On the ability of insurance performance scores to influence consumer behavior: Drawing lessons from research into credit scores.

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1 Overview

Economic theory is predicated on consumers behaving rationally; given more information people should make better choices. However, people do not always behave rationally, so the impact of good information on decision-making is not certain. In the realm of personal finance, however, knowledge does seem to translate to rational action. When people have more knowledge about their financial choices, or about the likely results of their financial actions, they make (or can recognize) decisions that result in better outcomes. In particular, people with access to good information about their credit score make good decisions about managing their credit. Given the close relationship between credit risk and insurance risk, it seems clear that providing access to a score comprising an insured's aggregated analysis of insurance performance (that is, premiums vs. losses) will improve risk management while enhancing claim performance.

2 Introduction

The rational relationship between knowledge and behavior in consumers is the foundation of behavioral economic theory – if people know more about the choices available to them, they will make better choices. This compelling truth is qualified by two distinct difficulties: first, that people may have access to knowledge but fail to use it optimally due to the difficulty of doing so, and, second, that people might have failed to act on their knowledge for reasons relating to their personality or other stable traits.

In evaluating the possibility that the disclosure of an insurance scoring system could cause consumers to change their behavior in ways relevant to reducing their insurance risk, similar systems must be identified and studied. Given the very close relationship between insurance and credit risk, it is natural to consider the impact of the credit scoring system on consumer behavior. The central question this paper seeks to answer, then, is this: do people use their FICO (or similar) credit scores to alter their behavior in such a manner as to actually increase these same scores? The answer is 'yes', but with the important caveat that exploitation of the score is far from guaranteed, and that education of both the consumer and the rating agencies appear to be required for their to be success. These lessons should carry over directly to the insurance industry.

3 The relationship between credit and insurance risk.

Conclusions about the possibility of an insurance scoring system's effectiveness in promoting behavioral changes ultimately depend on evidence of the effectiveness of credit ratings. This relationship is strengthened by evidence that credit and insurance risk are highly correlated, and reflect stable personality traits of individuals (Brockett & Golden, 2007). The association between risk in lending and risk in insurance has been known, and exploited, since the middle of last century; e.g., Tillman & Hobbs (1949; cited in Brockett & Golden, 2007) showed that the risk of a car crash was six times higher for those drivers with bad credit than it was for those with good credit. Brockett & Golden review two decades of biochemical and psychosocial research into both the correlates of insurance loss (e.g., drunk driving, speeding and accidents and their

relationship to thrill seeking or impulsivity) and of bad credit (where e.g. risk-tolerance is correlated with an over-use of credit cards). Their comprehensive review makes clear that, as they say, "a neurochemical and a psychological link has been found connecting risk taking propensity to economic preferences," (p35).

Meier & Sprenger (2006) offer another personality-trait level explanation of a potential link between risky behavior in a credit and in an insurance context. They examined the tendency for individuals to discount future rewards; people who are patient will discount future rewards or risks less (or more slowly) than will people who are impatient. Patience, so defined, is a stable personality trait. Meier & Sprenger found that, "controlling for disposable income and other individual characteristics, individuals who are less patient have lower credit scores and higher default rates." They found in addition that people who were inconsistent in their discounting (so that their ability to delay reward was highly context-dependent) not only had worse scores and default rates, but also had higher active borrowing levels.

The effectiveness of credit scoring in identifying individuals with risky behavior is clear. When this same information is made available to individuals, they may be able to reduce their own levels of risk. Certainly, one of the goals of legislation mandating availability of credit reports to consumers was to enable such behavioral change. Because of the close link between the psychosocial and biological foundations of behaviors that increase credit risk and those that increase insurance risk, the lessons learned from the availability of credit reports are highly relevant to an evaluation of insurance performance scores' potential effects on consumer behavior.

The primary basis for the possibility that financial knowledge can lead to better financial behavior (and similarly for insurance) is expressed succinctly by Perry (2008), in her analysis of the psychology of credit scores. She examined a large national survey sponsored by the Federal Home Loan Mortgage Corporation (Freddie Mac) which included questions aimed at assessing participants 'locus of control' for financial issues. As noted above, in order for a person to make use of information to adjust existing behavior, the person must view the change as within their grasp. That is, if an individual can maintain an internal locus of control, then they will be able to see their own actions

as responsible for their (changing) circumstances. Perry demonstrated just such a link in the realm of credit scores. She found that, on the one hand, individuals who had either more knowledge or greater internal locus-of-control were more likely to have higher credit scores. She also showed, critically, that, "the extent to which knowledge affects credit scores depends on whether an individual has an external vs. internal locus-of-control."

The psycho-social conditions that enable consumers to make good use of financial information are thus clearly potentially mutable personality traits. The critical remaining issue is whether education is capable of allowing people to grasp control of their finances in a way that will allow increased knowledge to translate into improved behavior.

4 The history of FICO scores and research into their effectiveness.

The effectiveness of credit scores is an area of active concern for government policy makers. The introduction of credit scores into the marketplace did not produce an obvious, instantaneous shift in behavior. This is quite probably due to the fact that the effect of credit scores is muted due to confusion and ignorance in the marketplace. It is clear that credit scores are not well understood by most consumers. As recently as (e.g.) 2009 the NY Times was running articles on how to interpret and improve the scores, and on the difference between credit *reports* and *scores* (Barrett, 2009). For example, people might believe that their rent payments count in their score, or that canceling old and unused credit cards would improve their score.

Soon after the FACT act passed in 2003, the GAO sponsored a mandated survey conducted in 2004. The results were the subject of analysis for several years, and were mixed (Lyons, Rachlis, & Scherpf, 2007). People in the GAO large, random sample had good knowledge that credit scores existed and that they were important, but much poorer knowledge of how they were used (by lenders) and, critically, what they contained. Lack of understanding of how the scores are composed clearly limits modification of behavior, as respondents were unclear about how behaviors could influence their credit scores.

Some of this difficulty is by design. Credit scoring methods are proprietary, and so even the most well informed consumer can be unknowingly mistaken about what the

scores contain. As Gross (2005) notes, FICO scores are limited in their capacity to produce behavioral change because they are intentionally opaque. Due to proprietary concerns, even the Federal Reserve is not informed as to the actual basis of FICO scores. As Gross says, "If we cannot see the scoring model, we cannot fully assess our own score (including how to improve it), and we cannot evaluate the scoring model itself to determine its fairness."

Lyons' et al.'s (2007) analysis of the GAO data was highly suggestive that this opacity is only limiting, and not preventing, knowledge of credit scores from altering behavior. At the time of the survey, actual credit scores were only available seven states. Survey respondents who merely lived in one of these states, and thus may have retrieved their scores, tended to have better knowledge of the nature of consumer credit. Importantly, then, the mere possibility of retrieving one's own credit score can lead to improved consumer credit knowledge. Thus, access to credit ratings and scores, and training in how to use that access, is quite likely to lead to positive changes both in consumer knowledge and behavior. The analysis of the effects of credit scores now focuses on the effectiveness of explicit instruction on the knowledge and behavior of consumers. The results of this analysis seem directly applicable to the question of the possible effectiveness of similar ratings and the disclosure of insurance performance scores.

5 Survey of effective training programs

The predominant forms of financial education training are programs focused on students in high school, college or even post-graduate school (Liu, McIntyre, Fields, & Summerville, 2009). Secondary are programs that focus on people in financial difficulty (e.g., in bankruptcy). Both of these sets of participants are less than ideal for demonstrating the effectiveness of credit scores on knowledge and behavior. The students are disengaged from what might seem an irrelevant task, and bankruptcy groups may contain a large number of low-income participants, who already may be behaving optimally (Block-Lieb, Gross & Wiener, 2001). However, on the plus side, financial education has much more demanding goals than simply increasing a consumer's rating of e.g. credit or insurance. The potential for information to lead to action certainly remains.

The evaluation of financial education programs has important policy implications, and so has attracted considerable interest. While one recent review (Collins & O'Rourke, 2009) concluded that financial education is promising, programs with stronger theoretical foundations are likely to be more successful, although field experiments (as opposed to simply surveys of existing programs) are needed to verify their success. In a similar vein, Williams (2007) suggested that despite any potential for successful financial training, the weight of public policy cannot be based on education alone. This same concern has been voiced by other researchers (e.g., Willis, 2008a,b).

Willis' concern is of special interest here. She identifies four significant obstacles to the ability of financial education to enable consumers to compete with suppliers of credit on an equal basis. These included (1) the essential asymmetry between the knowledge of buyers and sellers that is caused by the complexity and rate of change of financial products, (2) the fact that most consumers are not well skilled at the computations required to make use of basic financial facts, (3) the existence of strong cognitive biases that impact decision making in ways detrimental to its economic rationality, and (4) the far greater resourcing of the financial industry relative to financial educators in reaching consumers.

However, the possibility of good outcomes for consumers from increased information about insurance scores (relative to credit scores) should not be so quickly discounted. In particular, much of the negativity surrounding financial education focuses on its opacity, with the credit industry not being forthcoming about the details of credit scoring. If an insurance scoring system was to provide consumers with access to accurate and transparent information (e.g. simulation tools), better outcomes could be expected. Hathaway, & Khatiwada (2008), following their review of financial education research, offer the broad recommendation that "future programs be highly targeted towards a specific audience and area of financial activity (e.g. homeownership or credit card counseling, etc.), and that this training occurs just before the corresponding financial event (e.g. purchase of a home or use of a credit card, etc.)." This strongly suggests that access to an insurance performance score in immediate advance of a point of sale transaction between an insurance agent and insurance purchaser would be likely to maximally impact consumers.

The reasons for Hathaway & Khatiwada's recommendations are twofold: first, there is growing evidence that financial education programs can indeed change consumer knowledge. More importantly, there is clear evidence that well-designed programs can change consumer behavior in positive ways.

5.1 Changing knowledge

Lyons, et al. (2007) review of the GAO survey of 2004 is perhaps especially telling, based as it is on such a large sample. They break down respondents into categories that depend on their credit-consumption activities at times just prior to the survey. They find clear evidence that consumers for whom credit knowledge is relevant can benefit from even rudimentary financial education programs. As they say, there were marked increases in consumer knowledge for "were observed for having a mortgage or auto loan, having requested a credit report, having pulled one's credit score, and having disputed the contents of their credit report."

Gross, Ingham, & Matasar, R. (2005) report the results of teaching financial literacy to law students. While one would perhaps expect such students to already have high levels of financial knowledge, in fact this was not so. The training, in the context of a for-credit, mandatory course, had what Gross, et al. term 'measurable benefits'. Gross (2005) views programs like this one as a strong palliative in the combat against financial ignorance, but warns they are no panacea. However, it might be premature to draw too strong a conclusion from the relatively modest benefits of school-based training programs when strong evidence is available for the positive and lasting effects of financial training on consumer behavior.

5.2 Changing behavior

For people to change their behavior, they must have not just knowledge but motivation (Ajzen, 1991). They must see their behavior as open to change, and see that the change will have a meaningful impact on their lives (Busseri, Lefcourt & Kerton, 1998).

One of the largest efforts in financial education, and potentially most relevant to the utility of insurance scores, is the financial counseling offered to borrowers by the National Foundation for Credit Counseling. Staten, Elliehausen, & Lundquist (2002)

describe the effects of this training on a subset of the over 1,000,000 borrowers in who received counseling from 1997-2000 (before credit scores were available). They show clearly that the NFCC methodology of training had profound and lasting impact. In particular, borrowers took actions that actually increased their credit profiles (as measured by their Emprica bank card risk scores), up to 36% for the initially lowest-performing individuals. In perhaps the most telling assessment of behavioral change, they found that most clients experienced significantly fewer delinquencies up to two years after the training than did an appropriately matched comparison group who had no such training.

In an analysis of the effect of a separate, individualized credit counseling program, Elliehausen, Lundquist & Staten (2007) again found evidence for lasting, positive outcomes. Their study used credit bureau data to objectively evaluate credit performance before, and three years after, training of some 8,000 clients in 1997. They found that, in comparison to a group of borrowers who did not receive the counseling, counseled borrowers showed a clear positive change in their credit profiles. They conclude that, all factors being equal, "counseling itself was associated with substantial reductions in debt and account usage, and appeared to provide the greatest benefit to those borrowers who had the least ability to handle credit prior to counseling."

Hilgert, Hogarth & Beverly (2003) undertook a comparative review of the University of Michigan's monthly Surveys of Consumers (conducted in November and December 2001) together with the Federal Reserve's Survey of Consumer Finances (SCF) over the same period. Their goal was explicitly to "examine the relationship between knowledge and behavior while holding other variables constant." Their method was to attempt to predict a household's credit behavior – as measured by a credit management index – given its financial knowledge level (as indexed by a credit management knowledge score). Hilgert, et al. demonstrated a strong, significant, relationship between the two measures. For instance, they report that "a household with a credit management knowledge score of 70 had a 48 percent chance of being classified in the high credit management index group. But if the same household had received a credit management knowledge score of 90 instead of 70, its chances of being in the high credit management

index group increased to 54 percent." This suggests that being more knowledgeable can, in and of itself, lead to better credit-worthiness behaviors.

Perhaps the most revealing study of the effects of financial training is Bell, Gorin & Hogarth's (2009) study of a program that focused on training active-duty soldiers. Her results are striking; soldiers with financial education engaged in both more credit-building activities and fewer risky behaviors. Their positive activities included saving regularly, participating in retirement planning programs, paying off their credit cards, and reporting longer planning horizons. The risky activities they reduced included drawing overdrafts on their bank accounts, and allowing their bill payments to be made late.

6 Conclusions

Insurance risk is closely related to credit risk. Credit risk is a function of a set of behaviors that are collected and codified in a credit score. The knowledge of the credit score can lead to reduction in the risky behaviors, presumably at least in part by allowing consumers to move finances from an external to an internal locus-of-control. To enable this movement individuals must have ready access to their scores, they must understand how the scores are generated, and they must have the motivation to change and the capacity to do so. The same lessons hold for insurance scores. With the availability of a real time aggregated analysis of insurance performance, the potential for substantial reduction in both risky and score-increasing behavior is significant.

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