Literature Review: Real-Time Dynamic Pricing for Multiproduct Models with Time-Dependent Customer Arrival Rates

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1 Introduction

Introduction to talk about what we have learnt in class (Single Product DP) and how the model in the paper we have chosen is a generalizing from single to multi-products.

In the single product dynamic pricing model that we were introduced in class, we looked at a monopolist seller which finite units x_0 of a single indivisible product over a finite and continuous horizon $[0, T)$. The unit price π_t is decided by the seller at each point of time $t \in [0, T)$ and customers product valuations follow a distribution over $\mathbb{R}_+$. However, practically, sellers often have a wide range of products that the customers can choose from, with the products having similar functionalities; catering to customers of varying purchasing power.

Thus we look to a multiproduct model [2]

2 Related Work

[Optional] We might like to discuss other papers like [1] that might be related to the paper we are looking at, e.g. the 1997 paper Yiwei told us to look at.

3 Multinomial Logit Model

The model of course.

4 Experiments

If we manage to find time to run any experiments.

5 Discussions

This is where we can add our comments and our inputs, how the model can be further improved or how we can find estimates for the solution.

6 Conclusions

Closing conclusions, futher areas that can be explored and research opportunities (for Yiwei only haha).

References

[1] G. Gallego and G. van Ryzin. A multiproduct dynamic pricing problem and its applications to network yield management. *Operations Research*, 45(1):24–41, 1997.

[2] J. S. Li and S. Chen. Real-time dynamic pricing for multiproduct models with time-dependent customer arrival rates. *Proceedings of the American Control Conference*, pages 2196–2201, 2009.