Personalized Recommendations on a Matching Platform

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1. What is the question?

On a platform-mediated two-sided matching with incomplete information, the scarcity of matching partners and the level of rivalry between the user may stagger the preference of platform and users. The users may want to conceal some information about themselves and the platform may want to make use of the information from the users to maximize its own profit. If the matching platform wants to optimize the social surplus of the matching, what strategy should the platform use? If the platform wants to maximize its own profit, what pricing schedule should it use to deprive all the user's surplus?

2. Why should we care about it?

Throughout our lives, we frequently encounter two-sided matching problems with incomplete information, especially in the most important events such as searching for jobs or finding appropriate life-long partners. For example, when we are looking for jobs on the online matching platforms such as 104, we may want to hide some personal information or exaggerate some virtues of ourselves in our resume, in order to attract the attention of employers. Employers, on the other hand, may want to conceal some disadvantages of the job vacancy in order to get better quality applicants. 104, however, also care about its own profit and may redistribute our information in favor of its own benefit. It is important that we pay attention to what is incentivizing the platform and our potential employers so we can make good use of the information that is available to us.

3. What is the answer to the question?

The author shows that if the platform wants to maximize the social welfare, it can recommend a partner to the user that has the same rank as the user herself while not revealing the true location or rank of the user. The author also shows that the platform can fully extract the users surplus by an optimal pricing schedule that charge different prices for different potential partners.

4. How did the author get there?

The author discusses these questions by using a model involves some workers trying to find jobs, some firms trying to find employees, and a matching platform that is used to collect information from the users and redistribute information back to the users in the form of recommendations. The workers and the firms both have their own private information and they can decide what information they want to disclose to the platform. After receiving the information, the platform then gives recommendation to the workers. The workers can send proposal to the firm base on the recommendation they receive from the platform. The author shows that full-disclosure is optimal to the worker and the firm if the recommendation from the platform is effective.