Dissertation Proposal

Essays on Social Media Platforms

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With the advent of Web 2.0 technologies, various types of social media platforms have prospered in the last few years. However, firms face the challenges of how to optimize the design and management of social media platforms. This requires researchers and managers to understand how individuals contribute and consume content in social media platforms, how individuals interact with each other, and what are the desirable policies that could maximize the value of social media initiatives of an organization. My research investigates these critical research questions in various contexts. My first essay deals with the emergence of opinion leaders in an online review community, and focuses on how individual characteristics influence the formation of links in this online community. The second essay develops a dynamic structural model that explores why a small group of individuals dominate online discussion forums, and proposes and tests a new policy intervention that could improve the participation of the majority of the users.

Essay 1: The Emergence of Opinion Leaders in Online Review Communities

I study the drivers of the emergence of opinion leaders in a networked community where users follow each other and share information with peers. I model the formation of opinion leadership by using a dyad-level proportional hazard model with time-varying covariates. To estimate this model, I use Weighted Exogenous Sampling with Bayesian Inference (WESBI), a new methodology that I develop for fast estimation of dyadic models on large network datasets. I find that, in this online review network, both the widely-studied "preferential attachment" effect based on the existing number of inlinks (i.e., a *network-based* property of a node) and the number and quality of reviews written (i.e., an *intrinsic* property of a node) are

significant drivers of new incoming trust links to a reviewer (i.e., inlinks to a node). Interestingly, time is an important moderator of these effects—the number of recent reviews written has a stronger effect than the effect of the number of recent inlinks received on the current rate of attracting inlinks; however, the aggregate number of reviews written in the past has no effect, while the aggregate number of inlinks obtained in the past has a significant effect on the current rate of attracting inlinks. This leads to the novel and important implication that, in a network growth setting, intrinsic node characteristics are a stronger short-term driver of additional inlinks, while the preferential attachment effect has a smaller impact but it persists for a longer time. I discuss the managerial implications of the results for the design and organization of online review communities.

Essay 2: Learning from Peers on Social Media Platform

More and more companies have adopted social media platforms for supporting knowledge sharing among customers and employees, where individuals ask and answer questions among each other. Hence, it is important to understand the knowledge-sharing behavior of users on these systems. I propose a theoretically-grounded, dynamic structural model with endogenized knowledge-sharing behavior that takes into account "learning by sharing" and "knowledge spillover," which are two salient features that are enabled by social platforms. This model recognizes the dynamic and interdependent nature of knowledge-seeking and sharing decisions and allows them to be driven by knowledge increments and social-status building in anticipation of future reciprocal rewards. Applying this model to a unique panel of data from an expertise-sharing forum used to shore up customer support at a Fortune 500 firm, I illustrate the dynamic interdependency between individual decisions. I show that an individual is more willing to contribute to the community when her peers are more knowledgeable. I further demonstrate how a "core/periphery" knowledge sharing structure emerges, discourages users with low social status from participating, and creates a barrier to knowledge sharing and integration for the company. An exploratory sensitivity analysis shows that hiding the identity of the knowledge seeker breaks the core/periphery structure and improves the knowledge sharing by 20.46%.