

# Study of car lenders shows AI could mitigate bias and open lending to marginalized customers

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Lenders operating in indirect retail channels such as car dealerships could improve their profit margins by over a third by using artificial

intelligence to support the retailers' salespeople rather than rely on salespeople alone to price loans at their discretion, new research published in the *European Journal of Marketing* from the University of Bath shows.

The study of lending at car dealerships in Canada also demonstrated that using AI and centralized pricing at company headquarters could potentially mitigate human bias and improve access to loans to people with traditionally low credit approval rates. Such people might otherwise have been refused credit due to unoptimized loan pricing decisions made by salespeople.

"Essentially we looked at whether analytics-based models were better at pricing loans for the average [customer](#) than salespeople and found that, as long as a company has access to rich data on their customers, AI models can pinpoint price sensitivity better than people can," said Dr. Christopher Amaral of the University's School of Management.

"Many companies have such data but are not making best use of it. But shifting to discriminatory—or tailored—pricing by AI has the potential to raise profits significantly. Equally importantly, it could open up lending to people who have struggled to get credit in the past because analytics-based approaches can pinpoint pricing that will work for them and also safeguard a balance of profit and risk for a lender," Dr. Amaral said.

The study, "[The impact of discriminatory pricing based on customer risk: an empirical investigation using indirect lending through retail networks.](#)" showed that using analytics-driven pricing based on customer risk, and optimizing salespeople's commissions, could increase profits by 34%.

The study's co-author, Dr. Ceren Kolsarici from Smith School of

Business at Queen's University in Canada, noted that discriminatory pricing—setting the price of a loan according to a customer's credit score for example—was not legal in all countries and that many nations specified that loans had to be offered at the same price to any consumer.

"Also, a lot of financial institutions have been wary of embracing AI and discriminatory pricing, possibly because of fears of a customer backlash over AI bias, which is a well-reported phenomenon. However, I would argue that using AI that is based on well understood and transparent machine learning, rather than salesforce pricing delegation, and 'clean' data that excludes demographics such as age, gender or race, has the potential to mitigate human and AI bias in such decisions," she said.

Dr. Amaral said the study, in an effort to reduce bias, focused on factors such as consumer credit scores, loan-to-value ratios, types of vehicle being financed, and the price of vehicle. It was also based on an average customer—one with a reasonable [credit](#) score rather than at the extremes of ratings.

The study focused on the business of car loans but Dr. Amaral said the findings could apply to any lending where an asset is involved, such as white goods.

"However, deploying in sectors where [personal relationships](#) were key to transactions and [pricing](#), such as business-to-business, would likely be of more limited benefit," he said.

**More information:** Christopher Amaral et al, The impact of discriminatory pricing based on customer risk: an empirical investigation using indirect lending through retail networks, *European Journal of Marketing* (2023). [DOI: 10.1108/EJM-05-2021-0377](https://doi.org/10.1108/EJM-05-2021-0377)

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