

A Dynamic Game Analysis of Social Networking Services

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Abstract

Social Networking Services (SNS), such as MySpace or FaceBook, are one of the most popular websites. A SNS is an online membership service or site that aims to build and promote communities and social networks among people who share interests or activities. Since most SNSs raise revenue via Internet advertising, in order to increase the page views, SNS providers aim to increase the number of users and to have users actively communicate through the SNS. In this study, we note that the SNS have network externality as its big feature, and model users' behavior on the SNS as a dynamic game. In particular, we model a diffusion process of users of a SNS as an infinite-horizon extensive form game of complete information in which (1) each user can choose not to use the SNS in her/his turn, and (2) network effect of the SNS depends on a history of players' actions. Then we use Markov perfect equilibrium concept to analyze how to increase the number of active users. We derive the necessary condition under which the state where every player is an active user is the unique Markov perfect equilibrium outcome. Moreover, we propose an incentive mechanism that enables the number of active users grows steadily.

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