

**WHO SHOULD REGULATE INSURANCE:
AN EVALUATION OF TITLE INSURANCE PRICE DISPARITY IN THE U.S.**

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ABSTRACT

This paper evaluates regional disparities in title insurance prices to understand how state regulation styles influence price variation among states. The five styles of state title insurance regulation partially explain price variation in title insurance among states, after taking account the effects of populations and other market characteristics. In particular, the states that promulgate prices authorize much higher charges for title insurance than the states with the other regulation styles. These results can contribute to the ongoing discussions about federal versus state regulatory systems for insurance in the U.S.

KEYWORDS: insurance regulation, title insurance price, regional disparity

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INTRODUCTION

In contrast to most financial services monitored at the federal level, insurance is regulated by each state (Grace & Phillips, 2007), as reaffirmed by the McCarran-Ferguson Act (MFA) in 1945.¹ Although some states oppose federal regulation per se (Klein, 2009), some insurance companies prefer a uniform federal system because the current regulation can reduce insurance business's efficiency (Grace and Klein, 2009; Cooke and Skipper, 2009). For example, the Gramm-Leach-Bliley Act (GLBA) in 1999 proposed an optional federal charter (OFC) to provide insurance companies an opportunity to choose federal or state regulatory systems.² The US Treasury also included an OFC in its 2008 *Blueprint for a Modernized Financial Regulatory Structure*.³

This federal versus state regulation debate is related to the merits and risks of decentralization (Miller, 2002). Decentralization provides opportunities to involve the public in policy making and for local governments to tailor policies to special local conditions. Decentralization has risks, as state-by-state regulation can impose extra

¹ 15 U.S.C. secs. 1011-15.

² P.L. 106-102, November 12, 1999.

³ Retrieved from <http://www.treasury.gov/press-center/press-releases/Documents/Blueprint.pdf>

costs on an industry that is national or even international in scope, and existing studies provide evidence that insurance is a more inter-state business than an intra-state industry (Grace and Scott, 2009; Randall, 1999). When a trans-state externality exists in a state insurance policy, this policy may also benefit out of state residents (Grace and Phillips, 2009). Decentralization may allow companies that operate in multiple jurisdictions to charge different state prices for similar or identical services. This study seeks to assess whether state-by-state regulation can cause a price disparity among jurisdictions.

This evaluation is conducted in a specific industry, title insurance. Title insurance is used for protection against title defects that can occur in property purchase and refinance.⁴ States regulate title insurance with five different styles in the U.S.: inactive regulation, use and file, file and use, prior approval, and promulgation (see Table 1). Existing studies have pointed out the order of magnitude disparity of title insurance prices for identical insurance policies in the U.S. (Woodward, 2008) and have posited that regulation could be an explanation (J. W. Eaton and D. J. Eaton, 2007). This study examines the empirical effects of different relationship styles on title insurance prices.

⁴ California Land Title Association, Understanding Title Insurance. Retrieved from <http://clta.org/news-and-media/media-kit-documents/understanding-title-insurance.pdf>

EXISTING STUDIES FOR A FEDERAL INSURANCE REGULATORY SYSTEM

Proponents of federal insurance regulatory system raise both the inter-state feature of insurance and externalities in state insurance policies. In 2000, in-state insurance companies “accounted for only 3.45 percent of the total number of companies writing business in the average state” (Grace and Phillips, 2009, p.210). This percentage of insurance business conducted by in-state companies implies that insurance is “largely an interstate business” (Grace and Phillips, 2009, p.210). In effect, the 50 states, the District of Columbia, and each US commonwealth and territory offer similar and sometimes even identical insurance policies that each state regulates independently through its own institutions. Insurance companies and agents comply independently with each state’s unique regulatory requirements, which increases costs (Grace and Scott, 2009). States with large insurance markets benefit other states with small insurance business (Grace and Phillips, 2009). The state-by-state regulatory compliance does not help the US insurance industry’s competitiveness in a global market, especially when an increasing number of foreign insurers have entered the U.S. during recent years (Cooke and Skipper, 2009).

Existing studies have identified an order of magnitude price disparity in title insurance. For example, a HUD report shows that “average title charges by state range from \$668 to \$2090” and about 25 percent of the variance “relates to the state in

which the borrower lives” (Woodward, 2008, p.90-102). One way to visualize the geographic variation in title insurance is by comparing title insurance premiums for a standard \$500,000 home in 2002 in different states. This geographic variation cannot be explained by loss ratios, the indicator of title insurance business risk, in different states (J. W. Eaton and D. J. Eaton, 2007).

What could explain these differences in title insurance prices in the U.S.? This article tests regulation’s effects on title insurance prices in different states. Five other factors are also considered: services included in title insurance prices, title-related losses, property values, numbers of people by state, and state housing prices. This article examines regional price disparity in title insurance and evaluates these factors with a regression model to estimate title insurance prices.

TITLE INSURANCE PRICE DISPARITY AMONG STATES

Price quotations from the four largest title companies (Fidelity National, First American, Stewart Title, and Old Republic) provide evidence of regional price disparity of title insurance in the U.S. The title insurance market is so concentrated, according to the National Association of Insurance Commissioners (NAIC) statement of 2008,⁵ that the four largest title insurance companies in the U.S. sold 92 percent of title policies in 2008 and 87 percent in 2007. Each of these four companies offers

⁵ Retrieved from http://www.naic.org/documents/topics_title_insurance_brief.pdf

customers a price “calculator” on its respective website.^{6,7,8,9} Potential consumers can obtain quotations for a title insurance price for a property after answering a series of questions about policies, residential situations, and financial conditions.

This study uses two datasets. The first dataset includes title insurance price quotations for \$400,000 properties from Fidelity and First American, which were initially collected in November 2008 and complemented in June 2010. The second dataset includes price quotations for \$200,000, \$400,000, \$600,000 and \$1,000,000 properties from all the four largest title companies which were collected between June 15th and June 27th, 2010.¹⁰ In the first dataset, the two companies have quotations for 34 states. In over half of these states, the price difference within a state between the two companies is essentially 0. Indeed, in 15 states for which data from both companies are available, there is absolutely no difference in the quotations retrieved from each forms title fees calculator. Rate quotations differ among states, from \$2,445 in Texas to \$800 in South Carolina. Florida, Pennsylvania, and New Mexico also charge more than \$2,000 for title insurance of a \$400,000 house. Beyond South Carolina, another 6 states in the first dataset show price quotations lower than \$1,000.

⁶ First American: <http://tfc.firstam.com/public/default.aspx>

⁷ Fidelity National: <http://ratecalculator.fntg.com/default.aspx?brand=fntic>

⁸ Stewart Title: <http://www.stewartorders.com/ratecalc/>

⁹ Old Republic: <http://www.oldrepublictitle.com/newnational/resources/locations.asp>

¹⁰ All quotations were for an owner’s policy, which represents the price an owner would pay for a policy covering her / him, rather than lender policies or simultaneous policies. Each fee calculator required answers to a variety of questions to generate a rate for the most basic possible policy.

The second dataset includes title insurance price quotations from all the four largest title companies. Only Stewart's website allows a user to compute prices for each of the 50 states and the District of Columbia. A user can compute prices from First America, Old Republic, and Fidelity for 48, 43, and 23 states, respectively. The data cited here from company websites include only the basic owner's policies, so that it is possible to compare prices for equivalent insurance policies across companies. Table 2 shows the descriptive summaries for each company's prices. First American has the lowest average prices for properties valued at \$200,000, \$400,000 and \$600,000 (\$794, \$1,379, and \$1,917, respectively). Old Republic has the lowest average price for a \$1,000,000 property (\$2,940). Fidelity's average price quotations for all the four pricing properties are the highest (\$859, \$1,509, \$2,099, and \$3,217, respectively). Using an analysis of variance (ANOVA) to test the differences in the quotations of the four largest title companies among all states (see Table 3), the title charges among the four companies do not differ significantly from each other (p-values > .05).

Figure 1 plots Stewart's quotations for a \$400,000 house, which shows apparent variation in title insurance prices. Texas has the highest quotation for a \$400,000 house, \$2,445, which is more than 20 times than the lowest rate in Iowa, \$110. Another four states also charge more than \$2,100 for title insurance of a \$400,000 house. Beyond Iowa, Missouri, North Carolina, North Dakota, and Indiana also allow title insurance fees less than \$1,000 for \$400,000 houses. This magnitude of variation also exists in title insurance prices for \$200,000, \$600,000, and \$1,000,000 houses.

PILOT TESTS

Why does the magnitude of variation exist in title insurance? This study conducts pilot tests on the effects of regulation and coverage on title insurance prices with the first dataset. Title insurance is regulated with five regulation styles in different states: inactive regulation, use and file, file and use, prior approval, and promulgation. Coverage refers to services included in title insurance prices; there are four levels.

Table 1 summarizes the differences among the five regulation styles. States with a inactive regulation style of title insurance allow the market to set prices in principle, but reserve the right to intervene if regulators conclude that prices are inappropriate. In the six prior-approval states, a state agency must approve title insurance prices before an underwriter can use the rates. Most of the states use either a file and use or a use and file style. In these states title insurance companies set their own prices and state officials can approve or disapprove those proposed prices. The main difference between file and use and use and file is whether an insurance company can use the proposed prices before they are approved. In the three promulgation states, Florida, New Mexico, and Texas, state agencies promulgate title insurance prices.

Table 4 lists the states by regulation style. It is possible to use ANOVA to test whether regulation styles affect title insurance prices, using price quotations in the first dataset, including quotations from Fidelity and First American. Table 5 shows

the test result, which suggests that title insurance in the promulgation states charge higher prices than the states where rate are unregulated (p-value below .05). Given the small sample size, the other three regulation styles do not exhibit different prices versus inactive regulation.

The pilot tests with the first dataset also examine the effects of coverage, which in principal could influence market prices. Services provided by title insurance agents and underwriters are: (a) future payments for claims, which are reflected as risk premium; (b) title examination, which refers to documents evaluation for title defects; (c) title search, which means the acquisition of public records and other documents; and (d) closing costs, which include the final payout for the real estate transaction as well as other title-related costs involved in the purchase. Title insurance prices in different states include four levels of coverage (see Table 6): risk premium only; title examination and risk premium; title examination, search, and risk premium; and comprehensive which covers the services from (a) to (d).

Figure 2 illustrates the average of Fidelity and First American's quotations from the first dataset in a given state versus the type of services included in that state's title insurance prices. Comprehensive states have the highest rates on average. Risk premium-only states appear to have lower average prices. States that offer both the examination and the premium on average have lower prices than states offering only the premium; this result could be an anomaly reflecting small sample size. In several

states the prices charged for risk premiums only even exceed the prices for comprehensive title insurance services. For example, a Floridian pays on average approximately \$350 more for fewer services than the average consumer in a comprehensive state. Consumers in New Jersey, New Mexico, New York, and Ohio pay higher prices for fewer services. In three of the six comprehensive states, consumers pay less for more services.

An analysis of variance (ANOVA) can test the hypothesis that higher levels of service inclusion are associated with higher prices (see Table 7). The four coverage levels explain less than 16 percent of the variance. The comprehensive-coverage states have higher title insurance prices than the premium-only states. Prices in states offering title exam and risk protection do not differ statistically from title insurance costs in risk premium-only states. Title exam, search and risk states do not differ from the states with premium risk only, either. When prices in risk premium-only states are compared to the comprehensive states, the cost of title insurance in comprehensive states exceeds rates in premium-only states (the p-value below the .05). The results in Table 7 indicate that title policy prices vary not so much based on service inclusion but between comprehensive coverage states versus all the rest. There does appear to be at least some unexplained discrepancy between what might be expected in a competitive environment and what is observed. The weak explanatory power may reflect the small sample sizes in the intermediate categories, as only three states

(Illinois, Oklahoma, and Wyoming) are included in Service Level 2, which provides title examination and risk premium only.

DATA AND ESTIMATION

Data Resources and Variable Measurement

The pilot tests indicate the possibility that regulation can explain title insurance price variation among states. However, these tests have a limited sample size and cannot control for some factors which could influence title insurance prices. This study uses the second data set to overcome these data limitations, which includes Stewart price quotations for the 50 states and District of Columbia. A model of title insurance price on regulation style can be built with ordinary linear square (OLS), controlling for coverage level, title-related loss, property value, state population, income, and housing price. Table 8 lists variable labels and measurements.

Title insurance price is the response variable in the model. Figure 3 shows that title insurance prices in the second dataset are highly right skewed, which violates the normality assumption for OLS, the method for model fitting. This study employs square-roots of prices for estimation which are approximately normally distributed (see Figure 4).¹¹

¹¹ This study employs the Cox-Box procedure to select the square-root transformation for title insurance prices. The overall idea of this procedure is to calculate R-squares for a series of power

As discussed in the previous section, title insurance is regulated by five regulation styles in different states: inactive regulation, use and file, file and use, prior approval, and promulgation. These five regulation styles can be coded as binary variables with inactive regulation as a baseline, so each of the other four regulation styles can be coded as 1 (if a state uses that style) or 0 (otherwise). When all the four regulation styles are 0, that state uses inactive regulation.

Two factors, coverage and loss, that ought to influence insurance prices in principle can become control variables in the model. As with regulation style, the four levels of coverage also can be reported with binary coding, with risk premium-only coverage as a baseline. In the insurance industry, losses claimed by consumers can reflect risks and affect prices. This study includes the “loss” as a control variable in the model; “loss” includes losses claimed by consumers, expenses reserved for future losses, and related administrative costs. The losses claimed by consumers alone are not available in any dataset. This study uses the 1999-2008 loss data based on title company financial reports of title companies from Demotech Inc. (a third-party financial institution).¹²

Figure 5 illustrates that in 41 states the yearly payment for title losses and related administrative expenses averages around \$1.8 billion. These 41 states use all five

transformations and select the best fitting transformation (with the highest R-square). This study also investigated log transformations but they do not transform data towards normality.

¹² Retrieved from http://www.demotech.com/publications_research_ptic.aspx. Values in the dataset are divided by 100 million to ease analysis.

regulation styles. The data also show that the states with apparent high losses on average do not charge higher fees for title insurance. Some states with higher title insurance prices experience fewer title losses. For example, the average loss in Texas (one of the states with the most expensive title insurance services) between 1999 and 2008 is about \$800 million, which is much lower than most other states.

This study also controls for the influence of property value, population, housing price, and income on title insurance prices. This study uses binary coding for four levels of property value (\$200,000, \$400,000, \$600,000, and \$1 million), with \$200,000 as a baseline. State total population¹³ and median household income¹⁴ in 2010, the year the price data were collected, were obtained from the US Census Bureau. For estimation, population and income use 1 million and 1,000 as their units, respectively. The Federal Housing Finance Agency (FHFA) publishes the housing price index to reflect home prices;¹⁵ the index for the second quarter of 2010 is used for estimation.

Estimation

This study builds a model of title insurance prices on regulation styles, controlling for market characteristics. Equation (1) is the model for estimation. Table 9 presents estimation results.

¹³ Retrieved from <http://www.census.gov/popest/data/historical/2000s/index.html>

¹⁴ Retrieved from <http://www.census.gov/hhes/www/income/data/statemedian/>

¹⁵ Retrieved from <http://www.fhfa.gov/Default.aspx?Page=87>

$$\text{sqrt}(\text{price}) = \alpha + \beta_{11}\text{reg}_1 + \beta_{12}\text{reg}_2 + \beta_{13}\text{reg}_3 + \beta_{14}\text{reg}_4 + \beta_{21}\text{cov}_1 + \beta_{22}\text{cov}_2 + \beta_{23}\text{cov}_3 + \beta_3\text{loss} + \beta_{41}*\text{prop}_1 + \beta_{42}*\text{prop}_2 + \beta_{43}*\text{prop}_3 + \beta_5\text{pop} + \beta_6\text{Houp} + \beta_7\text{inc} + \varepsilon \quad \text{equation (1)}$$

where α is the constant, β 's are the coefficients of their corresponding variables, and ε is the error term.

Model A includes regulation styles and all control variables. Two regulation styles have significant influences on prices (p-value<0.05). File and use (reg2) has a negative effect on price while promulgation (reg4) increases prices. Consistent with the pilot test results, none of the coverage levels (cov1 – cov3) significantly affect prices (p-values>0.05). All the other market characteristics are significant (p-value<0.05) except for income (p-value>0.05). Model B removes income and yields consistent results with Model A. Model C leaves out the three coverage variables as none of them are significant in Model A or Model B. This study employs adjusted R-square¹⁶ to compare models, which evaluates how well a model fits the data. Model B has a slightly greater adjusted R-square of 0.7246 compared to Model A's adjusted R-square of 0.7229. Model C's adjusted R-square, 0.6742, is apparently smaller than Model A and Model B.

¹⁶ R-square is an indicator for goodness of fit of a model; the closer a R-square to 1, the larger the variance of the dependent variable is explained by the independent variables. Usually adding variables can increase R-square. To compare Model E (with "property value" as a control variable) and the other four models, an adjusted R-square is used, which controls for the effect of an increase in the number of independent variables.

However, four tests¹⁷ show that Model B violates one OLS assumption that the error term in the model is normally distributed. The error terms' distribution (Figure 6) indicates that the estimated errors for Missouri's title insurance prices with Model B draw the distribution to be non-normal. This study builds Model D without the data from Missouri. The four tests of normality show that Model D fits the normality assumption of OLS. In addition, Model D has a greater adjusted R-square, 0.7839, than Model B. This study selects Model D for further analysis.

DISCUSSION

Equation (2) shows the results of Model D. After taking account the influences of coverage, loss, property value, population, and housing price, Model D indicates a positive effect of promulgation (reg4) on title insurance prices (p-values<.05). Use and file (reg1), file and use (reg2), as well as prior approval (reg3) allow similar prices to inactive regulation (p-value>0.05). In addition, loss, property value, population, and housing price also affect title insurance prices.

$$\text{sqrt(price)}=20.95-0.87\text{reg}_1-1.9\text{reg}_2-2.18\text{reg}_3+8.56\text{reg}_4-2.92\text{cov}_1-0.64\text{cov}_2+0.62\text{cov}_3-0.14\text{loss}+9.26\text{prop}_1+16\text{prop}_2+26.34\text{prop}_3+0.54\text{pop}+0.03\text{Houp} \quad \text{equation (2)}$$

Equation (3) and equation (4) provide an example of the difference in title insurance prices between states with promulgation regulation style and inactive regulation.

¹⁷ The four tests for normality are Shapiro-Wilk test, Kolmogorov-Smirnov test, Cramer-von Mises test, and Anderson-Darling test.

These two equations use premium only for coverage (premium only type of service inclusion is used in 30 states), \$1.8 billion for loss (41 states have average loss of \$1.8 billion), \$400,000 for property value (standard housing prices in most states), 6.05 million for population (the average population in the dataset), and 206.69 for housing price (the average housing price in the dataset). The estimated price square-roots from equation (3) and equation (4) are 45.72 and 37.16; so the estimated prices are \$2,090 and \$1,381. Thus, for a \$400,000 house, the estimated title insurance price in a state with promulgation regulation style is more than \$700 higher than a state allowing free competition in the market (other market characteristics having the values as equation 3 and equation 4).

$$\text{sqrt}(\text{price})=20.95+8.56-0.14*18+9.26+0.54*6.05+0.03*206.69 \quad \text{equation (3)}$$

$$\text{sqrt}(\text{price})=20.95-0.14*18+9.26+0.54*6.05+0.03*206.69 \quad \text{equation (4)}$$

CONCLUSIONS AND POLICY IMPLICATIONS

This study examines the relationship between price disparity in title insurance and regulation styles through empirical tests with nationwide data reflecting price quotations from the four largest title companies. Residents in different states pay different fees for title insurance. After taking account the effects of market characteristics, the current state-by-state regulation can at least partially explain the

order of magnitude regional price variation in title insurance. States using the promulgation style authorize a much higher title insurance price for comparable services versus other states. The test results also indicate that, unlike other lines of insurance, services included in title insurance premiums do not significantly affect title insurance prices; losses in title companies' financial reports indeed have a negative effect on title insurance prices.

The fact that different regulation styles explaining regional price disparity in title insurance provides insights into the ongoing title insurance reform in some of the states. In particular, the promulgation regulation style needs to be reconsidered since it is associated with higher title insurance prices than all the other states. This study also has implications for the debate of federal versus state regulation of insurance, as it provides empirical evidence for the possibility that the state-level regulation causes regional price disparity in title insurance. Future research ought to explore how different styles of regulation cause the price variation among states.

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TABLES AND FIGURES

Table1. Title Insurance Rate Regulation Processes

No Active Regulation – 11 States and Washington D.C.

1. Title insurer sets rates.
2. Regulatory review takes place only on an ad hoc basis, usually in the event of consumer or competitor complaints.

Use and File – 4 States

1. Title insurer sets rates.
2. Title insurer offers and completes transactions using the derived rates.
3. Title insurer files rates within a state-mandated timeframe; no formal justification is required.
4. Title insurer continues to use rates provided that the state does not object, but must maintain the rates that were filed.

File and Use – 22 States

1. Title insurer sets rates.
2. Title insurer files rates with state agency. Justification requirements vary by state.
3. Title insurer offers and completes transactions using the derived rates.
4. State agency approves or rejects filed rates 15 to 75 days after filing.
5. Title insurer must maintain the rates that were approved.

Prior Approval – 6 States

1. Title insurer sets rates.
2. Title insurer files rates with state agency. Justification of proposed rates must be provided.
3. State agency approves or rejects filed rates within 15 to 60 days.
4. Title insurer offers and completes transactions using approved rates.
5. Title insurer must maintain the rates that were approved.

Promulgated Rate – 3 States

1. State regulatory agency collects data and hears testimony regularly from title insurers, consumers, and other parties related to title insurance transactions.
2. State regulatory agency formulates “rate charts”, which set title insurance policy rates based on transaction size, on the basis of collected data.
3. Title insurer offers and completes transactions using promulgated rates.
4. Title insurer must maintain the rates that were developed by the regulatory body.

Sources: 1) Clifton, Robert. (2000). *Taxonomy and Anatomy of Title Insurance Rate Regulation*. Austin: The University of Texas at Austin; 2) Eaton, Joseph W. and David J. Eaton. (2007). *The American Title Insurance Industry*. New York: NYU Press.

Table 2. Descriptive Summary of Title Insurance Price Quotations

Company	Property	N	Mean	Median	S.D.	Range	Min	Max
First American	\$200,000	48	794.5	769	246.3	1167	210	1377
	\$400,000	48	1379.4	1313	422.8	2075	370	2445
	\$600,000	48	1917.1	1870	597.4	2983	530	3513
	\$1,000,000	48	2973.5	2718	1039.7	4799	850	5649
Fidelity	\$200,000	23	858.6	778	301.2	1027	350	1377
	\$400,000	23	1508.5	1400	502.2	1795	650	2445
	\$600,000	23	2098.7	2070	694.0	2613	900	3513
	\$1,000,000	23	3216.9	3062	1098.6	4349	1300	5649
Stewart	\$200,000	51	825.2	800	272.0	1267	110	1377
	\$400,000	51	1429.6	1379	476.3	2335	110	2445
	\$600,000	51	1977.9	1880	679.0	3303	210	3513
	\$1,000,000	51	3002.9	2800	1088.2	5209	440	5649
Old Republic	\$200,000	43	796.7	770	257.5	977	400	1377
	\$400,000	43	1387.8	1315	434.4	1715	730	2445
	\$600,000	43	1928.7	1850	609.6	2523	990	3513
	\$1,000,000	43	2940.0	2759	946.5	4259	1390	5649

Note: N is the number of states each company has quotations for; S.D. is standard deviation.

Source: The price quotations were collected from First American:

<http://tfc.firstam.com/public/default.aspx>; Fidelity National:

<http://ratecalculator.fntg.com/default.aspx?brand=fntic>; Stewart Title:

<http://www.stewartorders.com/ratecalc/>; Old Republic:

<http://www.oldrepublictitle.com/newnational/resources/locations.asp>

Table 3. ANOVA Results of Company Quotation Comparison

	\$200,000	\$400,000	\$600,000	\$1,000,000
First American	794	1379	1917	2974
Fidelity	859	1509	2099	3217
Stewart	825	1430	1978	3003
Old Republic	797	1388	1929	2940
P-value	0.7568	0.6884	0.6991	0.7616
Significance	N	N	N	N

Source: Zou, Beibei, using Microsoft Excel 2011.

Table 4. Title Insurance Regulation Styles by State

No Active Regulation	Use and File	File and Use	Prior Approval	Promulgated
Alabama	Kansas	Alaska	Arizona	Florida
Arkansas	Utah	California	Connecticut	New Mexico
Georgia	Vermont	Colorado	Idaho	Texas
Hawaii	Wisconsin	Delaware	New Hampshire	
Illinois		Kentucky	New Jersey	
Indiana		Louisiana	South Carolina	
Iowa		Maine		
Massachusetts		Maryland		
Mississippi		Michigan		
Oklahoma		Minnesota		
Virginia		Missouri		
West Virginia		Montana		
Washington D.C.		Nebraska		
		Nevada		
		New York		
		North Carolina		
		North Dakota		
		Ohio		
		Oregon		
		Pennsylvania		
		Rhode Island		
		South Dakota		
		Tennessee		
		Washington		
		Wyoming		

Sources: Clifton, Robert. (2000). *Taxonomy and Anatomy of Title Insurance Rate Regulation*. Austin: The University of Texas at Austin; and websites of state insurance agencies.

Table 5. Test Results of Title Insurance Price Versus Regulation Style

	Coefficients	Standard Error	t Stat	P-value
Intercept (No Active Regulation)	1210.79	136.11	8.90	8.76E-10
Use and File	405.05	248.50	1.63	0.1139
File and Use	85.18	161.72	0.53	0.6023
Prior Approval	-3.29	225.72	-0.01	0.9885
Promulgated Rates	1048.21	248.50	4.21	0.0002
R Square	0.4374			
F	5.6372			
Significance F	0.0018			

Source: Singh, Sudip, using Microsoft Excel 2007.

Table 6. Title Insurance Coverage of Each State

Risk Premium Only	Title Examination and Risk Premium	Title Examination, Search, and Risk Premium	Comprehensive
Alabama	Illinois	Idaho	Alaska
Arkansas	Oklahoma	Michigan	California
Connecticut	Wyoming	Montana	Nevada
Delaware		Nebraska	Pennsylvania
Florida		Oregon	South Dakota
Georgia		Utah	Texas
Hawaii			Wisconsin
Indiana			
Kansas			
Kentucky			
Louisiana			
Maine			
Maryland			
Massachusetts			
Minnesota			
Mississippi			
Missouri			
New Hampshire			
New Jersey			
New Mexico			
New York			
North Carolina			
North Dakota			
Ohio			
Rhode Island			
South Carolina			
Tennessee			
Vermont			
Virginia			
West Virginia			

Note: Data were not available for the states of Arizona, Colorado, Iowa, and Washington from the source.

Sources: Clifton, Robert. (2000). *Taxonomy and Anatomy of Title Insurance Rate Regulation*. Austin: The University of Texas at Austin; and websites of state insurance agencies.

Table 7. Test Results of Title Insurance Price Versus Number of Services

	Coefficients	Standard Error	t Stat	P-value
Intercept (Risk Only)	1292.24	90.47	14.29	6.4E-15
Title Exam and Risk	-127.49	319.87	-0.40	0.6930
Title Exam, Search, and Risk	232.76	266.35	0.87	0.3891
Comprehensive	430.34	198.91	2.17	0.0386
R Square	0.1551			
F	1.8361			
Significance F	0.1619			

Source: Singh, Sudip, using Microsoft Excel 2007.

Table 8. Variables Used in the Analysis

Variable		Label	Measurement
Price	Price	pri	Price quotation from Stewart
Regulation	Inactive regulation	-	-
	Use and file	reg ₁	1 if use and file is used; 0 otherwise
	File and use	reg ₂	1 if file and use is used; 0 otherwise
	Prior approval	reg ₃	1 if prior approval is used; 0 otherwise
	Promulgated rate	reg ₄	1 if promulgated rate is used; 0 otherwise
Coverage	Premium only	-	-
	Title examination and premium	cov ₁	1 if title examination and premium is used; 0 otherwise
	Title examination, search, and premium	cov ₂	1 if title examination, search, and premium is used; 0 otherwise
	Comprehensive coverage	cov ₃	1 if comprehensive coverage is used; 0 otherwise
Property value	\$200,000	-	-
	\$400,000	prop1	1 if property value is \$400,000; 0 otherwise
	\$600,000	prop2	1 if property value is \$600,000; 0 otherwise
	\$1 million	prop3	1 if property value is \$1 million; 0 otherwise
Loss	Loss	loss	Average loss from 1999 to 2008 divided by 100 million
Population	Population	pop	State population from the US Census Bureau over 1 million
Housing price	Housing price	hou	Housing price index from FHFA
Income	Income	inc	State median income from the US Census Bureau over 1,000

Source: Zou, Beibei, using Microsoft Excel 2011.

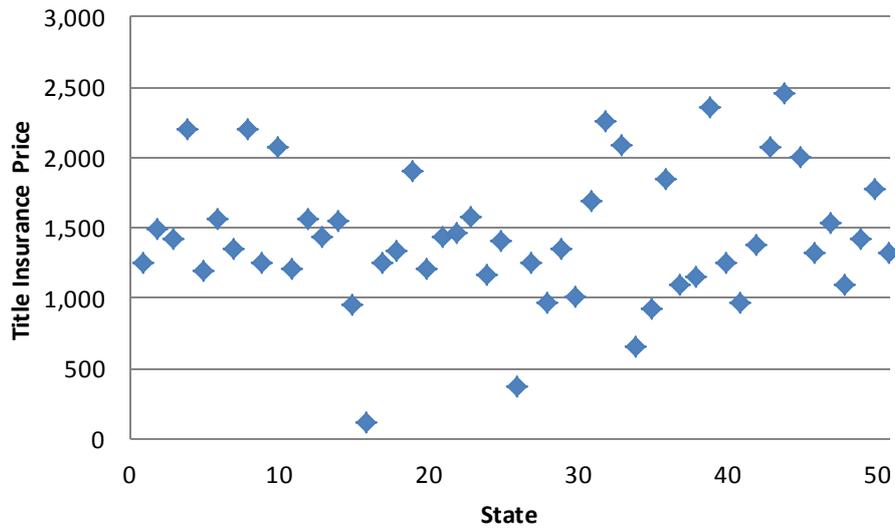
Table 9. Estimation Results

Variable	Label	Model A	Model B	Model C	Model D (without MO)
Adjusted R ²	-	0.7229	0.7246	0.6742	0.7839
Intercept	-	17.97*** (4.6645)	18.12*** (3.7825)	11.66*** (3.4337)	20.95*** (3.2746)
Regulation	reg1	-1.67 (1.9959)	-1.66 (1.9729)	0.55 (2.0166)	-0.87 (1.6976)
	reg2	-3.44*** (1.2799)	-3.44*** (1.2759)	-1.82 (1.2249)	-1.90* (1.1147)
	reg3	-2.37 (1.8778)	-2.33 (1.7545)	0.11 (1.7558)	-2.18 (1.5070)
	reg4	7.93*** (2.2644)	7.91*** (2.2379)	9.61*** (2.3993)	8.56*** (1.9240)
Coverage	cov1	-3.02 (2.0978)	-3.02 (2.0910)		-2.92 (1.7959)
	cov2	-0.12 (1.5723)	-0.13 (1.5489)		-0.64 (1.3320)
	cov3	1.67 (1.4936)	1.67 (1.4846)		0.62 (1.2827)
Loss	loss	-0.12** (0.0567)	-0.12** (0.0556)	-0.10* (0.0608)	-0.14** (0.0478)
Property value	prop1	9.16*** (1.3020)	9.16*** (1.2982)	8.89*** (1.3849)	9.26*** (1.1273)
	prop2	15.80*** (1.3020)	15.80*** (1.2982)	15.43*** (1.3849)	16.00*** (1.2982)
	prop3	25.93*** (1.3020)	25.93*** (1.2982)	25.53*** (1.3849)	26.34*** (1.2982)
Population	pop	0.50*** (0.1784)	0.50*** (0.1766)	0.54*** (0.1886)	0.54*** (0.1518)
Housing price	houp	0.05*** (0.0183)	0.05*** (0.0179)	0.07*** (0.0147)	0.03*** (0.0155)
Income	inc	0.004 (0.0693)			

Note: *** significant at the 1 percent level; ** significant at the 5 percent level; * significant at the 10 percent level. Standard errors are reported in parentheses.

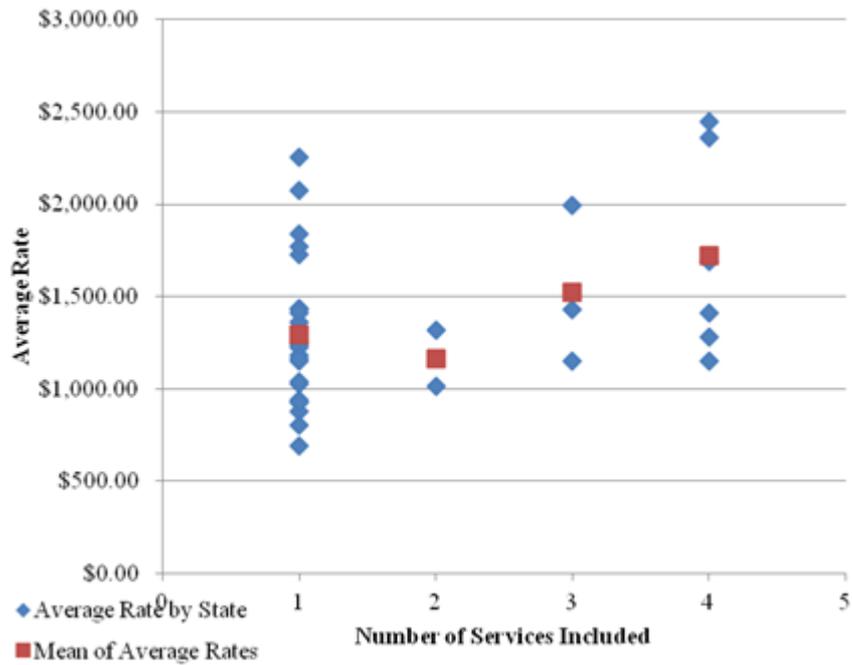
Source: Zou, Beibei, using SAS 9.2.

Figure 1. Title Insurance Price for Houses Costing \$400,000



Source: The graph was developed using title insurance price quotations from Stewart Title: <http://www.stewartorders.com/ratecalc/>

Figure 2. Title Insurance Prices versus Services Inclusion



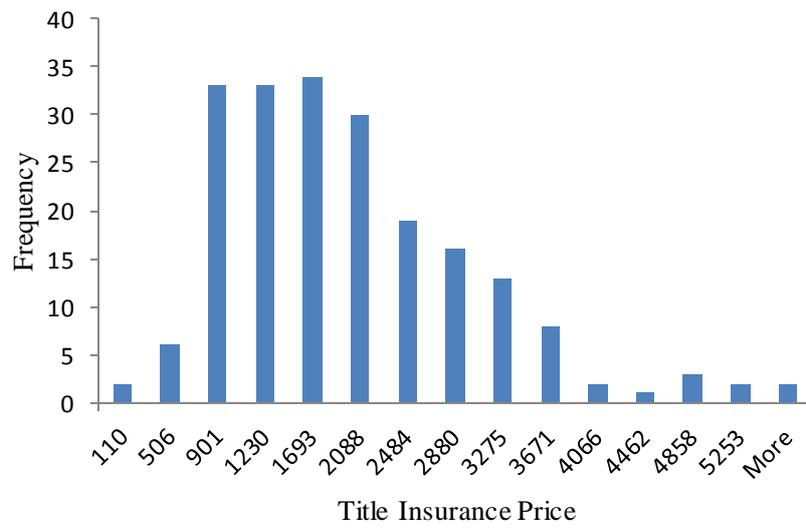
Code: risk only = 1; title exam and risk = 2; title exam search and risk =3; and comprehensive coverage = 4.

Source: The graph was developed using title insurance price quotations from Fidelity and First America

<http://ratecalculator.fntg.com/default.aspx?brand=fntic>,

<http://titlefeescalculator.firstam.com>

Figure 3. Title Insurance Prices Distribution



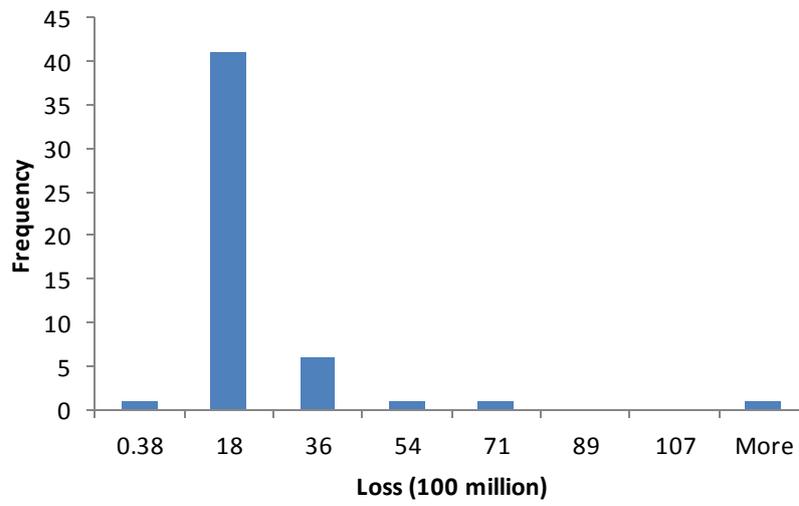
Source: Zou, Beibei, using Microsoft Excel 2011.

Figure 4: Square-roots of Title Insurance Prices Distribution



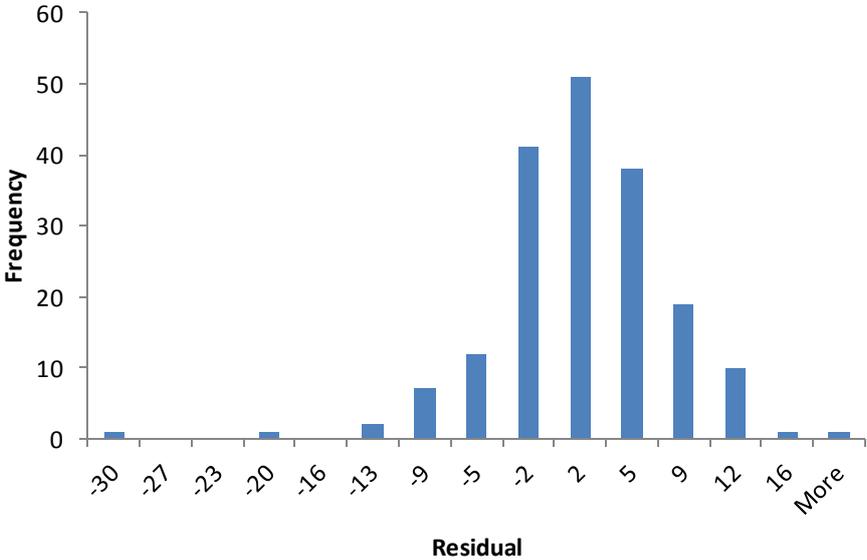
Source: Zou, Beibei, using Microsoft Excel 2011.

Figure 5. Distribution of Losses



Source: This graph was developed using title insurance industry loss data from Demotech, Inc. annual reports.

Figure 6: Distribution of Residuals



Source: Zou, Beibei, using SAS 9.2.