Race in Insurance Underwriting

Julia Angwin
Editor-in-Chief
The Markup

Insurance Algorithms Premiums vary by Zip Code

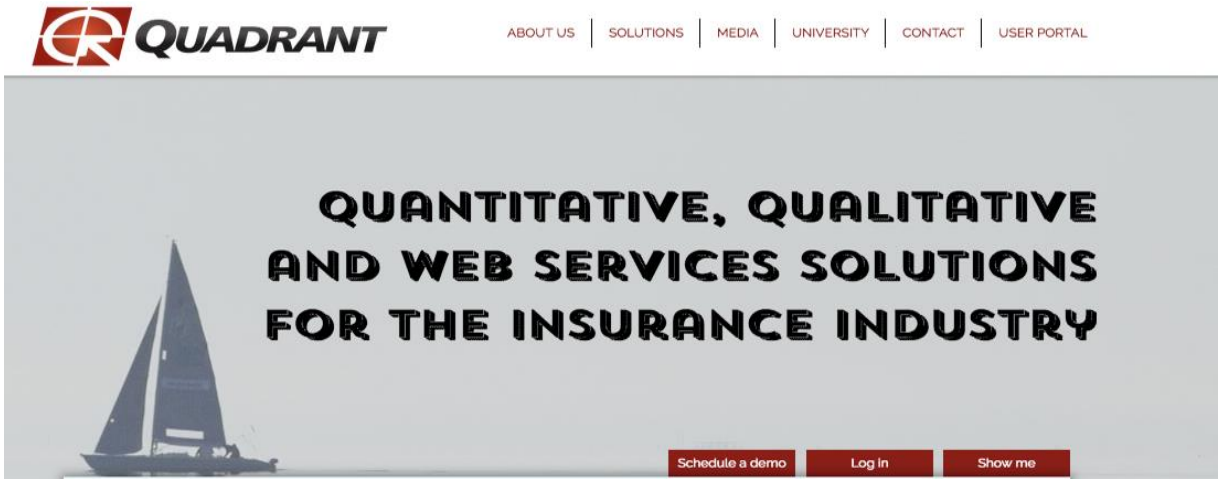
- The insurance industry has long argued that higher premiums in minority neighborhoods are justified by a higher risk of accidents
- We decided to test that hypothesis

It has long been observed that insurance prices are higher in minority neighborhoods for the same safe driver

High Price of Mandatory Auto Insurance in Predominantly African American Communities

November 2015

30 million liability insurance quotes by zip code for 44 driver profiles



Public records requests in 50 states for liability payouts per zip code

- Only California, Illinois, Missouri and Texas provided us with data.
- The other states all responded that they did not collect such data.

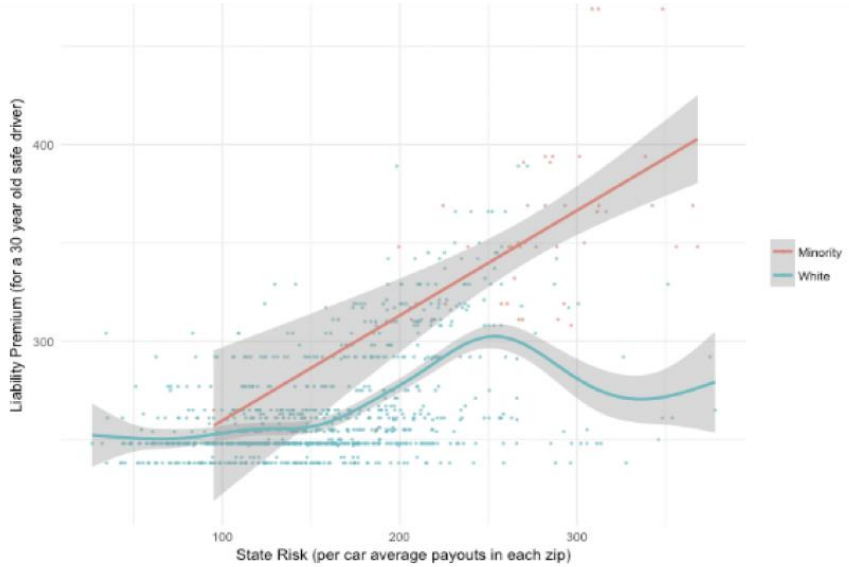
Then we compared premiums to payouts for a single safe driver

- 30-year-old female safe driver who is a teacher with a bachelor's degree and excellent credit, with no accidents or moving violations.
- She drives a 2016 Toyota Camry, and has a fifteen-mile commute, and drives around 13,000 miles a year.
- She is purchasing a policy for $100,000 of property damage coverage and $100,000 to cover medical bills per person up to $300,000 per accident.

$$Ratio = \frac{Average\ Minority\ Prediction}{Average\ NonMinority\ Prediction}$$

Group	Company Name	CA	Chicago, IL	IL	MO	TX
ALLSTATE INS GRP	Allstate Fire & Cas Ins Co	-	1.042	1.226	1.139	1.124
ALLSTATE INS GRP	Allstate Ind Co	0.981	1.015	1.42	1.171	1.104
ALLSTATE INS GRP	Northbrook Ind Co	0.981	-	-	-	-
AMERICAN FAMILY INS GRP	American Family Mut Ins Co	-	1	1.195	1.271	-
AMERICAN FAMILY INS GRP	American Standard Ins Co of WI	-	1	1.184	1.27	-
Auto Club Enterprises Ins Grp	Automobile Club Interins Exch	-	-	-	1.305	-
AUTO OWNERS GRP	Owners Ins Co	-	1.046	1.55	-	-
BERKSHIRE HATHAWAY GRP	Geico Cas Co	1.034	1.096	1.16	1.248	-
BERKSHIRE HATHAWAY GRP	Geico Gen Ins Co	1.031	1.189	1.21	-	1.102
BERKSHIRE HATHAWAY GRP	Geico Ind Co	1.031	1.18	1.219	1.274	1.1
BERKSHIRE HATHAWAY GRP	Government Employees Ins Co	-	1.189	1.21	1.406	1.102
Country Ins & Fin Serv Grp	Country Mut Ins Co	-	1	1.149	-	-
Country Ins & Fin Serv Grp	Country Pref Ins Co	-	1	1.152	-	-
ERIE INS GRP	Erie Ins Co	-	1.006	1.244	-	-
ERIE INS GRP	Erie Ins Exch	-	1.006	1.246	-	-
FARMERS INS GRP	21st Century Centennial Ins Co	-	-	-	1.216	1.079
FARMERS INS GRP	Farmers Ins Co Inc	-	-	-	1.197	-
FARMERS INS GRP	Farmers Ins Exch	1.073	-	-	-	-
FARMERS INS GRP	Farmers TX Cnty Mut Ins Co	-	-	-	-	1.054
FARMERS INS GRP	Illinois Farmers Ins Co	-	1.107	1.275	-	-
FARMERS INS GRP	Mid Century Ins Co	1.073	-	-	-	-
HARTFORD FIRE & CAS GRP	Trumbull Ins Co	-	1.007	1.13	-	-
HARTFORD FIRE & CAS GRP	Twin City Fire Ins Co Co	-	-	-	1.133	-
LIBERTY MUT GRP	First Liberty Ins Corp	-	1.003	1.235	-	-
LIBERTY MUT GRP	Liberty Cnty Mut Ins Co	-	-	-	-	1.053
LIBERTY MUT GRP	Liberty Mut Fire Ins Co	1.327	1.003	1.234	-	-
LIBERTY MUT GRP	Safeco Ins Co Of Amer	1.115	-	-	-	-
LIBERTY MUT GRP	Safeco Ins Co Of IL	-	1.044	1.174	1.336	-
MERCURY GEN GRP	California Automobile Ins Co	1.019	-	-	-	-
MERCURY GEN GRP	Mercury Ins Co	1.02	-	-	-	-
METROPOLITAN GRP	Economy Preferred Ins Co	-	1.002	1.406	-	-
METROPOLITAN GRP	Metropolitan Cas Ins Co	-	1.005	1.397	-	-
METROPOLITAN GRP	Metropolitan Grp Prop & Cas Ins Co	-	1.152	1.327	-	-
METROPOLITAN GRP	Metropolitan Prop & Cas Ins Co	-	1.044	1.55	-	-
NATIONWIDE CORP GRP	Allied Prop & Cas Ins Co	1.14	-	-	1.246	-
NATIONWIDE CORP GRP	Amco Ins Co	1.14	-	-	-	-
NATIONWIDE CORP GRP	Colonial Cnty Mut Ins Co	-	-	-	-	1.152

Premiums vs. Average Losses for GEICO in Missouri



Plots showing a the average difference for GEICO Casualty Company premiums for minority zip codes compared to white zip codes in Missouri at increasing levels of risk.

- Of course, companies may have a different distribution of risk than the state's aggregate risk numbers.
- But it is unlikely that those differences would result in a consistent pattern of higher prices for minority neighborhoods.
- https://www.propublica.org/article/minority-neighborhoods-higher-car-insurance-premiums-methodology

Otis Nash pays $190 a month for Geico car insurance although he's had no accidents

- Nash is a 26-year-old Black Chicago resident who supports his wife and 7-year-old daughter
- Lives in East Garfield Park, on the West Side of Chicago

Across town, Ryan Hedges pays $55 a month for car insurance although his spouse recently had an accident

$377 disparity between their property damage base rates

- In Nash's zip code, 60612, Geico set the base rate for property damage insurance at $753 a year, according to the company's December 2016 rate filing in Illinois.
- In Hedges' neighborhood, 60657, Geico has set the base rate for property damage insurance at $376 a year, according to the same filing in Hedges' neighborhood, 60657, Geico has set the base rate for property damage insurance at $376 a year, according to the same filing.

$12.88 disparity between property damage payouts

- Average property damage payouts (3-yr period):
    - $91.57 in Otis' neighborhood
    - $104.45 in Ryan's neighborhood

California Regulators Require Auto Insurers to Adjust Rates

The state changed its approach in response to ProPublica's finding that minority neighborhoods were paying higher premiums than white areas with the same risk.

by **Julia Angwin** and **Jeff Larson**, Sept. 20, 3:56 p.m. EDT

Pernell Cox insured his Mercedes with Safeco, which charges more in his minority neighborhood than in a predominantly white suburb. Regulators are investigating rate increases proposed by Safeco's parent company, Liberty Mutual, to correct the disparity. (Kendrick Brinson for ProPublica)

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Allstate's Algorithm

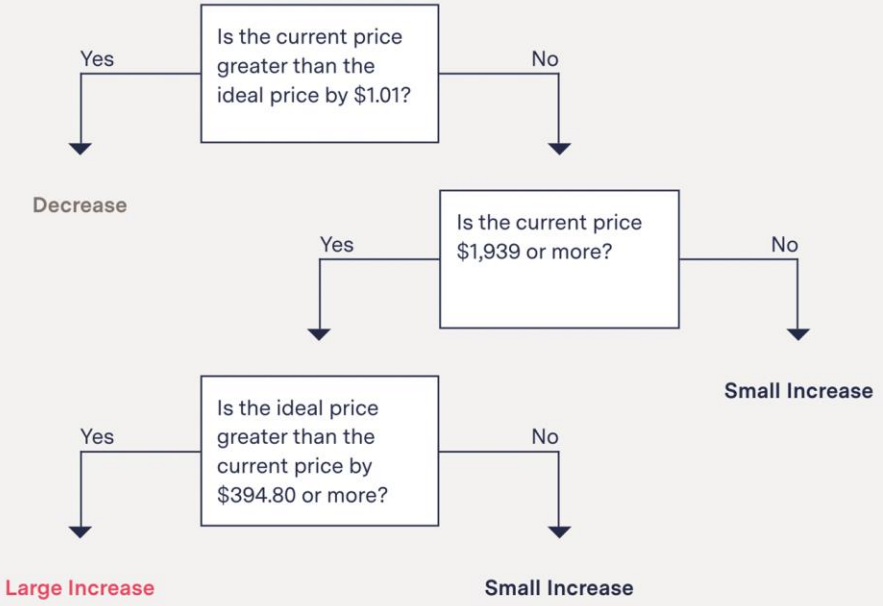
Suckers List: How Allstate's Secret Auto Insurance Algorithm Squeezes Big Spenders

February 25, 2020 05:00 ET

Matt Chase

Exploring the Retention Model Effects with CART Analysis

Generated Decision Tree



Proposed rates for different 42-year-old female drivers from Baltimore County, Md., shows the effect on big spenders

Current Premium	Should Have Risen By	Proposed Increase
$3,611	+$1,165	+$706
$1,885	+$1,167	+$86

Who is Affected Most?

- Rate hikes disproportionately targeted middle-aged people ages 41 to 62
- Rate hikes were aimed at a disproportionately male population
- Rate hikes disproportionately affected people living in communities that were more than 75 percent “nonwhite.”
- Customers aged 63 and older were disproportionately affected by the lack of meaningful discounts.

Thank You