

Measuring Local Network Effects In The Diffusion of A Sharing Economy Platform

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The last decade has seen the emergence of the sharing economy, with a plethora of new online platforms that allow consumers to connect and exchange resources or services among themselves (e.g. an apartment, a car, etc.). These platforms typically act as matchmakers between individuals looking to rent a resource for a short period of time (renters), and individuals who own a resource and seek to monetize it by letting others use it (owners). An important literature is trying to understand the implications of this new business model on the existing industries and society at large, but so far few empirical studies have taken the point of view of platforms to understand how they should make marketing decisions. In this paper, we seek to understand how the user base of a platform grows over time. We analyze a unique dataset of user adoptions on a European car-sharing platform since its inception. The data gives the geographic locations of users as well as the precise time of adoption. We categorize users into two types based on their behavior on the platform (car owners and car renters). We estimate a spatiotemporal model of diffusion to measure the influence of the user base on adoption by new users, considering owners and renters separately. We model direct network effects (influence of owners on owners and influence of renters on renters) as well as cross network effects (influence of owners on renters and renters on owners) at a local level. Such influence can come from economic incentives (e.g. the more renters there are, the more income an owner can expect to make by joining the platform) or from word-of-mouth and imitation behavior. The article by Chu and Manchanda (2016) studies network effects on a C2C marketplace at the national level; we extend their approach by studying network effects at a local level. Our preliminary results show an important positive influence of existing owners on adoption by both new renters and new owners. These results suggest that platforms should target primarily the owners to grow their overall user base.

Keywords: Diffusion model, Sharing economy, Platform adoption