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Full research paper

What's the Role of Mega Influencers in Live Streaming Commerce? — A Natural Experiment

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Abstract: Live streaming e-commerce is becoming prevalent and its new business model attracts much attention from the marketing and information systems fields. In this paper, we examine the role of mega-influencers on the live streaming e-commerce platform. Based on a large-scale dataset and a natural experiment, we explore how influencers' performance is affected by mega influencers. We find that there exist significant impacts from the mega influencers. Our paper illustrates that the treatment effects of the mega influencers continuously affected other influencers. Based on a novel machine learning approach, we show that there exist heterogeneously treatment effects across influencers. Our paper has theoretical contributions to influencer marketing.

Keywords: live streaming, mega-influencers, heterogeneous treatment effect, causal inference

1. INTRODUCTION

In recent years, with the development of the mobile internet and the pandemic background, people are more likely to watch live streaming shows and buy products from influencers. In Mckinsey's report, China's live streaming commerce would reach \$171 billion in 2020, with a 280% increase from 2017[†]. By the year 2020, in China, the number of live influencers has reached 1.23 million and the number of live streaming viewers has reached 388 million, accounting for 40% of the total internet users. Nearly two-thirds of live streaming users have purchased after watching live streaming. Live streaming e-commerce is becoming an important business for both firms and users.

The main contributions of this paper are as follows. First, unlike existing research on live streaming commerce, which largely focuses on viewers' or influencers' specific factors, we illustrate the relationships between influencers. Based on a rich dataset and a natural experiment, we show that influencers can be significantly affected by mega influencers. Second, we explore how mega influencers' effects change over time. Last but not least, based on the causal forest approach, we examine the heterogeneous treatment effect across influencers. We show that not all influencers are treated equally. These findings are important to theoretically understand the ecosystems of influencers in live streaming e-commerce. Our findings also have important managerial implications for the live streaming platforms to manage their influencers with heterogeneous strategies.

2. LITERATURE REVIEW

The emerging live streaming commerce has attracted much attention from different perspectives. Some scholars explore what factors would affect viewers' engagement and sales performance from the influencers' perspective^[3,5]. Some scholars show that consumers' engagement and purchase behaviors are also attracted much attention from the viewers' perspective^[2,4,6]. Different from prior studies, this paper first examines the relationships between influencers. Based on a unique dataset and a natural experiment, we illustrate how viewers' performance is affected by the mega influencer in live streaming commerce. Our paper helps to theoretically understand the role

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[†]<https://www.mckinsey.com/business-functions/mckinsey-digital/our-insights/its-showtime-how-live-commerce-is-transforming-the-shopping-experience>.

of mega influencers and how influencers are affected by the top influencers in the live streaming field.

3. MODEL AND RESULTS

In our econometric models, we adopted the difference in differences (DID) model to examine the treatment effect of mega influencers on other influencers with two-way fixed effects, which is widely used in natural experimental settings^[1]. Our DID with two-way fixed effects effectively addressed the empirical challenge wherein the treated and control groups had some pretreatment systematic differences because it compared the challenges in the outcomes between these two groups after explicitly accounting for the pretreatment systematic difference.

We first explore the overall impact of treatment on other influencers. The estimated results are shown in the left column of Table 2. Specifically, we find that the coefficient of -0.2486 is negative and significant, showing that viewers' visits for other influencers' significantly decrease. Meanwhile, we also find that live streaming show time and frequency play important role in influencers' visits. Following Model 3 and Model 4, we explore whether there exists a continuous impact of treatment. The estimated results of the treatment effect on influencers are shown in Table 3. In Table 3, the coefficients of the interaction term α_2 and α_1 are -0.0873 and -0.3857 respectively. They are both negative and significant, showing that there exist continuously significant impacts on other influencers' performance.

4. CONCLUSIONS

Live streaming is becoming prevalent in our daily lives. More and more internet users tend to watch live streaming shows and buy products from influencers. Based on a natural experiment and a unique dataset, this paper takes the first step towards understanding the relationships between mega influencers and other influencers in the live streaming e-commerce setting. Our econometric and causal inference analysis theoretically provides many important findings. We illustrate the significant effects of mega influencers on others. Our paper also illustrates that mega influencers' treatment effects last for a relatively long time. The findings in our paper have important managerial implications for live streaming platforms to manage their influencers and take personalized management strategies.

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