Research Statement

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Last Updated: May 10, 2021

Background

The past decade has seen the exponential growth of social media, which becomes a platform for customers to voice their concerns and dissatisfaction regarding a product or brand openly. Given the tremendous volume of customer voices on social media, business-to-consumer (B2C) firms realize that social media is not merely a tool for marketing engagement or passively monitoring. Instead, they are rediscovering social media as a free platform through which they can alleviate customers' concerns or dissatisfaction asynchronously and cost-effectively. However, managing customer voices on social media is a delicate business, with both opportunities and potential pitfalls.

On the one hand, social media consumer voices, which contain valuable first-hand experience about a product or service, are important information sources for detecting defects. Improving the product or service based on consumers' feedback would undoubtedly lead to a positive brand image in the long run. Even if such an improvement is not available, the proper handling of a consumer's complaint can not only turn a service failure into a positive brand experience for that particular customer but also create a positive brand perception among other social media users who have observed the customer service interaction directly or indirectly.

On the other hand, due to the public nature of social media, consumer complaints on social media can easily cause negative word-of-mouth, which will lead to unintended consequences. Indeed, unlike the pre-social media era, when traditional communication methods (e.g., phone calls, letters, emails) were mostly solitary and brands were largely in control, consumer complaints on social media are public by nature, enabling a positive feedback loop that can quickly turn a small itch into a big rash. As such, managing a consumer voice inappropriately would not only result in the loss of the focal customer but also negatively affect the overall brand perceptions of those observing the failed response.

Research Areas

My current research primarily focuses on the management of consumer voices on social media. My research is grounded in interdisciplinary approaches combining econometrics with machine learning/deep learning techniques to leverage the unstructured text data on social media.

Product Recall

The exponential growth of social media usage has made it easier for consumers to share unpleasant experiences. Meanwhile, firms and government agencies have been empowered by the development of artificial intelligence (AI) technologies to monitor consumer voices on social media. More importantly, social media has become a platform for consumers to syndicate their individual voices to pressure firms and government agencies. Hence, the impact of consumer voices is considerably amplified by social media. However, to the best of our knowledge, no prior research has investigated how consumer voices on social media may influence the product recall process.

We aim to fill such a research gap by investigating whether social media accelerate product recalls in the context of the pharmaceutical industry [1]. To understand why consumer voices on social media may accelerate product recalls, we conceptualize two distinct channels for this process: the *information effect*, which captures how extracting adverse drug reactions (ADR)-related information from social media helps detect more safety signals and mine signals faster to accelerate product recalls, and the *publicity effect*, which captures how firms or government agencies are pressured by public concerns to initiate speedy recalls.

To study the research question, we collect drug-related social media data from six online forums and Twitter and obtain drug recall data from the Food and Drug Administration (FDA). Next, to reduce the potential impact of measurement error, I implement two different supervised machine learning algorithms, to quantify social media ADR discussions. The results derived from the discrete-time survival analysis consistently suggest that more social media ADR discussions can significantly reduce time to drug recalls. Further, estimation results from two mechanism tests support the existence of both conceptualized channels. To the best of our knowledge, this study provides the first empirical evidence that social media accelerates the product recall process and offers new insights for firms and policymakers concerning the power of social media and its influence on product recalls.

Social Media Customer Service

Delivering customer service on social media is a delicate business. Despite many advantages of social media customer service (e.g., low handling cost), the public and connected nature amplifies the impact of each customer complaint and renders firm responses vulnerable to open scrutiny in a way never seen before. As such, although social media marketing practice becomes prevalent, firms hesitate to utilize social media for customer service provision, which is evidenced by the low percentage (55%) of the international airlines that incorporated customer service practice on Twitter by December 2017.

Given the large variations of business practices on social media, we aim to examine the key drivers in business adoption of social media for marketing and customer service based on the trajectory of 274 international airlines on Twitter [3].

The findings derived from a two-stage model suggest that a firm's decision-making is subject to both peer influence and consumer pressure. Regarding peer influence, we show that firms pay close attention to their peers' moves and act correspondingly, as a firm is more likely to adopt the technology when the extent of peers' adoption increases. We also find evidence of knowledge spillover across firms, where firms are attracted by positive consumer voices but discouraged by negative voices following peers' adoptions. Regarding consumer pressure, we find that higher volume and sentiment directed at the firm itself positively contribute to both adoptions. Furthermore, while firms equally value positive and neutral voices in the platform adoption, only positive voices can significantly contribute to customer service adoption. The findings confirm the different trade-offs faced by firms at different adoption stages: while platform adoption is mainly driven by the motivation to reach potential customers, firms with a better online reputation are more confident to start the customer service application.

Another major concern raised by many firms is: does active service intervention drive more service complaints on social media? We cast doubt on this misconception by examining the dynamics between social media customer complaints and brand service interventions [4]. Using a large data set covering details of customer-brand interactions of the airline industry on Twitter, We find service interventions indeed cause more complaints, yet this increase is driven by service awareness rather than chronic complaining. Due to the publicity and connectivity of social media, customers learn about the new service channel by observing customer service delivery to others – a mechanism that is unique to social media customer service and does not exist for traditional call centers. Importantly, high-quality service reduces future complaints, thereby proactive customer service is a sound strategy on social media, as long as firms dedicate to service quality. Hence, firms should be less concerned about whether to respond and more focused on how to respond to customer complaints.

Moreover, we examine an important and timely question regarding the value of humanization in customer service [2]. Consider a disgruntled customer who complains to a customer service agent without any face-to-face interaction, through email or live chat for example. In the first scenario, the agent is a real human being, while in the second scenario, the agent is a chatbot empowered by information technologies. For the customer, does the perception of which scenario he/she is in affect his/her behavior? With rapid advances in information technologies, the circumstance is no longer futuristic or merely philosophical. Increasingly, managers are faced with the looming question of how much automation should be incorporated into their customer service operations. The question is rooted in two seemingly incompatible prescriptions for the future of customer service provision. On one hand, the recent development of technology-based chatbots presents the latest and probably the ultimate opportunity for firms to deliver customer service as cost-effectively as possible. On the other hand, anecdotal evidence suggests that consumers prefer to engage with human agents in the context of customer service because of the current limitations of information

technologies. However, the aforementioned hypothetical circumstance foreshadows a fundamental limitation of automating customer service: do emotionally charged customers have an inherent preference for engaging with human agents over algorithms?

To study this question, we exploit a signature policy abruptly implemented by Southwest Airlines on March 16, 2018, which requires the inclusion of an agent's first name in response to customer queries on Twitter, thereby making the agent more humanized in the minds of customers. we quantify the impact of such a policy on customer service interactions from several aspects. The results from a one-group before-and-after design consistently show that customers are more willing to engage, and upon engagement, more likely to reach a resolution, with more humanized agents. Furthermore, there is no evidence of elevated verbal aggression from customers to more humanized agents, hence humanization seems to incur no additional cost to agents. To address endogeneity concerns, we conduct a series of robustness checks, falsification tests, and two sets of synthetic control analyses. All these analyses demonstrate the robustness of the findings. Despite the increasing trend of automating customer service, our study reveals the importance of humanization, which can at least be partly interpreted by our bias in favor of humans when it comes to customer service.

Selected Publications and Outputs

1. Gao, Y., Duan, W., and Rui, H. Does Social Media Speed Up Product Recalls? Evidence from the Pharmaceutical Industry. In *Conference on Information Systems and Technology (CIST)*. 2019.
2. Gao, Y., Rui, H., and Sun, S. The Value of Humanization in Customer Service. In *Proceedings of the 54th Hawaii International Conference on System Sciences*. 2021, pp. 5536–5545.
3. Sun, S., Gao, Y., and Rui, H. Business Practice of Social Media-Platform and Customer Service Adoption. In *Proceedings of International Conference on Information Systems (ICIS)*. 2020.
4. Sun, S., Gao, Y., and Rui, H. Chronic Complainers or Increased Awareness? The Dynamics of Social Media Customer Service. In *Proceedings of the 54th Hawaii International Conference on System Sciences*. 2021, pp. 6525–6534.