

Abstract in response to Call For Papers - Credit Scoring & Credit Control X

Using Monte Carlo simulation to investigate the link between changes in bad debt as a result of changes in credit scorecard performance as measured by the Gini coefficient.

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The Gini coefficient is widely used to measure the discriminatory power of credit scorecards at build time, but also for ongoing performance monitoring. A common question that we come across is 'If we invest in a new scorecard we would expect a certain uplift in Gini. How will this equate to bad debt savings'?

In this paper I will present a method that uses Monte Carlo simulation techniques to take a scorecard where we have calculated the Gini on a population of known outcome, and then model what the bad-rate curve might plausibly look like as the Gini increases, keeping the number of applications at each score unchanged. From this we can estimate our bad debt savings. This is a very quick technique that will be useful in developing a business case or producing impact analyses.

I will give a quick overview of the Gini coefficient, in particular how to calculate using concordant and discordant pairs. I will then explain how to simulate increasing Gini by randomly switching pairs of good and bad to increase Gini. A validation of the technique will also be presented whereby I start off with a scorecard with the same score distribution (in terms of applicants), but a zero Gini. This Gini will then be iteratively increased until the Gini of the operational card is reached, The score distributions (in terms of goods and bads) of the actual and simulated scorecards are then compared. Having established that the technique is valid, I will then present findings of simulating increasing Gini using the score distribution of our actual scorecard as a starting point. From this the bad debt savings can be estimated.

Finally I will make some general observations regarding use of Gini as a measurement tool that I have come across as a result of these experiments.