Seminario de Microeconomía Aplicada - Unpacking the Black Box: Regulating Algorithmic Decisions

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Abstract: What should regulators of complex algorithms regulate? We propose a model of oversight over 'black-box' algorithms used in high-stakes applications such as lending, medical testing, or hiring. In our model, a regulator is limited in how much she can learn about a black-box model deployed by an agent with misaligned preferences. The regulator faces two choices: first, whether to allow for the use of complex algorithms; and second, which key properties of algorithms to regulate. We show that limiting agents to algorithms that are simple enough to be fully transparent is inefficient as long as the misalignment is limited and complex algorithms have sufficiently better performance than simple ones. Allowing for complex algorithms can improve welfare, but the gains depend on how the regulator regulates them. Regulation that focuses on the overall average behavior of algorithms, for example based on standard explainer tools, will generally be inefficient. Targeted regulation that focuses on the source of incentive misalignment, e.g., excess false positives or racial disparities, can provide second-best solutions. We provide empirical support for our theoretical findings using an application in consumer lending, where we document that complex models regulated based on context-specific explanation tools outperform simple, fully transparent models. This gain from complex models represents a Pareto improvement across our empirical applications that is preferred both by the lender and from the perspective of the financial regulator.

About the exhibitor: Scott Nelson's research focuses on consumer credit markets, in particular how regulation interacts with information asymmetries and market structure, and how consumers make choices about borrowing, deleveraging, and default. His research uses a range of data sources including credit reports, credit card account data, surveys, court filings, and employment data together with models of consumer and firm behavior to understand the drivers of credit market outcomes. His research on the US credit card market was awarded the AQR Top Finance Graduate Award in 2018. Prior to joining Booth, Nelson spent a post-doctoral year with the Consumer Financial Protection Bureau (CFPB) and Princeton University; he has also been a research fellow with the City of Boston Office of Financial Empowerment, a visiting graduate fellow with the Federal Reserve Bank of Boston, and a National Science Foundation graduate research fellow. Nelson earned a PhD in economics from Massachusetts Institute of Technology (MIT). Before his studies at MIT, Nelson worked as a research assistant at the Federal Reserve Bank of New York and at Innovations for Poverty Action, where he was a member of the US Household Finance Initiative. He received a BA (summa cum laude) in economics and mathematics from Yale College.

Exposure time: 1 hora y 30 minutos.

Fuente: https://www.banrep.gov.co/en/seminario-microeconomia-aplicada-unpacking-black-box-regulating-algorithmic-decisions