The Amazon business model, the platform economy and executive compensation: Three essays in search theory

Hu, B.

2019

Summary

This thesis consists of three studies investigating topics in the fields of intermediaries and executive compensation through the lens of search frictions. The three studies all point to the power of the search frictions in explaining real-world phenomena. This summary provides an overview of the research questions addressed, the methodologies used to answer those questions, and the conclusions from this research.

Chapter 2 develops a directed search framework to understand two widely used market structures of intermediaries: the middleman mode and the marketmaker (or platform) mode. In the middleman mode, the intermediary is specialized in buying and selling for its own account and typically operates with inventory holdings (e.g., dealers in financial and steel markets). In the marketmaker mode, the intermediary offers a marketplace for fees, where the participating buyers and sellers can search and trade with each other (e.g., eBay, brokers in real estate and financial markets). Due to the search frictions, the intermediary has a trade-off between a larger transaction volume by operating as a middleman and a higher price/fee by acting as market-maker. This trade-off determines the optimal intermediation mode, and eventually a *marketmaking middleman* such as Amazon, who adopts a mixture of these two intermediation modes, can be optimal in the equilibrium. Our main insight holds in various market environments, including an endowment economy and a market with nonlinear matching functions. The theoretical predictions are examined using scraped data from Amazon and eBay.

Chapter 3 contributes to a better understanding of the competition among e-commerce giants. We extended the framework of Chapter 2 to a Bertrand competition game between an incumbent intermediary who can mix a middleman and a marketmaker mode, and an entrant intermediary who is restricted to be a marketmaker. Meeting

technologies in both intermediaries are subjected to search frictions. We find that the entrant faces the choice of being a second-source (for intermediation service) with high price/fees and a sole active source by undercutting the incumbent. Despite this strategic complication, we show that the intuition of chapter 2 holds in a duopoly. In particular, for a reasonable set of parameters, there exists an equilibrium of pure strategies where a marketmaking middleman incumbent emerges. Furthermore, in the mixed strategy equilibrium, the incumbent activates its market-maker mode with positive probability.

Chapter 4 assesses the impact of job search ladders on executives' incentive contracts. In the theoretical framework, an executive is poached by outside firms while a dynamic incentive contract is designed to deal with both the moral hazard problem inside the firm and competition from the external labor market. I show that competition for executives increases total compensation, and generates a new source of incentives, called *labor market incentives*, which substitutes for performance-based incentives embedded in bonus, stocks, options, etc. The model is estimated using a newly assembled dataset on job turnovers for executives in U.S. publicly listed firms. Simulations based on the structural estimates show that the model is capable of explaining and replicating the puzzling facts that executives of larger firms experience higher compensation growth and receive higher performance-based incentives.