

THE INFLUENCE OF POLITICAL POWER ON SATISFACTION OUTCOMES IN AUTO INSURANCE

Abstract

We match individuals' automobile insurance satisfaction ratings with regulatory data, demographic, and socioeconomic characteristics in order to examine whether majority groups within a state can exert political power over minority groups. We specifically find that racial majority groups are more satisfied with their insurance prices in regulatory jurisdictions subject to greater political influence - specifically, a jurisdiction with an elected insurance supervisor and a rating system which requires regulatory approval. Racial minority groups are more satisfied in jurisdictions less subject to political influence – specifically, a jurisdiction with an appointed insurance supervisor and a rating system which allows more flexible pricing. Our results are stronger when we define majority and minority as White and Black respondents.

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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 risk financing decisions, including 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, which may be subject to influence by majority groups within a state, lead to different value outcomes for majority and minority insureds. We also consider the effects of individual demographic, financial, and insurance experiential factors on satisfaction.

Customer satisfaction is valuable to insurers because greater customer satisfaction is associated with significantly higher profitability, both through a lower expense ratio as shown by Pooser and Browne (2018), as well as via a lower loss ratio, which has been discussed in several studies. 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

Customer satisfaction is 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

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.

individuals' willingness to buy insurance. Therefore, customer satisfaction influences insurance purchase decisions, and 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 and are based on small surveys which 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 the products it sells and the 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 should 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 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

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.

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

shift, we provide evidence that majority racial groups exhibit higher price satisfaction in regulatory jurisdictions more subject to political influence. We also find that minority racial groups exhibit higher price satisfaction in regulatory jurisdictions less subject to political influence.

Prior Literature

The Importance of Customer Satisfaction

At the firm level, customer satisfaction has been examined as both a driver of performance and an outcome of other actions. 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, using a sample of respondents across multiple countries. 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. However, Courbage and Nicolas (2021) also find that many socioeconomic variables relate significantly to trust in insurance. In our analysis, we control for the effects of personal and socioeconomic characteristics, as well as experiential factors, in determining satisfaction with insurance.

Insurance Regulation and Satisfaction

The insurance industry is different from many other industries because many of the practices of an insurer are partially determined by the regulator. For example, the coverages and exclusions within an insurance contract and the price charged for coverage may require regulatory approval before a policy can be presented to the customer.

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.

Insurance and Race

Prior research has considered whether there is a relationship between the racial composition of an area and the cost of insurance. Harrington and Niehaus (1998) find after controlling for demographic and policy coverage differences that are reasonably related to losses, that the zip-code level loss ratios of areas with greater minority populations are not lower than those with lower minority populations. Their data are from the automobile insurance market in the state of Missouri. Similarly, Klein and Grace (2001) in a study of the homeowners insurance market in Texas find no statistical evidence for redlining. They define redlining as unfair discrimination against minorities in the price or availability of insurance coverage.

Different from our study, both Harrington and Niehaus (1998) and Klein and Grace (2001) consider only one state in their analyses. Both focus on insurance outcomes, including the price of coverage, across zip-code areas with different percentages of majority and minority population.

Our study is conducted across states to assess whether customer satisfaction with insurance is higher or lower for minority and majority populations under different regulatory regimes.

We hypothesize that majority populations will be more satisfied with their insurance coverage in jurisdictions where the regulatory regime allows for a greater exercise of political power than in others, and that minority populations will be more satisfied in jurisdictions that do not.

Hypothesis 1 – Majority Groups will exhibit greater satisfaction with their insurance prices in regulatory jurisdictions which are more subject to influence by voters.

Hypothesis 2 – Minority Groups will exhibit greater satisfaction with their insurance prices in regulatory jurisdictions which are less subject to influence by voters.

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 remove respondents from our dataset for some variables which individuals choose not to disclose or for which the values are seemingly illogical.⁴ After applying screen, our dataset contains 122,151 observations.

⁴ We exclude individuals that do not disclose their gender, marital status, education, or home living status. We also exclude individuals that list themselves as belonging to five or more races (as these respondents appear to select illogical values of many variables across the survey and may not be reporting their true information) and individuals that list their age as 99 or 100 (for the same reason as above).

We also collect state-level Census and insurance regulatory data. We collect state-level population and racial group data from the US Census Bureau.^{5,6} 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. The state governor's party and win percentage data are collected from Ballotpedia.org.

Variable Descriptions

Dependent Variable

J.D. Power collects individual satisfaction responses on many aspects of the customer's experience with their insurance carrier. However, we focus on the customer's overall *price satisfaction* rating for two primary reasons. First, we believe that price satisfaction is important in measuring the value a customer attributes to their insurance policy given the intangible nature of the policy and the lack of understanding many individuals have with insurance. Second, much of the prior literature on insurance regulation has focused on rate regulation and this is one of the key regulatory variables which we employ. Price satisfaction should be related to insurance rate regulation in a state.

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

⁵ Urban and rural population data is drawn from the 2010 Census Urban and Rural Classification and Urban Area Criteria (available at <https://www.census.gov/programs-surveys/geography/guidance/geo-areas/urban-rural/2010-urban-rural.html>). Racial population data comes from the 2017 1-year American Community Survey estimate by the U.S. Census Bureau (summarized at <https://www.governing.com/archive/state-minority-population-data-estimates.html>).

⁶ Our dataset does not contain respondents in Alaska, Hawaii, or Washington D.C.

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

Race: Respondents report their race non-exclusively as White / Caucasian, Black / African American, Hispanic / Latino, Asian / Asian American, Pacific Islander, Native American, or Other. Because the Race variable is non-exclusive, respondents may report as any combination of the available race categories. We categorize respondents as White (only), Black (only), Hispanic (only), Asian (only), and All Other Races.⁷ Caucasian respondents make up the largest portion of our sample at 84 percent.⁸ We observe that Black and Hispanic respondents average the highest price satisfaction ratings, while Asian and all other racial category respondents exhibit the lowest average price satisfaction ratings. We use racial variables in some of our multivariate analyses in order to test differences in political power across regulatory regimes.

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. The mean price satisfaction rating is 7.44 for male respondents and 7.45 for female respondents.

Age: Respondents enter their age in years for the survey. We exclude respondents that do not report their age. The mean age in for survey respondent is about 55 years. We also include a variable *Age-Squared* in the multivariate models to measure any non-linearities between Age and satisfaction.

⁷ We combine all other responses into a single variable because the proportion of respondents in each of the individual other categories is very low.

⁸ 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>).

Marital Status: Respondents report a relationship status of married, single (never married), widowed, divorced, or domestic partner.⁹ The largest portion of respondents are married, followed by single and divorced. We observe that married respondents exhibit the highest mean price satisfaction rating while single and divorced respondents exhibit the lowest ratings.

Financial and Social Demographic Variables

Residential Area: Respondents can self-report their residential area as urban, suburban, or rural.¹⁰ The majority of respondents identify as suburban dwellers, followed by rural and urban. Average price satisfaction is highest for rural dwellers and lowest for suburban dwellers. We use the residential area variables in a multivariate analysis in order to test differences in political power across regulatory regimes.

Residence: Respondents are categorized by their living situation as homeowners, renters, or other. The largest proportion of our sample are homeowners (78 percent). Average price satisfaction is highest for home renters.

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 Graduate Degree.¹¹ We observe that the average price satisfaction rating declines by education level.

Income: Respondents report their income in categorical brackets. We include income categories of \$0 – 39,999, \$40,000 - \$69,999, \$70,00 - \$99,999, \$100,000 - \$149,999, 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

⁹ We exclude respondents who select Prefer Not to Answer for this variable.

¹⁰ Respondents can also respond “Don’t Know” to this question. These responses are excluded from our results.

¹¹ We exclude respondents who do not disclose their educational attainment.

variable (excluding non-reporters) indicates an average household income of about \$70,000. Average price satisfaction is about the same for respondents with income from \$0-\$150,000, but lower for respondents that make more than \$150,000 and those that do not disclose their income. *Credit Rating*: Respondents self-report their credit as excellent, good, fair, or poor.¹² 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 reports their credit as excellent. However, the average price satisfaction rating does not differ much across credit categories, except for those that do not disclose their credit.

Insurance Experience Variables

Insurer Tenure: Respondents report the year that they last changed their auto insurer, up to four years prior to the study date. We calculate *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 categorical variables for tenure: less than one year, one-two years, three-four years, and more than four years with the insurer. Although sixty percent of our sample have been with their insurer more than four years, the group with the highest average price satisfaction rating are those that switched within the past year.

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 price satisfaction rating is 7.47 vs. 7.43 for those with and without a prior auto insurance claim. 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.

¹² 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 analyses.

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 their insurer.¹³ High-mile drivers make up about ten percent of our sample. Average price satisfaction is 7.66 for high-mile drivers versus 7.42 for others.

Regulatory and State-Level Variables

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. 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. About 38 percent of our sample live in a state with a prior approval rating system. Average price satisfaction is 7.47 in a prior approval state, versus 7.44 in other states.

Insurance Commissioner: 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 and use this variable in constructing the state's regulatory regime variable. About 24 percent of our sample live in a state with an elected insurance supervisor. Average price satisfaction in these states is 7.48 versus 7.44 in other states.

Regulatory Regimes: We consider four regulatory regimes based on the state's rating system and insurance commissioner. We believe that these regimes grant the voters in a state different levels of power over insurance supervision (including setting rates), which can lead to differences in satisfaction based on the voters' majority or minority status.

¹³ There are 6,309 non-responses to this variable, which are excluded from our analyses.

Regulatory Regime 1 has an elected supervisor with a prior approval rating system. This regulatory regime should give majority voters the most control over the insurance supervisory role as the voters directly select a regulator and can exert influence over the regulatory office to set prices. We expect that majority consumers in a state will be more satisfied with their insurance prices in a Regulatory Regime 1 state.

Regulatory Regime 4 has an appointed supervisor with a non-prior approval rating system. This regulatory regime should give majority voters the least control over the insurance supervisory role. The supervisor in these states is typically selected by the state's governor (and therefore not directly connected to the voters), while insurance rates will be less influenced by regulation. Because there is less opportunity for a majority group to exert influence over regulation in these states, we expect minority voters to be more satisfied with their insurance prices in a Regulatory Regime 4 state.

Governor's Party: Because the governors of many states appoint an insurance commissioner, and likely influence insurance regulation in most states, we control for the governor's party. We include a categorical variable equal to one for states with a Democratic party governor. About forty percent of respondents live in a state with a Democratic governor. Average price satisfaction is 7.43 in these states versus 7.46 for other states.

Governor's Vote Safe: We include a categorical variable equal to one if the governor of a state's election percentage is in the top 25th percentile of all U.S. governor races for our measurement period (2013-2016). This applies to any governor that won with 59.3% or more of the vote in their last election. The average price satisfaction in a "safe" state is 7.53 versus 7.41 for other states.

Insurance Commissioner Tenure: We control for the number of years the insurance supervisor in a state has held that office as this may relate to the amount of power and control the commissioner

has over regulation. The average insurance commissioner tenure is 4.75 years with a maximum value of 16.

Urbanized Area and Rural Populations: We control for the percentage of a state's population living in an Urbanized Area or Rural area according to the U.S. Census Bureau. Because a respondent's reported residential area is self-described, some individuals may consider themselves as urban, suburban, or rural differently than the U.S. Census Bureau. The average respondent in our sample lives in a state with about 73 percent of its population in an Urbanized Area and 18 percent of its population in a Rural area.

A summary of state-level variables is presented in the Appendix.

Results and Discussion

Political Power Differences by Racial Group

We examine differences in price satisfaction across racial groups and regulatory regimes in order to determine whether political power can shift insurance costs between groups. We first perform univariate tests across racial groups and regulatory jurisdictions. We next perform multivariate regression analysis to determine price satisfaction while controlling for these and other factors. The results are presented below.

[Table 2 Here]

Table 2 shows the average price satisfaction rating for the White, Black, Hispanic, and Asian racial categories in each of the four regulatory regimes. Regulatory Regime 1 offers the greatest amount of potential influence to voters (with an elected insurance supervisor and prior approval rating) while Regulatory Regime 4 offers the least amount of potential influence to voters

(with an appointed insurance supervisor and non-prior approval rating).¹⁴ We expect that price satisfaction should be higher for majority voter groups in Regime 1 compared to minority voters, and that price satisfaction should be higher for minority groups in Regime 4 compared to majority voters. Our univariate analysis does not indicate a significant difference between White (majority) respondents and Black or Hispanic respondents in Regime 1. However, Black and Hispanic respondents demonstrate greater price average satisfaction than White respondents in Regime 4. In both cases, White respondent price satisfaction is significantly higher than Asian respondent price satisfaction.¹⁵ However, the *difference* in price satisfaction between White and Asian respondents is less in Regime 4 (0.17) versus Regime 1 (0.39). The univariate results indicate some support for the political power notion that minority groups are more satisfied in Regime 4 states.

We perform a more detailed and nuanced analysis of this question using multivariate regression analysis. These models take the form:

$$\text{Price Satisfaction}_i = f\{\text{Regulatory Regime}_s, \text{Regulatory Regime}_q * \text{Racial Group}_i, \text{Regulatory Variables}_s, \text{Demographic Factors}_i, \text{Socioeconomic Factors}_i, \text{Insurance Experience Factors}_i\}$$

Where *i* and *s* correspond to individual and state factors.

The first analysis (reported in Table 3) measures racial group as Majority or Minority based on whether the respondent's self-identified race is part of a state's largest racial group. The Majority racial variable is interacted with Regulatory Regime 1 and the Minority racial variable is interacted with Regulatory Regime 4 in order to test the notion that political power may results in cost shifting in insurance. We expect a positive and significant coefficient for both interactions.

[Table 3 Here]

¹⁴ In our sample and in the U.S., the White-only racial group is the largest racial group. Other racial groups represent the minority individually and as a nationwide aggregate. However, racial majority varies by state, which is discussed more in the multivariate results.

¹⁵ Asian respondents demonstrate the lowest average price satisfaction of any racial group in our sample.

In the first two models, the results do not indicate that the majority group exhibits higher price satisfaction in Regulatory Regime 1. The results do indicate that other political variables – states with a “safe” governor’s election and states with longer-serving insurance commissioners are associated with greater price satisfaction.

In models three and four, the results indicate that minority respondents are significantly more price satisfied in Regulatory Regime 4, which supports political power hypothesis 2. That is, minority respondents are significantly more price satisfied than majority respondents in states that are less subject to the political influence of voters in insurance regulation. We see the same relationship with the “safe” election and insurance commissioner in these models as models one and two.

This analysis also indicates that Black, White, and Hispanic respondents (with the size of coefficients descending in this order) are significantly more price satisfied than Asian and other racial group respondents in all models. The results of our other control variables are discussed later.

The results in Table 3 include respondents from the 48 contiguous U.S. states (which is reported by J.D. Power). However, according to U.S. Census data, there is not a racial majority in four U.S. States: California, New Mexico, Nevada, and Texas. Therefore, we conduct this same analysis excluding those states and report the results in Table 4.

[Table 4 Here]

In Table 4, we see that the Majority Race (White in all included states) interaction with Regulatory Regime 1 is positive and significant, which supports political power hypothesis 1. However, the Minority Race interaction with Regulatory Regime 4 is not significant in models three and four. The political variable results in Table 4 do not change qualitatively from the results

in Table 3. Additionally, the results for Black, Hispanic, and White respondents are consistent in Tables 3 and 4.

There are two potential issues that might confound the results of Tables 3 and 4. First, the Hispanic or Latino racial group is the second largest in the U.S. by population.¹⁶ However, many individuals identified as Hispanic or Latino and also categorized as White. Thus, an individual's racial self-identification and the racial identification by the U.S. Census or other outside party may not be consistent, which may change the way a political or regulatory regime views the influence of voters. Second, there is an implicit assumption that all non-Majority racial groups have the same set of incentives when categorizing Minority Race respondents together in the Tables 3 and 4 analyses.

As another test of our political power hypothesis, we perform the same analysis with White and Black respondents as our interaction groups. Across the U.S., the White population is the largest and historically holds more political power than minority groups. There has been significant recent attention paid to the under-representation of Black groups in different parts of the U.S. economy, and White voter turnout has been higher than Black voter turnout on average, which should sway elected officials' decisions.¹⁷ The separation by White and Black respondents may present a clearer picture of differences in political power on regulatory outcomes. These results are presented in Table 5.

[Table 5 Here]

The coefficients for both interaction terms – Regulatory Regime 1 with White respondents and Regulatory Regime 4 with Black respondents – are positive and significant, consistent with

¹⁶ See U.S. Census data here: <https://www.census.gov/quickfacts/fact/table/US/POP010220>.

¹⁷ See <https://www.statista.com/statistics/1096113/voter-turnout-presidential-elections-by-ethnicity-historical/> for voter turnout by racial group from 1964-2020.

both political power hypotheses 1 and 2. These findings indicate that White respondents are more satisfied with their insurance price in states that are more subject to political influence while Black respondents are more satisfied in states less subject to political influence. The “safe” vote and insurance commissioner results are consistent with the prior models, as is the coefficient ordering for Black, Hispanic, and White respondents.

The results from the regression analyses presented in Tables 3, 4, and 5 support the notion that the majority racial group – and most specifically White respondents – exhibit significantly higher price satisfaction with their automobile insurance in insurance regimes more subject to political influence. Minority racial groups – and with stronger results, Black respondents – exhibit higher price satisfaction with their automobile insurance in insurance regimes that are less subject to political influence. We also find that while the governor’s political party does not significantly relate to price satisfaction, a governor with a high win percentage is associated with greater price satisfaction (perhaps because the voters of the state are more unified or share more of the same values). We also find that price satisfaction is on average higher with an insurance commissioner who has been in power for a longer period. This result makes sense given that an unpopular insurance environment could likely lead to the dismissal of the insurance supervisor.

Control Variable Results

The results for our control variables are mostly consistent across our models in Tables 3, 4, and 5. We find that several personal demographic and experiential variables are associated with price satisfaction. Relative to married respondents, all other respondents exhibit significant lower price satisfaction, with the lowest coefficient for single individuals. Price satisfaction also declines with age, but the coefficient on Age-Squared is positive, indicating an increase in satisfaction at older ages.

Price satisfaction is positively associated with all income categories (\$0-\$150,000) relative to high earners and those that do not disclose their income. There is little difference in price satisfaction across educational attainment, although the coefficient on Bachelor's degree is negative and marginally significant in several models. We 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 also 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.

Urban versus Rural Differences

As a different potential test of political power, we interact an individual's residential area with regulatory regime. Because urban areas represent large population centers as well as an area subject to different insurance regulation than rural and suburban areas, urban voters may have an incentive and the ability to influence insurance price regulation. The results from our analysis are presented in Table 6. However, we do not find support for the political power hypothesis in the urban and rural divide.

Other control variables are consistent with our prior findings. We also include a control variable for states with more than 2/3 of their population living in Urbanized Areas (as defined by the U.S. Census Bureau). The coefficient for this variable is negative and significant, which indicates that price satisfaction is lower in states with large urban populations.

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 yield more favorable price outcomes. We proxy for price outcomes by observing each individual's satisfaction with the price paid for insurance coverage, and we measure majority and minority group using racial demographics. We find that majority racial groups tend to be more satisfied with their insurance prices in states with an elected insurance supervisor and a prior approval rating system, which we characterize as a jurisdiction subject to voter influence. We also find that minority racial groups tend to be more satisfied with insurance price in states with an appointed insurance supervisor and a non-prior approval rating system, which we characterize as a jurisdiction less subject to voter influence. The results are strongest when we measure majority and minority races as White and Black respondents.

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 decisions 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.

References

- Besley, T. and S. Coate. Elected versus Appointed Regulators: Theory and Evidence. *Journal of the European Economic Association* 1(5): 1176-1206.
- Chen, H.G., J Y-C Liu, T.S. Sheu, and M-H Yang. 2012. The Impact of Financial Services Quality and Fairness on Customer Satisfaction. *Managing Service Quality: An International Journal* 22(4): 399-421.
- Conning & Company. June 1988. *New Business versus Renewals: The Cost of New Business in a Soft Market*. Conning & Co., Hartford, Connecticut.
- Courbage, C. and C. Nicolas. 2021. Trust in Insurance: The Importance of Experiences. *Journal of Risk and Insurance* 88(2): 263-291.
- Cummins, J.D., R.D. Phillips, and S. Tennyson. 2001. Regulation, Political Influence, and the Price of Automobile Insurance. *Journal of Insurance Regulation* 20(1): 9-50.
- D'Arcy, S.P. and N.A. Doherty. 1990. Adverse Selection, Private Information, and Lowballing in Insurance Markets. *Journal of Business* 63(2): 145-164.
- Fields, J.A., L.S. Klein, and J.M. Sfiridis. 1997. A Market Based Evaluation of the Election versus Appointment of Regulatory Commissioners. *Public Choice* 92(3-4): 337-351.
- Harrington, S.E.. 2004. Effects of Prior Approval Rate Regulation of Auto, Deregulating Property-Liability Insurance: Restoring Competition and Increasing Market Efficiency, p. 285.
- Harrington, S. E., and Greg Niehaus. 1998. Race, Redlining, and Automobile Insurance Prices. *Journal of Business*. 71 (3): 439-469.
- Klein, Robert W., and Martin F. Grace. 2001. Urban Homeowners Insurance Markets in Texas: A Search for Redlining. *Journal of Risk and Insurance*. 68(4): 581-614.
- Lai, L.H., C.T. Liu, and J.T. Lin. 2011. The Moderating Effects of Switching Costs and Inertia on the Customer Satisfaction-Retention Link: Auto Liability Insurance Service in Taiwan. *Insurance Markets and Companies* 2(1): 69-78.
- Maddern, H., R. Maull, A. Smart, and P. Baker. 2007. Customer Satisfaction and Service Quality in UK Financial Services. *International Journal of Operations & Production Management* 27(9): 999-1019.
- NAIC Auto Insurance Database Report 2016/2017. January 2020. Accessed at https://www.naic.org/prod_serv/AUT-PB-16.pdf.

- NAIC State Commissioners. 2018. State Commissioners. Accessed at:
https://www.naic.org/documents/members_state_commissioners_elected_appointed.pdf.
- Nyce, C.M. and P. Maroney. 2011. Are Territorial Rating Models Outdated in Residential Property Insurance Markets? Evidence from the Florida Property Insurance Market. *Risk Management and Insurance Review* 14(2): 201-232.
- Pooser, D.M. and M.J. Browne. 2018. The Effects of Customer Satisfaction on Company Profitability: Evidence from the Property and Casualty Insurance Industry. *Risk Management and Insurance Review* 21(2): 289-308.
- Regan, L., S. Tennyson, and M. Weiss, 2008, The Relationship Between Auto Insurance Rate Regulation and Insured Loss Costs: An Empirical Analysis, *Journal of Insurance Regulation* 27(1), pp. 23-46.
- Roman, S. 2003. The Impact of Ethical Sales Behavior on Customer Satisfaction, Trust and Loyalty to the Company: An Empirical Study in the Financial Services Industry. *Journal of Marketing Management* 19(9-10): 915-939.
- Siddiqui, M.H. and T.G. Sharma. 2010. Analyzing Customer Satisfaction with Service Quality in Life Insurance Services. *Journal of Targeting, Measurement, and Analysis for Marketing* 18(3-4): 221-238.
- United States Census Bureau. Quick Facts, United States. 2019 Estimates. Accessed at:
<https://www.census.gov/quickfacts/fact/table/US/RHI125218>.
- Wu, C.S.P. and H. Lin. 2009. Large scale analysis of persistency and renewal discounts for property and casualty insurance. *Casualty Actuarial Society E-Forum*, pp. 396-408.

Table 1 – Summary Statistics and Variable Descriptions (n. obs. = 122,151)

Variable	Variable Description	Mean	St. Dev.	Min	Max	Price Sat
Price Satisfaction	The value (1-10) a respondent assigns to overall price satisfaction with their auto insurance policy	7.448	1.979	1	10	
White / Caucasian	The respondent self-identifies as White or Caucasian only.	0.8621	0.3448	0	1	7.44
Black / African American	The respondent self-identifies as Black or African American only.	0.0370	0.1888	0	1	7.65
Hispanic / Latino	The respondent self-identifies as Hispanic or Latino only.	0.0222	0.1474	0	1	7.63
Asian / Asian American	The respondent self-identifies as Asian or Asian American only.	0.0393	0.1944	0	1	7.21
All Other Races	The respondent self-identifies as a different race or two or more races.	0.0786	0.2691	0	1	7.36
Majority Race	Respondent belongs to the largest racial group in the state (according to US Census data).	0.7754	0.4173	0	1	7.44
Gender (Male = 1)	The respondent's identified gender.	0.4188	0.4934	0	1	7.44
Age	The respondent's age in years.	55.45	14.91	18	98	
Married	Is the respondent married?	0.6337	0.4818	0	1	7.49
Single	Is the respondent single (never married)?	0.1491	0.3562	0	1	7.32
Widowed	Is the respondent widowed?	0.0506	0.2192	0	1	7.42
Divorced	Is the respondent divorced?	0.1168	0.3212	0	1	7.36
Partner	Is the respondent living with a domestic partner?	0.0498	0.2174	0	1	7.47
Rural Dweller	Respondent lives in a rural area.	0.2350	0.4240	0	1	7.55
Suburban Dweller	Respondent lives in a suburban area.	0.5781	0.4939	0	1	7.40
Urban Dweller	Respondent lives in an urban area.	0.1869	0.3898	0	1	7.47
Home-Own	Respondent owns their home.	0.7803	0.4141	0	1	7.44
Home-Rent	Respondent rents their home.	0.1860	0.3891	0	1	7.51
Home-Other	Respondent's home status listed as 'other'.	0.0337	0.1805	0	1	7.38
Education (No HS)	Respondent did not complete high school.	0.0066	0.0812	0	1	7.58
Education (No College)	Respondent completed high school but did not complete college.	0.4257	0.4944	0	1	7.53
Education (College)	Respondent has a four-year degree.	0.3465	0.4759	0	1	7.40
Education (Grad)	Respondent has a graduate or advanced degree.	0.2212	0.4151	0	1	7.36
Income <40k	Household annual income <\$40,000	0.2008	0.4006	0	1	7.49
Income 40k-70k	Household annual income \$40,000-\$69,999.	0.2445	0.4298	0	1	7.47
Income 70k-100k	Household annual income \$70,000-\$99,999	0.2026	0.4020	0	1	7.49
Income 100k-150k	Household annual income \$100,000-\$149,999.	0.1743	0.3794	0	1	7.45

Income >150k	Household annual income >\$150,000	0.1054	0.3070	0	1	7.38
No Income Disclosed	Household income not disclosed	0.0724	0.2591	0	1	7.23
Credit Cat 1 (Exc)	Respondent identifies their credit history as excellent.	0.6558	0.4751	0	1	7.44
Credit Cat 2 (Good)	Respondent identifies their credit history as good.	0.2288	0.4201	0	1	7.48
Credit Cat 3 (Fair)	Respondent identifies their credit history as fair.	0.0716	0.2578	0	1	7.45
Credit Cat 4 (Poor)	Respondent identifies their credit history as poor.	0.0288	0.1672	0	1	7.43
No Credit Reported	Credit history not disclosed.	0.0150	0.1215	0	1	7.28
Years w Insurer (0)	Respondent has switched auto insurance carriers within the past year.	0.0313	0.1742	0	1	7.76
Years w Insurer (1-2)	Respondent switched auto insurance carriers 1-2 years ago.	0.2318	0.4220	0	1	7.57
Years w Insurer (3-4)	Respondent switched auto insurance carriers 3-4 years ago.	0.1200	0.3250	0	1	7.33
Years w Insurer (>4)	Respondent switched auto insurance carriers more than four years ago.	0.6014	0.4896	0	1	7.40
Prior Auto Claim	Respondent previously filed an auto claim with their current auto insurance carrier.	0.4941	0.5000	0	1	7.47
High Mile Driver (>25000)	Respondent drives more than 25,000 miles per year.	0.1037	0.3049	0	1	7.66
Prior Approval Rating	Respondent's state uses a prior approval rating system for auto insurance.	0.3808	0.4856	0	1	7.47
Elected Ins Cmsr	Respondent's state has an elected insurance commissioner.	0.2413	0.4279	0	1	7.48
Regulatory Regime 1	Elected + Prior Approval regulatory system.	0.2161	0.4116	0	1	7.47
Regulatory Regime 2	Elected + Non-Prior Approval regulatory system.	0.0251	0.1565	0	1	7.54
Regulatory Regime 3	Appointed + Prior Approval regulatory system	0.1647	0.3709	0	1	7.47
Regulatory Regime 4	Appointed + Non-Prior Approval regulatory system.	0.5940	0.4911	0	1	7.43
Democratic Governor	Respondent's state has a Democratic party governor.	0.4024	0.4904	0	1	7.43
Gov Win Pct	The governor's portion of the vote in the last election.	0.5460	0.0572	0.4070	0.7650	
Gov Vote Safe	Indicates the governor's win percentage is in the upper 25th percentile of state voting results (>59.3%).	0.3113	0.4630	0	1	7.53
Ins Cmsr Tenure	The insurance commissioner's tenure in years.	4.76	3.32	1	16	
Urbanized Area Population	Percentage of the state's population living in an Urbanized Area (US Census definition).	0.7291	0.1602	0.1738	0.9224	
Rural Population	Percentage of the state's population living in a Rural Area (US Census definition).	0.1803	0.1161	0.0505	0.6134	

Table 2 – Mean Overall Price Satisfaction Ratings by Racial Group

Price Satisfaction					
Regime 1	White	Black	Hispanic	Asian	p-value
	7.47	7.53			0.276
	7.47		7.55		0.187
	7.47			7.08	<0.001 ***
Regime 2	White	Black	Hispanic	Asian	p-value
	7.49	7.54			0.826
	7.49		8.25		0.045 **
	7.49			7.2	0.227
Regime 3	White	Black	Hispanic	Asian	p-value
	7.43	7.61			0.013 **
	7.43		7.65		0.015 **
	7.43			7.3	0.123
Regime 4	White	Black	Hispanic	Asian	p-value
	7.4	7.64			<0.001 ***
	7.4		7.54		0.008 ***
	7.4			7.23	<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 3 – Multivariate Results –Majority and Minority Racial Groups (All states)¹⁸

Variables	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat
Regulatory Regime 1	0.078***	4.419	-0.044*	-1.718				
Regulatory Regime 2	0.094**	2.572	0.109***	2.988	0.037	0.967	0.134***	3.209
Regulatory Regime 3	0.044***	2.755	0.030*	1.862	-0.013	-0.698	0.056**	2.286
Regulatory Regime 4					-0.065***	-4.262	0.017	0.749
Reg1*Majority Race	-0.062**	-2.407	0.030	0.993				
Reg4*Minority Race					0.071**	2.293	0.076**	2.423
Democratic Governor			0.005	0.351			0.003	0.207
Gov Vote Safe			0.146***	9.604			0.141***	10.067
Ins Cmsr Tenure			0.007***	3.140			0.007***	3.359
Male	0.008	0.644	0.007	0.599	0.008	0.652	0.007	0.612
Single	-0.261***	-13.861	-0.260***	-13.806	-0.259***	-13.764	-0.261***	-13.825
Widowed	-0.120***	-4.211	-0.120***	-4.197	-0.120***	-4.182	-0.120***	-4.214
Divorced	-0.135***	-6.761	-0.136***	-6.832	-0.134***	-6.735	-0.137***	-6.869
Partner	-0.096***	-3.476	-0.091***	-3.309	-0.095***	-3.453	-0.091***	-3.324
Age	-0.040***	-14.666	-0.039***	-14.620	-0.039***	-14.626	-0.039***	-14.589
Age-Squared	<0.001***	14.242	<0.001***	14.222	<0.001***	14.202	<0.001***	14.181
White	0.114***	5.237	0.111***	5.108	0.137***	5.351	0.151***	5.881
Black	0.310***	8.381	0.315***	8.520	0.301***	8.124	0.310***	8.365
Hispanic	0.217***	4.966	0.177***	3.991	0.196***	4.593	0.188***	4.389
Income 0-40k	0.067***	2.661	0.069***	2.742	0.065**	2.568	0.070***	2.775
Income 40-70k	0.049**	2.224	0.050**	2.268	0.047**	2.115	0.051**	2.305
Income 70-100k	0.075***	3.457	0.075***	3.491	0.073***	3.361	0.076***	3.511
Income 100-150k	0.053**	2.441	0.054**	2.487	0.052**	2.395	0.055**	2.509
Income (not reported)	-0.158***	-5.693	-0.155***	-5.586	-0.159***	-5.757	-0.154***	-5.568
Education - No HS	-0.008	-0.093	-0.002	-0.024	-0.006	-0.074	-0.001	-0.012
Education - No College	-0.130	-1.565	-0.123	-1.480	-0.129	-1.548	-0.122	-1.469
Education - Bachelors	-0.163*	-1.950	-0.154*	-1.844	-0.163*	-1.942	-0.154*	-1.838
Home - Own	0.032	0.921	0.035	0.996	0.032	0.907	0.034	0.983
Home - Rent	0.111***	3.129	0.111***	3.128	0.112***	3.152	0.110***	3.102
Rural Dweller	0.123***	8.662	0.123***	8.638	0.121***	8.546	0.124***	8.702
Urban Dweller	0.036**	2.303	0.034**	2.195	0.036**	2.365	0.033**	2.158
Credit Category - Good	-0.009	-0.607	-0.010	-0.712	-0.009	-0.635	-0.010	-0.722
Credit Category - Fair	-0.084***	-3.365	-0.087***	-3.484	-0.084***	-3.393	-0.087***	-3.487
Credit Category - Pair	-0.106***	-2.716	-0.111***	-2.854	-0.107***	-2.736	-0.111***	-2.848
Years with Insurer <1	0.283***	7.871	0.286***	7.951	0.282***	7.841	0.286***	7.942
Years with Insurer 1-2	0.155***	10.658	0.157***	10.778	0.155***	10.604	0.157***	10.779
Years with Insurer 3-4	-0.064***	-3.588	-0.062***	-3.474	-0.065***	-3.609	-0.062***	-3.453
Prior Auto Claim	0.080***	6.531	0.078***	6.385	0.081***	6.578	0.079***	6.391
Drive >25k mi/yr	0.168***	8.993	0.167***	8.944	0.168***	8.978	0.167***	8.932
Year=2017	0.070***	5.131	0.069***	5.075	0.070***	5.145	0.069***	5.088
Year=2018	0.051***	3.713	0.050***	3.620	0.052***	3.739	0.050***	3.631
Constant	8.221***	71.547	8.152***	70.582	8.257***	71.708	8.090***	68.208
R-squared	0.011		0.012		0.011		0.012	

¹⁸ n. obs. = 122,151. Robust standard errors used to calculate t-statistic. Dependent Variable is the individual's price satisfaction score.

Table 4 – Multivariate Results –Majority and Minority Racial Groups (Only states with >50% Majority)¹⁹

Variables	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat
Regulatory Regime 1	-0.107*	-1.946	-0.116**	-2.014				
Regulatory Regime 2	0.097***	2.647	0.106***	2.898	0.093**	2.300	0.112**	2.537
Regulatory Regime 3	0.049***	2.958	0.021	1.256	0.046*	1.899	0.027	0.906
Regulatory Regime 4					-0.007	-0.347	0.001	0.035
Reg1*Majority Race	0.129**	2.174	0.129**	2.173				
Reg4*Minority Race					0.036	0.826	0.043	0.987
Democratic Governor			0.002	0.155			0.002	0.152
Gov Vote Safe			0.211***	10.913			0.211***	10.915
Ins Cmsr Tenure			0.004*	1.696			0.004*	1.748
Male	0.007	0.509	0.007	0.509	0.007	0.518	0.007	0.518
Single	-0.244***	-11.249	-0.242***	-11.176	-0.245***	-11.273	-0.243***	-11.199
Widowed	-0.120***	-3.741	-0.119***	-3.711	-0.120***	-3.741	-0.119***	-3.710
Divorced	-0.130***	-5.744	-0.131***	-5.793	-0.130***	-5.741	-0.131***	-5.791
Partner	-0.102***	-3.271	-0.096***	-3.090	-0.102***	-3.272	-0.096***	-3.090
Age	-0.038***	-12.368	-0.038***	-12.322	-0.038***	-12.377	-0.038***	-12.330
Age-Squared	<0.001***	12.032	<0.001***	12.060	<0.001***	12.039	<0.001***	12.064
White	0.064**	2.191	0.061**	2.077	0.105***	2.735	0.106***	2.759
Black	0.277***	6.153	0.266***	5.898	0.273***	6.060	0.262***	5.812
Hispanic	0.155**	2.425	0.164**	2.560	0.165***	2.583	0.175***	2.724
Income 0-40k	0.068**	2.360	0.065**	2.263	0.068**	2.355	0.065**	2.259
Income 40-70k	0.050**	1.984	0.048*	1.906	0.050**	1.984	0.048*	1.905
Income 70-100k	0.078***	3.136	0.077***	3.085	0.078***	3.137	0.077***	3.085
Income 100-150k	0.053**	2.108	0.052**	2.071	0.053**	2.110	0.052**	2.073
Income (not reported)	-0.145***	-4.606	-0.144***	-4.592	-0.145***	-4.608	-0.144***	-4.595
Education - No HS	-0.012	-0.129	-0.006	-0.060	-0.012	-0.130	-0.006	-0.059
Education - No College	-0.120	-1.272	-0.111	-1.181	-0.120	-1.271	-0.111	-1.178
Education - Bachelors	-0.163*	-1.718	-0.155	-1.631	-0.163*	-1.717	-0.155	-1.628
Home - Own	0.020	0.512	0.022	0.561	0.020	0.497	0.022	0.545
Home - Rent	0.117***	2.876	0.119***	2.929	0.117***	2.865	0.119***	2.918
Rural Dweller	0.110***	7.099	0.106***	6.870	0.110***	7.121	0.107***	6.891
Urban Dweller	0.034*	1.861	0.040**	2.163	0.035*	1.897	0.040**	2.198
Credit Category - Good	-0.021	-1.304	-0.022	-1.327	-0.021	-1.307	-0.022	-1.330
Credit Category - Fair	-0.057**	-2.043	-0.059**	-2.112	-0.057**	-2.049	-0.059**	-2.118
Credit Category - Pair	-0.095**	-2.134	-0.099**	-2.238	-0.095**	-2.126	-0.099**	-2.231
Years with Insurer <1	0.292***	7.153	0.300***	7.348	0.293***	7.162	0.300***	7.357
Years with Insurer 1-2	0.156***	9.569	0.162***	9.902	0.156***	9.572	0.162***	9.906
Years with Insurer 3-4	-0.060***	-2.991	-0.055***	-2.743	-0.060***	-2.998	-0.055***	-2.750
Prior Auto Claim	0.078***	5.671	0.078***	5.632	0.079***	5.677	0.078***	5.638
Drive >25k mi/yr	0.161***	7.547	0.160***	7.543	0.161***	7.559	0.161***	7.554
Year=2017	0.091***	5.985	0.090***	5.904	0.091***	5.990	0.090***	5.909
Year=2018	0.077***	4.928	0.075***	4.798	0.077***	4.932	0.075***	4.803
Constant	8.219***	62.615	8.161***	61.957	8.187***	61.184	8.115***	59.329
R-squared	0.011		0.012		0.010		0.012	

¹⁹ This model excludes states without a racial majority (California, New Mexico, Nevada, Texas). n. obs. = 96,531. Robust standard errors used to calculate t-statistic. Dependent Variable is the individual's price satisfaction score.

Table 5 – Multivariate Results –White and Black Racial Groups²⁰

Variables	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat
Regulatory Regime 1	-0.056*	-1.777	-0.147***	-4.105				
Regulatory Regime 2	0.094**	2.576	0.109***	2.968	0.039	1.037	0.136***	3.259
Regulatory Regime 3	0.043***	2.718	0.029*	1.837	-0.010	-0.545	0.058**	2.393
Regulatory Regime 4					-0.059***	-4.025	0.024	1.110
Reg1*White	0.135***	3.860	0.144***	4.109				
Reg4*Black					0.133**	2.121	0.116*	1.849
Democratic Governor			0.004	0.268			0.002	0.137
Gov Vote Safe			0.142***	10.148			0.139***	9.960
Ins Cmsr Tenure			0.007***	3.293			0.007***	3.394
Male	0.008	0.644	0.007	0.603	0.008	0.640	0.007	0.600
Single	-0.259***	-13.716	-0.260***	-13.778	-0.260***	-13.776	-0.261***	-13.833
Widowed	-0.120***	-4.197	-0.121***	-4.232	-0.119***	-4.170	-0.120***	-4.201
Divorced	-0.135***	-6.753	-0.138***	-6.890	-0.134***	-6.720	-0.137***	-6.850
Partner	-0.095***	-3.460	-0.092***	-3.332	-0.095***	-3.448	-0.091***	-3.319
Age	-0.039***	-14.605	-0.039***	-14.569	-0.039***	-14.656	-0.039***	-14.621
Age-Squared	<0.001***	14.187	<0.001***	14.166	<0.001***	14.236	<0.001***	14.217
White	0.053**	2.102	0.062**	2.461	0.105***	4.899	0.117***	5.439
Black	0.293***	7.868	0.301***	8.098	0.236***	4.740	0.255***	5.100
Hispanic	0.190***	4.444	0.181***	4.228	0.196***	4.594	0.188***	4.392
Income 0-40k	0.065**	2.570	0.070***	2.785	0.065***	2.580	0.070***	2.777
Income 40-70k	0.047**	2.117	0.051**	2.315	0.047**	2.128	0.051**	2.308
Income 70-100k	0.073***	3.364	0.076***	3.519	0.073***	3.374	0.076***	3.518
Income 100-150k	0.052**	2.393	0.055**	2.511	0.052**	2.393	0.054**	2.503
Income (not reported)	-0.159***	-5.745	-0.154***	-5.551	-0.159***	-5.755	-0.154***	-5.571
Education - No HS	-0.006	-0.075	-0.001	-0.013	-0.005	-0.065	-0.001	-0.006
Education - No College	-0.129	-1.552	-0.123	-1.474	-0.128	-1.537	-0.122	-1.463
Education - Bachelors	-0.163*	-1.948	-0.154*	-1.844	-0.161*	-1.924	-0.153*	-1.825
Home - Own	0.032	0.902	0.034	0.979	0.032	0.927	0.035	1.000
Home - Rent	0.112***	3.146	0.110***	3.094	0.113***	3.170	0.111***	3.120
Rural Dweller	0.121***	8.536	0.124***	8.699	0.122***	8.567	0.124***	8.713
Urban Dweller	0.036**	2.343	0.033**	2.132	0.037**	2.372	0.033**	2.169
Credit Category - Good	-0.009	-0.646	-0.011	-0.734	-0.009	-0.612	-0.010	-0.698
Credit Category - Fair	-0.084***	-3.386	-0.087***	-3.481	-0.084***	-3.374	-0.086***	-3.468
Credit Category - Poor	-0.107***	-2.741	-0.111***	-2.854	-0.107***	-2.731	-0.111***	-2.843
Years with Insurer <1	0.281***	7.818	0.285***	7.918	0.283***	7.854	0.286***	7.953
Years with Insurer 1-2	0.154***	10.588	0.157***	10.765	0.155***	10.621	0.157***	10.792
Years with Insurer 3-4	-0.064***	-3.588	-0.061***	-3.427	-0.065***	-3.619	-0.062***	-3.467
Prior Auto Claim	0.081***	6.570	0.078***	6.380	0.081***	6.575	0.079***	6.389
Drive >25k mi/yr	0.167***	8.959	0.167***	8.912	0.168***	8.991	0.167***	8.946
Year=2017	0.070***	5.140	0.069***	5.082	0.070***	5.138	0.069***	5.081
Year=2018	0.052***	3.732	0.050***	3.622	0.052***	3.724	0.050***	3.616
Constant	8.274***	71.671	8.194***	70.599	8.284***	72.259	8.120***	68.743
R-squared	0.011		0.012		0.011		0.012	

²⁰ n. obs. = 122,151. Robust standard errors used to calculate t-statistic. Dependent Variable is the individual's price satisfaction score.

Table 6 – Multivariate Results – Urban and Rural Dwellers²¹

Variables	Coef.	t-stat	Coef.	t-stat
Regulatory Regime 1	-0.014	-0.632		
Regulatory Regime 2	0.097***	2.627	0.121***	2.859
Regulatory Regime 3	0.042**	2.521	0.069***	2.799
Regulatory Regime 4			0.031	1.388
Reg1*Urban Dweller	-0.062*	-1.867		
Reg4*Rural Dweller			-0.023	-0.820
Rural Dweller	0.120***	8.397	0.134***	5.871
Urban Dweller	0.050***	2.819	0.034**	2.209
UrbArea - Large Majority	-0.031**	-2.196	-0.032**	-2.230
Democratic Governor	0.013	0.893	0.012	0.799
Gov Vote Safe	0.145***	10.326	0.144***	10.253
Ins Cmsr Tenure	0.006***	2.736	0.006***	2.719
Male	0.007	0.604	0.007	0.601
Single	-0.260***	-13.772	-0.260***	-13.779
Widowed	-0.120***	-4.186	-0.119***	-4.173
Divorced	-0.136***	-6.819	-0.136***	-6.814
Partner	-0.091***	-3.295	-0.090***	-3.288
Age	-0.039***	-14.634	-0.039***	-14.630
Age-Squared	<0.001***	14.247	<0.001***	14.244
White	0.113***	5.252	0.113***	5.254
Black	0.312***	8.424	0.312***	8.425
Hispanic	0.190***	4.432	0.190***	4.440
Income 0-40k	0.065***	2.580	0.066***	2.586
Income 40-70k	0.048**	2.151	0.048**	2.160
Income 70-100k	0.074***	3.422	0.074***	3.424
Income 100-150k	0.053**	2.440	0.053**	2.439
Income (not reported)	-0.156***	-5.645	-0.157***	-5.653
Education - No HS	-0.002	-0.022	-0.002	-0.020
Education - No College	-0.123	-1.475	-0.123	-1.475
Education - Bachelors	-0.154*	-1.841	-0.154*	-1.840
Home - Own	0.033	0.958	0.033	0.954
Home - Rent	0.111***	3.133	0.111***	3.121
Credit Category - Good	-0.010	-0.713	-0.010	-0.698
Credit Category - Fair	-0.087***	-3.514	-0.087***	-3.500
Credit Category - Poor	-0.112***	-2.874	-0.112***	-2.860
Years with Insurer <1	0.287***	7.968	0.287***	7.976
Years with Insurer 1-2	0.158***	10.809	0.158***	10.802
Years with Insurer 3-4	-0.062***	-3.458	-0.062***	-3.465
Prior Auto Claim	0.079***	6.411	0.079***	6.400
Drive >25k mi/yr	0.167***	8.961	0.167***	8.958
Year=2017	0.069***	5.072	0.069***	5.071
Year=2018	0.050***	3.599	0.050***	3.606
Constant	8.169***	70.392	8.143***	68.458
R-squared	0.012		0.012	

²¹ n. obs. = 122,151. Robust standard errors used to calculate t-statistic. Dependent Variable is the individual's price satisfaction score.

Appendix – State Variables

State Name	n. obs.	Gov. Party	Gov. Win Pct	Ins Cmsr. Tenure	Regulatory Regime	Urb Area Pop Pct	Urban Cluster Pop Pct	Rural Pop Pct	Hispanic Pop Pct	White Pop Pct	Black Pop Pct	Asian Pop Pct	Am Indian Pop Pct	All Other Races Pop Pct
Alabama	1,226	R	63.60	9	Appointed-Prior	48.65	10.39	40.96	4.14	65.47	26.72	1.34	0.46	1.87
Arizona	3,583	R	53.40	1	Appointed-Non Prior	80.07	9.74	10.19	31.39	54.68	4.14	3.22	3.91	2.66
Arkansas	821	R	55.40	2	Appointed-Non Prior	39.54	16.62	43.84	7.45	72.34	15.16	1.55	0.56	2.94
California	15,505	D	60.00	6	Elected-Prior	89.73	5.22	5.05	39.15	36.97	5.47	14.37	0.37	3.67
Colorado	2,603	D	49.30	4	Appointed-Non Prior	76.86	9.29	13.85	21.52	68.16	3.91	3.14	0.57	2.69
Connecticut	2,790	D	50.70	2	Appointed-Non Prior	84.83	3.16	12.01	16.13	66.71	9.87	4.53	0.21	2.54
Delaware	314	D	58.30	8	Elected-Non Prior	68.71	14.59	16.7	9.31	62.16	21.49	3.99	0.24	2.81
Florida	9,751	R	48.10	6	Appointed-Prior	87.44	3.72	8.84	25.59	53.79	15.37	2.76	0.20	2.29
Georgia	2,231	R	52.10	5	Elected-Prior	65.38	9.68	24.93	9.60	52.61	31.12	3.91	0.18	2.58
Idaho	828	R	53.50	5	Appointed-Non Prior	50.51	20.06	29.42	12.44	81.97	0.64	1.32	1.11	2.52
Illinois	4,938	R	50.30	5	Appointed-Non Prior	79.97	8.52	11.51	17.24	61.20	13.99	5.39	0.10	2.09
Indiana	1,994	R	51.40	7	Appointed-Non Prior	59.17	13.27	27.56	6.92	79.18	9.20	2.20	0.15	2.36
Iowa	1,090	R	59.00	4	Appointed-Non Prior	41.66	22.36	35.98	5.90	85.87	3.31	2.57	0.25	2.10
Kansas	1,153	R	49.80	2	Elected-Non Prior	50.17	24.03	25.8	11.86	75.89	5.53	2.93	0.60	3.18
Kentucky	1,626	R	52.50	1	Appointed-Non Prior	40.99	17.39	41.62	3.48	84.64	7.99	1.45	0.15	2.29
Louisiana	598	D	56.10	11	Elected-Prior	61.33	11.85	26.81	5.20	58.47	32.15	1.79	0.47	1.92

Maine	875	R	48.20	6	Appointed-Non Prior	26.21	12.45	61.34	1.64	93.35	1.18	1.13	0.62	2.08
Maryland	1,270	R	51.00	2	Appointed-Non Prior	83.53	3.66	12.8	10.12	50.66	29.36	6.43	0.20	3.23
Massachusetts	5,108	R	48.40	2	Appointed-Non Prior	90.3	1.67	8.03	11.83	71.53	6.97	6.56	0.14	2.98
Michigan	4,445	R	50.90	2	Appointed-Non Prior	66.37	8.19	25.43	5.06	75.05	13.64	3.08	0.46	2.71
Minnesota	2,212	D	50.10	6	Appointed-Non Prior	58	15.28	26.73	5.32	79.89	6.40	4.88	0.96	2.55
Mississippi	422	R	66.40	9	Elected-Prior	27.62	21.73	50.65	2.88	56.58	37.88	0.92	0.44	1.29
Missouri	2,793	R	51.10	8	Appointed-Non Prior	56.61	13.83	29.56	4.18	79.41	11.36	2.02	0.35	2.68
Montana	435	D	50.30	8	Elected-Non Prior	26.49	29.4	44.11	3.71	86.27	0.42	0.68	5.91	3.01
Nebraska	754	R	57.20	7	Appointed-Non Prior	53.78	19.36	26.87	10.93	79.04	4.54	2.44	0.67	2.38
Nevada	1,376	R	70.60	1	Appointed-Prior	86.51	7.69	5.8	28.84	48.78	8.85	8.33	0.93	4.26
New Hampshire	1,215	R	48.80	14	Appointed-Non Prior	47.34	12.97	39.7	3.75	90.32	1.34	2.65	0.11	1.82
New Jersey	3,357	R	60.30	1	Appointed-Prior	92.24	2.44	5.32	20.44	54.85	12.75	9.79	0.10	2.07
New Mexico	733	R	57.20	7	Appointed-Non Prior	53.75	23.68	22.57	48.77	37.39	1.82	1.32	8.76	1.94
New York	7,641	D	54.30	1	Appointed-Non Prior	82.66	5.21	12.13	19.20	55.10	14.34	8.66	0.21	2.49
North Carolina	3,271	D	49.00	8	Elected-Prior	54.88	11.21	33.91	9.37	63.01	21.18	2.85	1.08	2.51
North Dakota	214	R	76.50	2	Elected-Non Prior	40	19.9	40.1	3.51	84.37	3.02	1.68	5.39	2.03
Ohio	4,491	R	63.60	6	Appointed-Non Prior	65.31	12.61	22.08	3.75	78.95	12.19	2.20	0.15	2.76
Oklahoma	954	R	55.80	6	Elected-Non Prior	45.79	20.46	33.76	10.63	65.56	7.20	2.15	7.34	7.13
Oregon	2,484	D	50.60	4	Appointed-Non Prior	62.47	18.56	18.97	13.06	75.62	1.79	4.35	0.94	4.24

Pennsylvania	4,071	D	54.90	2	Appointed- Prior	70.68	7.98	21.34	7.33	76.38	10.68	3.45	0.11	2.04
Rhode Island	835	D	40.70	1	Appointed- Non Prior	90.46	0.28	9.27	15.42	72.07	5.40	3.57	0.30	3.26
South Carolina	1,188	R	55.90	5	Appointed- Non Prior	55.78	10.55	33.67	5.69	63.65	26.76	1.49	0.25	2.16
South Dakota	271	R	70.50	2	Appointed- Non Prior	29.92	26.73	43.35	3.60	82.32	1.88	1.22	8.57	2.41
Tennessee	2,008	R	70.30	6	Appointed- Non Prior	54.38	12.02	33.61	5.38	73.89	16.60	1.76	0.20	2.16
Texas	8,006	R	59.30	2	Appointed- Non Prior	75.35	9.35	15.3	39.42	41.88	11.77	4.75	0.25	1.92
Utah	913	R	66.70	5	Appointed- Non Prior	81.17	9.41	9.42	14.00	78.29	1.15	2.40	0.97	3.18
Vermont	420	R	52.90	1	Appointed- Non Prior	17.38	21.52	61.1	1.91	92.79	1.24	1.78	0.32	1.96
Virginia	1,686	D	47.80	6	Appointed- Non Prior	69.79	5.66	24.55	9.33	61.71	18.83	6.37	0.24	3.52
Washington	4,375	D	54.20	16	Elected- Prior	74.97	9.08	15.95	12.70	68.56	3.54	8.45	1.02	5.73
West Virginia	337	D	49.10	5	Appointed- Prior	33.2	15.52	51.28	1.26	92.00	3.93	0.75	0.13	1.93
Wisconsin	2,698	R	52.30	6	Appointed- Non Prior	55.8	14.35	29.85	6.86	81.21	6.25	2.74	0.77	2.17
Wyoming	242	R	59.40	2	Appointed- Non Prior	24.51	40.25	35.24	10.03	83.99	0.89	0.79	2.13	2.16