

## The Problem with Equity — A Response to CAS Literature on Race and Insurance

In the last two years, the CAS has made a number of statements about DE&I and systemic racism in insurance. One example is from a “Letter from CAS President and CAS CEO on CAS Approach to Race and Insurance Pricing”<sup>1</sup> stating: “The CAS Board of Directors approved a recommended CAS Approach to Race and Insurance Pricing, with four key areas of focus and goals including:

- “Basic and Continuing Education – to provide members and candidates with a strong foundation in the historical issues of systemic racism and their potential impacts on insurance, covering concepts of disparate impact and discrimination, past and current research, and professionalism implications.

- “Research – to develop methodologies that identify, measure, and address disparate impact, to evaluate emerging technologies and to prepare actuaries and insurers for potential regulatory actions, in alignment with the CAS’s Core Values of continual improvement and innovation.”

I think that showing that there is systematic racism is incredibly difficult. Gelman, et al.<sup>2</sup> state “As we have learned from the replication crisis sweeping the biomedical and social sciences, it is frighteningly easy for motivated researchers working in isolation to arrive at favored conclusions—whether inadvertently or intentionally.” This refers to experiments. It is much harder to do good research with observational studies. Given this difficulty, the CAS faces a significant challenge in studying disparate impact. I have found the numerous CAS articles on race, equity, hiring practices, underwriting, and pricing have not met this challenge.

### Equity

In announcing the “Research Paper Series on Race and Insurance Pricing”<sup>3</sup>, the CAS CEO said “The CAS is proud to move forward with not just a commitment to diversity, equity and inclusion in all aspects of actuarial work, but with research that tackles the issue on a quantitative level”. I am concerned that we are trying to achieve equal outcomes, and when the outcomes are not equal, we assume that the system is unfair and must be corrected. Many of the suggested approaches are discriminatory and harmful to society.

One popular article, “What’s the Difference Between Equity and Equality?”<sup>4</sup> has two pictures. In the first, each person is standing on one box and the shortest person can’t see. In the second, each person has the boxes that they need to watch the game. This works when the outcome is binary (being able to see the game or not), and there are enough resources (boxes) for everyone. In the real world, most resources are limited and outcomes are not binary. Thus, equity has a real cost that someone must pay. Consider the case of medical school. Each time we deviate from a pure meritocracy and award a spot to a less qualified candidate based on equity, someone is doing a disservice both to the better qualified

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<sup>1</sup> <https://www.casact.org/article/letter-cas-president-and-cas-ceo-cas-approach-race-and-insurance-pricing>

<sup>2</sup> <https://www.bostonreview.net/articles/andrew-gelman-sharad-goel-daniel-e-ho-affirmative-action-isnt-problem/>

<sup>3</sup> <https://www.casact.org/article/cas-launches-research-paper-series-race-and-insurance-pricing>

<sup>4</sup> Gutoskey, Ellen, “What’s the Difference Between Equity and Equality?,” Mental Floss, Jun 11, 2020, <https://www.mentalfloss.com/article/625404/equity-vs-equality-what-is-the-difference>

candidates who are losing their spots and to the patients that these doctors will later treat. While we are doing surgery, we do have an obligation to our companies to hire the best available candidates.

In the remainder of this paper, I will discuss a number of statements made by the CAS and its leadership in various published materials which I believe to be problematic.

### International Association of Black Actuaries and Hiring

The International Association of Black Actuaries (which the CAS funds) is asking companies to take their pledge. This pledge calls for “Consider tying business practice goals to racial diversity initiatives. Performance of the practice is partially graded on racial diversity initiatives (hiring, development, education, etc.)”<sup>5</sup> The IABA is also “working with industry partners to ... help achieve the following two industry-wide goals:

At least 3% of senior leadership roles represented by Black actuaries by 2025

At least 5% of management roles represented by Black actuaries by 2025”<sup>6</sup>

Perhaps 3% and 5% of the best candidates are Black. I have no idea; I doubt that anyone knows. However, the fact that 2.5% of SOA members are Black and 1.5% of the CAS members are Black, suggests that this may not be the case. Asking companies to work toward this goal and asking them to use this to evaluate leadership will put a lot of pressure on hiring managers to work toward this goal. It may not be a formal quota, but if it’s in people’s “business practice goals” that affect their performance evaluations, it’s basically a quota.

I don’t think the CAS should be funding any group that is advocating tying business goals to who companies hire. Companies and hiring managers have an obligation to shareholders to hire the best candidates. Measuring against other goals is at best a distraction and at worst discriminatory.

### Equity in Pricing

In early 2021, two CAS Presidents and the CAS CEO said that “Actuaries also have a responsibility to scrutinize the processes, systems and models we build to understand if the inputs and outcomes truly reflect fair and equitable practices.”<sup>7</sup> I had assumed that personal lines pricing today is fair and equitable. It is regulated and highly competitive. In many states, the algorithms are public. If the outcomes aren’t fair (or efficient), there’s opportunity for a competitor insurer to exploit this, charging fair prices and growing their market share.

Unfortunately, the authors did not define “fair” or “equitable”, leaving it to the reader to infer what these words mean. In many conversations today, equitable and equity are understood to mean equal outcomes. While the authors may not have intended this, their wording is vague and some might read this as suggesting that pricing should be race-neutral. In the appendix, I show that actual differences in the distribution of ages by race might result in Black drivers paying 7% more for car insurance than

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[https://cdn.ymaws.com/www.blackactuaries.org/resource/resmgr/files/microsite/pledge/revised\\_employer\\_commitment.pdf](https://cdn.ymaws.com/www.blackactuaries.org/resource/resmgr/files/microsite/pledge/revised_employer_commitment.pdf)

<sup>6</sup> <https://www.blackactuaries.org/mpage/IABAPledgeIntro>

<sup>7</sup> <https://www.casact.org/article/letter-cas-president-and-cas-ceo-cas-approach-race-and-insurance-pricing> and <https://ar.casact.org/confronting-the-issues-of-race-and-pricing/>

White drivers on average. While age is something intuitive to most of us, race may be correlated with many other traits as well causing one race to pay more on average.<sup>8</sup>

### March-April 2022 Issue of Actuarial Review

The cover story asked if rates are “fair”. The story cites a survey of 1,095 adults to get their views on whether various rating plan variables are “fair”. Accidents and speeding tickets indicate poor driving and charging more for them deters bad driving. However, only 78% and 75% of the surveyed adults were willing to say that either is a fair factor to use in setting insurance prices. Only 50% agreed that it hard braking/sharp turning was fair to consider in setting prices.<sup>9</sup> These three items are measuring driving behavior and should all be close to 100% acceptance. If 22%-50% of people have concerns with using driving experience to assess driving risk, we need to question whether we should be using public opinion to determine what are valid rating plans. Perhaps the industry needs to do more to educate our insureds and less listening to what they see as fair.

Even the “It’s a Puzzlement” column, usually apolitical, is pushing for an “equitable pass curve”<sup>10</sup> at the same time we are being assured that we don’t need to worry about the CAS using multiple pass marks on our exams. This puzzle appears to be an attempt to move an “equitable pass curve” into the realm of things we might discuss and consider, something known in politics as moving the “Overton Window”.<sup>11</sup> In general, we shouldn’t read too much into logic puzzles, but it’s an odd puzzle, both in that it is the first puzzle I remember where we didn’t have enough information to solve it and the topic is something that the CAS has reassured members is inconceivable.

### CAS Research Paper Series on Race and Insurance: Understanding Potential Influences of Racial Bias on P&C Insurance: Four Rating Factors Explored<sup>12</sup>

The third section discusses territory.

The last full paragraph on page 10 states that because some neighborhoods have older homes that are more likely to be frame construction, these territories will have higher territory relativities. This is surprising, as most, if not all, property rating plans include building age and construction type. This would eliminate any proxy effect of these variables through the territory. People in those territories will pay higher rates if they have older houses, but the house age is creating a higher risk and we should differentiate based on house age. They will not have a higher territory base rate.

The last sentence on page 11 states “However, it is important to understand that location may also be correlated with race due to policies and practices that have led to segregation or a lack of diversity in many communities.” The authors connection of historical policies and today’s segregation is at odds with the fact that “Out of every metropolitan region in the United States with more than 200,000

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<sup>8</sup> This is work that I published earlier at

<https://www.linkedin.com/feed/update/urn:li:activity:6818734226544832512/>

<sup>9</sup> <https://ar.casact.org/sense-sensitivity-should-fairness-be-a-reason-to-eliminate-predictive-insurance-rating-factors/>

<sup>10</sup> <https://ar.casact.org/an-equitable-pass-curve/>

<sup>11</sup> <https://www.mackinac.org/OvertonWindow>

<sup>12</sup> [https://www.casact.org/sites/default/files/2022-03/Research-Paper\\_Understanding\\_Potential\\_Influences.pdf](https://www.casact.org/sites/default/files/2022-03/Research-Paper_Understanding_Potential_Influences.pdf)

residents, 81 percent (169 out of 209) were more segregated as of 2019 than they were in 1990.”<sup>13</sup> Real estate and lending have fewer barriers than they did 30 years ago, so the last thirty years have seen increased segregation suggests some uncertainty in how much the systemic behavior described in the papers has caused today’s segregation.

The fourth section is home ownership. The authors say that “Regulators are increasingly scrutinizing insurance rating variables like home ownership” and that “it is important to understand the environment that creates systematic differences in home ownership rates across racial groups, and to examine historic perceptions of home ownership as a measure of financial responsibility.” (Both statements are in the last paragraph of page 15.) The paper provides two recent examples, settlements by Wells Fargo and Associated Bank for bias in their loan practices. In both cases, the settlements included increased lending and down payment support in majority-minority neighborhoods. Wells Fargo also provided cash relief to affected borrowers. This was seen as a remedy that would make the victims of this discrimination whole and correct the problem going forward. Given that, it’s not clear why this variable is still a source of bias. The authors do not state why they are questioning whether home ownership is a measure of financial responsibility.

The fifth section talks about MVRs. The authors cite a number of studies saying that Blacks are more likely to be stopped than Whites. These studies look at the number of traffic stops divided by the number of people of that race who drive in the United States. They don’t control for anything, i.e. driver age, how often people drive, where they live, how they drive, etc. These studies are looking at the results of a univariate analysis – something no actuary should be doing this century. It’s possible that police officers are racist and pull over Black drivers more, but it’s also plausible that Black drivers speed more often. None of the cited papers give any evidence for the former hypothesis over the latter one.

A 2005 paper<sup>14</sup> on racial profiling in New Jersey found that Black drivers drive 15 miles per hour or more above the speed limit more than 1.5 times as often as White drivers and this behavior was in line with how often they were ticketed for speeding. A 2001 study<sup>15</sup> found that in San Diego, 25% of stops are pretext stops that were not related to traffic violations. The police stops there are in line with a 25% weight of criminal suspects demographics and a 75% weight of the population demographics. A 2003 report<sup>16</sup> found that in Cincinnati, police stops “appeared to be correlated with driving patterns, crime patterns, drug calls, and overall demand for police services. This suggested that the disproportionate stops of African American drivers may be explained by workload factors rather than biased policing. I am not aware of any more recent research on this topic.

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<sup>13</sup> Menendian, S., Gambhir, S., and Gailles, A., “The Roots of Structural Racism Project”, U.C. Berkeley, June 21, 2021. <https://belonging.berkeley.edu/roots-structural-racism>

<sup>14</sup> Lange, J. E., Johnson, M., and Voas, R., “Testing the racial profiling hypothesis for seemingly disparate traffic stops on the New Jersey Turnpike”, *Justice Quarterly*, 22(2):193-223., [https://www.researchgate.net/publication/248967296\\_Testing\\_the\\_racial\\_profiling\\_hypothesis\\_for\\_seemingly\\_disparate\\_traffic\\_stops\\_on\\_the\\_New\\_Jersey\\_Turnpike](https://www.researchgate.net/publication/248967296_Testing_the_racial_profiling_hypothesis_for_seemingly_disparate_traffic_stops_on_the_New_Jersey_Turnpike)

<sup>15</sup> Corder, G. & Williams, B. & Velasco, A. (2002). *Vehicle Stops in San Diego: 2001*. [https://www.researchgate.net/publication/264875645\\_Vehicle\\_Stops\\_in\\_San\\_Diego\\_2001](https://www.researchgate.net/publication/264875645_Vehicle_Stops_in_San_Diego_2001)

<sup>16</sup> Eck, J., Liu, L., Bostaph, L. (2003). *Police Vehicle Stops in Cincinnati: July 1 – December 31, 2001*. [https://www.uc.edu/content/dam/uc/ccjr/docs/reports/project\\_reports/Final\\_Police\\_Stops\\_Report\\_d6\\_H.pdf](https://www.uc.edu/content/dam/uc/ccjr/docs/reports/project_reports/Final_Police_Stops_Report_d6_H.pdf)

CAS Research Paper Series on Race and Insurance: Methods for Quantifying Discriminatory Effects on Protected Classes in Insurance<sup>17</sup>

This article lists a number of cases of discriminatory effects in today's insurance market. It then talks about how to quantify these effects. I accept that different races are treated differently on average by insurers, but I don't believe that this is due to past racist behavior. I will go through the paper and point out a number of places where I think the paper is not correct.

They list a number of accusations of automobile insurers disproportionately rejecting drivers in poor and minority communities from their standard companies without asking if these drivers are different from drivers in other communities. While the authors aren't making the accusations, it would be helpful to offer additional context, such as the studies cited two paragraphs before this one.

The authors state "While the practice of redlining is no longer allowed, the impact of over-a-century-old redlining practices is still being felt today in those communities which were discriminated against. You only have to look at the economic statistics of areas that were historically redlined to see the disparities in home values, income and wealth."<sup>18</sup> This is inconsistent with the earlier point that society is more segregated than it was in 1990. There have been a handful of redlining allegations since 1990, but they are isolated incidents and in each case there were competing banks making loans, so it's hard to credit redlining with the increase in segregation the last thirty years. It suggests that there is some other cause.

In Section 2, the first bullet states "In April 1997, the Center for Economic Justice released a report titled 'Auto Insurance Redlining in Texas: Availability Worsens.'<sup>19</sup> This report alleged that private passenger automobile insurers in Texas were redlining by disproportionately rejecting drivers in poor and minority communities from their standard companies and placing them in sub-standard companies or the Texas Auto Insurance Plan." The referenced report is simplistic:

- It first states that there is a bias because the rejection rates are higher in poor zip codes. It never discusses if the drivers are different in these zip codes, perhaps younger or have more violations.
- It then says that "The Price is Not Related to Risk: Although insurers claim that the higher rates charged to consumers in county mutuals are based on risk, insurance department data shows that non-standard business at current rates is now more profitable than standard/preferred business in Texas. While rate-regulated companies pay out about 73 cents in claims for every premium dollar, county mutuals pay out only 63 cents in claims." The price difference is much more than 20% (per this report), so reducing prices to get the same loss ratio would leave most of the price difference that they are complaining about. The authors later (page 11) confirm these concerns when they state "The challenging aspect of managing both statistical bias and demographic bias is that minimizing one will often increase the other."

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<sup>17</sup> [https://www.casact.org/sites/default/files/2022-03/Research-Paper\\_Methods-for-Quantifying-Discriminatory-Effects.pdf](https://www.casact.org/sites/default/files/2022-03/Research-Paper_Methods-for-Quantifying-Discriminatory-Effects.pdf)

<sup>18</sup> 2<sup>nd</sup> paragraph of page 5 of [https://www.casact.org/sites/default/files/2022-03/Research-Paper\\_Methods-for-Quantifying-Discriminatory-Effects.pdf](https://www.casact.org/sites/default/files/2022-03/Research-Paper_Methods-for-Quantifying-Discriminatory-Effects.pdf)

<sup>19</sup> Center for Economic Justice, "Auto Insurance Redlining in Texas: Availability Worsens," April 1997, <http://www.cej-online.org/april97.php>

While I understand, the authors are citing other work here to show that these views exist, it would be helpful if they gave some context instead of merely repeating weak claims.

The third bullet in Section 2 states “Consumer advocates concluded from this agreement that insurance companies knew these factors were unfairly discriminatory, but ultimately the businesses were not confident that the use of education and occupation could be justified to the superintendent.” (These factors refers to education and occupation.) The authors don’t say how they or the consumer advocates knew what the insurance companies knew. Without that knowledge, we don’t know if the insurance companies were acting in good faith or not. The fact that the companies decided not to fight this issue isn’t a proof, as companies often decide that something isn't worth fighting about, due to the bad publicity, the uncertainty of the outcome, and/or the legal cost. Again, the authors are citing the opinions of others, but it would be helpful if they qualified them. The note would also be more educational if they cited opinions on both sides of this issue. One helpful study<sup>20</sup> notes that in formerly redlined areas, less than a third of the residents are Black.

The last paragraph on page 9 states “If the insurance company decided to use the variable [perfectly correlated with the protected class] in rating, it would technically not be in violation of the rating law, as the alternative variable is predictive of loss. However, it would not be compliant with the spirit of the law, as the predictive power of the alternative variable is perfectly correlated to a prohibited factor: race.” This seems odd. If we assumed that purple people get their license at 30 and orange people get their license at 15, then the years of driving experience would be a proxy for race. Years of driving experience is also a variable with a causal relationship with driving performance that regulators are encouraging insurers to use. I do not know what particular laws the authors are referring to, but I don’t see how using a variable that has a causal relationship with loss experience and is correlated with race violates the spirit of these anti-discrimination laws. Using years of experience would be appropriate and defensible, even though it is correlated with race. If states did not allow the use of variables correlated with race, insurers would be hard pressed to find any acceptable rating variables.

On page 11, the reports states “But while a model can be unbiased in the statistical sense, given all precautions have been taken to ensure accurate model specification and relevant feature selection, it may still not be enough to apply such a model by itself in real-life scenarios where human interests are at stake.” The authors are saying that even if the model is perfectly accurate and the higher prices for a protected class are accurate, we still shouldn't use the model. This would mean that we have to discriminate in favor of the protected class. It’s surprising and disappointing that the CAS is promoting any type of discrimination, especially given that Principle 4 of the CAS Statement of Principles Regarding Property and Casualty Insurance Ratemaking<sup>21</sup> is “A rate is reasonable and not excessive, inadequate, or unfairly discriminatory if it is an actuarially sound estimate of the expected value of all future costs associated with an individual risk transfer.”

In the first paragraph on page 14, the report describes "fairness through unawareness". This is when a rating plan is built without considering the protected class. The result would be conditional

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<sup>20</sup> Perry, A. and Harshbarger, D. “America’s formerly redlined neighborhoods have changed, and so must solutions to rectify them.” Brookings. 2019. <https://www.brookings.edu/research/americas-formerly-redlines-areas-changed-so-must-solutions/>

<sup>21</sup> <https://www.casact.org/sites/default/files/2021-05/Statement-Of-Principles-Ratemaking.pdf>

demographic parity<sup>22</sup>, where prices are the same for both classes conditioned on the rating plan variables. For example, if two insureds are the same age, marital status, car, territory, prior violations, ..., then they will pay the same price. The report states that “Unfortunately, simply removing the sensitive attribute from the model is effective only when the sensitive attribute is independent from any other variables included in the model, which occurs rarely in practice.” This is implying that removing race from our model is not sufficient if we keep any variable that is correlated with race. Driver age is correlated with race and it is in most rating plans, suggesting that “fairness through unawareness” is not effective. I suspect that every rating variable is correlated to some degree with race, so I not sure what insurers would be able to rate on. Fairness through unawareness may be a standard in the literature, but it doesn’t seem viable for insurers. Again, it would have been helpful if the authors had opined on how or if each of these methods would have worked.

On pages 17 and 18, the report recommends options to mitigate bias. Describing the first option, it states “[fair pre-processing] can be achieved by changing the class labels of the data set, and by re-weighting or re-sampling the data.” I have combined thin categories with others that I thought would behave similarly and then modeled them together, but I have always kept the original labels so that it was possible to review how each category was treated. Changing the labels is a step beyond that, and it seems a step too far. It’s not clear what any results would mean for a model fit on labels that don’t reflect the actual data. I’ve read this at least a dozen times, looking for a more charitable interpretation, and I can’t find it. This sounds like something that the ABCD and regulators would not appreciate. At a minimum, the authors worded this incredibly poorly and should clarify what they intended.

The last option is post-processing fairness which sounds like discriminating in favor of the protected class. Again, this doesn't seem defensible given the CAS Statement of Principles Regarding Property and Casualty Insurance Ratemaking. Principle 4 states that “A rate is reasonable and not excessive, inadequate, or unfairly discriminatory if it is an actuarially sound estimate of the expected value of all future costs associated with an individual risk transfer.” This will not be the case if we are making adjustments to the model results. I am aware that in some cases, regulators require some adjustments; and the ASOPs due carve out a wide exemption to follow any relevant laws. I think following a regulation is different than advocating for a regulation that requires a subsidy.

#### CAS Research Paper Series on Race and Insurance: Lessons for the Insurance Industry<sup>23</sup>

The CAS has published a report strongly implying that there are racial biases in insurance. While the paper does not recommend any particular solution, it does imply that there is a problem that needs to be addressed. This implication is not persuasive or without controversy, and it would be better served by soliciting more views before advocating for the need to address this perceived societal problem. This report does not read like an educational topic where the CAS is providing its membership with a greater understanding of the topic.

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<sup>22</sup> The authors define conditional demographic parity as “the protected and unprotected classes are assigned the same predictions after controlling for the permitted factors. In the claim occurrence example, the requirement is met if males and females have the same predicted probabilities given both groups have the same driving experience and drive vehicles of identical age.”

<sup>23</sup> [https://www.casact.org/sites/default/files/2022-03/Research-Paper\\_Approaches-to-Address-Racial-Bias\\_0.pdf](https://www.casact.org/sites/default/files/2022-03/Research-Paper_Approaches-to-Address-Racial-Bias_0.pdf)

The report's second paragraph states:

Racial bias refers to a system that is inherently skewed along racial lines. Racial bias can be intentional or unintentional and can be present in the inputs, design, implementation, interpretation or outcomes of any system. [page 1]

The report then states:

State regulators are taking individual actions to address potential issues through prohibition of certain rating factors, and even some insurers are proactively calling for the industry to move away from using information thought to be correlated with race. [pages 1 and 18]

The above statements are troubling. There are many legitimate reasons why many systems have outcomes that are skewed by race.

We should expect disparate impacts along racial and other lines for a number of reasons.

- The reports states "In 2020, 74.5% of non-Hispanic White households owned their home, while this was the case for only 44.1% of Black households (Amadeo 2021)." [page 4] Many insurers have found that homeowners have lower expected rates for auto insurance, so a rating plan that follows the Ratemaking Statement of Principles<sup>24</sup> should charge less for homeowners. (Principle 3 states that "A rate provides for the costs associated with an individual risk transfer.")
- Location is important for most lines of business. "Racial and ethnic minorities made up about 22 percent of the rural population in 2018, compared to 43 percent in urban areas."<sup>25</sup>
- Marriage is an important predictor of loss costs in personal lines, and marriage rates vary significantly by race<sup>26</sup>.

The authors raise a number of issues without explaining their relevance.

The authors spend a significant amount of time talking about loan approval rates for mortgages and face-to-face lending and imply that these differences are due to biases. I am not an expert on mortgage underwriting, but even if it is true in mortgage underwriting (a somewhat subjective process), it's not clear what this implies for property and casualty personal lines insurance where the rating plans and underwriting guidelines are all objective. I understand that we want to take lessons from other industries mistakes so we can avoid repeating them, but I think the authors could have done better explaining a connection to our industry. (I discuss personal lines because this paper seems intended for personal lines and not commercial lines.)

The authors also raise the issue of fairness in Artificial Intelligence algorithms. They discuss these issues in the context of lending and banking, but they do not discuss how they would impact property and casualty insurance. They merely state that "There is a strong parallel between personal lending and the insurance industry with respect to the potential bias of machine learning techniques."

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<sup>24</sup> <https://www.casact.org/sites/default/files/2021-05/Statement-Of-Principles-Ratemaking.pdf>

<sup>25</sup> United States Department of Agriculture, Economic Research Center, <https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartId=99538>

<sup>26</sup> Table 2 of Raley, R. Kelly, Megan M. Sweeney, Danielle Wondra, *The Future of Children*, Princeton University, Volume 25, Number 2, Fall 2015, pp. 89-109, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4850739/>



The report also criticizes credit bureau reports, saying:

“It appears that the credit scoring bureaus initially disputed potential disparate impact of their practices instead of challenging themselves to find ways to address the issue. Will the insurance industry follow a similar path? Credit bureaus are now bringing solutions to market, described below, but are they doing too little too late?”

This is a harsh view. The Federal Reserve Board had agreed that the credit bureaus were behaving appropriately, suggesting that their arguments may have been made in good faith. The more recent moves to seek alternative sources of data, such as rental and utility payments, may reflect the nature of capitalism where companies try to find solutions that will allow them to reach more consumers. Expanding their algorithms to use more sources of data doesn't have to be an implicit admission that the old algorithms were biased<sup>27</sup>.

This report reminds me of a H. L. Mencken quote “there is always a well-known solution to every human problem—neat, plausible, and wrong.”

This paper suggests many actions that were taken in other industries to reduce disparate impact. In many cases, these actions did not work or had unintended consequences. They mentioned some, but I would add two more:

- Page 7 mentions the Community Reinvestment Act. This was intended to encourage banks to make more loans in low and moderate-income areas. That happened, but eventually it contributed to the housing crisis in 2006-2008. Some have said that the direct role was minimal, but there is a persuasive case that it led to looser standards and the indirect result was the housing crisis<sup>28</sup>.
- Page 9 discusses usury laws but expresses disappointment that they don't apply to every form of auto loan. Usury laws have a number of unintended consequences<sup>29</sup>, including the reduced access to credit and greater reliance on loan sharks.
- Page 14 states “The American Rescue Plan Act of 2021 set aside \$5 billion in combined direct payments and training, outreach and technical assistance to socially disadvantaged farmers, defined as Black/African American, American Indian, Alaskan Native, Hispanic/Latino, Asian American or Pacific Islander (USDA 2021).” Three federal district courts issued preliminary injunctions requiring the Farm Service Agency (FSA) to stop issuing payments pursuant to

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<sup>27</sup> This reminds me of Hanlon's razor, “Never attribute to malice that which is adequately explained by stupidity.” In this case, I don't think we can infer malice or stupidity, as there was little general awareness of model bias In 2012, when FICO discussed this issue in a blog.

<sup>28</sup> Carney, John, “Here's How The Community Reinvestment Act Led To The Housing Bubble's Lax Lending”, *Business Insider*, Jun 27, 2009, <https://www.businessinsider.com/the-cra-debate-a-users-guide-2009-6>

<sup>29</sup> Drake, Diana, “Student Essay: My Summer Working for a Payday Lender”, *Business Journal Articles*, Wharton, Global Youth Program, August 21, 2019, <https://globalyouth.wharton.upenn.edu/articles/student-essays/summer-working-payday-lender/>,

Vartanian, Thomas, “The unintended consequences of interest rate caps”, *The Hill*, May 19, 2019, <https://thehill.com/opinion/finance/444334-the-unintended-consequences-of-interest-rate-caps>, and

Lehman, Tom, “In Defense of Payday Lending”, Mises Institute, October 20, 2018, <https://mises.org/library/defense-payday-lending>.

ARPA Section 1005. These courts issued injunctions because they each felt that plaintiffs were likely to win. It's not helpful to use actions that are likely illegal<sup>30</sup> as examples of how to address disparate impact.

We have seen similar unintended consequences where regulation has limited insurance availability in Florida, New Jersey, and other states. I appreciate the authors mentioning a few cases that didn't work as hoped, but I think they underestimate the difficulty in calibrating government actions.

#### They then discuss actions which would create new biases.

The report states:

"A parallel could be drawn to the insurance practice of including fixed fees on low premium policies as a means of covering fixed costs, though they may not be explicitly utilized as an incentive to sell these policies. Could these fees impact insurance affordability for low-income and minority communities or come under regulatory scrutiny for such potential impacts?" [page 5]

Many costs are fixed per policy, such as the cost of Motor Vehicle Reports (MVR reports). Others are fixed for the company, such as policy issuance systems. Allocating a smaller share of these costs to specific policies does not seem terribly fair or equitable as they are explicit costs for writing an additional policy. While regulators are free to scrutinize any behavior, I don't think it's helpful for a report to suggest possible areas that regulators might look, if those areas don't warrant that attention.

#### Education vs. Advocacy

In the last year, there has been some controversy within the CAS about the CAS's position on DE&I. The CAS has said that it's work on DE&I is research and educational and each paper in the Research Paper Series on Race and Insurance states that it is an educational and research paper. More recently, the CAS, then published DE&I FAQ's<sup>31</sup> that included:

"The CAS DE&I strategy directly supports the Statement of Purpose described in Article II of the CAS Constitution and does not express any opinions with respect to questions of public interest.

- DE&I education helps us promote and maintain high standards of conduct and competence for members.
- Research and education on Race and Insurance Pricing supports our goal to advance the body of knowledge of actuarial science.
- Efforts to break down barriers to entry, promote diverse representation in the profession, and maintain accountability directly align with our purpose to increase

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<sup>30</sup> Page 170 of Foster, Maia and P.J. Austin, "Rattlesnakes, debt, and ARPA ARPA § 1005: The Existential Crisis of American Black Farmers", *Duke Law Journal Online*, Volume 71, June, 2022, [https://scholarship.law.duke.edu/cgi/viewcontent.cgi?article=1093&context=dlj\\_online](https://scholarship.law.duke.edu/cgi/viewcontent.cgi?article=1093&context=dlj_online) states that in June and July of 2021 (before the CAS released this report) all three courts found that the preferential treatment based on race was likely illegal.

<sup>31</sup> [https://www.casact.org/sites/default/files/2022-06/CAS\\_Diversity\\_Equity\\_Inclusion-FAQs.pdf](https://www.casact.org/sites/default/files/2022-06/CAS_Diversity_Equity_Inclusion-FAQs.pdf)

the awareness of actuarial science.

- All of these efforts support the continued growth of our profession and enhance the value of CAS membership.”

This made no mention of advocating for any view on pricing.

This neutral education position is at odds both with my comments above, the fact that the race and insurance webinars are the only free webinars, and previous statements by the CAS board and staff:

- A letter from the CAS President and the CEO<sup>32</sup> stating a key area of focus and goals is “to play a leading role in the discourse on potential racial bias in insurance pricing, among our membership as well as across the insurance industry and with the public”
- A CAS staff member introduced “Disparate Impact: The Impact of the Social Justice Movement on Insurance Rating”, a general session at the CAS 2021 Ratemaking, Product, and Modeling Seminar. In her introduction, she said “This past year, as you all know, we’ve seen a major focus on societal, system racism, especially in the United States, but around the world as well. And insurance is not immune to these societal problems, so that’s why it’s so important that we as actuaries and insurance professionals are not only aware of the issues but are the ones working to solve them. So, that’s why last fall the CAS adopted an approach to race and insurance pricing. The aim of this approach is to equip CAS members and our partners with the information they need to play a key role in this discussion on race and insurance, so rather than letting it fade away without concrete action; the CAS is employing leadership, collaboration, education, and research efforts to allow actuaries to drive solutions in a way that we hope benefits consumers and the industry”.<sup>33</sup>
- A board member of the CAS presented “CAS Race and Insurance Pricing Research - Defining Discrimination and Quantifying Disparate Impact in Insurance”<sup>34</sup> at the 2021 CAS Annual Meeting. In this presentation, she did a poll asking “What makes a fair society?” The two choices were “Equality: The same in quantity, size, degree, or value” and “Equity: Process **enhancements** that address **unnecessary inequalities** and increase the chance of equal outcomes in aggregate.” There was no option to advocate for doing nothing and letting the market address inequities. By using equal outcomes as the only alternative, this question was framed to make equity look more reasonable.

### Summary

The CAS has published a number of reports that are not persuasive or without controversy, and it would be better served by soliciting more views before advocating this or other solutions to societal challenges. This report reads more like a policy position where the AAA might educate the public and regulators and not an educational topic where the CAS is providing its membership with a greater understanding of the topic.

The only discussions and examples shared in these articles explore arguments that today’s differences in outcome are due to past discrimination and must be corrected. I have not found any

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<sup>32</sup> <https://www.casact.org/article/letter-cas-president-and-cas-ceo-cas-approach-race-and-insurance-pricing>

<sup>33</sup> Starting at 1:33 on

[https://www.pathlms.com/cas/events/2494/event\\_sections/12151/video\\_presentations/196530](https://www.pathlms.com/cas/events/2494/event_sections/12151/video_presentations/196530)

<sup>34</sup> Starting at 7:00 on [https://www.pathlms.com/cas/events/2759/video\\_presentations/219077](https://www.pathlms.com/cas/events/2759/video_presentations/219077)

discussion about why current pricing approaches may be appropriate. The CAS's continued push for equal outcomes is putting its members in an awkward place where it is difficult to charge actuarially sound rates (which goes against the very reason that the CAS was established in the first place).

Appendix – Correlation between Race and Age

Disparate impact can be the natural result of causes that we expect and want to include in our rating plan. An obvious example is age. Insurers have been rating on age for over 40 years with a number of good reasons. The distribution of age does vary by race. With that in mind, I have created the below example to illustrate the resulting disparate impact. For simplicity, we ignore gender and all other variables.

I chose to use age, because the data I wanted was publicly available. One might object to age, as it is not allowed in California, but a study by Lyn Hunstad found that eliminating age resulted in minimal price changes for most insureds<sup>35</sup>. This approach would work for other variables.

This table shows the US population by race and age<sup>36</sup>.

| age               | White non-Hispanic | White Hispanic | Black or African American | American Indian and Alaskan Native | Asian     | Native Hawaiian and other Pacific Islanders |
|-------------------|--------------------|----------------|---------------------------|------------------------------------|-----------|---|
| 15 to 19 years    | 11,727,645         | 4,552,527      | 3,629,576                 | 544,882                            | 1,502,392 | 129,543                                     |
| 20 to 24 years    | 12,182,810         | 4,381,958      | 3,711,080                 | 545,966                            | 1,605,068 | 126,506                                     |
| 25 to 29 years    | 13,180,288         | 4,452,946      | 4,074,195                 | 570,386                            | 1,903,177 | 137,470                                     |
| 30 to 34 years    | 12,870,554         | 4,129,550      | 3,491,971                 | 498,368                            | 1,937,647 | 129,025                                     |
| 35 to 39 years    | 12,580,824         | 4,073,908      | 3,191,741                 | 471,860                            | 1,844,486 | 121,561                                     |
| 40 to 44 years    | 11,565,831         | 3,762,135      | 2,876,265                 | 420,604                            | 1,648,402 | 100,629                                     |
| 45 to 49 years    | 12,379,248         | 3,482,415      | 2,848,927                 | 401,863                            | 1,586,375 | 89,610                                      |
| 50 to 54 years    | 13,203,847         | 3,026,428      | 2,774,299                 | 382,681                            | 1,342,190 | 81,832                                      |
| 55 to 59 years    | 15,064,699         | 2,603,398      | 2,818,384                 | 389,251                            | 1,243,423 | 78,000                                      |
| 60 to 64 years    | 14,791,372         | 2,038,620      | 2,505,318                 | 339,797                            | 1,103,768 | 63,492                                      |
| 65 to 69 years    | 12,989,524         | 1,508,591      | 1,933,422                 | 259,813                            | 918,598   | 47,598                                      |
| 70 to 74 years    | 10,799,519         | 1,092,716      | 1,367,544                 | 188,767                            | 691,202   | 34,672                                      |
| 75 to 79 years    | 7,540,542          | 725,148        | 883,250                   | 118,627                            | 456,186   | 21,496                                      |
| 80 to 84 years    | 4,926,541          | 491,941        | 568,290                   | 71,314                             | 302,482   | 13,304                                      |
| 85 years and over | 5,253,844          | 478,035        | 542,174                   | 63,804                             | 309,071   | 12,656                                      |

We assume that the 50% of people drive from 15 to 19 years, 80% from 20 to 24 years, 90% from 25 to 69 years, 80% from 70 to 74 years, 70% from 75 to 79 years, 60% from 80 to 84 years, and 30% for 85 and over<sup>37</sup>.

<sup>35</sup> <http://www.insurance.ca.gov/0400-news/0200-studies-reports/0600-research-studies/auto-policy-studies/#OAE>

<sup>36</sup> <https://www2.census.gov/programs-surveys/popest/tables/2010-2019/national/asrh/nc-est2019-asr5h.xlsx>. I use the same names as the census bureau for race.

<sup>37</sup> I think that that these are reasonable numbers, but I'm open to others. While they affect the magnitude of our answer, the disparate impact will still show up with other numbers.

We also assume the following price relativities<sup>38</sup>.

| age buckets       | relativities |
|-------------------|--------------|
| 15 to 19 years    | 3.500        |
| 20 to 24 years    | 1.800        |
| 25 to 29 years    | 1.235        |
| 30 to 34 years    | 1.115        |
| 35 to 39 years    | 1.100        |
| 40 to 44 years    | 1.080        |
| 45 to 49 years    | 1.045        |
| 50 to 54 years    | 1.010        |
| 55 to 59 years    | 1.000        |
| 60 to 64 years    | 1.015        |
| 65 to 69 years    | 1.060        |
| 70 to 74 years    | 1.145        |
| 75 to 79 years    | 1.290        |
| 80 to 84 years    | 1.390        |
| 85 years and over | 1.400        |

Using this information, we find the following relativities for the average price by race:

| White non-Hispanic | White Hispanic | Black or African American | American Indian and Alaskan Native | Asian | Native Hawaiian and other Pacific Islanders |
|--------------------|----------------|---------------------------|------------------------------------|-------|---|
| 1.00               | 1.09           | 1.07                      | 1.08                               | 1.04  | 1.09  |

Here, we see that an effect we all believe is true, driver age, will result in disparate impact because the mix of driver ages is different by race. We should expect and accept this disparate impact, given that it is consistent with our loss experience over the last 40 years and our observations that teenagers often do a poor job of risk assessment and after a certain age, reflexes decline.

In light of this simple example, I think that we should be hesitant to try to remove disparate impact. It is a complex problem, and many ideas that we are discussing are simple and wrong. Age is the easiest trait to find public data, but I suspect it's not the only one where the distribution differs by race. For example, the mix of people who live in a city or even the mix who have driver's license is a poor proxy for the number who receive moving violations.

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<sup>38</sup> This is based on <https://www.thezebra.com/auto-insurance/driver/age/car-insurance-40-year-olds/>, <https://www.valuepenguin.com/how-age-affects-auto-insurance-costs>, and <https://www.nerdwallet.com/article/insurance/car-insurance-rates-age-gender>.