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OPTIMISATION TECHNOLOGIES
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OPTIMA SEMINAR SERIES

MARKET SEGMENTATION IN ONLINE PLATFORMS

We study ranking policies in a stylised trial-offer marketplace model, in which a single firm offers multiple products, with consumers who express heterogeneous preferences. Consumer trials are influenced by past purchases, the inherent appeal of the products, and the ranking of each product. The platform owner needs to devise a ranking policy to display the products to maximize the number of purchases and decide whether to display the number of past purchases. The model attempts to understand the impact of market segmentation in a trial- offer market with position bias and social influence. Consumer choices are based on a very general choice model known as the mixed multinomial logit model, which embeds product appeal, ranking, and past purchases into the taste parameters. We analyse the long-term dynamics of this highly complex stochastic model and quantify the expected benefits of market segmentation and the value of social influence. When past purchases are displayed, consumer heterogeneity makes buyers try the sub-optimal products, reducing the overall sales rate. We show that consumer heterogeneity makes the ranking problem NP-hard. We analyse the benefits of market segmentation. We find tight bounds to the expected benefits of offering a distinct ranking to each consumer segment. We show that the market segmentation strategy always benefits from social influence when the average quality ranking is used. One of the managerial implications is that the firm is better off using an aggregate ranking policy when consumer preferences are limited. Still, it should perform a market segmentation policy when consumers are highly heterogeneous.

Gerardo Berbeglia is an associate professor at Melbourne Business School (MBS), affiliated with the University of Melbourne. His research interests include revenue management and pricing optimisation, quantitative models of consumer behaviour, game theory, and transport optimisation. Before joining MBS, Gerardo was a Senior Scientist at ExPretio Technologies Inc and, later, a Postdoctoral Fellow of the Department of Mathematics and Statistics at McGill University.

WED 25 AUG 4PM - 5PM AEST

ZOOM MEETING ID: 873 1557 5255; PASSWORD: 778635

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