WORKING PAPER

THE INFLUENCE OF POLITICAL POWER ON CUSTOMER SATISFACTION IN AUTO INSURANCE

Abstract

We match individuals' automobile insurance customer satisfaction ratings with demographic, socioeconomic, insurance experience, and state regulatory data in order to examine whether majority groups within a state can exert political power to shift insurance costs to minority groups. We measure majority and minority groups using self-reported racial data and proxy for cost shifting using a price satisfaction rating. Our findings indicate that the majority group is more satisfied in states with elected insurance supervisors and prior approval rating laws, which we believe supports the notion that the majority benefits when it can exert political power. Minority groups exhibit greater satisfaction in states with an appointed supervisor and non-prior approval rating – factors associated with less influence from political decisions.

THE INFLUENCE OF POLITICAL POWER ON CUSTOMER SATISFACTION IN AUTO INSURANCE

Introduction

Customers' satisfaction with their insurance provider is important for both the insurer and the individual. For the insurer, satisfaction is a non-financial metric which leads to differences in financial performance, as more satisfied customers will likely remain with the insurer longer, accept higher prices for coverage, and recommend others to the firm. For the individual, customer satisfaction will influence the decision to make risk financing decisions, such as the decision to adequately insure against loss. In this study, we examine factors which influence customers' satisfaction with their auto insurer. We specifically examine how an insurance regulatory regime may be influenced by the majority voters in order to extract wealth from minority voters, while controlling for individual demographic, financial, and insurance experiential factors.

Customer satisfaction is valuable to insurers, perhaps because greater customer satisfaction leads to increased customer retention. Within insurance, customer retention is important in determining profitability, as renewal business is significantly more profitable than new business (Conning & Co., 1998; D'Arcy & Doherty, 1990; Wu and Lin, 2009).[1] Additionally, Pooser and Browne (2018) provide evidence that greater customer satisfaction is associated with significantly higher insurer profitability through a lower expense ratio.

Customer satisfaction is also important for consumers because of the link between satisfaction and trust with a financial services provider (Roman, 2003; Chen, *et al.*, 2012). Courbage and Nicolas (2021) study trust between individuals and their insurers and note that trust determines individuals' willingness to buy insurance. If customer satisfaction influences insurance

[1] Renewal business is associated with a decrease in loss ratios. As a book of business ages, insurers can cherry-pick the risks they choose to retain as they gather more information on these insureds.

purchase decisions, the economic welfare of consumers is impacted by their perception of their insurer.

While there is a body of existing literature on customer satisfaction, many of these studies examine multiple industries, are based on surveys which are unique to the author, study a small sample of respondents, and are costly (in both time and resources) to conduct. Few customer satisfaction studies focus on the insurance industry, largely due to a lack of available data. It is important to distinguish the insurance industry, however, due to strict regulatory oversight of insurance companies. A customer's satisfaction with their local bakery may depend on price, product, and employee interaction, but satisfaction with their insurance company may also depend on the factors influenced by the regulator. These regulatory factors can have an impact on the profitability of firms and the financial decisions made by individuals.

U.S. insurance regulation is conducted at the state-level. An insurance supervisor is responsible for the activities of the insurance supervisory office. Insurance supervisors may be elected or appointed (typically by the governor), depending on the state. Insurance regulators oversee most of the aspects of an insurance company's operations, including company solvency and (in some states) the price of coverage. We examine how differences in a regulatory regime may enable or allow cost shifting from one group to another within a state.[2] Specifically, we study the impact of four regulatory regimes – elected officials with prior approval rating systems (Regime 1), elected officials with more open rating systems (Regime 2), appointed officials with prior approval rating system (Regime 3), and appointed officials with more open rating systems (Regime 4) – on the customer satisfaction ratings of majority and minority racial groups across

[2] Evidence of cost shifting due to regulation is presented by Nyce and Maroney (2011) within the Florida homeowners' insurance market. Specifically, some coastal residents underpay for coverage relative to their risk, while more inland residents overpay.

states. We hypothesize that majority groups may wield political power to shift risk costs to minority groups in states where the regulatory system allows for this type of control or influence.[3]

Supporting the notion of this cost shift, we find that the majority race exhibits higher average overall and price satisfaction ratings in Regime 1 states. We find that minority racial groups exhibit higher average overall and price satisfaction ratings in Regime 4 states. We posit that Regime 1 states allow the majority group to favorably influence regulation because the insurance regulator is sensitive to voter demands and the regulatory office can exert control over insurance prices. On the other hand, in Regime 4 states the insurance regulator is appointed (and therefore serves a step or more away from the voters) and insurers have more direct control over their prices; thus minority groups demonstrate higher customer satisfaction ratings.

Prior Literature

The Importance of Customer Satisfaction

Customer satisfaction has been examined as both a driver of performance and an outcome of other actions. It is important to understand the effect of customer satisfaction because it provides an economic context for the study of satisfaction. However, like some of the variables discussed above, including cash flow volatility, prices, profitability, and valuation, customer satisfaction is also an outcome of some firm action. In order to understand *why* satisfaction might add value, firms should try to understand the drivers of satisfaction – the characteristics and experiences of their customers which shape their opinion of the firm. Ultimately, these individual experiences are the factors that lead to retention and referrals (increased revenue, reduced expenses) and greater profits.

[3] We cannot directly observe cost shifting behavior, so we proxy for the activity using customer satisfaction outcomes in different groups within a state.

Much of the prior literature that examines the determinants of satisfaction are based around the customer's experience with the firm. Maddern, *et al.* (2007) find that customer satisfaction in the UK banking industry is driven by technical service quality (which they describe as "doing things right") rather than functional service quality (which they describe as "doing things nicely"). Siddiqui and Sharma (2010) also model customer satisfaction, but find it is created through combination of an individual's satisfaction with employees, satisfaction with the firm's product or service, and satisfaction with a firm's image. Courbage and Nicolas (2021) study trust in insurance, rather than satisfaction, in an international sample. They find a positive link between 'good experience' and trust, although the 'good experience' variable can be a first- or second-hand experience.

The concepts of customer satisfaction and trust in a business are interrelated. Roman (2003) surveys banking customers in Spain in order to determine the relation between behavior of firm employees, customer satisfaction, and trust. Roman hypothesizes a link from satisfaction with an employee, satisfaction with the firm, greater trust, and increased customer loyalty. The study's results indicate that perceived ethical behavior by employees is associated with greater levels of customer satisfaction and trust. Chen, *et al.* (2012) survey financial services customers in Taiwan on the concept of fairness. The authors find that fair service has an impact in overall customer satisfaction as well as in determining trust in the firm. The authors also find that higher trust in a firm is related to greater customer satisfaction.

Based on prior literature, the development of trust and customer satisfaction is determined to a large degree by customer experience. When customers have a positive experience with a firm, employee, or service, they are more likely to be satisfied with the outcome. In our analysis of customer satisfaction, we control for several experience variables, including prior claim

experience, the premium paid for coverage, and tenure with the insurer. We also consider the effects of demographic and financial characteristics on satisfaction. Similarly, Courbage and Nicolas (2021) find that many socioeconomic variables relate significantly to trust in insurers.

Regulation and the Consumer

Our current focus is the influence of regulation on customer satisfaction. An elected supervisor may have a positive impact on consumer satisfaction if they take a pro-consumer stance, which is suggested by Besley and Coate (2003) in a general study of elected vs. appointed commissioners and is supported more directly in the insurance area by the findings of Fields, Klein, and Sfiridis (1997). Alternatively, elected commissioners may be tied to special interest groups and lobbying efforts, both of which can be influenced by insurance companies and industry groups. In this case, the elected commissioner may feel some pressure to take a more insurer-centered focus in their regulatory efforts.

On the other hand, appointed commissioners may find that their public policy issues are "bundled" by the governor with other state policy issues, who is likely interested in constituent approval and achieving re-election.

There is some literature which discusses the impact of rate regulation on insurance prices and consumer incentives. Prior approval regulation may lead to lower prices and fewer price changes, although this relationship is not always observed (Cummins, Phillips, and Tennyson, 2001; Harrington, 2004; Regan, Tennyson, and Weiss, 2008). If prior approval is effective at leading to lower prices or greater price stability (for consumers), then we expect that prior approval rating systems will be positively associated with customer satisfaction. On the other hand, if more

open rating systems provide insurers with the freedom to set prices more *efficiently* (i.e., promote rate equity based on risk class), these systems should be positively associated with satisfaction.

Data Description and Study Variables

Dataset

Our individual response data is obtained from the J.D. Power Auto Insurance Study. J.D. Power conducts this survey annually to auto insurance buyers around the U.S. For our sample period (2016-2018), J.D. Power receives about 45,000 responses per year; our sample contains 134,927 potential observations. The survey contains data on the insurance buyer's individual demographic characteristics, social and financial characteristics, insurance experience, and more. Below, we discuss the variables which we employ in our data analysis. We also collect state-level insurance regulatory data. The insurance commissioner and premium rating data are obtained from the NAIC's website and the NAIC Auto Insurance Database Report for 2017 and 2020 (corresponding to years 2016 and 2019), respectively.

Variable Descriptions

Dependent Variables

J.D. Power collects individual satisfaction responses on the sales agent, non-claim interaction with the insurer, call center, policy offerings, billing practices, claims interaction, price of coverage, and more. We focus on two variables of interest: overall customer satisfaction and overall price satisfaction. The overall customer satisfaction index (CSAT) ranges from 100 to 1,000 and measures an individual's overall level of customer satisfaction. However, because we are

interested in cost shifting between majority and minority groups, we focus on overall price satisfaction in our multivariate models.

Independent Variables

The dataset contains responses to many individual characteristics such as age, race, gender, income, education, and residence. In this section we discuss the creation of our study variables as well as the summary statistics and univariate findings (based on CSAT values) of our independent variables. Many survey variables include a "Prefer not to answer" as a variable choice. We note whether or not we exclude observations based on this response.

[Table 1 Here]

Personal Demographic Variables

Gender: Respondents can choose to identify as male or female. A small portion of the sample (893 respondents) choose not to answer this question. Females make up 59 percent of our sample. We observe a small but statistically significant univariate difference in CSAT value for males (819.44) versus females (820.93).

Age: Respondents enter their age in years for the survey. We observe 130,509 responses to this variable (4,418 respondents did not include a value). The mean (median) age is about 55 (58) years. We construct four categorical variables to compare CSAT by age range: 18-25 years, 26-50 years, 51-70 years, and 71+ years. Sample proportions are reported in Table 1. We observe that average CSAT increases with age category. The differences are generally statistically significant, although the 51-70 sample CSAT value is about the same as the sample average.

Marital Status: Respondents may choose a relationship status of married, single, widowed, divorced, or partner.[4] The largest portion of respondents are married, followed by single and divorced. We report CSAT values for each variable in our summary statistics. However, for t-tests and multivariate regression, we drop the non-disclosers. We observe that widowed and married individuals report the highest values of CSAT, and that these differences are significantly different from other respondents. Single respondents report the lowest CSAT value, which is also significantly different from other respondents. Individuals who report their relationship status as divorced or living with a partner report CSAT values which are not much different from the sample mean.

Race: Respondents report their race non-exclusively as Caucasian, African American, Hispanic, Asian, Pacific Islander, Native American, or Other. Because the Race variable is non-exclusive, respondents may report themselves as any combination of the available race categories. For the purposes of reporting results, we categorize respondents as Caucasian, African American, Hispanic, and All Other Races.[5] Caucasian respondents make up the largest portion of our sample at 84 percent.[6] African American respondents report the highest value of CSAT, followed by Caucasian respondents. For both groups, the difference is significantly different from other respondents. Hispanic respondents report a below-mean value of CSAT, but the difference is not significantly different. Respondents in the All Other Race category report the lowest CSAT, and this value is significantly different from other respondents.

[Table 2 Here]

[4] We exclude respondents who select Prefer Not to Answer for this variable (1,516 respondents).
[5] We combine all other responses into a single variable because the proportion of respondents in each of the individual other categories is very low.
[6] According to the U.S. Census Bureau, 76.5% of the U.S. population is reported as "White alone" and 60.4% of the population is "White alone, not Hispanic of Latino", which indicates that our dataset over-represents White or Caucasians respondents (see https://www.census.gov/quickfacts/fact/table/US/RHI125218).

Financial and Social Demographic Variables

Income: Respondents report their income in categorical brackets. We include income categories of $0 - $40,000, $40,001 - $70,000, $70,001 - $100,000, $100,000 - $150,000, and >$150,000. About ten percent of our sample does not report their income. Because income is reported in categories, we do not know a sample mean. However, the sample mean and median for the categorical income variable (excluding non-reporters) indicates an average income of about $70,000. Our univariate results indicate that CSAT exhibits a non-monotonic relationship with income. Average CSAT is highest for respondents in the $70,000 - $150,000 categories and lower in the low/high income tails.

Credit Rating: Respondents self-report their credit as excellent, good, fair, or poor.[7] Credit score is a variable often used in auto insurance underwriting and some states have disallowed its use as an underwriting factor due to controversy over its correlation to race, ethnicity, and other potentially protected classes. Almost two-thirds of our sample report their credit as excellent and this group has the highest value of CSAT, which is statistically different from other respondents. Average CSAT value decreases monotonically with reported credit category and is lowest for those that choose not to report their credit rating.

Education: Respondents report their highest level of education in categorical brackets. We summarize these brackets as: No High School, High School Graduate, College Graduate, and Post-Grad Degree.[8] As with income, we observe a non-monotonic relationship between education and CSAT. Average CSAT is highest for high school graduates but declines for college and graduate

[7] Respondents can also choose not to report this score (n = 3,156). Because of the importance of credit score in auto insurance underwriting, we choose to include this response as a separate variable in our univariate and multivariate analyses.

[8] We exclude respondents who select No Education Disclosed for this variable (1,166 respondents).

school degree holders. Individuals without a high school degree have the lowest mean CSAT, although this group only makes up about one percent of our sample.

Residence: Respondents are categorized by their living situation as homeowners, renters, or other. The largest proportion of our sample are homeowners (77 percent), followed by renters (19 percent). Univariate tests indicate that homeowners have a statistically higher CSAT than other respondents.

Residential Area: Respondents are categorized by residential area as urban, suburban, or rural dwellers.[9] The majority of respondents identify as suburban dwellers. Respondents in rural areas report the highest mean value of CSAT, while urban and suburban dwellers report CSAT values slightly below the sample mean. This relationship may be driven by premium differences which we control for in our multivariate analysis.

[Table 3 Here]

Insurance Experience Variables

Prior Claim: Respondents report whether or not they have filed an auto claim with their current auto insurer. About half of our sample has filed a claim with their current insurer. The average CSAT is significantly higher (numerically and statistically) for those with a prior claim, which we believe indicates that individuals are generally satisfied with the claims process. Lai, Liu, and Lin (2011) note that claims experience should be a variable considered in modeling customer retention, and we believe it is also important in modeling satisfaction.

Annual Premium: Respondents self-report their auto insurance premium. In the J.D. Power survey, respondents enter their premium amount and the number of payments they make per year, and the survey system reports the annual premium as the product of the two. The resulting value is highly

[9] Respondents can also respond "Don't Know" to this question, which describes 1,320 respondents. These responses are excluded from our results.

skewed with a mean value of $2,070 and median $1,224. One potential reason for this skew is that individuals may report their annual premium but with monthly payments, which would result in a value 12 times greater than the true annual premium. We cannot observe whether or not the respondent made a mistake in this input, so rather than relying on the raw value of the premium, we separate premium into quartiles.[10] The average CSAT value declines in each quartile (indicating greater satisfaction with the lowest premium category). The number of observations for this variable is 98,016, which is the lowest of any of our independent variables.[11]

Insurer Tenure: Respondents report the year that they last changed their auto insurer, up to four years prior to the study date. We calculate a variable, insurer tenure, as the difference between the study year and the last date of change. However, because we do not know the date if it is more than four years before the study, we create four dummy variables for tenure: less than one year, one-two years, three-four years, and more than four years with the insurer. Sixty-two percent of our sample have been with their current auto insurer for more than four years, and this group reports the highest mean value of CSAT. The next highest CSAT value is for respondents who changed within the last year.

High-Mile Driver: J.D. Power classifies drivers as high-risk if they drive more than 25,000 miles per year. We include this variable in our analyses because high-mile drivers have more exposure to loss and likely have more experience with auto claims and their insurer.[12] High-mile drivers make up about ten percent of our sample and have a slightly higher value of CSAT than other drivers. The difference in CSAT is significant according to our univariate test.

[10] The premium values for each quartile are $0-$856, $857-$1,224, $1225-$1,900, and >$1,900.
[11] A potential reason that the response rate is lowest for this question is that many respondents do not immediately know their auto insurance premium. For example, individuals that bundle home, auto, and any other insurance coverages may only view their aggregate premium, not the premium for each line of insurance.
[12] There are 6,309 non-responses to this variable, which are excluded from our analyses.

[Tables 4A and 4B Here]

Regulatory Variables

Supervisor: An insurance supervisor may be elected to office or appointed by the governor of a state. We record whether a state has an elected or appointed insurance supervisor (NAIC, 2018) and use this variable in constructing the state's regulatory regime variable.

Rating System: While several rating environments exist in the U.S., we consider whether a state has a prior approval rating system for its auto insurance market or a more open form of rating (NAIC, 2020). A prior approval system requires an insurance company to first obtain approval from the state insurance regulator before setting or changing insurance rates. Other rating systems grant the insurer more flexibility in changing coverage rates.

In Tables 4A and 4B we report the mean overall and price satisfaction ratings for the self-reported racial groups in our sample. White respondents represent the majority of respondents and residents in nearly all of the states in our sample and represent the majority of respondents for each regulatory regime. Thus, we perform t-tests on the difference in means between white respondents and other racial group respondents for each regulatory regime.

Our expectation is that the majority group in a state has the opportunity to extract wealth from minority groups when the regulatory regime supports this type of control; we specifically expect that the majority group will have this opportunity in Regime 1. Our univariate findings are mixed. White respondents are significantly more overall satisfied with their auto insurance than Hispanic, Asian, and overall minority group respondents, and significantly more price satisfied than Asian and overall minority respondents in Regime 1 states. However, there is no significant difference the overall and price satisfaction ratings for white and black respondents, and no significant difference for price satisfaction between white and Hispanic respondents.

We also expect that minority respondents will demonstrate greater satisfaction scores than majority respondents in Regime 4. Regime 4 states should provide less opportunity for the majority in a state to exert control over the insurance supervisory office. Mean overall satisfaction results are mixed, but mean price satisfaction results are generally significantly higher for minority respondents than majority respondents.

Multivariate Methodology and Results

We further test the notion that the majority group can exert political power to extract wealth from minority groups using a multivariate regression model. Because we are interested in cost shifting, we focus specifically on price satisfaction as the dependent variable in these models.[13] In an insurance setting, a cost shift between groups would indicate that the benefiting group underpays for coverage in relation to their risk while other groups overpay for their coverage. Price satisfaction results should be higher for a group if those respondents underpay for insurance coverage.

[Table 5 Here]

The variable of interest in our multivariate models is an interaction term between the regulatory regime and a majority/minority racial group indicator. We create two interaction variables which are included in separate regression models. The first interacts Regime 1 with majority race. If Regime 1 provides an environment for majority groups to shift insurance costs to minority groups, we expect the coefficient on the interaction term to be positive and significant. The second interaction term is between Regime 4 and minority race. If Regime 4 prevents this cost

[13] We also performed the regression analysis using the overall satisfaction variable. The results do not qualitatively change using either dependent variable. However, the overall satisfaction variable is an aggregated value which includes inputs from numerous parts of an insurance company's operations. We are interested in the cost of insurance coverage which is why we focus on price satisfaction in this section.

shifting behavior, we expect the coefficient on the interaction term to be positive and significant. We also include controls for individual demographic, socioeconomic, and experiential variables.

We find that both interaction terms in Models 1 and 2 of Table 5 are positively and significantly related to price satisfaction. Our findings indicate that majority respondents are more satisfied in Regime 1 states – those with elected insurance supervisors and prior approval rating systems – and that minority respondents are more satisfied in Regime 4 states – those with appointed insurance supervisors and non-prior approval rating systems. We believe these findings provide evidence that majority voters can influence some power or control over the insurance supervisory office with their vote.

We also find that several personal demographic and experiential variables are associated with price satisfaction. Married respondents, as well as respondents in the youngest and oldest age categories demonstrate significantly higher price satisfaction. There is no significant difference in responses for male and females, but White, Black, and Hispanic respondents all show significantly higher price satisfaction than other racial groups. The coefficient on racial groups is highest for Black respondents, followed by Hispanic respondents.

Coefficients on the income category variables indicate that the highest income respondents demonstrate lower price satisfaction than other respondents; the exception is that individuals that choose not to provide their income demonstrate the lowest price satisfaction scores (consistent with univariate results). We also find that home renters and respondents in rural areas demonstrate greater price satisfaction, while suburban dwellers demonstrate lower price satisfaction than urban dwellers. Unsurprisingly, respondents with lower credit scores have lower price satisfaction, which is consistent with the notion that credit rating is correlated with auto risk.

Insurance experience has an important impact on price satisfaction. Individuals who experienced a prior claim with their auto insurer demonstrate higher satisfaction scores, which may indicate the claims process makes individuals feel their insurance is 'worth it'. We also find that individuals who switched insurers within the last two years demonstrate greater price satisfaction than those with their insurer longer, perhaps because those individuals switched in search of a lower price for coverage. Finally, individuals who have a greater exposure to the auto risk (high mile drivers) also demonstrate a greater satisfaction with their price of coverage.

Conclusion

Using a dataset which contains responses to J.D. Power's automobile customer satisfaction survey, we examine whether majority groups within a state can influence a regulatory regime to shift costs to minority groups. We proxy for this cost shift by observing each individual's satisfaction with the price paid for insurance coverage along with the individual's racial group and the regulatory regime by which they are governed. Supporting this notion of a cost shift, we find that majority groups are more price-satisfied in states which allow the majority voters to exert more control over a supervisory office, while minority groups are more satisfied with their insurance price in states which prevent control over the supervisory office.

We cannot say if any type of cost shift is implicit or explicit in these states. It is unlikely that any insurance regulator is making a decision to specifically benefit white or majority members of a group within a state. However, it is possible that voting blocs exist which push a regulator towards decisions that implicitly benefit one group over others, such as rate controls in a territory with a greater proportion of the majority race.

The issue of satisfaction tied to regulatory decisions is important to the insurers and consumers in a state. Tying satisfaction to the concept of trust in financial services, those individuals who are more satisfied and trust their insurer more should be more likely to remain with that insurer, recommend others to the insurer, and perhaps purchase more coverage than those with less satisfaction and trust. Individuals with less satisfaction may ignore important insurance coverages and therefore be exposed to greater potential loss. Thus, greater customer satisfaction should lead to better profitability for insurers and improved social welfare for consumers. However, because insurance company actions do not solely dictate customer satisfaction, the impact of regulation on these issues must be examined.

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Table 1 – Univariate Statistics (Personal Demographics)

	Summary Statistics				
Variable	**Mean**	**SD**	**Min**	**Max**	**n. obs.**
CSAT Value	819.74	150.04	100.00	1000.01	134927
Gender (Male = 1)	0.41	0.49	0	1	134034
Age	54.96	15.08	18	100	130509
Age Cat 1 (< 25)	0.02	0.15	0	1	130509
Age Cat 2 (26-50)	0.31	0.46	0	1	130509
Age Cat 3 (51-70)	0.49	0.50	0	1	130509
Age Cat 4 (>70)	0.17	0.38	0	1	130509
Married	0.63	0.48	0	1	133411
Single	0.16	0.36	0	1	133411
Widowed	0.05	0.22	0	1	133411
Divorced	0.11	0.32	0	1	133411
Partner	0.05	0.22	0	1	133411
Caucasian	0.84	0.37	0	1	134927
African American	0.04	0.19	0	1	134927
Hispanic	0.02	0.15	0	1	134927
All Other Races	0.10	0.30	0	1	134927

[a] The values listed under Variables in the Univariate Comparison section are the mean CSAT scores. T-tests are used for the univariate analysis. The t-tests assume unequal variance between test categories.

Table 2 – Univariate Statistics (Financial & Social Demographics)

	Summary Statistics				
Variable	**Mean**	**SD**	**Min**	**Max**	**n. obs.**
Income <40k	0.20	0.40	0	1	134927
Income 40k-70k	0.24	0.43	0	1	134927
Income 70k-100k	0.20	0.40	0	1	134927
Income 100k-150k	0.17	0.37	0	1	134927
Income >150k	0.10	0.30	0	1	134927
No Income Disclosed	0.10	0.29	0	1	134927
Credit Cat 1 (Exc)	0.64	0.48	0	1	134927
Credit Cat 2 (Good)	0.23	0.42	0	1	134927
Credit Cat 3 (Fair)	0.07	0.26	0	1	134927
Credit Cat 4 (Poor)	0.03	0.17	0	1	134927
No Credit Reported	0.02	0.15	0	1	134927
Education (No HS)	0.01	0.09	0	1	133761
Education (No College)	0.43	0.50	0	1	133761
Education (College)	0.34	0.47	0	1	133761
Education (Grad)	0.22	0.41	0	1	133761
Home-Own	0.77	0.42	0	1	134927
Home-Rent	0.19	0.39	0	1	134927
Home-Other	0.04	0.21	0	1	134927
Urban Dweller	0.19	0.39	0	1	133607
Suburban Dweller	0.57	0.49	0	1	133607
Rural Dweller	0.24	0.42	0	1	133607

[a] The values listed under Variables in the Univariate Comparison section are the mean CSAT scores. T-tests are used for the univariate analysis. The t-tests assume unequal variance between test categories.

Table 3 – Summary Statistics (Insurance Experience)

	Summary Statistics				
Variable	**Mean**	**SD**	**Min**	**Max**	**n. obs.**
Prior Auto Claim	0.49	0.50	0	1	134927
Premium Cat 1	0.25	0.43	0	1	98106
Premium Cat 2	0.25	0.43	0	1	98106
Premium Cat 3	0.25	0.43	0	1	98106
Premium Cat 4	0.25	0.43	0	1	98106
Years w Insurer (0)	0.03	0.18	0	1	132630
Years w Insurer (1-2)	0.24	0.42	0	1	132630
Years w Insurer (3-4)	0.12	0.33	0	1	132630
Years w Insurer (>4)	0.61	0.49	0	1	132630
High Mile Driver (>25000)	0.10	0.31	0	1	128618

[a] The values listed under Variables in the Univariate Comparison section are the mean CSAT scores. T-tests are used for the univariate analysis. The t-tests assume unequal variance between test categories.

Table 4A – Mean Overall Satisfaction Ratings by Racial Group

Overall Satisfaction							
Regime 1	White	Black	Hispanic	Asian	Minority	p-value	
	823.25	822.42				0.844	
	823.25		810.84			0.008	***
	823.25			769.31		<0.001	***
	823.25				792.49	<0.001	***
Regime 2	White	Black	Hispanic	Asian	Minority	p-value	
	826.48	828.47				0.909	
	826.48		860.14			0.182	
	826.48			762.36		<0.001	***
	826.48				806.46	0.08	*
Regime 3	White	Black	Hispanic	Asian	Minority	p-value	
	826.02	818.45				0.182	
	826.02		828.39			0.739	
	826.02			785.79		<0.001	***
	826.02				811.85	<0.001	***
Regime 4	White	Black	Hispanic	Asian	Minority	p-value	
	821.78	829.19				0.013	**
	821.78		816.78			0.217	
	821.78			779.31		<0.001	***
	821.78				809.79	<0.001	***

Regulatory Regime 1 indicates an elected insurance supervisor and prior approval rating system. Regulatory Regime 2 indicates an elected insurance supervisor and non-prior approval rating system. Regulatory Regime 3 indicates an appointed insurance supervisor and prior approval rating system. Regulatory Regime 4 indicates an appointed insurance supervisor and non-prior approval rating system.

**p-values are reported for t-tests of the difference between the first column results (White respondent satisfaction) and other racial group satisfaction results.

Table 4B – Mean Overall Price Satisfaction Ratings by Racial Group

Price Satisfaction							
Regime 1	White	Black	Hispanic	Asian	Minority	p-value	
	7.47	7.53				0.276	
	7.47		7.55			0.187	
	7.47			7.08		<0.001	***
	7.47				7.3	<0.001	***
Regime 2	White	Black	Hispanic	Asian	Minority	p-value	
	7.49	7.54				0.826	
	7.49		8.25			0.045	**
	7.49			7.2		0.227	
	7.49				7.51	0.877	
Regime 3	White	Black	Hispanic	Asian	Minority	p-value	
	7.43	7.61				0.013	**
	7.43		7.65			0.015	**
	7.43			7.3		0.123	
	7.43				7.53	0.041	**
Regime 4	White	Black	Hispanic	Asian	Minority	p-value	
	7.4	7.64				<0.001	***
	7.4		7.54			0.008	***
	7.4			7.23		<0.001	***
	7.4				7.48	0.002	***

Regulatory Regime 1 indicates an elected insurance supervisor and prior approval rating system. Regulatory Regime 2 indicates an elected insurance supervisor and non-prior approval rating system. Regulatory Regime 3 indicates an appointed insurance supervisor and prior approval rating system. Regulatory Regime 4 indicates an appointed insurance supervisor and non-prior approval rating system.

**p-values are reported for t-tests of the difference between the first column results (White respondent satisfaction) and other racial group satisfaction results.

Table 5 – Multivariate Regression Results

	Model 1		Model 2	
DV = Price Satisfaction	Coefficient	T-Stat	Coefficient	T-Stat
Regime 1	-0.034	-1.069		
Regime 2	0.091**	2.492	0.030	0.796
Regime 3	0.040**	2.535	-0.019	-1.028
Regime 4			-0.064***	-4.429
Regime 1 * Racial Majority	0.115***	3.317		
Regime 4 * Racial Minority			0.131**	2.061
Male	0.002	0.159	0.002	0.157
Single	-0.241***	-12.781	-0.242***	-12.830
Widowed	-0.112***	-3.935	-0.111***	-3.910
Divorced	-0.145***	-7.252	-0.144***	-7.229
Partner	-0.075***	-2.712	-0.075***	-2.701
Age Cat 1 (< 25)	0.058	1.322	0.058	1.339
Age Cat 2 (26-50)	-0.062***	-3.206	-0.062***	-3.222
Age Cat 3 (51-70)	-0.151***	-9.309	-0.151***	-9.325
White	0.086***	3.502	0.129***	6.183
Black	0.306***	8.219	0.247***	4.936
Hispanic	0.205***	4.700	0.208***	4.788
Income <40k	0.075***	2.971	0.075***	2.979
Income 40k-70k	0.057***	2.587	0.057***	2.598
Income 70k-100k	0.077***	3.566	0.077***	3.575
Income 100k-150k	0.055**	2.524	0.055**	2.525
No Income Disclosed	-0.152***	-5.604	-0.152***	-5.589
Education (No HS)	0.057	0.816	0.057	0.812
Education (No College)	-0.066	-0.941	-0.066	-0.941
Education (College)	-0.096	-1.356	-0.095	-1.347
Home-Own	-0.014	-0.403	-0.013	-0.382
Home-Rent	0.089**	2.564	0.090***	2.583
Rural Dweller	0.088***	4.818	0.088***	4.827
Suburban Dweller	-0.033**	-2.119	-0.033**	-2.140
Credit Cat 1 (Exc)	-0.010	-0.697	-0.010	-0.661
Credit Cat 2 (Good)	-0.102***	-4.073	-0.102***	-4.059
Credit Cat 3 (Fair)	-0.135***	-3.413	-0.135***	-3.403
No Credit Reported	-0.192***	-3.890	-0.191***	-3.870
Prior Auto Claim	0.089***	7.244	0.090***	7.254
Years w Insurer (0)	0.325***	9.082	0.326***	9.115
Years w Insurer (1-2)	0.183***	12.522	0.183***	12.559
Years w Insurer (3-4)	-0.049***	-2.724	-0.049***	-2.748
High Mile Driver (>25000)	0.166***	8.816	0.167***	8.843
Year = 2017	0.065***	4.779	0.065***	4.774
Year = 2018	0.044***	3.197	0.044***	3.186
Constant	7.324***	85.726	7.347***	87.183

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1