MM6761: Take-home Assignment 3

Dai Yao (dai@{yaod.ai, mle.bi})

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1 Puranam, Narayan and Kadiyali (MKSC 2017), and Liu and Toubia (MKSC 2018)

Both papers are built upon the traditional LDA models. The key innovation is Puranam et al. (2017) is Equation (2) on page 729 (besides other innovations), and the key innovation in Liu and Toubia (2018) is Equation (3) on page 934.

- For Puranam et al. (2017), how is the model estimated? Can we estimate the model without estimating Equation (2) first, and then use the outcome to estimate Equation (2)?
- For Liu and Toubia (2018), how is the model estimated? Can we estimate the model without estimating Equation (3) first, and then use the outcome to estimate Equation (3)?
- For Liu and Toubia (2018), what's your opinion about Equation (3)? Why do you think it is innovative? Do you see any potential problems? If so, what are the problems?

2 Chakraborty, Kim, and Sudhir (2022)

- Comparing Chakraborty et al. (2022) to the previous two papers, what are the main differences in terms of model development (2 to 3 main points)? By model development, you may focus on how machine learning based algorithms are used in the model development process, and how these algorithms are integrated with traditional marketing models into a unified framework.
- What are the variables in X^q_{jk} and X^w_{ijk}, respectively? How A_{ijk} is computed if it is missing?

Notes on submission:

- Please keep your answer to each section to be within 1 page.
- Please submit your answer to Learn at PolyU before due.
- When asked to "specify" a model, usually you need to write down the key mathematical formulas of that model.