Competition between 1st/3rd Party Sellers on Platform

Hwikook Choe[*]

Fang Fu[†]

October 5, 2022

Abstract

Online platforms are two-sided markets which match two different sides of agents, buyers and sellers, and earn profits by matching them. However, recent platforms sell their own goods or services that directly competes with the sellers on the platform. Whether increasing profit by selling first-party products and competing with third-party sellers on the platform is questionable. By using online bookstore data, I investigate the consumers choice on first-party and third-party sellers.

Keywords: two-sided markets; online platform; strategy;

---

[*]hkchoe@uchicago.edu
[†]fffangfu@gmail.com

1 Introduction

By the fast development of Information Technology and Internet, the transactions on the Internet are widespread. Not only the direct transactions between sellers and buyers via sellers' web site, but also indirect transactions between sellers and buyers via platforms are prominent. For example, sellers post their products on Amazon, and buyers visit Amazon website to purchase. Previously, the main analysis on the platform economy was the two-sided market structures, where matching the sellers and buyers was the main role. However, considering Amazon Basics, which the platform itself produces goods and sells on its own platform, it comes to a question what is the optimal strategy for the platform. Increasing the sales of own goods increases the revenue by itself, but decreases the revenue of third-party sellers on the platform, which decreases the commission fee for the platform. On the other hand, boosting the sales of third-party sellers would increase the profit by increasing the commission fee, but decreases the sales of products of the first-party.

Understanding the platform's optimal strategy between direct selling and commissions is important, since it could help understanding the market power of platforms. By exerting market power, platforms could offer high commission rates which could possibly conclude inefficient equilibrium. Thus, it is crucial to understand consumer demand on different types of sellers on a platform and estimate the market power within a platform.

2 Descriptive Evidence

Table below shows that consumers recognize the 1st party sellers and 3rd party sellers differently.

We can see from table 1 that 1st party seller has higher overall seller score compared to that of 3rd party sellers, on average. The click ratio, clicked product and clicked related product after search, are also higher for 1st party seller than 3rd party sellers.

It is noteworthy that the estimates of click ratio of hypothetical 3rd party seller that has

1

	overall seller score	clicked product	clicked related product
1st party seller	4.910	0.099	0.036
	(0.00)	(0.299)	(0.187)
3rd party seller	4.828	0.033	0.009
	(0.14)	(0.178)	(0.094)

Table 1: Comparison between 1st/3rd party sellers

the same seller score to 1st party seller is different from the click ratio of genuine 1st party seller.

Figure 1 shows the relationship between seller score and the product click ratio. I estimated each regression line using logistic regression based on the search data of 3rd party. At the same seller score level, the product click ratio of 1st party seller, 0.099, is higher than the predicted click ratio of 3rd party seller, 0.031[1]. In addition, the related-product click ratio of 1st party seller is 0.036, while that of 3rd party seller is 0.008[2]. This means that although the seller score is controlled, consumer's choice on clicking the product is different between 1sty party seller and 3rd party sellers. In other words, consumers have different underlying demand on 1st/3rd party sellers.

Figure 2 shows the distribution of overall 3rd-party sellers score grouped by click. The un-clicked search results have lower mean value and are more dispersed than clicked search results, both in clicked product and clicked related product. The exact values for average and quantiles will be provided.

The above descriptive evidence show that, conditional on seller score, 1st party seller has higher click probability compared to 3rd party sellers. Moreover, the seller score for 1st party seller is higher than 3rd party sellers, on average. Thus, it can be assumed that consumers have different demand function on 1st/3rd party sellers.

---

[1]Logit model with intercept predicted 0.035
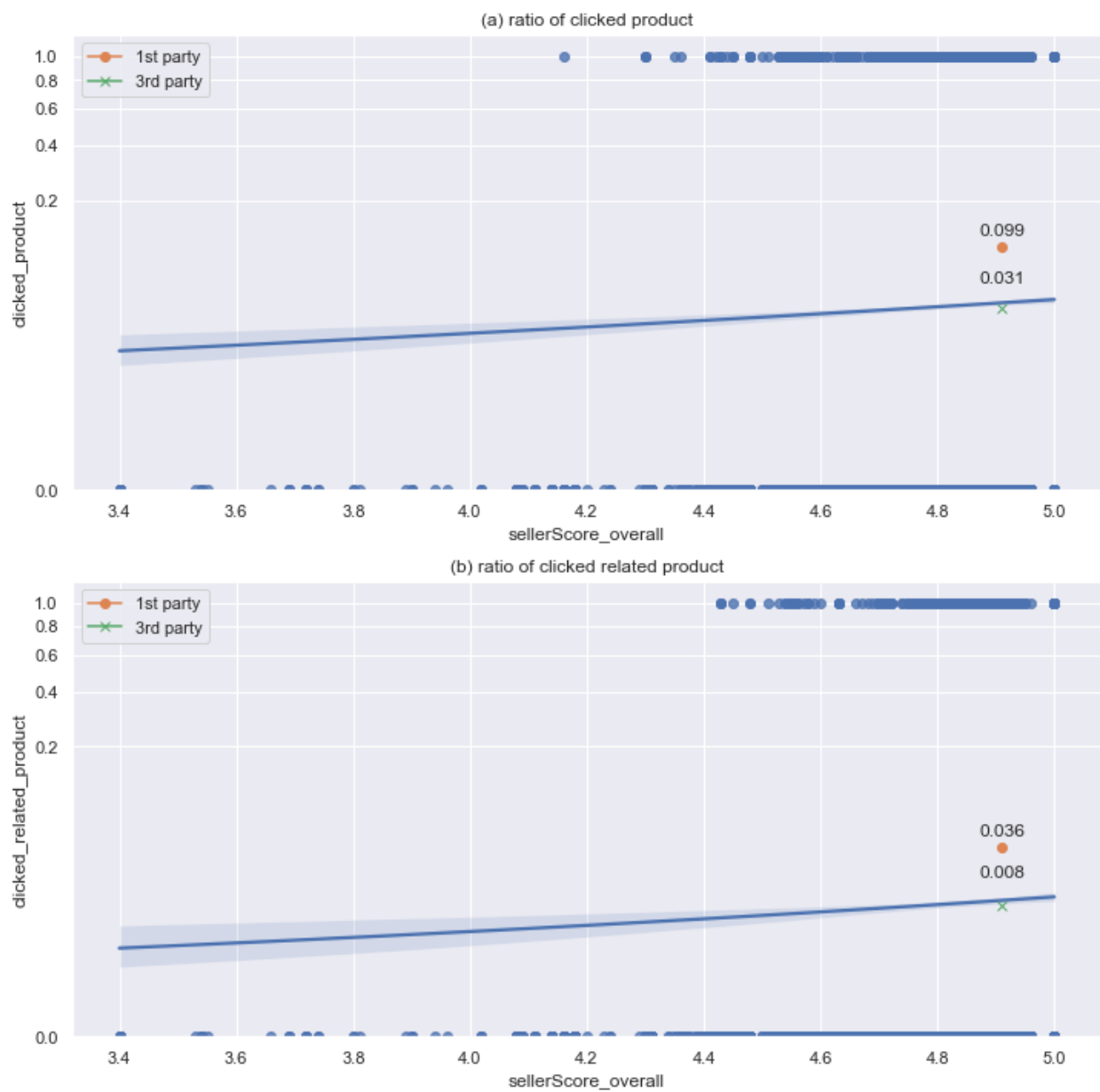[2]Logit model with intercept predicted 0.010

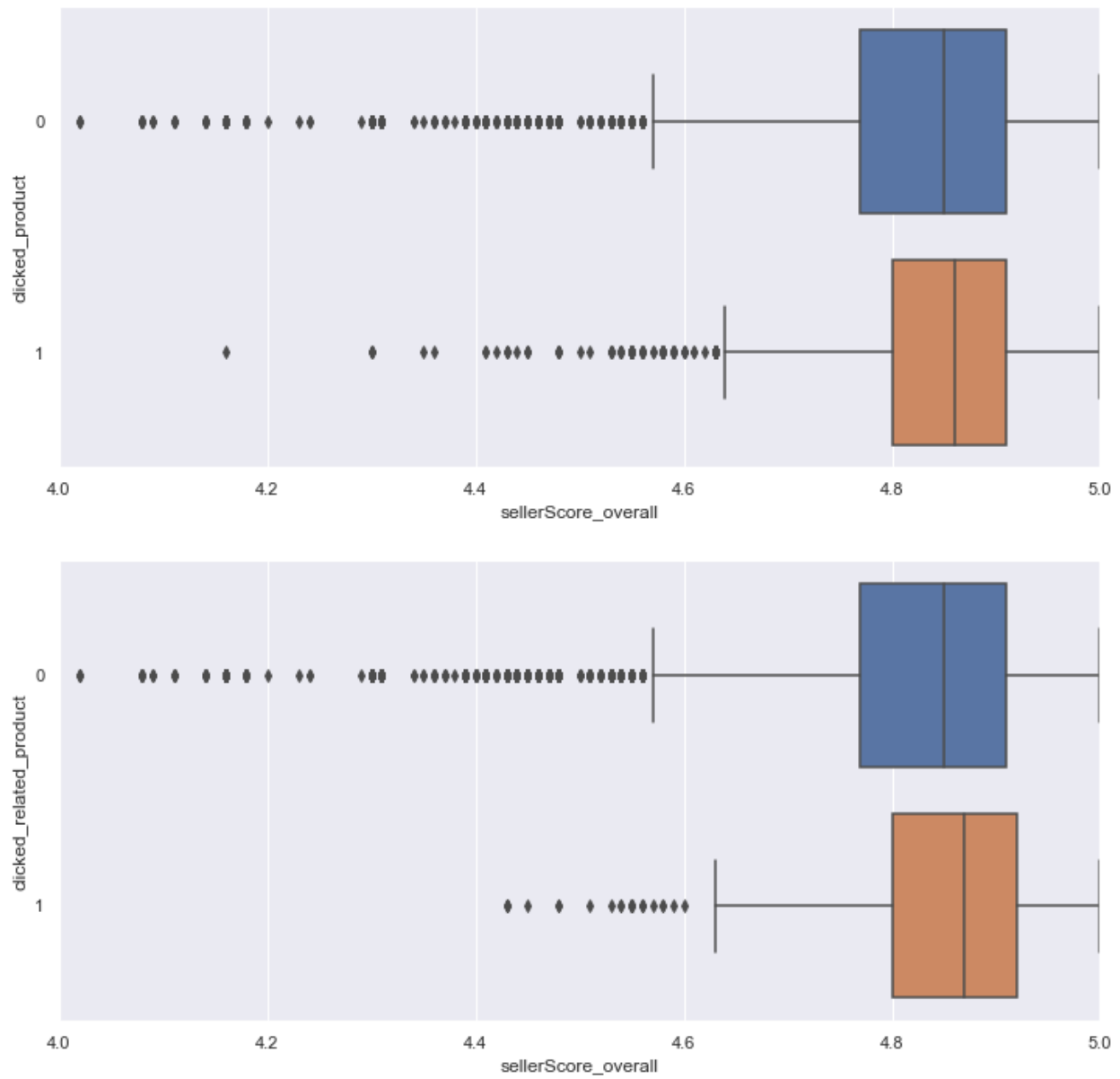Figure 1: Logistic regression of product click on seller score

Figure 2: Boxplot of seller score grouped by click