The Ecosystem of Software Platform: A Study of Asymmetric Cross-Side Network Effects and Platform Governance

Peijian Song, Ling Xue, Arun Rai, and Cheng Zhang

Abstract

In the context of software platforms, we examine how cross-side network effects (CNEs) on different platform sides (application-side and user-side) are temporally asymmetric, and how these CNEs are influenced by the platform's governance policies. Informed by a perspective of value creation and capture, we theorize how the app-side and the user-side react to each other with distinct value creation/capture processes, and how these processes are influenced by the platform's governance policies on app review and platform updates. We use a time-series analysis to empirically investigate the platform ecosystem of a leading web browser. Our findings suggest that while the growth in platform usage results in long-term growth in both the number and variety of apps, the growth in the number of apps and the variety of apps only leads to short-term growth in platform usage. We also find that long app review time weakens the long-term CNE of the user-side on the app-side, but not the short-term CNE of the app-side on the user-side. Moreover, we find that frequent platform updates weaken the CNEs of both the user-side and the app-side on each other. These findings generate important implications regarding how a software platform may better govern its ecosystem with different participants.

Keywords: Software platform, two-sided markets, network effects, platform governance, value creation and capture