of business written for agency writers and exclusive writers, where the complexity ratio

measures the proportion of complex product lines within a company's portfolio.<sup>12</sup> Her results are given in Table 4. Regan finds a statistically significant difference in complexity between exclusive and agency writers, supporting the hypothesis that agency writers are better suited to write more-complex lines.

Table 4 also shows the complexity ratios by distribution channel for Canadian insurers. Pair-wise t-tests show that agency writers write more-complex lines than exclusive writers and commodity writers. In addition, the proportion of complex lines of business underwritten by Canadian exclusive writers appears to be higher than that underwritten by American exclusive writers. The fact that Canadian exclusive writers underwrite more-complex lines despite their theoretical advantage in personal lines appears to be a rational response to the size of the Canadian market and government intervention in automobile insurance.

Theoretical and empirical research suggests that rate regulation increases volatility of underwriting results (Harrington, 2002), reduces the market share of large low-cost insurers (Tennyson, 1997), and, in particular, reduces the market share of commodity and exclusive writers (Gron, 1995). Barth and Feldhaus (1999) note that an increase in regulatory stringency, which encompasses more than rate regulation, increases underwriting risk for insurers in the market. In jurisdictions with stringent regulation, therefore, we expect agency writers to dominate since the agency system offers advantages to insurers when uncertainty is higher.

Personal insurance, especially automobile insurance, is regulated to a greater extent in Canada than in the United States. In four provinces, mandatory coverages are offered only by government-run monopolies. In the remaining jurisdictions, regulation of policies, rating, and underwriting of automobile insurance are much more stringent than in most jurisdictions in the United States. Ontario, the most populous province in Canada, accounting for 59 percent of all private auto insurance premiums, operates under prior-approval rate regulation and a "take-all-comers" rule. Alberta, with 15 percent of private auto insurance premiums, has a "take-all-comers" rule and recently adopted an insurance pricing grid that caps premiums for mandatory coverages. In the four Atlantic provinces, which account for 9 percent of premiums, stringent restrictions on rating variables have been enacted over the past three years and jurisdictions are introducing prior-approval rate regulation. The presence of strict regulation in the auto insurance market creates a significant level of risk. For exclusive writers, the rational response to such risk is to grow other lines of businesses and/or exit certain markets.

Anecdotal evidence from the Canadian marketplace supports this prediction. Co-operators, the largest domestic exclusive writer in Canada,

notes in its 2005 annual report “we continue to ... reduce the dependence on our automobile insurance business.”<sup>13</sup> Some exclusive and commodity writers have chosen not to enter some provinces. State Farm Group, for example, underwrites automobile insurance in only three out of ten provinces in Canada, and Allstate Insurance Company operates in six provinces in Canada.

In addition to the risk that is associated with strict regulation, the market share of exclusive writers is also limited by the size of the market. Canada-wide, in 2003, government-run monopolies collected \$4.9 billion in net premiums, compared with \$15.8 billion collected by private insurers (Insurance Bureau of Canada, 2004). To achieve economies of scale, private insurers that operate in provinces with government automobile insurance must underwrite both commercial and personal insurance. The relatively small market size helps to explain why agency writers have a substantial share in the personal auto insurance market.

## DISCUSSION AND SUMMARY

This examination of the distribution of personal property and liability insurance in Canada reveals that agency writers dominate both personal and commercial lines, and in Canada, unlike the U.S. market, there is not a discernible difference in expenses between exclusive, commodity, and agency writers. Any variation in expense ratios between insurers is not adequately explained by organizational form, distribution network, or lines of business underwritten.

Two key questions arise from this empirical study. Why does the cost of providing insurance not vary between exclusive, commodity, and agency writers? And why have exclusive and commodity writers not achieved dominance in the personal lines marketplace in Canada?

With respect to the cost structures, it appears that the smaller market in Canada has impeded commodity and exclusive writers from achieving a level of economies of scale that would result in a cost advantage over agency writers. In addition, the relatively high cost of advertising relative to the potential premium dollars available has further restricted the ability of commodity and exclusive writers to capture greater market share in personal lines.

Although various models predict that exclusive writers should underwrite less-complex lines of business and operate in markets with greater certainty, this is not evident in Canada. We conjecture that this situation is related to the high level of government intervention in personal insurance markets which has a profound effect on the ability, and indeed the willing-

ness, of exclusive and commodity writers to increase market share in personal lines. The strict regulation and small market in Canada, especially when taking into account that four provinces have government-run monopolies for mandatory auto insurance, imply that both exclusive and agency writers have an incentive to write both personal and commercial lines of business—agency writers in order to achieve high enough premium volume, and exclusive writers because of the riskiness of personal lines.

One issue not discussed above is the role of history in the development of the current market structure. A survey of company CEOs and marketing managers (Kelly and Kleffner, 2004) indicates that evolution in distribution technology is a slow process, and a firm's choice of distribution method is largely driven by its historical position in the marketplace. For a majority of insurers, their commitment to a particular distribution method stems from the fact that they have always done business in that manner and believe it is most appropriate for their objectives. Agency writers use a broker network because policyholders prefer dealing with brokers and brokers are instrumental in improving an insurer's underwriting results. On the other hand, exclusive and commodity writers cite the importance of control of the distribution channel and control over underwriting quality as key factors in their choice of distribution method. Having their own sales force assures alignment of corporate objectives and guarantees that customers receive a uniform message.

From the policyholder's perspective, consumers in both the U.S. and Canada have traditionally purchased personal lines insurance from a local presence. Historically, the local presence has been State Farm in the U.S., which has been the leading insurer of automobiles since 1942, and the independent brokerage firm in Canada. About the U.S. market, Panko (2003) quotes State Farm executive Charles Gomez: "We are where you live. We are in your community, whether rural or urban. We're at your high school football games, and we go to your churches. It would be very difficult to start a company like State Farm today." The Canadian experience is different. AVIVA executive Mark Webb notes that it has been the local independent agent who has filled this role (Kelly and Kleffner, 2004). This fact, along with those discussed previously, results in a marketplace in which both commercial and personal lines are dominated by agency writers.

## NOTES

<sup>1</sup> Multiple-channel writers are those insurers that use more than one distribution channel (commodity channels with face-to-face distribution, exclusive agents with brokers, or a direct sales force and exclusive agents). Our sample of multiple writers is evenly divided between

firms that use brokers and agents, firms that use brokers and commodity channels, and firms that use agents and commodity channels. Premiums at a company level are not classified by distribution channel.

<sup>2</sup>Barrese and Nelson (1992) also use the natural logarithm of expenses deflated by the GNP price deflator. We examine deflated expenses, and our results do not differ from results when expenses are in nominal dollars.

<sup>3</sup>In the U.S., the use of output also captures a size differential between agency and exclusive writers (Joskow, 1973; Cummins and VanDerhei, 1979). As shown in Table 2, this size difference does not exist in Canada.

<sup>4</sup>Insurers that write in more than one province typically choose to be regulated at the federal level.

<sup>5</sup>The Herfindahl index is calculated as the sum of squared direct premiums written per province divided by the square of the Canada-wide direct written premium.

<sup>6</sup>In 2003, purely domestic private insurers, who are not part of a large national or international financial conglomerate, accounted for roughly 26 percent of the direct written premiums in our sample.

<sup>7</sup>Manitoba, Saskatchewan, and British Columbia have government-run monopoly auto insurers that provide all mandatory coverages. In 2003, the average proportion of auto insurance underwritten in these provinces by private insurers that sell optional “top-up” coverages ranged between 9 percent and 11 percent. In Quebec, both first- and third-party bodily injury coverages are provided by the government insurer, SAAQ. The mandatory third-party property damage coverage as well as first-party PD coverages are offered by private insurers. In the other provinces, 29 percent to 44 percent of an insurer’s book of business is auto insurance.

<sup>8</sup>Mitchell (2001) notes that in the U.S., costs are shifting from commissions to increased advertising for all insurers, with exclusive and commodity writers spending relatively more on advertising.

<sup>9</sup>Both ratios are calculated as the amount spent on advertising or EDP purchases divided by net premiums written.

<sup>10</sup>Because of changes in OSFI reporting requirements, EDP and advertising ratios cannot be calculated for 2003.

<sup>11</sup>Anecdotal information suggests that the impact of advertising on market growth cannot be overstated. Green (2004) notes that commodity writer Geico increased its Internet operations by 75 percent in 2002. In the same year, Geico was the second-largest insurance advertiser (behind State Farm) in the U.S. Between 1998 and 2003, its direct premiums written grew by 93%, moving it from the sixth- to the fifth-largest auto insurer in the United States. During the same time period, multiple-channel writer Progressive grew from the fifth-largest auto insurer in the U.S. to the third-largest (112 percent growth in direct written premiums). Progressive was the third-largest insurance advertiser in 2002.

<sup>12</sup>For the U.S., Regan defines complex lines to be workers’ compensation, commercial multi-peril, and general liability. We define the complexity ratio in a similar fashion except that worker’s compensation is not written by private insurers in Canada and Canadian insurers do not separate auto insurance into commercial and private passenger coverages.

<sup>13</sup>Co-operators Annual Report 2004: [cooperators.ca/english/about\\_cooperators/2004report/coopGroup\\_EN/downloads/AR\\_2004\\_Coop\\_Group\\_EN.pdf](http://cooperators.ca/english/about_cooperators/2004report/coopGroup_EN/downloads/AR_2004_Coop_Group_EN.pdf)

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