Dissertation Proposal

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"Three Essays in Marketing"

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I investigate the following issues in marketing: branding, pricing, and media impact on consumer decision. My researches are enabled by various quantitative tools, including theoretical model, structural model, natural language processing, and image processing.

In the first chapter, we examine the optimality of the freemium pricing strategy. Despite its immense popularity, the freemium business model remains a complex strategy to master and often a topic of heated debate. Adopting a generalized version of the screening framework à la Mussa and Rosen (1978), we ask when and why a firm should endogenously offer a zero price on its low-end product when users' product usages generate network externalities on each other. Our analysis indicates freemium can only emerge if the high- and low-end products provide asymmetric marginal network effects. In other words, the firm would set a zero price for its low-end product only if the high-end product provided larger utility gain from an expansion of the firm's user base. In contrast to conventional beliefs, a firm pursuing the freemium strategy might increase the baseline quality on its low-end product above the "efficient" level, which seemingly reduces differentiation.

In the second chapter, we study the hype news effect in healthcare market. The research aims to understand how public healthcare information affects consumers' healthcare choices, by delving into the textual information from different sources. We combine several datasets including news articles, video data from *The Dr. Oz Show*, online consumer reviews, research articles from academic journals, survey data from Amazon Mechanical Turk, magazine articles, etc. Our textual analysis leverages both traditional natural language processing techniques and deep learning models. Surprisingly, hype news effect, represented by the Dr. Oz effect, is not present in our findings. Meanwhile, the availability and language features of the most credible information--scientific research articles--are playing the most important role in steering consumers' choices. Lowering the complexity of the research articles is especially effective in increasing the market share of the focal product. As a step further, we propose an alternative explanation of the hype news effect. The results have public policy implications on media scrutiny in the healthcare domain. Managerially, our findings provide guidance on how to design language features so that advertising efforts through multi-channel media can be most effective.

In the third chapter, we combine computer vision methods and structural modeling to investigate brand value in the fashion market. Moreover, we provide guidelines on how to generate a fashion "look" in a most efficient way. Using data from an online fashion blogging community, we extract and analyze four aspects of each "look", i.e., brand, outfit, user, and setting. We measure the effect of brands and other visual features on the trendiness of a "look" (e.g., style compatibility of the outfit, facial and body features of the user, etc.), as well as the substitutability among brands and all other image features.