**Bonus Competition in the Gig Economy**

In recent years, service platforms with self-scheduling capacity have seen rapid growth with the rise of the gig economy. Examples include Uber and Lyft for ridesharing, Grubhub and DoorDash for food delivery, TaskRabbit and Handy for home service, and VIPKid and 51Talk for online English education. In the gig economy, service providers are independent contractors of the platform instead of employees, and they can decide their own working schedule. The unique self-scheduling feature of the gig economy is appealing to service providers because it offers them greater flexibility. However, it also raises a critical challenge for the platform that service providers can easily participate on another platform at the same time. For example, it is very common for a driver to work on both Uber and Lyft.¹ Thus, in addition to competing on demand, gig economy platforms also compete on supply.

In order to maintain the retention of service providers, gig economy platforms have commonly offered bonus options to service providers.² When the platform offers a bonus, a service provider will receive a monetary reward if he works on the same platform frequently enough in a time period. For example, in February 2018, Uber offered new drivers a bonus up to $500 if they completed 10 trips in 30 days. Similarly, VIPKid, a Chinese education platform that connects U.S. English teachers to Chinese students who want to learn English from native speakers, offered registered teachers a bonus after teaching a certain number of classes in a month.³

Although the bonus strategy is becoming a major means for the gig economy platforms to induce service providers to participate consistently, it is unclear how the platforms’ profits

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will be affected when they compete on the bonus strategy, and how the bonus strategy will influence the social surplus in the gig economy. Motivated by the recent industry practice in the gig economy, we aim to answer the following research questions in this paper: 1) How do gig economy platforms compete on the bonus strategy? 2) How will the bonus strategy affect the platforms’ profits and the social surplus?

We develop a two-period duopoly model where two platforms compete on both supply (i.e., providers) and demand (i.e., consumers). On the supply side, we assume that a fixed number of providers are uniformly distributed on a Hotelling line, where the two platforms are located at the two endpoints. The Hotelling framework captures the providers’ heterogeneous preferences over the horizontally differentiated platforms. On the demand side, we assume that the platforms engage in a Cournot competition where the market price in each period is determined by the total number of providers that participate. The platforms earn revenues from charging commissions at a pre-determined rate. At the beginning of the first period, each platform may offer a bonus option to the providers, such that a provider will receive the bonus at the end of the second period if he participates on the same platform in both periods. Providers are forward-looking in the sense that when they choose the platform in the first period, they anticipate that they will receive the bonus if they choose the same platform in the second period.

Our equilibrium analysis shows that the platforms' bonus offering strategies crucially depend on the intensity of the competition which is measured by the providers’ stickiness to a particular platform. First, when the competition is intense (i.e., the providers do not have strong preferences over the platforms), both platforms offer bonus to the providers and induce all providers to participate in both periods. In this case, the platforms are trapped in a “bonus
war”, because their profits would actually be higher if they had cooperated not to offer bonus. Second, when the competition is moderate, neither platform offers bonus in equilibrium. In this case, depending on the size of the market, either all providers (if demand is high) or a proportion of providers (if demand is low) participate. In both cases above, the social surplus remains the same regardless of whether the platforms use the bonus strategy or not. Third, when the competition is mild (i.e., each platform has a segment of providers that strongly prefer it over the competitor), the platforms will operate as local monopolists when they do not offer bonus (i.e., each platform covers a segment of providers and the providers who do not have strong preferences over the platforms do not participate). In this case, bonus offering allows the platforms to cover a greater proportion of providers and improve revenues, thus both platforms offer bonus in equilibrium. Moreover, if the size of the market is sufficiently large, the platforms can induce all providers to participate in equilibrium; thus, the equilibrium coverage of providers may not be monotone with respect to the intensity of the competition. Finally, both the platforms’ profits and the social surplus can increase with bonus offering in this case.

Our paper offers insights into how platforms compete on bonus and how the bonus competition affects the stakeholders in a gig economy. Whereas bonus offering is likely to occur when the intensity of the competition is either sufficiently high or sufficiently low, the implications are very different. In fiercely contested markets such as ridesharing, the additional lever of bonus strategy can harm the platforms due to competition. In relatively less contested markets such as online education, the bonus strategy can be beneficial from both profit-maximizing and welfare-maximizing perspectives.