

Credit-Based Insurance Scoring

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Abstract

Insurance industry advocates and consumer critics have sparred over using credit-based information to rate personal lines insurance. Yet consumer knowledge, attitudes, and opinions on the subject remain largely unexamined. This study surveyed over 1200 Iowa consumers on their knowledge of the practice, their beliefs about its efficacy, and the fairness of its use. We discovered that consumers are generally uninformed or misinformed about credit-based insurance scores generally and are not convinced that credit scores are valid predictors of the tendency to file insurance claims. Further, they believe that using credit information to determine insurance eligibility and rates is unfair.

Key Words: Insurance scoring, Insurance eligibility, Insurance rates

1. Introduction And Literature Review

Using credit scores to determine eligibility and price of insurance is a widely used, though not well understood and hence a controversial practice. Most consumers are somewhat familiar with the use of credit history and credit scores in the evaluation of a consumer’s credit worthiness to secure a loan. On the other hand, most are not at all familiar with the use of credit history to evaluate both access to, and the rates paid by consumers for auto and homeowner insurance. While both use credit histories, the credit items examined and analyzed are not necessarily the same in both cases. To make matters even more confusing for consumers, the purpose of credit-based insurance scoring is not to make sure that the insured pays her premium which would make it a parallel practice with the financial concern about loan re-payment. Instead, the credit history is used an underwriting supplement to assess the risk of the insured’s claim filing behavior. Most insurance companies believe that an individual with a low credit-based insurance score has a greater propensity to file an insurance claim.¹

1. *The following organizations have defended the fairness of insurance credit based scoring: National Association of Mutual Insurance Companies, Property and Casualty Insurers, Insurance Information Institute. The list is not meant to be exhaustive.*

2. *The following organizations have questioned the fairness of insurance credit based scoring in whole or in part: Center for Economic Justice, Consumer Federation of America, National Consumer Law Center, National Council of La Raza, National Fair Housing Alliance, Consumers Union of U.S., Inc. The list is not meant to be exhaustive.*

Consumer advocates, some state legislators, and some state insurance regulators believe that this is not true (Cruise 2003). Several consumer groups want states to ban the use of credit scores in setting premiums for auto and homeowner insurance.²

They assert that the use of credit scores discriminates against low-income people and some minorities because their scores tend to be lower (McQueen 2009; PR Newswire Association LLC 2007). Insurers reply that credit behavior is strongly correlated with the tendency to file claims. Other opponents of the use of credit histories charge that the credit history records are full of errors and misinformation.³ Advocates respond by citing the peripheral nature of most of the errors, on-going attempts to correct them, and methodological problems with these studies.

The authors looked at two streams of literature in preparing their research. From a preliminary review of news coverage and popular press articles, the authors identified that one of the key questions at the center of the debate revolved around whether the use of consumer credit behavior actually predicts the likelihood of claim filing behavior. Our first stream was to examine the research on the actual practice of using credit histories as part of the rate setting in personal lines insurance. We reviewed several research studies regarding the efficacy of the use of credit histories in predicting loss.

1. The 2003 EPIC Actuaries study, *The Relationship of Credit-Based Scores to Private Passenger Automobile Insurance Loss Propensity*, reviewed more than 2.7 million auto policies (Miller and Smith 2003).
2. Also in 2003 at the request of the National Association of Insurance Commissioners (NAIC), the American Academy of Actuaries evaluated four studies on insurance credit scoring. The studies were:
 - a) *The Impact of Personal Insurance Credit History on Loss Performance in Personal Lines* by James E. Monaghan (2000) (Government Accountability Office 2005).
 - b) *Insurance Scoring in Personal Automobile Insurance - Breaking the Silence*, by Conning & Company (2001) (Government Accountability Office 2005).
 - c) *Predictiveness of Credit History for Insurance Loss Ratio Relativities* by Fair, Isaac (1999) (Government Accountability Office 2005).
 - d) *Use of Credit Reports in Underwriting* by the Commonwealth of Virginia, State Corporation Commission, Bureau of Insurance (1999) (Government Accountability Office 2005).
3. The 2004 Texas Department of Insurance Study, *Use of Credit Information by Insurers in Texas: The Multivariate Analysis*, examined hundreds of scores and rating factors for over two million auto and homeowners' policies (Texas Department of Insurance 2004).
4. The 2007 Federal Trade Commission study, *Credit-based Insurance Scores: Impacts on Consumers of Automobile Insurance* that examined more than two million auto policies (Federal Trade Commission 2007).
5. Finally, the authors examined the study by Peter Wu and James Guszczka, *Does Credit Scoring Really Explain Insurance Losses? Multivariate Analysis from a Data Mining Point of View* (Wu, et al. 2003). Wu and Guszczka reviewed the prior findings of two studies: Tillinghast's *Credit Reports and Insurance Underwriting*, NAIC White Papers, 1997 and James Monaghan's *The Impact of Personal Credit History on Loss Performance in Personal Lines*, CAS Forum, Causality Actuarial Society, 2000 in light of their own research using multivariate analysis and data mining.

The authors also examined insurance commissioners' reports from states that have filed legal briefs against the use of credit scoring by insurance companies. The states have contended that some insurance companies violate the Federal Fair Credit Reporting Act if they do not send consumers adverse action notices when their rates are affected by their credit scores (Total Lawyers 2009). These actions by the states suggest that the use of credit scores in the determination of eligibility and rates are considered unfair.

3. (Consumer Federation of America and National Credit Reporting Association 2002)

The second literature stream focused on consumer surveys related to credit-based insurance scoring. Unfortunately, we could not locate any consumer studies that directly addressed questions about insured's knowledge and opinions regarding credit-based insurance scoring. Nonetheless, the authors did review studies of consumers' knowledge and opinions about credit scoring as it is applied to financial transactions such as securing a loan. Specifically, we examined the following:

1. Personal Marketing Research. (2009). *Credit scores survey data*, [Data file].
2. Government Accountability Office. (2005). *Credit reporting literacy: Consumers understood the basics but could benefit from targeted educational efforts*.
3. Federal Trade Commission. (2007). *Credit-based insurance scores: Impacts on consumers of automobile insurance*
4. Consumer Federation of America and National Credit Reporting Association. (2002). *Credit score accuracy and implications for consumers*
5. Consumer Federation of America and Providian. (2005, September 20). *Consumer understanding and access to credit scores improves over the last year but still insufficient, annual survey finds*.

From these diverse government and academic studies, we developed three research questions:

1. What do Iowans know about credit-based insurance scoring generally?
2. Do Iowans believe that credit-based insurance scores are valid predictors of insurance claims?
3. Do Iowans believe that using credit information to determine insurance eligibility and rates is fair?

2. Methodology

To answer these questions, we created a survey of 39 questions (including demographics) and distributed it to a randomized, cross-sectional sample of Iowans over 18 years of age. A pilot survey was conducted using a sample size of 96 respondents to establish validity of the instrument. Reliability was checked via coefficient alpha = 0.687. This is a reasonable level.

Convergent validity addresses the association between the responses to the instrument's questions and that of a global question. To address this, the averages of the relevant feeder questions were matched against their respective global questions. The responses are expected to be consistent. The overall correspondence can be measured. The means for both global questions and the means for the average questions are all within the "agree" range. This indicates strong support for convergent validity.

Concurrent validity assesses whether the scores correlate with other results. This was ascertained through the use of a multi-trait–multi-method approach utilizing the data set from a different study (O'Leary, et al. 2009). Equivalent questions between the surveys were checked for results. Through the application of a chi-square goodness-of-fit test, the responses were found to match quite closely (p -value = 0.000). These data were gathered across two different groups: consumers and insurance professionals. To ensure that there is no problem of measurement equivalence, a confirmatory factor analysis was run. It showed a single factor for the questions. Concurrent validity is established.

Discriminant validity ascertains whether a measure is unique, and not a reflection of another variable. Correlations were predictably low among the variables. There is no multicollinearity present within the results.

Content (face) validity was established qualitatively. The pilot survey resulted in the revision and elimination of some questions. Format and scales were similarly affected and revised accordingly. The instrument appears to measure that which it was designed to measure.

Major content of this study includes sections on automobile insurance, homeowner insurance, demographics, and a section covering the use of credit scores. Three groups are identified via deliberate design: Knowledge; Predictor; Fairness.

Using a combination of telephone and Internet approaches, we distributed the final survey and received a total of 1,240 complete responses. Data sources included: MarketTools, Inc. (Zoomerang) (Sparandara 2009), Personal Market Research (PMR) (Personal Marketing Research 2009), and a supplemental survey of insurance agents that is part of a continuing education study (O'Leary, et al. 2009).

We received a total of 1,306 responses, of which 1,240 were usable: 859 from Zoomerang and 381 from PMR. We removed surveys with no ZIP code or an out-of-state one.

As our survey was a sample, as opposed to a census, the possibility of sampling error is always present. To minimize this, we have established confidence limits of 95 percent around any estimate that we have provided. This means we are 95 percent confident that any sample we might have obtained would have included the values we would have obtained had we taken a census. For the entire study, the margin of error = 2.6%.

Chi-square goodness of fit tests were used on questions 30 - 39 to determine whether the demographics of the survey matched those of the State of Iowa. These tests were also used for question 5 to ascertain whether male and female respondents answered similarly.

A two-way analysis of variance (ANOVA) was conducted for the questions where this technique was applicable (questions 11 and 14). As a confirmation, the non-parametric Wilcoxon matched-pair signed-rank test of differences was applied.

3. Results

Synopses are provided here. Detailed development of these results is in the Discussion section below:

Research question #1: What do consumers know about credit-based insurance scoring generally? Only 9% of respondents believe that insurance companies use credit scores as an indicator of a tendency to file claims.

Research Question #2: Do consumers believe that credit-based insurance scores are valid predictors of insurance claims? A majority (55%) of respondents disagree that credit scores are good predictors of the tendency to file claims.

Research Question #3: Do consumers believe that using credit information to determine insurance eligibility and rates is fair? When asked on a personal basis if their own personal credit score should affect their ability to purchase insurance or the rates they themselves were charged, the answers were overwhelmingly “No.” at 71% When asked similar questions on an impersonal basis, the results still showed “No,” but at a slight smaller rate of 65%. Respondents seem to think that credit scores should have no bearing on their ability to purchase insurance, nor should credit scores have any relevance to the rates charged.

4. Discussion

Research Question #1

What do consumers know about credit-based insurance scoring generally?

Table 1: Question 5: Which of the following best describes insurance companies' use of credit score? Select ONE only.

Summary	Count
Predicts the likelihood of risky behavior	459
Predicts the likelihood that a person will not be able to pay for insurance	360
Predicts the likelihood that a person will file an auto or homeowners' insurance claim	108
Predicts the likelihood that a person will file false auto or homeowners' insurance claims	65
Don't know	248

“Predicts the likelihood that a person will file an auto or homeowners’ insurance claim” is the correct answer. Yet, only 9% (108 of 1240) of the respondents chose the right answer. Now some may argue that if it predicts claim-filing behavior then it predicts the likelihood of risky behavior. That may be a plausible inference (and we will use that inference later in the study for another reason) but there are other possible explanations for the claim filing. The insurance companies claim only that it predicts the likelihood of filing a claim. We also tried to get at Iowa consumer’s knowledge of the importance of credit scoring with Question 11.

Table 2: Question 11: A person's auto insurance premium IS based primarily on their: RANK TOP THREE by selecting 1, 2 and 3 next to them

Summary	Weighted
Age	2,508
Gender	1,133
History of auto accidents and/or moving violations	2,756
Credit score	594
Number of miles driven annually	991
Other	251

First choice is multiplied by 3; second choice is multiplied by 2; and third choice is counted. The intention of the weighting is to give credibility to the respondents' choices relative to their perception of importance. The top three choices were history of auto accidents and or/moving violations, age and gender. Credit score was a distant fifth.

The responses to both of these questions indicate that the vast majority of Iowa consumers do not know or understand the role that their credit history plays in the rates they pay for personal lines insurance. This is a dismal state of affairs for consumers and a problem that needs to be addressed quickly and decisively. We make some suggestions on how this might be done in the Conclusions section of the paper.

To make a quick comparison with their knowledge of the role of credit history in financial matters, we asked Question 4.

Table 3: Question 4: To your knowledge, which of the following does a credit score MAINLY indicate?

RANK TOP THREE	
Summary	Weighted
Knowledge of consumer credit	1,026
Attitude toward consumer credit	710
Amount of consumer debt	1,969
Risk of not repaying a loan	1,980
Financial resources to pay back loans	1,515
Don't know	347

Again, the scores for question 4 are weighted using the same method mentioned above. Here the top answers are the risk of not repaying a loan, the amount of consumer debt and the financial resources to pay back the loans. Generally, consumers have much stronger understanding of the use of credit scores in financial matters than they do in comparison to their use in insurance rating. Although there is room for improvement in this area, it does suggest that all of the attention on credit scores in the mass media seems to have a positive effect. We will return to this point in our conclusion section.

Research Question #2

Do consumers believe that credit scores are valid predictors of risky behavior and insurance claims? We asked this in a very direct way with Question 10.

Table 4: Question 10: A person's credit score is a good predictor of how likely they are to file an auto or homeowners' insurance claim.

Choice	Count	Percent
Agree	174	14%
Disagree	686	55%
Neutral	380	31%

Only 14% of the respondents agreed with the correct answer. The respondents in general do not believe in the predictive capabilities of the credit scoring. Contrary to consumers' beliefs, there is extremely strong evidence that the incorporation of the use of credit history increases the predictability of claims behavior. A brief review is all we need for our purposes here. Let's begin with three of the most widely known and publicized studies.

The 2003 EPIC Actuaries study found that credit based insurance scores are strongly related to an insured's likelihood of filing a claim, and that the use of the scores added significant accuracy to the risk assessment process. Further, these scores measured risk not previously measured by other known rating factors and that they were among the top predictors of risk, outperforming more traditional underwriting factors. The 2004 Texas Department of Insurance study found that for auto and homeowners, credit score was related to claim experience even after considering other commonly used rating variables (Texas Department of Insurance 2004).

The 2007 Federal Trade Commission study found that credit based insurance scoring was an effective predictor of risk under automobile policies, and that they were predictive of the number of claims and the total cost of those claims. In 2003, the American Academy of Actuaries evaluated four studies on insurance credit scoring and ". . . believe that credit history can be used effectively to differentiate between groups of policyholders. Therefore, they believe credit scoring is an effective tool in the underwriting and rating of personal lines of insurance." (Our emphasis) (Serio 2003, 11).

Wu and Guszczka (2003) note that the most important criticism raised is that there exists no convincing causal picture connecting poor credit history with high insurance loss potential [1-5].⁴ They reviewed the prior findings of two studies Tillinghast's *Credit Reports and Insurance Underwriting*, NAIC White Papers, 1997 and James Monaghan's *The Impact of Personal Credit History on Loss Performance in Personal Lines*, CAS Forum, Causality Actuarial Society, 2000 in light of their own research using multivariate analysis and data mining.

Ultimately, they analyzed hundreds of possible predictive variables that they created from the internal and external data sources. Their goal is to create as many variables as possible that might be related to insurance loss and profitability. These variables would represent as wide a range of characteristics as possible about each policyholder. Their analysis and study confirm what Tillinghast and Monaghan had found. Credit variables effectively predict insurance losses and add measurable and non-reductive predictive power to the other variables. They make it clear that these credit variables are undeniably predictive of the losses in the aggregate. "From a statistical and actuarial point of view, *it seems to us that the matter is settled: credit does bear a real relationship to insurance losses.*" (Our emphasis) (Wu, et al. 2003, 130).

Credit scoring is not a recent phenomenon. At the beginning of the 20th century, credit ratings were given as "high," "good," "fair," and "limited." The reason for deriving these ratings is because it was apparent then, as it is now, that a person's reputation for prompt payment of debts does not necessarily depend upon his estimated financial worth (Huebner 1916). In other words, risk is different from ability to pay. We think the current evidence for the predictive power of insurance credit scoring is overwhelming. Given the predictive power of insurance credit based scoring, consumers' opinions about the efficacy of this method are at odds with the available evidence. Because this does not reflect reality (Miller and Smith 2003; Mohl 2007; Rejda 2008), it suggests a need for consumer education (Government Accountability Office 2005). We will discuss this in more detail in the Conclusion section.

Research Question #3

Do consumers believe that using credit scores to determine insurance eligibility and rates is fair?

The question of fairness stands out as one of the most controversial aspects of the use of credit-based insurance scoring for rating and pricing of auto and homeowner's insurance. Most simply "Is it fair to use a consumer's credit history as part of the decision on both the acquisition and the rating of auto and homeowners insurance?"

We thought it would be important to use the survey to get a sense of the moral intuition of Iowa consumers about the fairness of the use of credit-based scoring for insurance rating.

Our approach to this difficult problem was to first ask a few questions about some standard insurance practices in rating auto and homeowner's insurance. We wanted some context to compare consumer responses to the practices surrounding credit-based insurance scoring.

We began by asking a question about the fairness of the practice of the rating of teenage drivers.

Table 5: Question 16: It is fair practice to charge law-abiding and low-risk individuals higher insurance rates simply because they are part of a group that engages in risky behavior (for example, teenage drivers)?

Choice	Count	Percent
Agree	367	30%
Disagree	570	46%
Neutral	303	24%

4. a. *Insurance Scoring in Personal Automobile Insurance – Breaking the Silence*, Conning Report, Conning, (2001).

b. *Insurers Battling Credit-Scoring*, National Underwriter, March 5th Issue, (2002).

c. *Insurers Lose a Credit Scoring Battle*, National Underwriter, February 21st Issue, (2002).

d. *Credit Reports and Insurance Underwriting*, NAIC White Papers, National Association of Insurance Commissioners, (1997).

e. Monaghan, J. E., *The Impact of Personal Credit History on Loss Performance in Personal Lines*, CAS Forum, Casualty Actuarial Society, (2000). (All as cited in Wu et al. 2003).

Frankly, we were surprised by this response because there has been little or no public controversy surrounding this practice. Fewer than one third of consumers think it fair to charge an individual a higher premium merely because he/she is a member of a group that engages in risky behavior. Almost half sees it as unfair.

The question gets at the issue of the fairness of ascribing to me, as an individual, the characteristics of the group of which I am a member. Further, in this case, it is a membership over which I have no control. Because I personally do not possess these characteristics, to ascribe them to me, and then to penalize me (with higher rates) because I belong to this group, may appear patently unfair. Indeed we might argue this is a classic example of bias and prejudice, i.e., because I am a young man, I am likely to engage risky behavior. In our sample, 46% saw this as unfair. Interestingly, this practice, which is universally accepted in insurance underwriting practice as “fair” because it is aimed at young people, would not be allowed if the group upon which it were based was one of race or ethnicity.

Pursuing consumers’ opinions of fairness further:

Table 6: Question 13: People with a higher likelihood of filing insurance claims should pay higher premiums

Choice	Count	Percent
Agree	568	46%
Disagree	296	24%
Neutral	376	30%

The results were almost the opposite. Is this an example of sheer inconsistency? Perhaps not. We think the difference might lie in the fact that in this case, respondents understood this to mean the higher likelihood of filing a claim was attributable to *the person as an individual and not a group member*. In such a case where a person as an individual would have a higher chance of filing a claim, then in the opinion of almost half the respondents, it is considered fair that a person pay a higher premium. This opinion is perfectly consistent with the answers to question 16. *The rates such people pay should be a function of his/her individual behavior, not some group characteristic.*

Although, we think it is worth remarking that still fewer than half the consumers agree that those with a higher likelihood of filing claims should pay higher premiums. This was also surprising. We think this might be understood as related to the phrase “higher likelihood.” This implies a projection into future behaviors. This person, however, has *not yet filed* a claim so he/she should not pay the higher rates. There may be a higher chance that he/she will file a claim, but there is also some likelihood that he/she will not file a claim. The objection to the fairness of this, we suggest, is based *on the projection of likelihood claim activity into the future.*

Understood in this way, the intuition of fairness, for these respondents, would be that the rate I am charged should be based on what *I as an individual have done*. It is unfair to attribute *all of the group characteristics* to me merely because I possess some of the group’s characteristics. It is also unfair to charge me rates based on *what I might do in the future* but have not yet done. It appears to us that these two intuitions are driving many of these responses.

The inferences above receive additional support when we analyze the responses to Question 14.

Table: 7 Question 14: A person’s auto insurance premium SHOULD BE based primarily on their:

RANK TOP THREE

Summary	Weighted
Age	2,051
Gender	625
History of auto accidents and/or moving violations	3,130
Credit score	390
Number of miles driven annually	1,427
Other	327

As we did before, the first choice is multiplied by 3; second choice is multiplied by 2; and third choice is counted. The intention of the weighting is to give credibility to the respondents’ choices relative to importance.

The history of auto accidents and violations is clearly the top choice in what consumers think ought to be the basis for rate setting. The use of the term ‘should’ or ‘ought’ suggests a values or ethical perspective.

This emphasis on the importance of past history in consumers' beliefs about rating also would incline us to believe that rating factors that predict the future would be viewed as unfair. It should be noted that these same intuitions would likely inform respondents' evaluation of the fairness of credit-based insurance scoring.

We are now ready to turn to the intuitions on the fairness of the use of credit scoring in securing and rating of auto and homeowners insurance. Let's begin with questions 17 and 7 that surveyed beliefs about auto insurance rates and credit scores.

Table 8: Question 17: People with poor credit scores should pay higher auto insurance rates

Choice	Count	Percent
Agree	144	12%
Disagree	802	65%
Neutral	294	24%

Table 9: Question 7: Do you think your personal credit score should affect the rates you pay for auto insurance?

Choice	Count	Percent
Yes	291	23%
No	878	71%
Don't know	71	6%

We have paired similar questions but one asks about the generic "people" and the other about the more personal "you." The surprising thing about this pair of responses is that higher numbers of consumers consider it fair to have the increased rates for lower credit scores when they applied it to themselves. We believe this explained by the fact that in question 17 the issue was poor credit scores mean higher rates, but in question 7 the issue was simply that credit scores would *affect your rates*. The difference being that in question 7, I might see that my rates would go down if I had a good credit score. However, the more important thing to notice is that in both cases the number opposing this practice is very high, 71% and 65%.

The numbers on homeowners' insurance ratings are remarkably similar to those regarding auto insurance. For purposes of the study, the results for auto insurance can stand as a proxy for homeowners as well.

The numbers change only slightly when considering credit scoring should affect the ability to buy auto or homeowners insurance. Whether we are referring to auto or homeowner's rates or the ability to buy either auto or homeowners, between 63 and 78 percent of consumers oppose the practice of using credit history. Why are these numbers so high? What causes people to see this practice as unfair?

We have already seen in our prior discussions about more traditional insurance rating that many hold that it is unfair to use information about one's past history as a basis for projection about whether one is likely to file a claim in the future. Additionally, we have seen that many people hold it is unfair to increase their rates based on a calculation of future likelihood of claim activity based on their membership in a particular demographic group. I should only be accountable for what actually has occurred and is attributable specifically to me.

Understanding these prior opinions on fairness helps us to better understand the reaction to insurance credit based scoring. Credit-based insurance scoring uses past behaviors and histories to project the likelihood I will file a future claim. As we saw earlier, there are strong opinions among many consumers that this is unfair. But the numbers rejecting this particular practice of credit scoring are higher and less ambiguous than when we were simply using past "information." In the prior cases the percentages finding it outright unfair and rejecting it were much smaller than in this case.

One explanation might be that because most people do not think that using an insured's credit history is predictive of claim filing behavior, then it stands to reason that they would find it unfair. To test that explanation, we isolated the minority of respondents who believe that credit scores accurately predict risky behavior and see what percent of that group believes is unfair. We isolated the single response to Q5: *Which of the following best describes insurance companies' use of credit score? We singled out those who answered "Predicts the likelihood of risky behavior."* This question was compared to the fairness questions (Q6 – Q9, Q13, Q16, Q17, Q28, and Q29). The expected answer for the 459 respondents is expected to be yes, or agreement with the premise of each question. This is not the case except for questions 13 and 29.

The coded mean for the fairness questions is 1.9693. This is very close to 2, indicating disagreement. Because the data are categorical, the modal response is substituted for the mean. The mode is *Disagree* or *No*. The use of a t-test would be inappropriate, again because the data are categorical; so we used a chi-square test to ascertain that this response was significantly different than the expected response of yes or agreement. It clearly is different with a *p*-value of 0.000. *Across all fairness questions, 53.9% of those who thought that credit history revealed a pattern of risky believe still held that the use of credit-based insurance scoring is unfair.* We believe this suggests strongly what we said before regarding consumers' objection to projections about future behaviors.

5. Conclusions And Recommendations

It is clear that consumers are misinformed first and foremost that their credit histories are being used to evaluate both their access to, and the prices they pay for, personal lines insurance. Only 9% knew this was happening. The fact that this practice became widespread over the last twenty years makes this finding even more remarkable. Additionally, consumers are misinformed about the efficacy of using credit histories to predict risk and the filing of future claims. This fact is well documented in a wide array of studies yet 55% of respondents do not believe it. Both of these findings speak to a lack of a serious attempt on the part of insurance companies to actively educate the public about their use of credit history in rating personal lines insurance. (Before beginning this study, none of three authors knew this was happening either)! Instead they have gone to extensive lengths to lobby state legislators to keep them from limiting or forbidding the use of this practice.

Consumer groups for their part have also not done a good job educating their members about the practice. Instead they also have been lobbying state legislators to encourage them to limit or forbid the practice. As a result, consumers remain largely ignorant of the practice. It seems clear from the survey data that active public service announcements, like the ones used to educate people about the meaning of their financial credit score, would be useful here as well. We think that some kind of joint program worked out between insurance industry trade groups and consumer advocates would serve the overall public better than battling behind the scenes in state capitals. The more consumers know about how the use of insurance based credit scores work and what specific actions they can take to make the process work to their benefit, then the more likely it will be that consumer will come to see the process as both fair and valuable.

A more in-depth analysis of the contentious issue of the fairness of the practice is beyond the scope of this paper both empirically and philosophically. We have reported our findings and made some reasonable inferences about what those findings might mean. This preliminary study has opened the way for others to conduct more empirical studies on people's beliefs about the fairness of this practice. Likewise, a serious philosophical analysis of the ethics of the practice should also be undertaken.

Finally, our conclusions can be generalized only to the State of Iowa; however, we think they may be valid elsewhere. So we urge other researchers to take up the issues in their states as we did in Iowa. This is a fertile and controversial field of study. It merits continued academic research.

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