Misconduct in Credence Good Markets*

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Abstract

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"... will people push the envelope and pitch lucrative and complicated products to clients even if they are not the simplest investments or the ones most directly aligned with the client's goals? Absolutely. Every day, in fact."

- Greg Smith, former executive at Goldman Sachs
New York Times Op-Ed (March 14, 2012)

Expert services firms are often found in markets with substantial asymmetric information problems. Experts benefit from customers trusting and buying their advice; however, experts may also face incentives that lead them to sometimes provide less than perfect recommendations. For example, investment or insurance advisors can recommend products that offer customers less benefit, but provide themselves with greater revenue than the customers' ideal products.

Misconduct in the financial services market is more than just a theoretical possibility. Mullainathan, Noeth, and Schoar (2012) conduct a field audit study in a U.S. market and find that financial advisors often recommend self-serving products. Anagol, Cole, and Sarkar (2012) conduct an audit study of insurance sales agents in India and find similar results.

Financial experts themselves acknowledge the ethical quandary of their field. In Cooper and Frank (2005), a survey of insurance agents finds that agents consistently identify three primary ethical issues: failure to identify the customer's needs and recommend products that meet those needs; false or misleading representation of products or services; and conflicts between customer benefits and opportunities for personal financial gain.

Many financial services, including life insurance sales, fall broadly into the category of credence goods. With credence goods, it is difficult for a customer to determine whether the product or service is the best match for his or her needs. In extreme cases, the customer may never discover if the product was the most appropriate one—for example, the final benefit of life insurance may be realized only upon death. When it is difficult for a customer to discern the correct product or service, an expert who both advises and receives revenue based on his advice faces conflicting incentives. High quality advice may improves the customer's payoff; yet, when taken by the customer, inappropriate advice may lead to higher expert revenue.

Many of the existing models of expert services allow advisors to adjust both quality and prices. In contrast, we explore a credence good market with price-taking experts: insurance sales agents who face fixed commission rates and prices. While we focus on life insurance sales, other examples of price-taking experts include individual physicians and dentists who may have limited scope to adjust prices for a particular patient, and taxi cab drivers who face regulated rates.

In this paper, we use consumer complaints data to explore sales-level distortions. Although complaints are an imperfect measure of misconduct, we argue that complaints data

summarizing accusations investigated by a state insurance regulator offer us a window into actual misconduct and allow us to explore the impact of different organizational structures on expert behavior.

We match licensing data with company affiliations and detailed sales practice complaint records from the Texas Department of Insurance. From company affiliation data, we identify two types of experts: agents who work exclusively for large, branded companies, and agents who work independently. We find that exclusive agents face more justified complaints than independent agents, despite enjoying lower market share. We also find that more experienced agents have great per year complaint rates than less experienced agents.

In this paper, we propose several possible explanations for the observed effect. Since insurance experts are price takers, their dimension of competition is the level of misconduct. For a given level of malfeasance, customers working with exclusive agents at large firms fare better in expectation relative to customers using independent experts. Several features of the industry support the observed difference in reported misconduct. For example, experts working exclusively for large branded companies may offer the customers more expected surplus through the value of their brand and through additional services and support. Alternatively, experts working as representatives of large, hierarchical organizations may be more heavily monitored by supervisors who can block inappropriate transactions and compensate consumers.

The intuition for these proposed explanations is straightforward: Salespeople cannot set their own prices to extract surplus from the larger expected consumer benefits; instead, they extract surplus through greater misconduct.

Studies of misconduct face a trade-off: direct observation of misconduct through field experiments is necessarily limited in scale, while administrative data on reported misconduct may suffer from selection biases. In this paper, we use data on misconduct that has been reported to and investigated by a state regulator. Thus, we can take advantage of the observation of both accusations of misconduct and confirmed cases to consider the role of reporting and selection biases. Indeed, the results that we present are robust to concerns about the volume of business and reporting bias.

Reputation has been offered as a solution to asymmetric information problems in markets. Reputation is built through repeated interactions across or within customers over time (for examples, see Kreps (1990) and Tadelis (1999)). However, the nature of credence good markets means that misconduct is seldom observed; the signals required for reputation building on this dimension are not sufficiently informative (Mailath and Samuelson 2001). As a result, it is often not possible to build a reputation explicitly for ethical behavior. Yet, we still observe strong branding of firms in many credence good settings—for example, insur-

ance companies, wirehouses, and hospital networks are often heavily advertised. Branding and reputation solve informational asymmetry in many markets; however, in our empirical setting, the correlation between strong branding and higher additional surplus leads to a prediction that experts from large, branded firms are actually more likely to engage in misconduct.

Darby and Karni (1973) provide the foundation for the literature on credence goods. Pitchik and Schotter (1987) isolate the problem of the expert honestly suggesting a mode of treatment and provide comparative statics results comparing price and quality controls and the level of honesty. Pessendorfer and Wolinsky (2003) study the first stage of a similar problem: the need to provide incentives for the expert to expend enough effort to identify and provide a correct solution. Sulzle and Wambach (2005) explore how changing physician and patient incentives through higher coinsurance levels may (or may not) induce patients to increase physician search and encourage physicians to reduce fraud. Alger and Salanie (2006) also consider the role of the client and find that a patient's ability to reject an expert's recommendation creates a market failure. Emons (1997) shows that market equilibria with honest expert behavior exist when customers can infer sellers' incentives for fraud from market data. Gennaioli, Shleifer, and Vishny (2012) study the behavior and market outcomes of trusted investment managers when investors' beliefs are misguided.

Customer heterogeneity may also drive the credence good problem. Fong (2005) shows that cheating arises when firms target high-valuation and high-cost customers. Feddersen and Gilligan (2001) find that third parties, namely activists, can ameliorate the credence good problem. Taylor (1995) examines multi-period contracts and warranties as another solution. Inderst and Ottaviani (2009, 2011, 2012) study firms trying to induce agents to provide advice to imperfectly informed customers. They find that mis-selling depends on firm asymmetries, customer awareness, and agents' utility from giving suitable recommendations. Broadly, in their models, agents provide honest advice when firms are symmetric or there are sufficiently many aware customers in the market. Lightle (2009) considers the opposing case where an expert attempts to maximize his customer's payoff. Dulleck and Kerschbamer (2006) present a model that unifies the extant literature and rationalizes many of the previous theoretical findings.

Hubbard (1998) explores empirically the incentives faced by experts in automotive repair services. He finds that private firms are more likely than state inspectors to help vehicles pass emissions tests. Moreover, he finds that independent experts are more likely to provide favorable inspection reports, relative to branded "chain" shops with non-owner managers. Hubbard (2002) suggests that the possibility of many future transactions provides incentives for experts to offer more favorable advice, particularly where experts are residual claimants.

Free-riding may also dampen individual experts' incentives, as firms with more inspectors tend to help vehicles pass less frequently. Levitt and Syverson (2008) find that real estate agents invest more effort and secure a higher price for the sale of their own property, relative to their customers' homes. Similar to the mechanism proposed by Hubbard (2002), Levitt and Syverson argue that the absence of frequent and repeated interactions limits customers' abilities to verify their agents' service quality. They also find that the difference between agent-owned and non-agent-owned sale prices is increasing in the degree of asymmetric information about property values. In a very different context, Gruber and Owings (1996) find that physicians perform more cesarean-section deliveries in response to negative income shocks.

The paper proceeds as follows. In the next section, we provide an overview of important institutional features of the insurance industry. In sections 2 and 3, we describe our data and provide evidence of a difference between the complaints against exclusive and independent insurance salespeople. In section 4, we build on existing credence good models to explore several explanations for the observed effects. In section 5, we consider several alternative explanations for the empirical findings. Our final section discusses some implications.

1 Life insurance: Industry background

The life insurance and annuities (LA) sales experience fits into the broad category of credence services. Products are complicated and multidimensional, and it is very difficult for even sophisticated consumers to identify the appropriate product for their needs. Insurers impose multiple "riders" and introduce modifications to policies that may be opaque to customers. For example, life insurance policies can be term, universal, whole, variable and variable universal, with terminal illness and disability waivers, long-term care provisions, and accidental death benefits.[1] Consequently, a customer may be sold an inappropriate product, but may never become aware of the seller's misconduct or mistake. In particular, the customer will never experience how well the life insurance policy serves his expected needs. Moreover, the insured customer and his beneficiaries may never learn whether there existed a superior product in the market at the time of purchase.

Insurance agents cannot adjust the prices faced by individual customers—indeed, this practice called "rebating" is illegal in most jurisdictions.[2] An insurance agent can enhance his commissions by recommending the wrong product to a customer. This increased revenue

[1] The National Association of Insurance Commissions publishes a buyers' guide that describes some of the product complexities (http://www.naic.org/documents/consumer_guide_life.pdf).

[2] Rebating is illegal in our data environment (Texas Insurance Code Chapter 1806, Section 53).

can come from simply "overselling" the level of insurance or from selling a product with a higher commission rate (i.e., percent of the customer's premium paid to the agent) and lower benefits to the buyer.

Commissions vary significantly across and within product types. For example, commissions from annuities typically range between 2 and 10% of the invested amount.[3] Typically, commission amounts are not disclosed to customers, allowing an agent to recommend an inferior product for a larger commission. In general, the tradeoff between the benefits to the policyholder and the revenue for the seller is substantial—for example, a so-called "bonus" annuity pays the customer an additional interest rate in the first year; however, the bonus rate and the commission rate are negatively correlated.

1.1 Organizational forms

Insurance salespeople work primarily under two different organizational structures: (1) agents work exclusively for large, branded companies; and (2) independent experts are not attached to any single insurance company.

Exclusive agents

Exclusive company agents are typically affiliated with only one insurance company and may market only approved products from that company.[4] In practice, these product lists are quite large and there is little concern that exclusive agents are too constrained. Insurance companies using this organizational form may offer employment benefits packages and provide introductory training to inexperienced agents. In many cases, new agents receive guaranteed salaries that phase out as they build up "books" of business, typically over 12 to 24 months. Exclusive agents also have access to office space and administrative staff through the insurance company.

Multiple exclusive agents in a city or region often share the same office space. Hierarchy within these offices ensures some level of supervision—for example, branch managers may oversee and approve large or complicated transactions.

Exclusive agents may earn 50 to 70% of the gross commissions of their sales, depending on the type of insurance product. State Farm, Farmers Insurance, Allstate, Northwestern Mutual and New York Life are examples of firms using the exclusive agent model (A.M. Best 2011); in general, these firms have well-known, easily-recognized brand names.[5] We include

[3] Our commission rate estimates and discussion of monitoring are based on personal communication with professional insurance agents.

[4] These agents may also be authorized to market selected products from other companies through agreements between their primary company and other firms.

[5] In 2010, State Farm, AXA, Allstate and Metropolitan Life appeared in Brandz's report on the top eight most valuable global brands in the insurance industry (report available online at

a list of insurance companies using exclusive agents in the Appendix.

Independent agents

Independent agents are not affiliated with a single insurance company. While independent agents are not restricted to selling insurance from any particular company, they usually cannot market products from insurance companies that use company agents—for example, an independent agent cannot sell any State Farm products.

Independent agents are often "one agent shops" and their transactions are not overseen by managers or supervisors. After accounting for business expenses, both company and independent agents earn roughly the same net commissions (Carson et al. 2007).

Typically, independent agents are responsible for all of their expenses; however, they generally earn 100% of the gross commissions on their sales.

1.2 Misconduct

Both exclusive and independent agents can engage in various types of misconduct. In this paper, we focus on sales-level misconduct over which individual agents have control. Note that we are not considering misconduct by the insurance company, such as the unfair denial of claims.

Sales misconduct can take many forms. For example, agents can pocket the policy premium and provide the customer with fraudulent insurance documents ("conversion"). Misleading advertising about policy features and the misrepresentation of insurance-related information by an agent are also considered misconduct.

Since the bulk of total commissions for many products is earned in the first year of the life insurance policy, agents benefit from frequent policy changes. "Churning" describes the case where the agent induces a customer to (unnecessarily) cash out his existing policy in order to purchase a new policy from the same insurance company. "Twisting" is similar in nature, but involves an unnecessary switch to a new policy with a different insurance company.

Agents may also offer unauthorized rewards—in the form of payments, favors, or advantages—to induce a client to purchase a new policy or product. Agents may illegally bundle products by refusing to sell or renew a customer's policy unless the client agrees to purchase additional line of coverage (e.g. life insurance tied to home or auto insurance).

These examples of misconduct are not exhaustive: Unauthorized acts and other agent-level mishandling are other broad categories of agent-level misconduct. The second column of Table 1 summarizes common categories of misconduct and complaints.

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http://c1547732.cdn.cloudfiles.rackspacecloud.com/BrandZ_Top100_2010.pdf).

Misconduct and Complaints

The Texas Department of Insurance (TDI) regulates insurance-related business in the state, including life insurance and annuities sales. Among its many duties, the TDI is charged with enforcing state insurance laws and ensuring the fair treatment of consumers.[6]

Complaints against insurance agents, agencies and companies can be filed with the TDI through a web-based form or by mail, fax, or email.[7] Complainants are asked for detailed information about their policies, the individuals or companies involved in the complaint, and the nature of the complaint. While some of the complaint detail is considered public record, information that is protected by state and federal law remains confidential (e.g. medical records and financial information).

Upon receipt of a complaint, the TDI notifies the subject of the complaint and requests a detailed response. With that response, the TDI determines whether the individual agent or insurance company violated the terms of the contract or broke state insurance law. If the complaint is deemed justified, the TDI can levy penalties as outline in the state insurance code.

State insurance code (Texas Insurance Code, Title 13, Chapter 4005, Section 101) requires intentionality in violations of the law—indeed, the code states that willful violations of insurance law will be disciplined. The word "knowingly" is used throughout the code to describe actions that are subject to penalty—for example, regarding the misrepresentation of policy terms, the code states that it is "...an unfair or deceptive act or practice in the business of insurance to knowingly permit the making of, offer to make, or make a life insurance contract...other than as plainly expressed in the issued contract..." The TDI determines the agent's actual awareness of the violation as part of the investigation.

2 Data

Our Texas insurance dataset was compiled from multiple public sources and consists of licensing, appointment, complaint, and market share information. Broadly, the data cover the population of agents operating in the state and characterize both firm affiliations and reported incidents of misconduct in Texas's insurance industry.

[6] A complete version of the code is available at http://www.statutes.legis.state.tx.us under "Insurance code."

[7] Telephone conversations with representatives at the TDI suggest that most complaints come from individual customers.

2.1 Agents

The licensing data were acquired from the Texas Department of Insurance (TDI) and cover all agents who were licensed to sell insurance in the state of Texas in 2010. Overall, the data describe 174,792 agents licensed to sell LA. The licensing data include unique agent identifiers and the date on which each agent was first licensed in the state.

To identify the organizational form under which individual agents operate, we match company and appointments data from two sources. Company-level data were acquired from A.M. Best (2011) and allowed us to identify insurance companies that use exclusive agents and those that sell through independent agents.[8] We then obtained appointments data from the TDI for firms employing exclusive sales agents. Appointments data list all agents designated to sell a firm's products. Using agents' license numbers, we match license holders to firms and, thus, characterize individual agents' affiliations. Through this process, we identify 56,314 individuals who work as exclusive agents (32% of licensees in the state); the balance, 118,478 individuals, work as independent agents.

We also acquired marketshare data from the TDI, describing the in-state total premiums written for all insurance companies operating in Texas. Table 3 reports aggregate premium and marketshare statistics separately for companies using exclusive and independent agents in Texas. Firms using independent agents hold the majority of the marketshare in LA.[9]

2.2 Complaints

The TDI maintains a public directory of complaints against insurance companies, agents and agencies. We accessed data describing more than 500,000 complaints filed between 1996 and 2010. The directory reports the date and nature of the complaint, the line of coverage, the license number of the subjects of the complaint, and whether the complaint was deemed "justified" or "unjustified" by the TDI.

Complaints vary considerably, from claims disputes to accusations about unfair cancellations. Many complaints, even those leveled at agents, relate to actions under the control of insurance companies (e.g., denial of claims and premium-related complaints).

To focus on misconduct in the sales of products with strong "credence" qualities, we narrow our analysis to the subset of complaints relating to individual agents' sales practices

[8] A.M. Best describes this variable as the companies' "marketing type."

[9] In their seminal work on property rights theory, Grossman and Hart (1986) apply their model to the insurance industry. They predict that company firms (those using exclusive agents) will hold the majority of marketshare in LA. Their predictions align with the insurance industry structure in the early 1980s, when independent firms has only 12% marketshare in LA. These marketshares are the opposite of what we find in Texas using more recent data.

and consider only complaints about LA sales.[10] In total, we identify 5,406 accusations of sales misconduct leveled against 3,707 individuals present in our 2010 LA licensing data. In total, 1,962 LA sales complaints (approximately 36% of the total) were found to be justified.

Figure 1 presents graphically the distribution of total and justified complaints per agent by agent type. There are several things to note in the figure:

First, exclusive agents face more total and more justified complaints than independent sellers—1,133 of the justified complaints were against exclusive agents, while 829 justified complaints were against independent agents. One might wonder if exclusive agents accumulate more complaints as a result of a higher volume of business; however, this does not appear to be the case. As noted above and in Table 2, firms using exclusive agents actually have much lower total marketshare by premiums written, relative to independent firms. Firms with exclusive agents represent approximately 11% of the market and firms with independent agents represent the remaining 89%. That is, exclusive agents are the subject of roughly 35% more complaints, yet do nearly eight times *less* business.

Second, complaints (justified or not) are rare events for both exclusive and independent agents. Only 2.75% of exclusive agents and 0.91% of independent agents have been the subject of any complaint filed with the TDI; only 1.44% of exclusive agents and 0.53% of independent agents have been named in a justified complaint.

Third, conditional on being the subject of any justified complaint, most agents receive only one complaint—82% of exclusive agents and 84% of independent agents with any confirmed misconduct have faced only one complaint in the sample.

Figure 2 shows the distribution of complaints by the agents' experience for exclusive and independent agents, as measured by the years between when they were first licensed to sell LA products and when they received a justified complaint. We excluded agents with less than three years experience as of 2010, since their complaints may not yet have been processed by the TDI. The distributions indicate that exclusive and independent agents do not face justified complaints only in their first years of service; instead, relatively experienced agents are still subject to justified complaints, even after more than 20 years in the industry.

Figure 2 also suggests that exclusive agents receive more complaints later in their careers, relative to independent agents. A Kolmogorov-Smirnov test confirms that the distribution of complaints against exclusive and independent agents are not equal ($p < 0.01$).

While these figures are suggestive—complaints seems to vary systematically with agent type and experience—summary statistics do not capture other differences. We account for more factors in our next section of regression results, and we explore alternative explanations

[10] We exclude complaints relating to property and casualty products, medicare supplements and employment insurance sales.We also drop complaints that were referred to other agencies for investigation.

in Section 5.

3 Results

Are exclusive agents more likely to have been the subject of a justified complaint, relative to independent agents?[11] To address this question, we estimate the following equation:

$$\Pr\left(Complaint_i = 1\right) = \frac{1}{1 + e^{-Q_i}} \tag{1}$$

where $Complaint_i$ equals 1 when agent i has been the subject of at least one justified complaint and where

$$Q_i = \alpha Exclusive_i + \beta X_i$$

where $Exclusive_i$ equals 1 when agent i is an exclusive agent ($Exclusive_i = 0$ if the agent is independent) and matrix X_i contains the agent-specific controls described below.

Complaints against insurance agents occur very infrequently in the data—as described in section 2.2, fewer than 2% of LA agents in Texas have been the subject of a justified complaint. Since typical econometric techniques, including logistic regressions, may underestimate the probability of rare events, coefficient and variance estimates are corrected using a rare-events correction suggested by King and Zeng (2001a, 2001b).

Although the main thrust of our analysis is concerned with differences between exclusive and independent agents (coefficient α), our predictions also speak to the role of agent experience.

We include the following controls in X_i, summarized in Table 3 for exclusive and independent agents:

Years since first licensed: As a proxy for agent experience, we calculate the years since an agent was first licensed to sell insurance in Texas. If agents were licensed in other states prior to licensing by the TDI, we will underestimate their professional experience; if agents allowed their licenses to lapse in some interim periods, we will overestimate their experience.[12] On average, exclusive agents have been licensed longer than independent agents ($p < 0.01$), holding licenses for roughly 10.5 years and 7 years, respectively.

Out-of-state agent: All agents who market insurance to consumers in Texas must be licensed by the TDI; however, they may be physically located in another state. We use the address on agents' licenses to determine residency and include a dummy variable to indicate

[11] This question captures most misconduct—as shown in Figure 1, only 16% of LA sales agents receive multiple complaints.

[12] The date of licensing was not available for approximately 1.5% of LA agents, and we exclude these agents from the analysis.

when an agent resides outside of Texas. There are more independent agents with out-of-state business addresses, relative to exclusive agents ($p < 0.01$).

Professional designation: Insurance agents may seek certification from several professional organizations. In general, these organizations require members to complete course work and exams, and participate in continuing education. We matched agents to member lists for 11 designations.[13] In our empirical analysis, we include a dummy variable indicating whether the agent holds any professional designation. Overall, very few sellers have professional credentials. However, slightly more exclusive agents hold an accreditation, relative to independent agents ($p < 0.01$)—roughly 2% versus 0.8%, respectively.

# of Licenses : While most agents are licensed to sell only one type of insurance, we include a dummy variable to indicate whether an agent is licensed to sell other products along with LA products (e.g. property and casualty insurance). Independent agents are more likely to specialize in LA products ($p < 0.01$)—approximately 72% of exclusive agents and 83% of independent agents sell only LA products.

Local population: Using a distance algorithm, we calculate the distance between the geographic centroid of all Texas ZIP codes and match ZIP codes to population date from the U.S. Census Bureau. We identify all ZIP codes within 25 miles of every agent's business address (for Texas residents) and aggregated the ZIP code populations. Unfortunately, we are not able to map non-resident agents to any specific geographic region of Texas. ZIP code populations are not significantly different for exclusive and independent agents.

3.1 Exclusive vs. independent agents

Table 4 reports estimation results from equation (1) with the rare events correction. To ease interpretation, we transform our estimated coefficients into odds ratio form. Each observation represents a single, unique agent.

Column 4.1 includes all agents in the data for whom information is available and controls for agents' experience, professional credentials, residency, and licensing. Exclusive agents are more likely to have received a justified complaint than independent agents ($p < 0.01$). Even before adjusting for the very unequal marketshares of firms using exclusive and independent agents—recall that, in total, exclusive agents do nearly eight times less business than independent agents—exclusive agents are roughly 24% more likely to have been the subject of a justified complaint.

In Column 4.2, we exclude agents with less than three years of experience as of 2010, since these inexperienced agents may be still in their training period, may be paid a guaranteed

[13] The designations are: CFP, ChFC, CLU, CAP, CASL, CLF, FSS, LUTCF, MSFS, MSM, and REBC.

"training" salary, and may not yet be responsible for generating their own sales. Excluding these agents does little to change the coefficient of interest—the difference between exclusive and independent agents is large and statistically significant ($p < 0.01$).

Both local and out-of-state agents can be licensed to market insurance products in Texas. Column 4.3 includes only agents who reside in Texas. Again, the coefficient on the indicator for exclusive agents is statistically significant and similar in magnitude to the other specifications ($p < 0.01$).

Agents may differ in terms of their geography and, as a result, face different volumes of business. Although agent-level data on the volume or value of transaction is not available, we proxy for these measures using ZIP code-level U.S. Census data. Results are reported in Column 4.4. This measure of business volume is statistically significant and very small in magnitude ($p < 0.01$). However, its inclusion has little effect on the coefficient of interest.

3.2 Years of experience

Across the specifications in Table 4, one additional year of agent experience increases the odds of receiving a complaint by roughly 4 to 7 percentage points. Of course, agents with more experience have had more opportunities to receive a complaint. However, in this section, we present results suggesting that longevity alone cannot explain the estimated effect of experience.

In Table 5, we present results of a Tobit specification with a measure of misconduct normalized by agents' experience—complaints per licensed year—as the dependent variable. Column 5.1 excludes agents with less than three years of experience. In column 5.2, because we have only 15 years of complaints data, we consider only agents with 3 to 15 years of experience. In column 5.3, we include only Texas resident agents with licenses for 3 to 15 years. Column 5.4 includes the measure of local population describe in the previous subsection.

Similar to the results in Table 4, exclusive agents are subject to more complaints per year of experience ($p < 0.01$). Complaints per year also increases with years of experience ($p < 0.01$). In terms of magnitude, without controlling for agents' marketshare, one additional year of experience results in an additional 0.01 to 0.02 annual complaints.

We expect our estimates to be a lower bound on the true effect of experience. First, the longer an agent has been in business, the greater the proportion of "bad apples" in his cohort that has been weeded out through disciplinary actions. Because we observe complaints only for agents licensed as of 2010, complaints against these "bad apples" are not included. As a result, our estimates of the effect of experience could be pushed towards zero. Second, client

attrition may attenuate estimates of the effect of agent experience.[14]

4 A model of price-taking experts

In this section, we explore several possible explanations for the observed difference in complaints between exclusive and independent agents. To begin, we present a model inspired by the unifying model in Dulleck and Kerschbamer (2006), hereafter DK. However, we adapt the framework to consider price-taking experts. In DK, different outcomes are driven by experts offering services at different prices (e.g. mechanics choose quality and prices for auto repairs). In fact, virtually all of the aforementioned theory papers studied price-setting firms or advisors. In contrast, we consider a market in which experts are price takers. In our empirical setting, insurance agents are constrained to offer products with fixed premiums and commissions.[15]

Our empirical findings focus on observed consumer complaints about experts' behavior; however, the following theory models experts' underlying misconduct. To map theory to the empirical setting, we assume that reported and justified complaints are increasing in experts' actual misconduct. While formally modeling consumers' incentives to complain is beyond the scope of the current paper, we do consider differences in reporting rates in Section 5.3 and conclude that any difference cannot fully explain the observed difference in complaints between agent types.

In Section 4.2, we describe a model when exclusive agents offer higher expected value to consumers than independent agents—this wedge in consumer's expected payoffs can result from higher value of company brands, extended service, or superior product quality. In Section 4.3, we allow this difference in payoffs to be generated endogeneously through difference in the intensity of monitoring across exclusive and independent sellers. While exclusive agents often operate under a branch or regional supervisor, independent experts often work without any oversight.

[14]The following example illustrates this potential: Assume for now that there is no client attrition and an agent acquires 10 clients per year. In ten years, a new agent has acquired 100 clients. Suppose that the chance of receiving a complaint is 1% per client per year. This means that an agent with 10 years of experience should (in expectation) receive one complaint. In an agent's 20th year, he has 200 clients and should expect two complaints. Thus, without attrition, complaints per year does not depend on experience. Now consider the role of client attrition. Over the past 10 years, an agent with 20 years of experience has acquired the same number of clients as an agent with only 10 years of experience. However, due to attrition, the number of clients that he retained from his *first* 10 years is now less than the number of clients from the more recent decade. Thus, assuming that the chance of a complaint is still 1% per client per year, we would expect the ratio of complaints per year of the agent with 20 years of experience to be less than the ratio of the agent with 10 years of experience. Thus, we underestimate the true effect of experience on complaints.

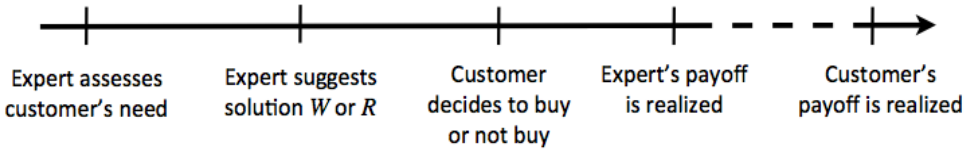
[15]Rebating—where an agent kicks back some of the commission to a client to adjust the effective price of a product—is illegal in most jurisdictions.

4.1 Model set-up

Consider an interaction between an expert and a customer that can result in two outcomes: the expert can recommend either an appropriate or inappropriate product. For convenience, we will use the index "R" and "W" as mnemonics for the "right" and "wrong" products, respectively. We assume that the expert knows which product is appropriate for the customer, but the customer does not. After the expert makes his product recommendation, the customer must chose to buy or not to buy.

Suppose that π^R and π^W are the payoffs to an expert for selling the appropriate and inappropriate products, respectively. It follows that π^t is a reduced form representation of the net payoff (i.e., gross revenue minus business expenses) of selling product $t \in \{R, W\}$, before any possible penalty for mis-selling to a customer (i.e., recommending W).

As depicted below, the timeline for the expert-customer interaction is sequential.



However, since the customer cannot condition his purchase decision on any information about the quality of the expert's recommendation, the game can be solved as a simultaneous rather than sequential game.

Let s be the probability that the expert recommends product W and $(1-s)$ be the probability that he recommends R. Now, assume that there is some expected cost for recommending W—$k_B > 0$ when the customers buys and $k_{DB} > 0$ when the customer does not buy W. The term k_B then reflects the cost of mistreating customers and k_{DB} is the cost of *attempting* to mistreat customers. Psychological costs may enter into these costs. It is natural to assume $k_B > k_{DB}$; however, this ordering is not required for our results. To allow for any potential misconduct, we assume $\pi^W - k_B > 0$.

Having an expert face at least some cost even if the customer does not buy is a departure from the canonical credence good model. However, in practice, experts can still incur costs when customers do not follow their (bad) recommendations. For example, in the insurance industry, a customer typically receives a 10- to 30-day "free look" after paying for an annuity or life insurance product. During this period, a customer could discover that he was sold W, report the agent to the regulator, and cancel the policy. Even if experts are not formally responsible for attempted misconduct, they could face costs such as guilt for having attempted to mislead a customer. Finally, k_{DB} could also simply capture some greater effort cost required to convince a customer to buy the wrong solution W, compared with R; such costs are sunk regardless of whether the customer buys or not. Whatever the motivation,

this feature of our model relaxes the typical assumption that experts face a penalty only if their advice is taken.[16]

Let b be the probability that the customer buys the expert's recommended product and $(1-b)$ be the probability that the customer rejects the expert's recommendation. Suppose that the customer earns a net payoff of V^R from buying R and V^W from buying W, where $V^W < 0 < V^R$. If the customer decides not to buy the product, then her payoff is 0. Note that we assume that a customer is worse off buying the wrong product than he would have been simply not buying at all. Absent this assumption, the customer would rather be mistreated with certainty than reject the expert's advice, even knowing such advice is bad.

In the following section, we identify the mixed strategy equilibrium in which the customer is indifferent between buying and not buying. Following Harsanyi (1973), these mixed strategies can be reframed as representing a heterogeneous population of customers, each with a pure strategy. Similarly, we will find a mixed strategy for the expert which can also be interpreted as the distribution of experts that take advantage of customers.

4.2 Exclusive vs. independent agents: The value of brand

We enrich the model to consider two different organizational structures: large companies that use exclusive experts and independent experts who form their own small firms. We index these experts with $m \in \{E, I\}$.

While we assume that the price-taking experts face similar payoffs across organizational forms $(\pi^t = \pi_I^t = \pi_E^t)$, the payoffs to customers may vary. In the following analysis, we assume that $V_I^R < V_E^R$. This implies that when the customer is given the appropriate product, her payoff is higher when working with the exclusive expert at the large branded firm, relative to her payoff with the independent expert. There are several potential sources of this difference, including brand value and product availability, discussed below.

To begin, consider a difference stemming from the possibility that customers gain additional utility from working with a branded firm. As we highlighted in section 1.1, brand may be the most salient difference between firms that use exclusive agents and those that use independent agents—exclusive agents tend to sell for insurance companies with household names, while independent agents sell a plethora of less common products. For example, in Texas, exclusive agents sell products for State Farm, Allstate, and Mutual of Ohama; there are hundreds of lesser known firms using independent sellers.

In a survey on brand equity, Keller and Lehmann (2006) note that while brand can communicate tangible aspects of a product or service, a brand can also signal important in-

[16] In those models, an agent who is unsuccessful in selling W receives a payoff of 0—the same payoff he or she would earn from unsuccessfully marketing R.

tangible attributes that differentiate those goods. According to the authors, these attributes "transcend physical products," and may be supported by both words and images. These intangibles can create positive associations between the good and the company that produces it—indeed, this value need not be based on objective usage experience. Cobb-Walgren et al. (1995) compare goods that have virtually identical objective values, but differ in terms of brand equity. They find that the good with greater brand equity is associated with more positive features and fewer negative features, relative to the good with a weaker brand. In short, successful branding can prompt customers to value a good beyond its objective, tangible value.

Beyond brand, it could be that customers particularly value some exclusive products available only through the branded firm—for example, Goldman Sachs markets many specialized and exclusive products. Other features that can support the disparity between the value offered by the two organizational forms include differences in the breadth of services offered, multi-product discounts, online account access, 1-800 telephone support, or multiple service locations that large, branded firms offer.

Given this proposed difference in the expected payoff to customers between the expert types, Proposition 1 compares equilibrium misconduct, expert revenue, and customer buy rate across organizational structures.

Proposition 1 *In the unique equilibrium, exclusive experts engage in more misconduct than independent experts,* $s_E^* > \frac{V_I^R}{V_I^R - V_I^W} = s_I^*$.

Proof. No pure strategy equilibrium exists. If experts always suggested R, then customers would always want to buy the recommended product. However, when customers always accept the recommendation, experts have an incentive to mis-sell. Alternatively, if experts always suggested W, then customers would never buy. Of course, then an expert should respond by offering R instead of W.

We identify the mixed strategy equilibrium. The customer must be indifferent between buying and not buying:

$$\begin{aligned} s_m V^W + (1 - s_m) V^R &= 0; \\ &\Longrightarrow \quad 1 > s_m^* = \frac{V_m^R}{V_m^R - V_m^W} > 0. \end{aligned}$$

The expert must be indifferent between offering the right and wrong product:

$$\begin{aligned} b_m \pi^R + (1 - b)\, 0 &= b_m \left(\pi^W - k_B\right) + (1 - b_m)\left(-k_{DB}\right) \\ &\Longrightarrow \quad 0 < b_m^* = \frac{k_{DB}}{\pi^W - \pi^R - (k_B - k_{DB})} < 1. \end{aligned}$$

Since $V_I^R < V_E^R$, it follows that $s_I^* < s_E^*$. This proposition provides the empirical predictions that independent experts are less likely to take advantage of customers.[17] ■

We can also consider several other comparative statics results: As we would expect, we find that as the penalty for a given level of malfeasance increases, the customer buys more often. As the payoff π^R (π^W) for offering the right (wrong) product increases (decreases), the customer will also buy more often. As the customer's benefit (cost) from buying R (W) increases (decreases), an expert is more likely to take advantage of his customer in equilibrium. Interestingly, when experts can recommend either a more attractive appropriate product or a less damaging inappropriate product, the customer is more likely to buy and the expert is more likely to take advantage of the customer. In other words, the expert is able to extract the extra surplus provided the customer through increased malfeasance.

4.3 Exclusive vs. independent agents: Monitoring

In the previous section, we argued that the disparity between misconduct rates for exclusive and independent agents could be driven by exclusive agents' affiliation with large, trusted, valuable branded insurance companies. Alternatively, consumers could implicitly value the presence of monitoring hierarchies within firms using exclusive agents. In the following text, we describe a simple extension to the model with experts working under different levels of monitoring.[18]

This formulation of the model captures a common feature of expert industries: some experts operate in larger, branded firms with monitoring, while other experts operate as small, independent advisors with little (if any) monitoring. For example, in financial services, several exclusive experts will typically work in a branch office that is overseen by a branch

[17] We could also allow for a continuous set of suggestions $V \in [V^W, V^R]$. Define $V(s)$ as simply the convex combination of V_W and V_R where $V(s) = sV^W + (1-s)V^R$. Holding s fixed, $V(s)$ is greater with an exclusive expert than with an independent expert, since either $V_E^W > V_I^W$ or $V_E^R > V_I^R$. The expert's problem is $\max_s b\pi(s) - k(s)$ subject to $V(s) \geq 0$, where $\pi(s)$ is a weakly concave increasing function and $k(s)$ is a strictly increasing convex function to ensure an interior solution. The expert from firm type m solves the first order condition: $b\pi'(s_m) = k'(s_m)$.

Assume that $V(s) \geq 0$ for some $s \in (0,1)$. If not, the customer either always or never buys and we have assumed away the credence good problem. Assume also that s^* solves $\pi'(s_m) = k'(s_m)$ and that $V(s^*) < 0$. This would occur when the benefit of misconduct is very small or the cost is very large, and there is no interesting credence good problem.

In equilibrium, both the expert and customer must not want to deviate from s and b, respectively. From their first order condition, each expert type chooses s^* given b. For the customer to be indifferent, it must be that $V(s^*) = 0$. It is obvious that there is some unique b that generates s^* such that $V(s^*) = 0$ and $b\pi'(s^*) = k'(s^*)$, which means that the expert strictly prefers to choose s^*. Since this occurs at a larger s^* for the exclusive expert, the customer must choose a greater $b^* > 0$ for the exclusive expert, compared to the independent expert. Hence, in equilibrium, $s_E^* > s_I^*$.

[18] This extension endogenizes the wedge between the expected value offered to consumers by exclusive and independent agents.

manager. Independent experts often work in one-agent offices without supervision.

Assume that a supervisor observes experts' recommendations with probability $q \in [0,1]$, where $q = 0$ represents no oversight and $q = 1$ means that every expert recommendation is reviewed. If the supervisor observes an expert recommending W, then he stops the transaction—the consumer is indemnified for her loss V^W and the expert faces penalty $-k_B$ and does not keep any positive payoff π^W. If the supervisor observes an expert recommending R, then he does not intervene. Therefore, the expert's payoff for suggesting R is $b\pi^R$, but his expected payoff for recommending W is $(1-q)\left(b\left(\pi^W - k_B\right) - (1-b)\,k_{DB}\right) + q(-k_B)$.

Since monitoring changes customers' payoffs, the level of misconduct s will also change. In particular, though the customer's payoff from the appropriate product is still V^R, she now receives $(1-q)V^W$ when she purchases the inappropriate product, where $V^W < (1-q)V^W < 0$. Monitoring by the expert's supervisor saves the customer from some of the bad recommendations.

Solving for the rate of s such that the customer is indifferent between buying and not buying yields

$$s^* = \frac{V^R}{V^R - (1-q)V^W}.$$

Note that s^* is increasing in the level of monitoring ($\frac{\partial s^*}{\partial q} > 0$ since $V^W < 0$). A customer facing a supervised expert knows that there is some chance that the expert will offer the wrong product; however, there is also some probability that the supervisor will detect this misconduct and refund the customer's payment. Of course, if the supervisor is unable to fully indemnify the customer for his losses, then monitoring provides less surplus for the expert to extract. Consequently, misconduct levels will be lower than when the customer can be made whole. Overall, holding expert misconduct fixed, the customer has a higher expected payoff from a transaction with a more heavily monitored expert.

In equilibrium,the expert must also be indifferent between suggesting W and R,which implies customers buy at the rate

$$b^* = \frac{(1-q)k_{DB} + qk_B}{(1-q)\left(\pi^W - (k_B - k_{DB})\right) - \pi^R}.$$

As expected, increased monitoring results in a greater buy rate b^*. Hence, experts with greater monitoring enjoy greater buy rates from customers; however, these experts extract more surplus from the value created by this greater supervision. After some level of monitoring $q^* = \frac{\pi^W - \pi^R - k_B}{\pi^W} < 1$, the expected cost of recommending W is so great that the expert only recommends R. For all $q \geq q^*$, we have $s^* = 0$ and $b^* = 1$. That is, the expert always recommends the appropriate product R and the customer always buys. For our analysis, we

make the assumption on the primitives such that $q < q^*$;otherwise, we have assumed away any possible misconduct. We summarize this relationship in our following proposition:

Proposition 2 *Conditional on any misconduct, the expert misconduct rate s^* is increasing in the monitoring rate q.*

4.4 Observable Differences in Expert Skill

In Section 3.2, we observed that more experienced agents are more likely to have received complaints. While this finding may run counter to initial common perception, it is consistent with predictions of the proposed model. Consider a version of the model where, on occasion, experts *inadvertently* recommend the inappropriate product. Thus, we assume that an expert makes harmful mistakes.[19] As noted in Section 1.2, the regulator views intentional and unintentional actions differently—unintentional mistakes are not considered misconduct. Of course, the expert is also able to *choose* to recommend the inappropriate product, since that may increase his revenue at the customer's expense. These acts are considered professional misconduct by the regulator. In this extension, we consider the effect of experts' skill differences, conditional on a given level of monitoring.

Let h be the commonly known probability that an expert makes an error. In equilibrium, a customer must be indifferent between buying from an expert with an error rate of h and earning her outside option of 0:

$$(s + h\,(1 - s))\,(1 - q)\,V^W + (1 - s)\,(1 - h)V^R = 0.$$

This implies that, in equilibrium:

$$s^* = \frac{V^R}{V^R - (1 - q)\,V^W} + \frac{h}{(1 - h)}\frac{(1 - q)\,V^W}{(V^R - (1 - q)\,V^W)} < \frac{V^R}{V^R - (1 - q)\,V^W}.$$

Thus, s^* will be smaller than when $h = 0$. Intuitively, since the value of heeding the expert's advice and buying the product is decreasing in h, the expert has to now be more honest in order to entice the customer to still do business with him. That is, the less skilled an expert is, the less likely he is to engage in misconduct.

All else equal, if an expert's experience is negatively correlated with the likelihood of making a mistake, then more experienced experts should have a greater rate of misconduct. We summarize these predictions in the following proposition and corollary:

Proposition 3 *More error-prone experts are less likely to engage in misconduct.*

[19] For simplicity, we assume that experts cannot intend to recommend W and mistakenly recommend R

Corollary 4 *If the error rate is negatively correlated with experience, more experienced experts engage in more misconduct.*

As described in Section 1.2, the TDI considers the *intentions* of agents who have acted against the interests of their customers. That is, unintentional errors are not considered justified complaints, while intentional misrepresentation or mistreatment represent justified complaints. This distinction is important in terms of the empirical prediction from this extension of the simple model: while the customer is indifferent in equilibrium between the more and less experienced experts, the ratio of mistakes-to-misconduct will be lower for more experienced agents. Since complaints represent cases of misconduct (and not innocent mistakes), we would expect to see more complaints against more experienced agents.

5 Alternative Explanations

While our results are consistent with the simple model of price-taking experts presented in Section 4, several alternative hypotheses may be proposed to explain our findings. Specification, in this section, we consider the following alternatives: (1) agent sorting between firm types; (2) consumer heterogeneity; and (3) firms' "deep pockets" and reporting rates.

5.1 Agent sorting

One might ask: Do firms using exclusive agents systematically hire less honest agents? This seems unlikely given that these firms have established screening processes for their salespeople (e.g. applications, background checks, and interviews). In contrast, independent agents establish their own practices and are not subject to this initial screening. Moreover, dishonest exclusive agents who are fired are unlikely to gain employment at another firm using exclusive agents, but can readily move into independent sales. Thus, the pool of independent agents may include former exclusive agents who were terminated due to misconduct.

Do honest exclusive agents become independent operators after building up experience in the industry? If true, this could drive the difference in complaint rates between exclusive and independent agents. However, on average, exclusive agents have been licensed significantly longer than independent agents ($p < 0.01$).

Are out-of-state agents—individuals whose misconduct may be hard to detect because of distance—driving the disparity between exclusive and independent agents' complaint rates? Empirical evidence suggest that this is not the case. There are significantly more out-of-state agents acting as independent sellers rather than exclusive agents (Table 3; $p <$

0.01). Moreover, the regression presented in column 4.3 excludes out-of-state agents and still estimates a large and statistically significant difference between agent types ($p < 0.01$).

One might also wonder if bad agents are being detected and fired by the firms using exclusive agents. Although our data do not allow us to observe this directly, this sorting would work against our predicted effect. That is, we would expect to observe higher complaints rates for independent agents if these firms included former "bad" company agents.

5.2 Customers heterogeneity

We find little evidence to support agent sorting as the source of the disparity in confirmed misconduct of exclusive and independent agents. However, one might be concerned that customer heterogeneity is driving the effect. That is, one might worry that the matching of particularly savvy customers to independent agents (or vice versa) could be leading to less misconduct. In the following section, we consider both the theoretical and empirical arguments against this concern.

To consider the impact of savvy consumers on the market equilibrium, we introduce "connoisseur" consumers into the model and, for the moment, hold the agent's type fixed. Connoisseurs are defined as consumers who are perfectly informed about the appropriateness of the recommended product and, therefore, only and always buy from an expert who recommends R. We assume that experts cannot distinguish a connoisseur from a regular customer—otherwise, the expert simply always suggests R to such consumers and regular consumers are unaffected. Adding connoisseurs is equivalent to introducing some probability that a consumer knows the appropriate product for herself.

With a mass α of connoisseurs in the market, the expert's payoff for suggesting R increases while her payoff for suggesting W decreases. This leads to the following equality:

$$(1-q)\left((1-\alpha)\left(b\left(\pi^W - k_B\right) - (1-b)\,k_{DB}\right) - \alpha k_{DB}\right) + q(-k_B) = (1-\alpha)\,b\pi^R + \alpha\pi^R.$$

which yields a new buy rate (for non-connoisseurs) of

$$b^* = \frac{\alpha\pi^R + (1-q)k_{DB} + qk_B}{(1-\alpha)\left((1-q)\left(\pi^W - k_B + k_{DB}\right) - \pi^R\right)}.$$

As can be seen, introducing knowledgeable consumers pushes the buy rate towards 1 more quickly. Intuitively, the connoisseurs are offering both a carrot and a stick: the expert is rewarded for offering R and punished for offering W. Thus, as the mass α of connoisseur consumers increases, the market is restored. Connoisseurs provide market-based discipline that is even more effective than the presence of a firm-level supervisor because connoisseurs

have both a stick *and* a carrot.

However, note that when there are not enough connoisseurs to restore the market, the level of connoisseurs *does not* affect the level of misconduct. As before, the level of misconduct is

$$s^* = \frac{V^R}{V^R - (1-q)V^W}.$$

We summarize these findings in our third proposition.

Proposition 5 *Conditional on the presence of any misconduct, expert misconduct does not respond to changes in proportion of knowledgeable customers.*

The proposition above takes the agents' type as given; however, it can help to alleviate some concerns about consumer sorting. Indeed, the proposition suggests that even if exclusive and independent agents faced different pools of consumers, that heterogeneity alone is unlikely to drive the observed difference in complaints—since there is confirmed misconduct under both organizational forms, agents' levels of misconduct should be insensitive to the presence of more (or less) knowledgeable consumers in their client pool.

Although this extension to the proposed theory model predicts that consumer heterogeneity should not affect experts' propensity to mislead their clients, we can use data from the TDI to examine this alternative explanation empirically. Unfortunately, data on individual agents' clientele is not available. However, we can use location information in the licensing data and gather demographic information on the populations near agents' business addresses.

For this empirical exercise, we consider the proportion of the local population that is employed in the financial sector; we assume that employment in the finance, banking or insurance industry is correlated with knowledge of insurance needs. Using a distance algorithm, we calculated the distance between the geographic centroid of all Texas ZIP codes and matched ZIP codes to 2010 County Business Pattern data from the U.S. Census Bureau.[20] After identifying all ZIP codes within 25-miles of an agent's business address, we aggregated the employment statistics.[21]

Note that the sample size for this analysis is necessarily smaller than for many of the previous regressions, since we cannot include potential client employment statistics for agents without a Texas business address. However, the regression results in Table 6 can be compared to those in columns 4.3, 4.4, 5.3 and 5.4.

[20] We also consider consumers' education levels using the percentage of the nearby population with a college education. Results are similar.

[21] We multiplied the mid-point of the employment size class with the number of establishments in that class.

Columns 6.1 to 6.4 presents results from the regression on an indicator of any justified complaints. Columns 6.1 and 6.3 include the measure of informedness and columns 6.2 and 6.4 add a measure of the local population. Across these four columns, the coefficients on employment in finance are negative and vary in terms of magnitude and statistical significance. In columns 6.5 to 6.8, the estimates of the effect of employment in finance on the level of complaints per year are statistically significant. However, in all columns of Table 6, the inclusion of the employment measures has little impact on the main coefficients of interest—exclusive agents are the subject of more justified complaints than independent agents.

Recall that the theory predicts that, conditional on any misconduct, misconduct levels should be insensitive to the presence of more knowledgeable customers. Of course, we also note that, holding fixed the level of misconduct, if more savvy customers are more likely to report a complaint, then observed complaint rates should be greater for experts working in more finance-oriented areas.

5.3 Deep pockets and reporting rates

One might be concerned that customers of branded companies are more likely to file a complaint due to the perceived "deep pockets" of these large firms. In this section, we explore this possibility and argue that this is cannot fully rationalize the observed differences between the complaints against exclusive and independent agents.

If the cost of filing is very low, then almost every discovered abuse should be reported—indeed, even customers who fail to detect any misconduct should contact the regulator for a costless (to them) review of the transaction.[22] However, if there exists some material cost of filing a complaint, then customers of exclusive experts will report suspected misconduct more often if they expect a higher payoff from a successful complaint, relative to the payoff from complaining about an independent seller. In this case, even if exclusive and independent experts are equally ethical, exclusive experts will face more complaints.

A customer will not report an expert unless her expected net payoff from doing so is positive. To illustrate, let g_i be the probability that agent i is guilty of misconduct and let g_i be distributed uniformly between 0 and 1. Define $g^* \geq \frac{c}{r_i}$ as the threshold at which the customer chooses to report suspected misconduct, where r is the expected payoff to a customer after the conviction of agent i and c is the customer's reporting cost. In this simple

[22] Empirically, the reporting cost is expected to be quite low, but not zero. Customers can go online to the TDI website and fill out a form in a matter of minutes. Insurance policies also must list contact information for filing a complaint.

illustration, the unconditional conviction rate is[23]

$$\Pr(conviction) = \frac{1 - (g^*)^2}{2}$$

If reporting costs are low relative to the expected payoffs—as these costs are in practice—then g^* will be small for both independent and company customers. Indeed, it is straightforward to show that, when reporting costs are low, even larger differences in the expected rewards from complaining result in only very small changes in the probability of conviction. Hence, we would not expect reporting rates to fully explain the observed differences between the complaint rates of the two types of experts.

There is another dimension to "deep pockets" that also works against the argument that the empirical finding is being driven by reporting rates. Firms with extensive resources might be particularly unwilling to concede to accusations of misconduct or settle a lawsuit—indeed, their large coffers may serve as evidence that they can credibly outlast their accusers in any legal fight.

Finally, according to the TDI, many insurance companies work directly with unhappy customers to resolve their issues and discourage them from taking the complaints to the regulator.[24] Insurance companies using exclusive agents have a structure that is particularly well-suited for diverting these complaints—in general, branch and regional managers, as well as telephone customer service agents, can adjust policies or payments in response to customers' claims. In contrast, customers of independent experts may have little recourse before contacting the regulator. As a result, in the data, we might expect observed complaint rates for exclusive agents to represent a lower bound on actual misconduct.

6 Conclusion

In this paper, we explore how the level of misconduct in credence good markets with price-taking experts varies across organizational forms. We find empirical evidence that these

[23] The expected conviction rate given a report of the suspected impropriety is

$$\begin{aligned} \Pr(conviction|reported) &= \frac{\Pr(conviction \cap reported)}{\Pr(reported)} = \\ \frac{\int_{g^*}^{1} \Pr(guilty)\, f dg}{\Pr(reported)} &= \frac{\int_{g^*}^{1} g dg}{1 - g^*} = \frac{1 + g^*}{2} \end{aligned}$$

where f is the density of g.

[24] We learned this through telephone conversations with staff at the TDI.

markets operate differently than in standard asymmetric information problem settings. In particular, rather than experts with strong reputations behaving more ethically, exclusive experts working for large branded firms are actually more likely to be the subject of a complaint, relative to independent experts. Similarly, experts who survive over time and become more skilled exhibit the greatest levels of misconduct.

On plausible explanation is that price-taking experts extract surplus based on the value of their firm's brand or monitoring (or their own skill) through increased malfeasance.

References

[1] Alger, Ingela and Francois Salanie. 2006. "A Theory of Fraud and Overtreatment in Experts Markets." *Journal of Economics & Management Strategy*, 15(5): 853-881.

[2] A.M. Best Company. 2011. "Best's Key Rating Guide: Life/Health United State & Canada." Oldwick, New Jersey.

[3] Anagol, Santosh, Shawn Cole, and Shayak Sarkar. 2012. "Understanding the Incentives of Commissions Motivated Agents: Theory and Evidence from the Indian Life Insurance Market." Working paper.

[4] Carson, James, Randy Dumm, and Robert Hoyt. 2007. "Incentive Compensation and the Use of Contingent Commissions: The Case of Smaller Distribution Channel Members." *The Journal of Insurance Regulation*, 25(4): 53-67.

[5] Cobb-Walgren ,Cathy J., Cynthia A. Ruble and Naveen Donthu. 1995. "Brand Equity, Brand Preference, and Purchase Intent." *Journal of Advertising,* 24(3): 25-40.

[6] Cooper, Robert, and Gary Frank. 2005. "The Highly Troubled Ethical Environment of the Life Insurance Industry: Has It Changed Significantly from the Last Decade and If so, Why?" *Journal of Business Ethics*, 58(1): 149-157.

[7] Darby, Michael and Edi Karni. 1973. "Free Competition and the Optimal Amount of Fraud." *Journal of Law and Economics*, 16(1): 67-88.

[8] Dulleck, Uwe and Rudolf Kerschbamer. 2006. "On Doctors, Mechanics, and Computer Specialists: The Economics of Credence Goods." *Journal of Economic Literature*, 47: 5-42.

[9] Emons, Winand. 1997. "Credence Goods and Fraudulent Experts." *The RAND Journal of Economics*, 28(1) Spring: 107-119.

[10] Feddersen, Timothy and Thomas Gilligan. 2001 "Saints and Markets: Activists and the Supply of Credence Goods." *Journal of Economics & Management Strategy*, 10(1) Spring: 149-171.

[11] Fong, Yuk-fai. 2005. "When Do Experts Cheat and Whom Do They Target?" *The RAND Journal of Economics*, 36(1): 113-130.

[12] Gennaioli, Nicola, Andrei Shleifer, and Robert W. Vishny. 2012. "Money Doctors." NBER Working Paper No. 18174.

[13] Grossman, Sanford, and Oliver Hart. 1986. "The Costs and Benefits of Ownership: A Theory of Vertical and Lateral Integration." *Journal of Political Economy*, 94(4) August: 691-719.

[14] Gruber, Jonathan and Maria Owings. 1996. "Physician Financial Incentives and Cesarean Section Delivery." *RAND Journal of Economics*, 27(1) Spring: 99-123.

[15] Harsanyi, J.C. 1973. "Games with randomly disturbed payoffs: a new rationale for mixed-strategy equilibrium points." *International Journal of Game Theory,* 2: 1-23.

[16] Hubbard, Thomas N. 1998. "An Empirical Examination of Moral Hazard in the Vehicle Inspection Market." *RAND Journal of Economics*, 29(2) Summer: 406-426.

[17] Hubbard, Thomas N. 2002. "How Do Consumers Motivate Experts? Reputational Incentives in an Auto Repair Market." *Journal of Law and Economics*, 45 October: 437-468.

[18] Inderst, Roman and Marco Ottaviani. 2009. "Misselling through Agents." *American Economic Review*, 99(3): 883-908.

[19] Inderst, Roman and Marco Ottaviani. 2011. "How (not) to pay for advice: A framework." Working paper.

[20] Inderst, Roman and Marco Ottaviani. 2012. "Competition through Commissions and Kickbacks." *American Economic Review*, 102(2) April: 780-809.

[21] Keller, Kevin and Donald Lehmann. 2006. "Brands and Branding: Research Findings and Future Priorities." *Marketing Science*, 25(6): 740-759.

[22] King, Gary and Langche Zeng. 2001a. "Logistic Regression in Rare Events Data." *Political Analysis*, 9(2): 137-163.

[23] King, Gary and Langche Zeng. 2001b. "Explaining Rare Events in International Relations." *International Organization*, 55(3) August: 693-715.

[24] Kreps, David M. 1990. "Corporate Culture and Economic Theory." in James E. Alt and Kenneth A. Shepsle, Eds. *Perspectives on positive political economy*, New York: Cambridge University Press: 90-143.

[25] Levitt, Steven D. and Chad Syverson. 2008 "Market Distortions When Agents Are Better Informed: The Value of Information in Real Estate Transactions." *Review of Economics and Statistics*, 90(4): 599-611.

[26] Lightle, John. 2009. "The Paternalistic Bias of Expert Advice." Florida State University working paper.

[27] Mailath, George J., and Larry Samuelson. 2001. "Who Wants a Good Reputation?" Review of Economic Studies, 68 (2) April: 415-441.

[28] Mullainathan, Sendhil, Markus Noeth, and Antoinette Schoar. 2012. "The Market for Financial Advice: An Audit Study." NBER Working Paper No. 17929.

[29] Pessendorfer, Wolfgang and Asher Wolinsky. 2003."Second Opinions and Price Competition: Inefficiency in the Market for Expert Advice." *The Review of Economic Studies*, 70(2): 417-437.

[30] Pitchik, Carolyn and Andrew Schotter. 1987. "Honesty in a Model of Strategic Information Transmission." *American Economic Review*, 77(5): 1032-1036.

[31] Sulzle, Kai and Achim Wambach. 2005. "Insurance in a Market for Credence Goods." *The Journal of Risk and Insurance*, 72(1): 159-176.

[32] Tadelis, Steven. 1999. "What's in Name? Reputation as a Tradeable Asset." *American Economic Review,* 89(3): 548-563.

[33] Taylor, Curtis R. 1995. "The Economics of Breakdowns, Checkups, and Cures" *Journal of Political Economy*, 103(1) February: 53-74.

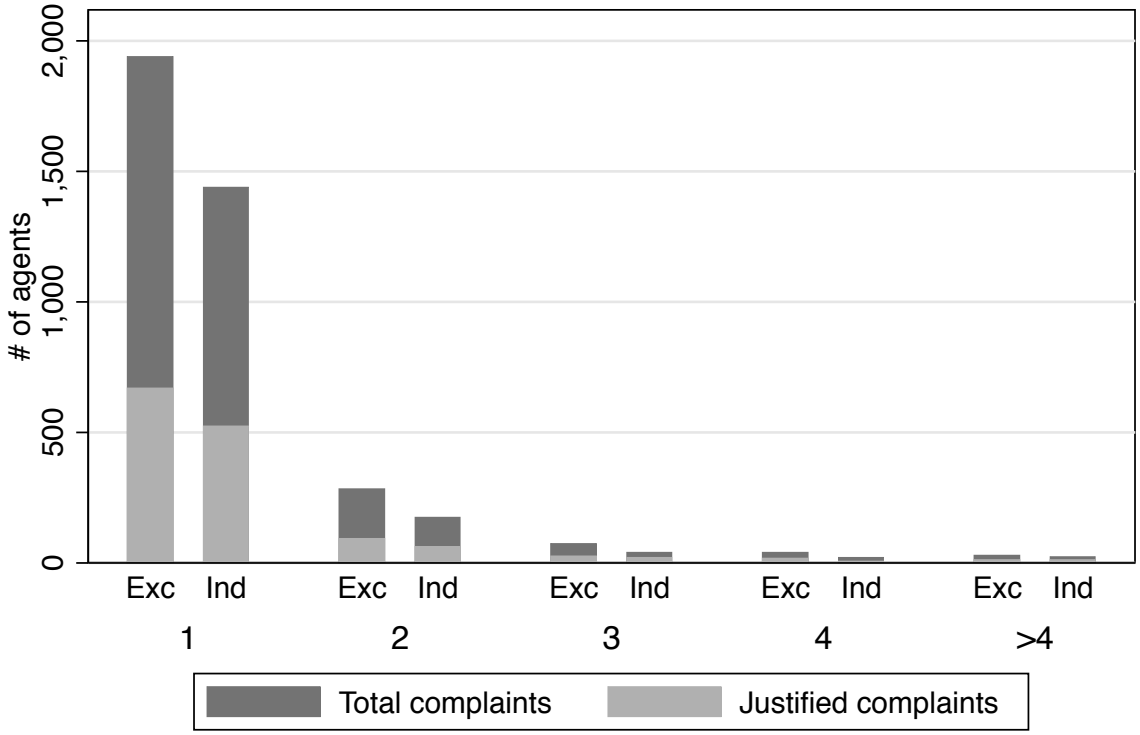
7 Appendix

7.1 Insurance companies using exclusive agents in Texas

Allstate Life Insurance Company
American General Life And Accident Insurance Company
American National Insurance Company
Axa Equitable Life Insurance Company
Baltimore Life Insurance Company
Beneficial Life Insurance Company
Farmers Insurance Exchange
First Acceptance Insurance Company
Guideone Mutual Insurance Company
Kansas City Life Insurance Company
Liberty Mutual Insurance Company
Metropolitan Life Insurance Company
Modern Woodmen Of America
Monumental Life Insurance Company
MONY Life Insurance Company Of America
Mutual Of Omaha Insurance Company
National Life Insurance Company
Nationwide Mutual Insurance Company
New York Life Insurance Company
Northwestern Mutual Life Insurance Company
Penn Mutual Life Insurance Company
Pennsylvania Life Insurance Company
Physicians Life Insurance Company
Provident American Life & Health Insurance Company
State Farm Life Insurance Company
Thrivent Financial For Lutherans
Western And Southern Life Insurance Company

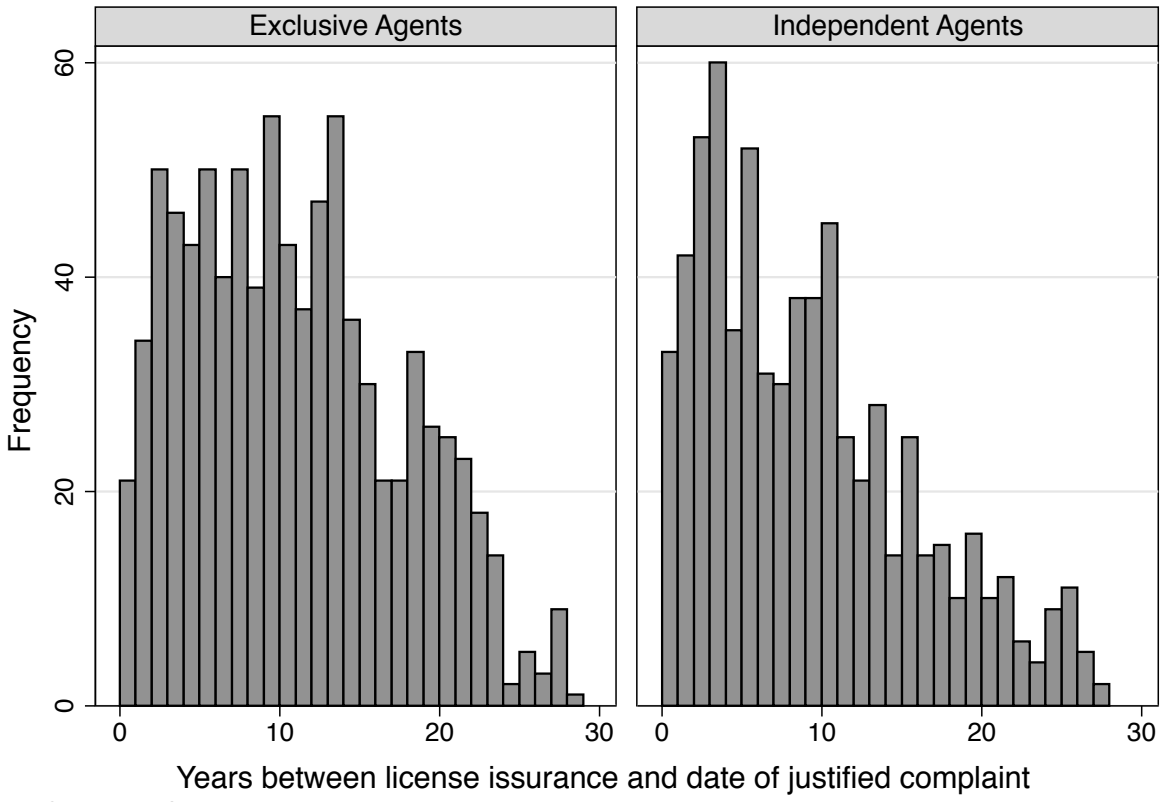
A list of insurance companies licensed in Texas that use independent agents is available upon request.

Figure 1: Complaints per agent by agent type



Complaint total conditional on agents having at least one complaint.
'Exc' for exclusive agents and 'Ind' for independent agents
Complaints data were acquired from the Texas Department of Insurance

Figure 2: Distribution of experience of agents with justified complaints by agent type



Note: Figure excludes agents with less than 3 years of experience as of 2010.

Table 1: Complaints against sales agents - Reasons, description and counts

Nature of Complaint	Description	Justified	Unjustified	Total
Agent Mishandling	Improper customer sales or service practices.	836	2421	3257
Churning	Inducing a customer to use the cash value of an existing policy to purchase a new policy from the same insurance company, resulting in another commission for the agent.	66	39	105
Commissions	Misrepresentation or unauthorized modification of the agent's commission rate.	73	190	263
Conversion	Retaining a customer's premium and providing the customer with fictitious insurance documents.	629	39	668
Improper Inducements	Offering pay, favors, advantage or other valuable rewards (not offered in the insurance contract) as inducement to enter into the insurance or annuities contract.	37	10	47
Misleading Advertising	Making, publishing or disseminating public announcements or advertisements containing untrue or deceptive statements	190	57	247
Misrepresentation	Making untrue statement of facts, failing to state critical facts, making misleading statements or misstatements of the law, or failing to disclose a matter required by law to be disclosed.	967	1783	2750
Tie-In Sales	Refusing to sell or renew a client's specific insurance policy unless another policy is also purchased from the agent.	3	0	3
Twisting	Inducing a customer to use the cash value of an existing policy to purchase a new policy from a different insurance company, resulting in another commission for the agent.	20	28	48
Unauthorized Acts	Buying, modifying, or selling a customer's policy without the customer's consent.	943	135	1078
Total Complaints		**3764**	**4702**	**8466**

Table 2: Market share by firm type

Agent Type	Total Premiums Written (in millions $)	Marketshare in %
Exclusive agents	5661.39	0.11
Independent agents	44880.97	0.89

Table 3 - LA Agents in Texas by agent type - Summary Statistics

	Exclusive agents		Independent agents	
	Mean	**Std. Dev**	**Mean**	**Std. Dev**
Agent Years Licensed	10.558	7.894	6.976	6.841
Texas Non-Resident (dummy)	0.326	0.469	0.477	0.499
Professional Designation (dummy)	0.017	0.131	0.008	0.090
One License Type Only (dummy)	0.716	0.451	0.822	0.382
Local population (25 miles) in thousands	11.912	9.009	11.902	8.720
	n=52,131		n=114,038	

Note: These data exclude agents for whom license dates were not available; * ZIP code population data are available only for agents who are residents of Texas.

Table 4 - Regression results for justified complaints

Dependent variable: *1 if Agent has received a justified complaint, 0 otherwise*

	4.1 All agents		4.2 All agents with >3 years experience		4.3 Agents with Texas residency		4.4 Agents with Texas residency	
	Coefficient	**Odds Ratio**	**Coefficient**	**Odds Ratio**	**Coefficient**	**Odds Ratio**	**Coefficient**	**Odds Ratio**
Exclusive Agent	0.220***	1.246	0.237***	1.267	0.231***	1.260	0.246***	1.279
	(0.051)		(0.047)		(0.048)		(0.050)	
Agent Years Licensed	0.081***	1.084	0.046***	1.047	0.045***	1.046	0.046***	1.047
	(0.003)		(0.002)		(0.002)		(0.002)	
Texas Non-Resident	-2.268***	0.104	-2.238***	0.107				
	-0.224		-0.223					
Professional Designation	-1.175**	0.309	-1.176***	0.309	-1.161***	0.313	-1.056**	0.348
	(0.459)		(0.416)		(0.417)		(0.420)	
One License Type Only	-3.783***	0.023	-3.709***	0.025	-3.717***	0.024	-3.760***	0.023
	(0.120)		(0.114)		(0.117)		(0.123)	
Local population (25 mile radius)							0.017***	1.017
							(0.003)	
Constant	-4.125***	0.016	-3.551***	0.029	-3.539***	0.029	-3.767***	0.023
	(0.056)		(0.052)		(0.052)		(0.062)	
# of observations	166169		119008		78066		73945	

Note: Values in parentheses are robust standard errors. Logit coefficient and variance estimates are corrected using the rare-events correction of King and Zeng (2001a, 2001b)

** $p < 0.05$, *** $p < 0.01$

Table 5 - Regression results for number of justified complaints per year

Dependent variable: *Justified complaints per year of experience*

	5.1 Agents with >3 years experience	5.2 Agents with 3 to 15 years of experience	5.3 Texas resident agents with 3 to 15 years of experience	5.4 Texas resident agents with 3 to 15 years of experience
Exclusive Agent	0.056***	0.073***	0.060***	0.059***
	(0.007)	(0.014)	(0.007)	(0.007)
Agent Years Licensed	0.007***	0.020***	0.007***	0.007***
	0.000	(0.002)	(0.000)	(0.000)
Texas Non-Resident	-0.189***	-0.305***		
	(0.012)	(0.024)		
Professional Designation	-0.039	-0.228	-0.011	-0.019
	(0.033)	(0.141)	(0.034)	(0.037)
One License Type Only	0.079***	0.130***	0.082***	0.084***
	(0.008)	(0.018)	(0.008)	(0.008)
Local population (25 mile radius)				-0.001***
				(0.000)
Constant	-0.801***	-1.293***	-0.782***	-0.782***
	(0.024)	(0.059)	(0.024)	(0.025)
# of observations	113701	84628	72918	69423

Note: Values in parentheses are robust standard errors.

*** $p < 0.01$

Table 6 - Regression results for justified complaints with demographics

	6.1	6.2	6.3	6.4	6.5	6.6	6.7	6.8
	Logit coefficients				Tobit			
Dependent variable	Equal 1 if agent has received a justified complaint; 0				Justified complaints per year of experience			
	All agents		All agents with >3 years experience		Agents with >3 years experience		Agents with 3 to 15 years of experience	
Exclusive Agent	0.232***	0.229***	0.249***	0.248***	0.059***	0.060***	0.078***	0.079***
	(0.054)	(0.054)	(0.050)	(0.050)	(0.007)	(0.007)	(0.015)	(0.015)
Agent Years Licensed	0.081***	0.081***	0.046***	0.046***	0.007***	0.007***	0.021***	0.021***
	(0.003)	(0.003)	(0.002)	(0.002)	0.000	0.000	(0.002)	(0.002)
Professional Designation	-1.037**	-1.064**	-1.040**	-1.059**	-0.021	-0.019	-0.178	-0.178
	(0.460)	(0.462)	(0.417)	(0.420)	(0.037)	(0.037)	(0.147)	(0.148)
One License Type Only	-3.782***	-3.818***	-3.723***	-3.759***	0.081***	0.084***	0.137***	0.142***
	(0.128)	(0.129)	(0.122)	(0.123)	(0.008)	(0.008)	(0.019)	(0.019)
Fraction of local pop. in finance	-0.182	-1.053*	-0.294	-1.234**	0.146***	0.184***	0.258**	0.315***
	(0.354)	(0.558)	(0.352)	(0.553)	(0.054)	(0.052)	(0.109)	(0.103)
Local population (25 mile radius)		0.019***		0.019***		-0.001***		-0.003***
		(0.003)		(0.003)		0.000		(0.001)
Constant	-4.140***	-4.295***	-3.564***	-3.709***	-0.803***	-0.791***	-1.317***	-1.290***
	(0.063)	(0.071)	(0.060)	(0.067)	(0.026)	(0.026)	(0.064)	(0.063)
# of observations	90796	90796	73927	73927	69406	69406	47105	47105

Note: Values in parentheses are robust standard errors. In columns 6.1 and 6.2, the logit coefficient and variance estimates are corrected using the rare-events correction of King and Zeng (2001a, 2001b)

** $p < 0.05$, *** $p < 0.01$