These are the times that try one's [machine learning models]

To be fair, periods of rapid economic change try all credit scoring models, but experienced analysts using traditional methods have been through cycles before. Admittedly, no one has been through a pandemic with their credit scores before, but a few words of caution are warranted for those newly minted machine learning models.

"Big Data" has been the sexiest term in modeling of the last few years. The COVID-19 Recession is a reminder that we only have big data along the dimension of number of accounts and types of observation. We do not have big data relative to the economic cycle. With traditional scoring methods, we have accumulated experience on what factors are stable through economic cycles. With machine learning, we have fewer insights on what factors are being used, but we know that those factors have not been observed under different economic conditions. The more finely tuned those models are to consumer behavior in one economic environment, the more susceptible the models are to being wrong in other environments.

This may all seem obvious so far, but let me point out something that is less obvious. In any scoring model trained over a few years data, economic trends and consumer trends are easily confused by a model. If your model includes only demographic and behavior factors, macroeconomic trends will be absorbed into the coefficients for scoring factors. If you put both macroeconomic factors and scoring factors side by side during model development, multicolinearity and spurious correlations also make the result unreliable. In machine learning models, this is exacerbated, because linear separability is gone so you cannot adjust the models to incorporate expert judgment.

Also be vary wary of alternative data sources in your scores at times like this. Most of those sources have only become available since the 2009 recession. We didn't even have Google Trends through the last recession. So, we will see many behavioral shifts never observed before. That is useful for future model development, but highly disruptive in the moment.

We actually published a paper last year on how to solve this problem, but the topic for today is how to work with the model you have. Monitoring. Plain and simple. Macroeconomic transition points like this make model risk management critical. Score-to-odds charts to make sure your scores are still rank ordering risk are important, but if your outcome variable was a one or two year default horizon, you can't wait that long to assess risk.

Start tracking monthly or even weekly default rates by score band. Yes, they will all trend worse, but if you're lucky, the deterioration will be proportional across score bands. Also pay attention to shifts by demographic segments. In general, this is an important moment to compare observed input values to the distributions upon which the model was trained. As the COVID-19 recession ravages specific industries or geographies in waves, that can break the distributional assumptions of your models. You know all that money you invested in a BI tool? Time to get some return.