

The influence of incentive supervision of crowdsourcing platform on the sponsor's strategic behavior

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Keywords: Crowdsourcing platform; incentive supervision; sponsor

Abstract: In the Internet crowdsourcing market, due to the asymmetric information between project sponsors and consumers, consumers face greater risks in the process of choosing investment projects. As an intermediary platform, the penalty effect under the sponsor's supervision mechanism can effectively avoid such problems. In order to study the decision-making mechanism of incentive crowdsourcing platform's operation mode selection behavior, the evolutionary game model of incentive crowdsourcing platform and project sponsor's strategic behavior under incentive crowdsourcing mode is constructed by using evolutionary game theory. The evolution dynamic stability analysis of each stakeholder strategy was carried out, and the key factors affecting the choice of the operation mode of the reward crowdfunding platform were explored through numerical simulation. There is a serious information asymmetry between the fundraiser and the crowdfunding platform, which will not only indirectly damage the interests of investors, but also affect the reputation of the platform. It is also not conducive to the sound development of the crowdfunding industry. To improve the above problems, it is necessary to strengthen the screening, review and supervision functions of the crowdfunding platform for product projects initiated by fundraisers.

1. Introduction

In recent years, Internet finance has been developing rapidly with the progress of science and technology, and crowdsourcing, as an important innovative financing mode of Internet finance, is developing in full swing. The meaning of crowdsourcing is a crowdsourcing project initiated by the main body of financing with the help of the Internet crowdsourcing platform to the vast number of investors [1]. Crowd financing refers to the mode that project sponsors publish their ideas to investors after auditing the crowdsourcing platform, and raise funds in return for physical, service or equity. It mainly includes three participants: fundraiser, platform operator and investor [2]. Among them, the fundraiser is the initiator of the project. He creates the project on the platform of crowdsourcing, introduces his own product projects, sets the time limit for financing, the amount of financing and the expected rate of return [3]. The profitability of the platform has become an important issue that has plagued the development of the industry. The crowdfunding platform provides services for successful transactions between fundraisers and investors, but generally only charges funders for successful projects [4]. In the case that the profitability of the crowdfunding platform is difficult to sustain the platform, the platform still maintains the trading commission rate at a very low level.

In recent years, the bilateral market is a hot spot in the research of industrial organizations. The formation of the bilateral market theory provides a new perspective for enterprises in the industry with bilateral market characteristics, bilateral user decision-making and government anti-monopoly policy formulation [5]. The crowdfunding platform acts as an intermediary between the investment and financing parties. The profit comes from the fact that the investor is free of charge and the financing amount is a certain percentage of the financing amount. The goal is to maximize the number and scale of successful projects [6]. Compared with traditional financing, crowdfunding financing has lower financing costs, and project sponsors can judge the innovation and

practicability of products according to the reaction of funders. In order to effectively obtain the demand for the market for their products, these advantages have become the incentive for project sponsors to choose crowdfunding platform financing [7]. And more investment opportunities, early access to new products to meet their early adopter psychology, etc., become the incentives for funders to participate in crowdfunding [8]. Whether the service strategy of crowdsourcing platform can effectively reduce the degree of information asymmetry between project sponsors and public investors and improve the efficiency of resource matching has an important impact on the success of project financing of project sponsors. The main profit of crowdsourcing platform comes from charging a certain commission to the sponsors of successful financing projects. Therefore, building the game relationship between crowdsourcing platform and project sponsors is an effective way to study the operation of crowdsourcing platform [9-10].

2. Bilateral Market Characteristics and Cost-Income Composition of Crowd Financing Industry

2.1 System Composition and Operation Process of Crowdsourcing Industry

With the development of cloud computing and big data technology, crowdsourcing platform can help enterprises find target customers more accurately through big data analysis, so that the platform can grasp more information about both sides of the transaction and reduce the business risk of crowdsourcing platform. When the information between consumers, crowdsourcing platforms and sponsors is highly transparent, and the three parties know all the information from each other, the sponsors will reveal the quality level of the products to be released truthfully. And many similar products are priced according to their quality, that is, high-quality products are priced at high prices, and low-quality products are priced at low prices. At the same time, consumers can also identify product quality by product price, and choose products of different quality levels according to their preferences, so that the market of crowdsourcing can achieve a segregated equilibrium state under symmetrical information. The crowdfunding platform as an intermediary effectively achieves the optimal match between the initiator and the consumer, thereby maximizing the profit of the platform. In public, it has repeatedly encouraged the public to innovate and start a business. This has greatly stimulated the entrepreneurial enthusiasm of the masses. The crowdfunding platform provides a channel for meeting the needs of entrepreneurs in terms of capital and talents. The rise and explosion of Internet financial management models such as Yu'eobao have made the public aware of the possibility of Internet investment and financial management, and have recognized and popularized the concept of Internet financial management. Young people pursuing individuality have become the main consumers in the consumer market. The pursuit of novelty and creative products by such people has made the creative projects and quality products of the crowdfunding platform popular.

2.2 Reward-based crowdfunding model analysis

The operational process of rewarded crowdfunding is mainly divided into four main stages: the first stage, the start-up stage, including the project sponsor's design submission of the fundraising project, and the rewarded crowdfunding platform to review the project initiated by the project sponsor and after the approval The project warehousing platform is released for publicity. The second phase, the formal financing phase. At this stage, the funder will consider whether to invest according to his or her own interests, the level of awareness of the project, and the scope of funding that he or she can accept. Comparison of return-based crowdfunding and equity-based crowdfunding models: Return-based crowdfunding with future products or accessories as a return to attracting funds from consumers is also a good new product promotion channel. It is also because in return for future products, the amount of financing is usually limited, and projects are generally required to be basically completed or pilot production is successful. The implementation stage of the project is also the final stage of the incentive crowdsourcing process. The project sponsor shall carry out the project operation according to the agreed work plan at the start of the project and

provide the investors with products or services in accordance with the prior agreement within the agreed time limit.

Owing to the complexity of its projects, crowdsourcing projects usually involve specialized documents and links such as enterprise financial statements, equity transfer agreements, and withdrawal of crowdsourcing. Crowdsourcing platforms need to seek the assistance of professional organizations to complete, so there will be a certain amount of consultancy costs. The crowdsourcing industry chain is shown in Figure 1.

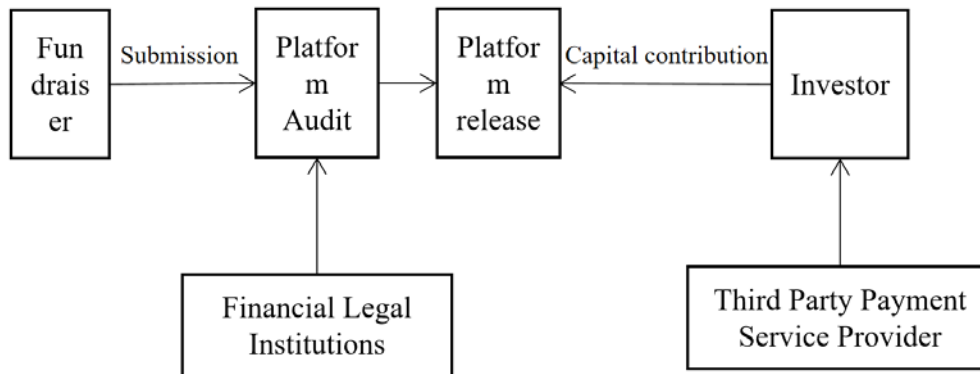


Fig.1. Crowdsourcing Industry Chain

3. Pricing Strategy Analysis of Crowdsourcing Platform Enterprises

3.1 Construction of pricing model for crowdsourcing platform

Bilateral market platforms generally have three common charging modes: membership fee, transaction fee and two-part fee. Membership fee refers to the one-time service fee paid to the platform by users, usually monthly or yearly. Users can trade on the platform without paying the fee for a period of time after they have paid the membership fee to become members of the platform. Transaction fee is the fee settled according to the number of transactions, which is embodied in collecting a certain proportion of Commission for the platform according to the amount of transactions of users on the crowdsourcing platform. Any project sponsor displays project information on the platform, and its strategy choice is to reveal the product quality information faithfully to obtain lower returns, or to obtain higher returns through fraudulent strategy of imitating high-quality projects to exaggerate product quality. The strategy choice of crowdsourcing platform includes supervision and review of the sponsor's project. If cheating is found, the sponsor will be punished, but the cost of supervision will be paid. Or the platform adopts an unsupervised strategy, and once the sponsor defaults to deceive the consumer, the platform compensates for the consumer loss. Since the rewarded crowdfunding platform only charges a certain service fee to the project sponsor when the project is successful, whether the project sponsor enters the platform or not initiates the project directly affects the profit of the crowdfunding platform. Due to the threshold mechanism of crowdfunding financing, the project sponsors preset the financing amount and duration according to the project requirements. Within the stipulated time, if the crowdfunding funds meet or exceed the target amount, the fundraising will be successful, and the project sponsor will receive the full investment fund, otherwise the investment money will be returned to each investor.

3.2 Pricing Analysis of Crowdfunding Platform from Static Perspective

Users are classified into single-homed and multi-homed according to whether one platform accesses or multiple platforms access during the transaction. When there are multiple platforms in the market, the user chooses to register on multiple platforms, which expands the potential transaction range of the user to some extent and brings externality to the user. The service strategy of the rewarded crowdfunding platform has a significant impact on the success rate of the project, thus affecting the revenue of the project sponsor. It can be seen that there is a game relationship

between the project sponsor and the rewarded crowdfunding platform, and the project sponsor and the rewarded crowdfunding platform judge the self-return based on the success rate of the project, and the decision can only be “limited rationality”. In this game process, there are limited games between individual project sponsors and incentive crowdsourcing platforms. But other project sponsors will learn and summarize the game results of their predecessors to find the most suitable decision-making, decide whether to enter the platform and launch the project. In reality, consumers are in a weak position in information. The initiators of low-quality products have the motivation to cheat by imitating the initiators of high-quality products and setting the same high price. In the mixed equilibrium, the high-quality products lack the motivation to join the crowdsourcing platform. Gradually fading out of the market, crowdsourcing platforms attract more inferior products, resulting in serious crowdsourcing market chaos and consumer interests damaged.

4. Conclusion

The multi-group evolutionary game model is constructed by introducing investors. Based on the current profit model of incentive crowdsourcing platform, the author does not add investors as game players to the model. However, investors are also one of the main participants in crowdsourcing, which plays an important role in the success of crowdsourcing. Further research in the future can also consider introducing investors to build a new profit-making operation mode of incentive crowdsourcing platform. Crowdsourcing platforms have typical bilateral market characteristics, and different subdivisions of crowdsourcing platforms have obvious oligopoly characteristics, in which the degree of return crowdsourcing oligopoly is higher than equity crowdsourcing. As an online trading platform, crowdsourcing platform should undertake the responsibility of guaranteeing. Guarantee the risks brought by the sponsor's breach of contract to consumers, effectively encourage the audiences to review the sponsor's project, and prevent the conspiracy between the platform and the sponsors. In addition, crowdsourcing platform can establish public discussion platform, such as Wechat Public Number, increase the channels for consumers to know project information in time, let consumers contribute to the project, give full play to the role of self-media, reduce information asymmetry, and improve the quality of the project.

Acknowledgement

1) Guangdong Provincial Department of Education 2017 Youth Innovative Talents Program (Humanities and Social Sciences): the impact of incentive supervision of crowdsourcing platform on sponsors'strategic behavior. Project No. 2017WQNCX158.

2) The reform of international trade practice curriculum under the new format of higher education teaching reform project No. F2018J051 in Guangdong Province is based on the perspective of “cross-border e-commerce entrepreneurship”.

3) This research was supported by the public management project of Guangdong Province in 2016.

References

- [1] Sun Y , Wang N , Yin C , et al. Understanding the relationships between motivators and effort in crowdsourcing marketplaces: A nonlinear analysis[J]. International Journal of Information Management, 2015, 35(3):267-276.
- [2] Naderi B , Möller, Sebastian, Neubert F , et al. Influence of environmental background noise on speech quality assessments task in crowdsourcing microtask platform[J]. Acoustical Society of America Journal, 2017, 141(5):3909-3910.
- [3] Slivkins A, Vaughan J W. Online decision making in crowdsourcing markets[J]. ACM SIGecom Exchanges, 2014, 12(2):4-23.
- [4] Patrick Baggett M , Bridges A , Wise K , et al. Populating the wilderness: crowdsourcing

database of the smokies[J]. Library Hi Tech, 2014, 32(2):249-259.

[5] Dissanayake I, Zhang J, Gu B . Task Division for Team Success in Crowdsourcing Contests: Resource Allocation and Alignment Effects[J]. Journal of Management Information Systems, 2015, 32(2):8-39.

[6] Lin Y L, Trattner C, Brusilovsky P, et al. The impact of image descriptions on user tagging behavior: A study of the nature and functionality of crowdsourced tags[J]. Journal of the Association for Information Science and Technology, 2015, 66(9):1785-1798.

[7] Zhang X, Yang Z, Zhou Z, et al. Free Market of Crowdsourcing: Incentive Mechanism Design for Mobile Sensing [J]. IEEE Transactions on Parallel and Distributed Systems, 2014, 25(12):3190-3200.

[8] Liu, Sophia B. Crisis Crowdsourcing Framework: Designing Strategic Configurations of Crowdsourcing for the Emergency Management Domain[J]. Computer Supported Cooperative Work (CSCW), 2014, 23(4-6):389-443.

[9] Gao Y, Chen Y, Liu K J R. On Cost-Effective Incentive Mechanisms in Microtask Crowdsourcing [J]. IEEE Transactions on Computational Intelligence and AI in Games, 2015, 7(1):3-15.

[10] Becirevic A , Critchfield T S , Reed D D . On the Social Acceptability of Behavior-Analytic Terms: Crowdsourced Comparisons of Lay and Technical Language[J]. The Behavior Analyst, 2016, 39(2):305-317.