

# Lecture 20: Social media and social ads

Matthew J. Salganik

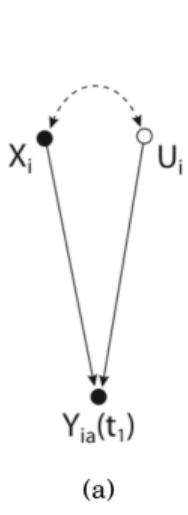
Sociology 204: Social Networks  
Princeton University

2/2: Social in the ad not just the targeting



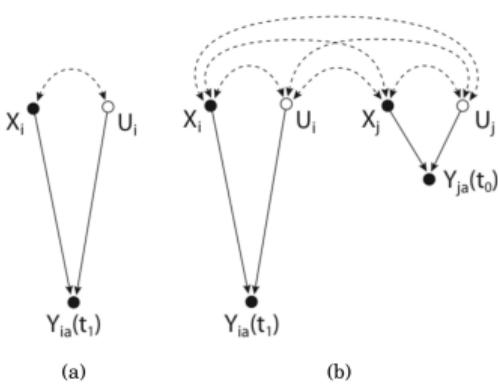
"We regard social advertising as any advertising methods that uses information about consumers' social networks to target ads and/or provide personalized social signals."

Bakshy et al.

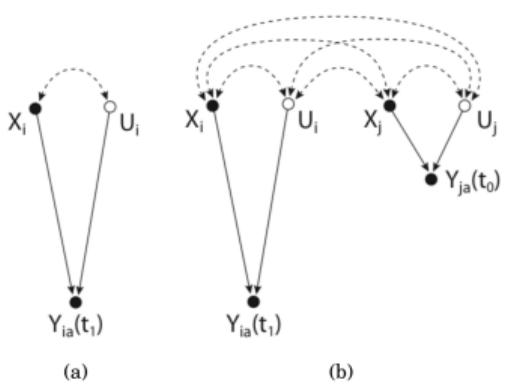


(a)

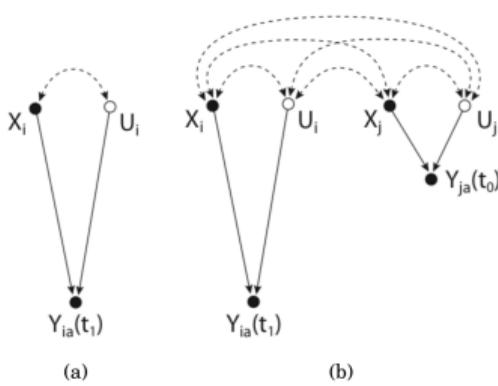
- ▶  $Y_{ia}(t_1)$  (person  $i$  clicking on ad  $a$  at time 1) is caused by measured characteristics  $X_i$  and unmeasured characteristics  $U_i$ .
- ▶ Measured characteristics  $X_i$  and unmeasured characteristics  $U_i$  might be correlated in unknown ways.



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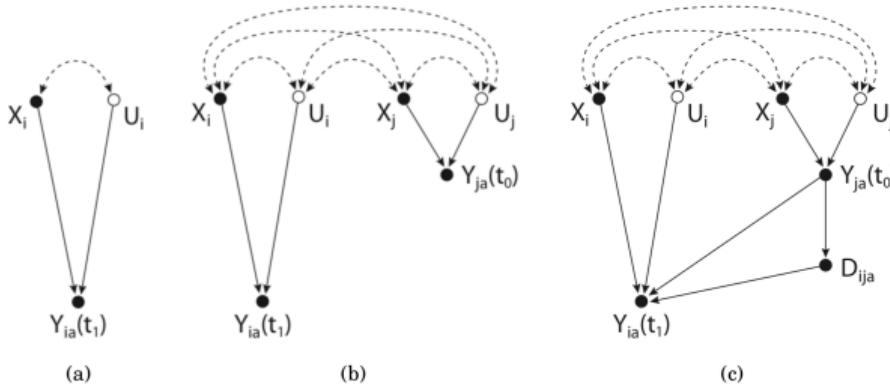


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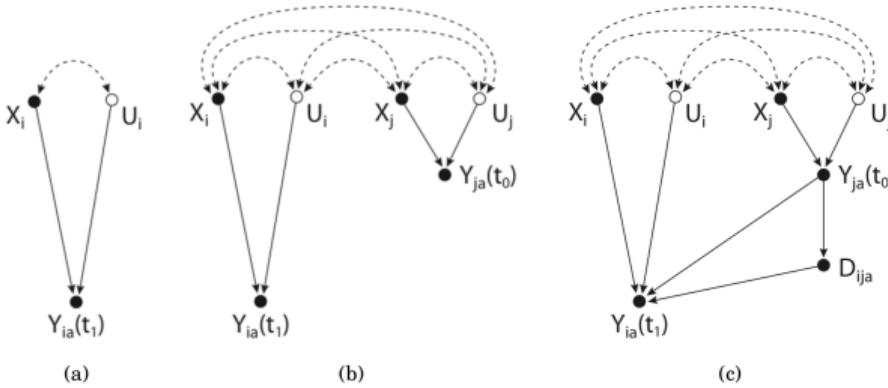


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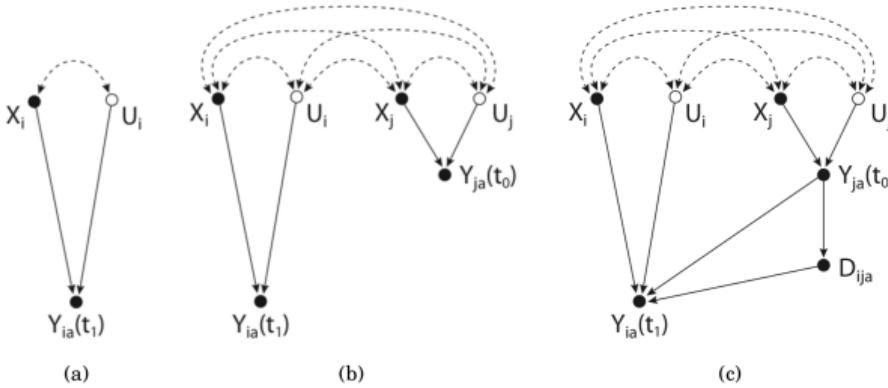
When there is homophily  $j$ 's behavior at time 0 predicts  $i$ 's behavior at time 1.



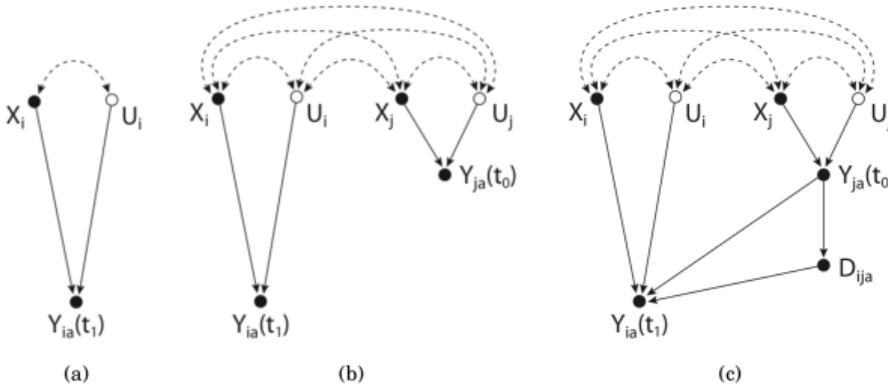
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- ▶ Most important new addition: social signal  $D_{ija}$  might impact  $Y_{ia}(t_1)$ .

If you see correlated behavior what is causing that? Social influence or correlation of unmeasured characteristics?



Clifton likes Tough Mudder.



Tough Mudder  
Like

(a)



Clifton and Joey like  
Tough Mudder.



Tough Mudder  
Like

(b)



Clifton, Joey and  
Maciej like Tough Mudder.



Tough Mudder  
Like

(c)



# Facebook exec says we're moving from the “wisdom of crowds” to the “wisdom of friends”

Dean Takahashi

January 24, 2011 5:21 AM

[f](#) [t](#) [in](#)

Rose said that when you see an ad with your friend's name in it, the recall of that ad goes up by 60 percent. Facebook has been working closely with Nielsen, which measures ad effectiveness, for a couple of years to make Facebook's ads effective by connecting them to your social circle of friends.

“Word of mouth marketing is the best advertising,” he said. “At Facebook, we are implementing it at scale.”

TECHNOLOGY

# Facebook Reaches Settlement in Sponsored Stories Lawsuit

A judge in California today approved a \$20 million settlement in a class action lawsuit against Facebook, over their use of users' likenesses (and 'likes') in paid advertisements.

BRIAN FELDMAN AUGUST 27, 2013

[https://www.theatlantic.com/technology/archive/2013/08/  
facebook-reaches-settlement-sponsored-stories/311753/](https://www.theatlantic.com/technology/archive/2013/08/facebook-reaches-settlement-sponsored-stories/311753/)



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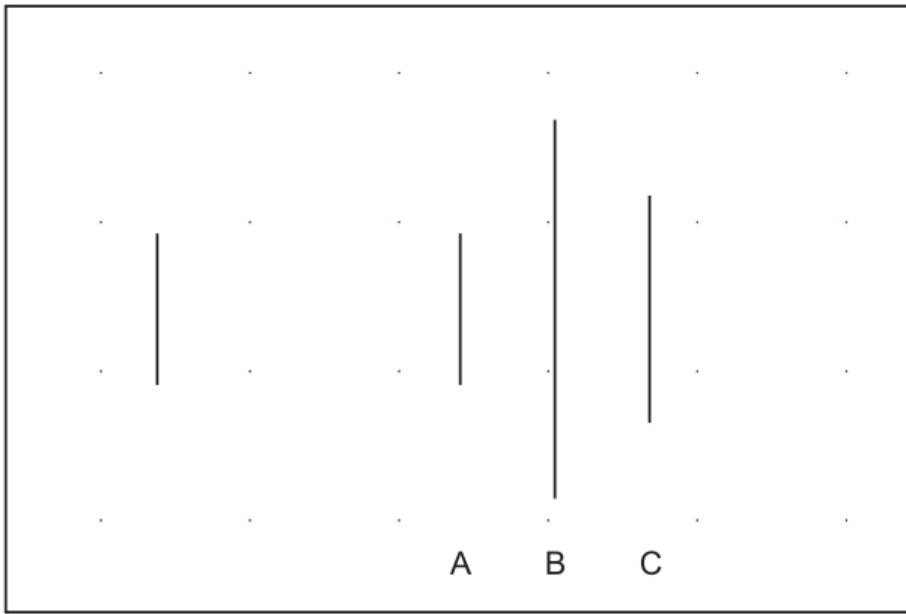
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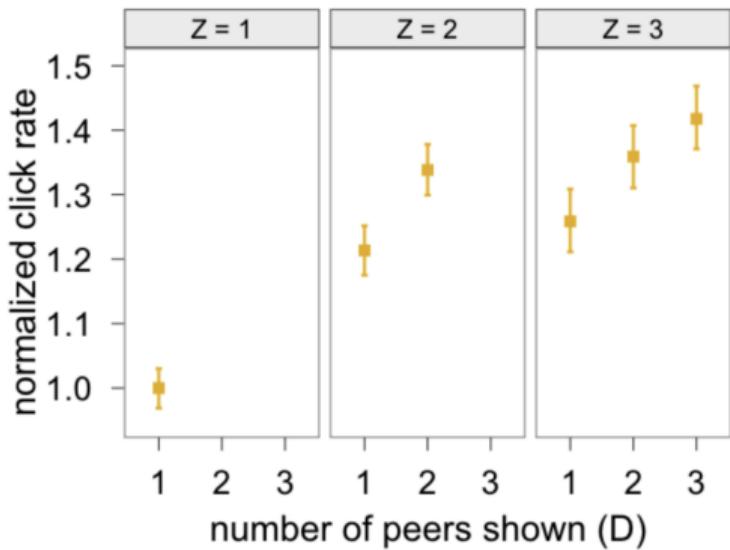


Tough Mudder  
Like

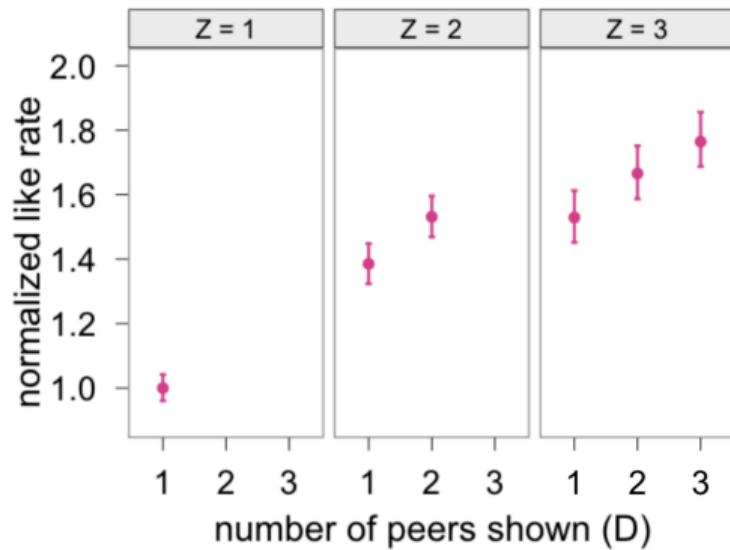
(c)

7.1





(a)



(b)

- ▶ For each value of  $Z$ , more peers shown more clicks and likes
- ▶ Difference between  $D = 1$  for different values of  $Z$  suggests homophily on unobservable characteristics (but with caution)
- ▶ They don't publish raw rates, and papers often go through business review before sending them to a journal

## Experiment 2:

History



"Like" HISTORY and enter to win a free trip to New York City and \$5,000.

Like · 357,462 people like this.

(a)

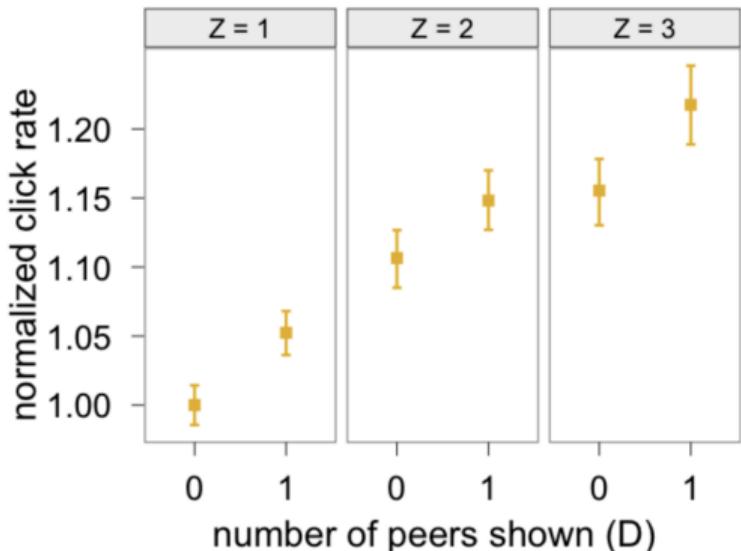
History



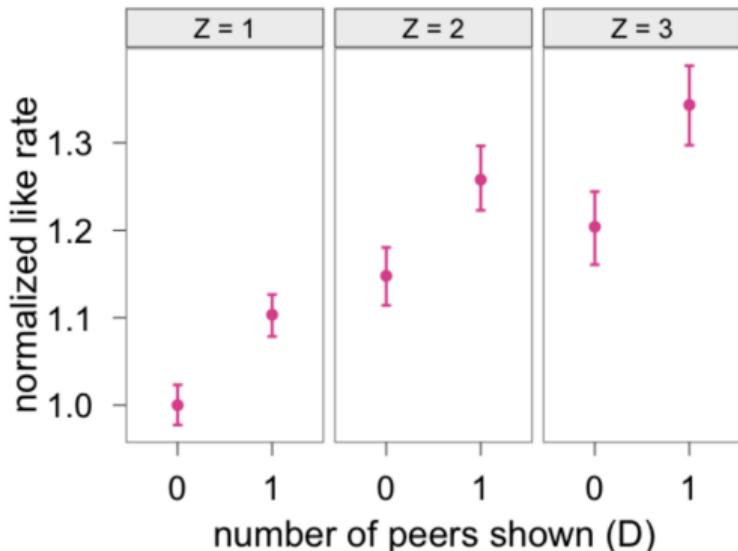
"Like" HISTORY and enter to win a free trip to New York City and \$5,000.

Like · Jina [redacted] likes this.

(b)



(a)

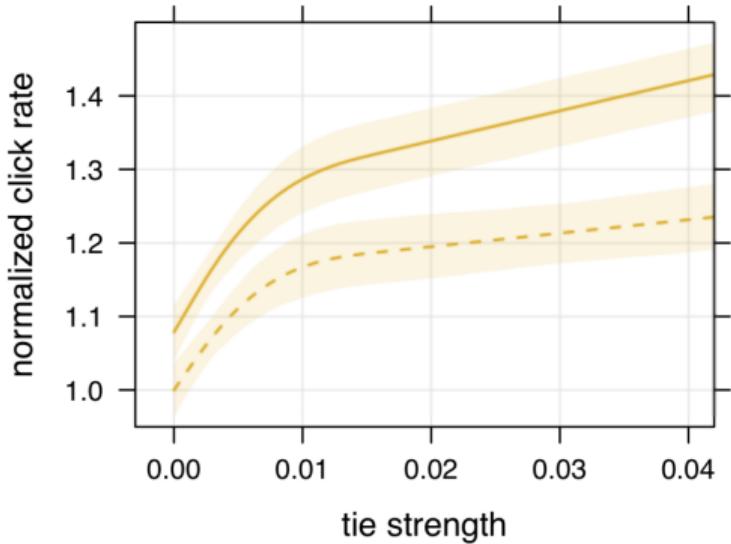


(b)

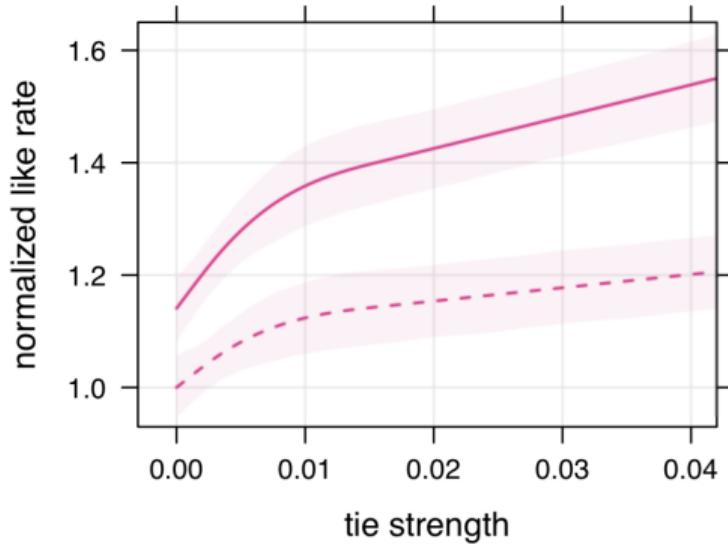
- ▶ For each value of  $Z$ , showing specific peer leads to more clicks and likes
- ▶ Difference between  $D = 0$  for different values of  $Z$  suggests homophily on unobservable characteristics (but with caution)

What about tie strength? Who is the best person to mention to maximize click-through rates?

Tie strength between  $i$  and  $j$  is measured the fraction of  $i$ 's communication that is directed at  $j$  or posts by  $j$ .



(a)



(b)

- As tie strength increases, click and like rate increase whether the signal is present (solid) or absent (dashed). The risk ratio increased as tie strength increased (Fig 8).

You can bet that this information was used to decide which friend to show in the ad



<http://pubsonline.informs.org/journal/mksc>

MARKETING SCIENCE

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# Social Advertising Effectiveness Across Products: A Large-Scale Field Experiment

Shan Huang,<sup>a</sup> Sinan Aral,<sup>b</sup> Yu Jeffrey Hu,<sup>c</sup> Erik Brynjolfsson<sup>b</sup>

<sup>a</sup> Michael G. Foster School of Business, University of Washington, Seattle, Washington 98195; <sup>b</sup> Sloan School of Management, Massachusetts Institute of Technology, Cambridge, Massachusetts 02142; <sup>c</sup> Scheller College of Business, Georgia Institute of Technology, Atlanta, Georgia 30332

- ▶ Replicate and extend Baskhy et al. on WeChat
- ▶ 71 products, 25 categories, 37 million users



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超模Gigi Hadid 到底上了谁的车?



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10分钟前

推广



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成成, adrianli德苑, xLi, 浩君

- ▶ 3 treatments: no social cue, one like, organic likes



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查看详情 ↗

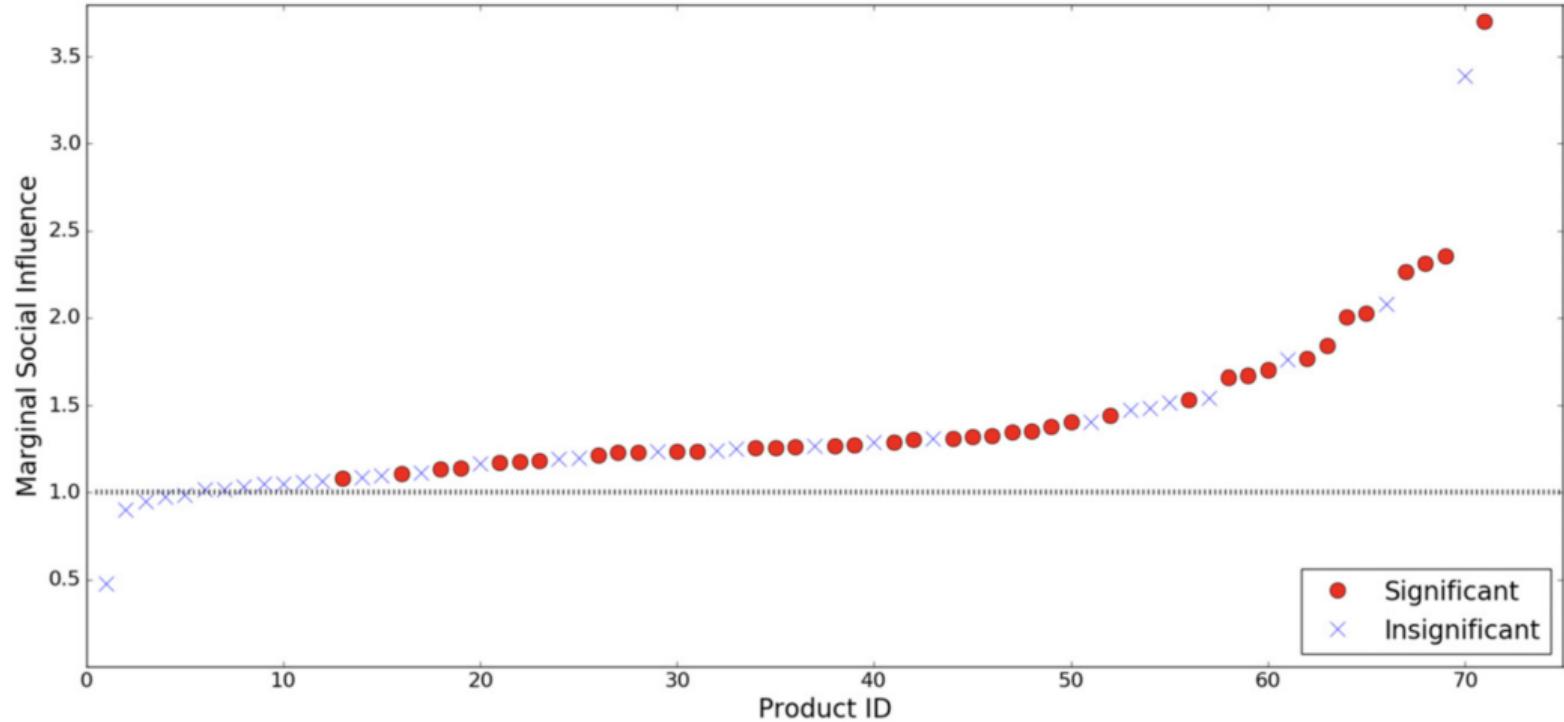
10分钟前

推广

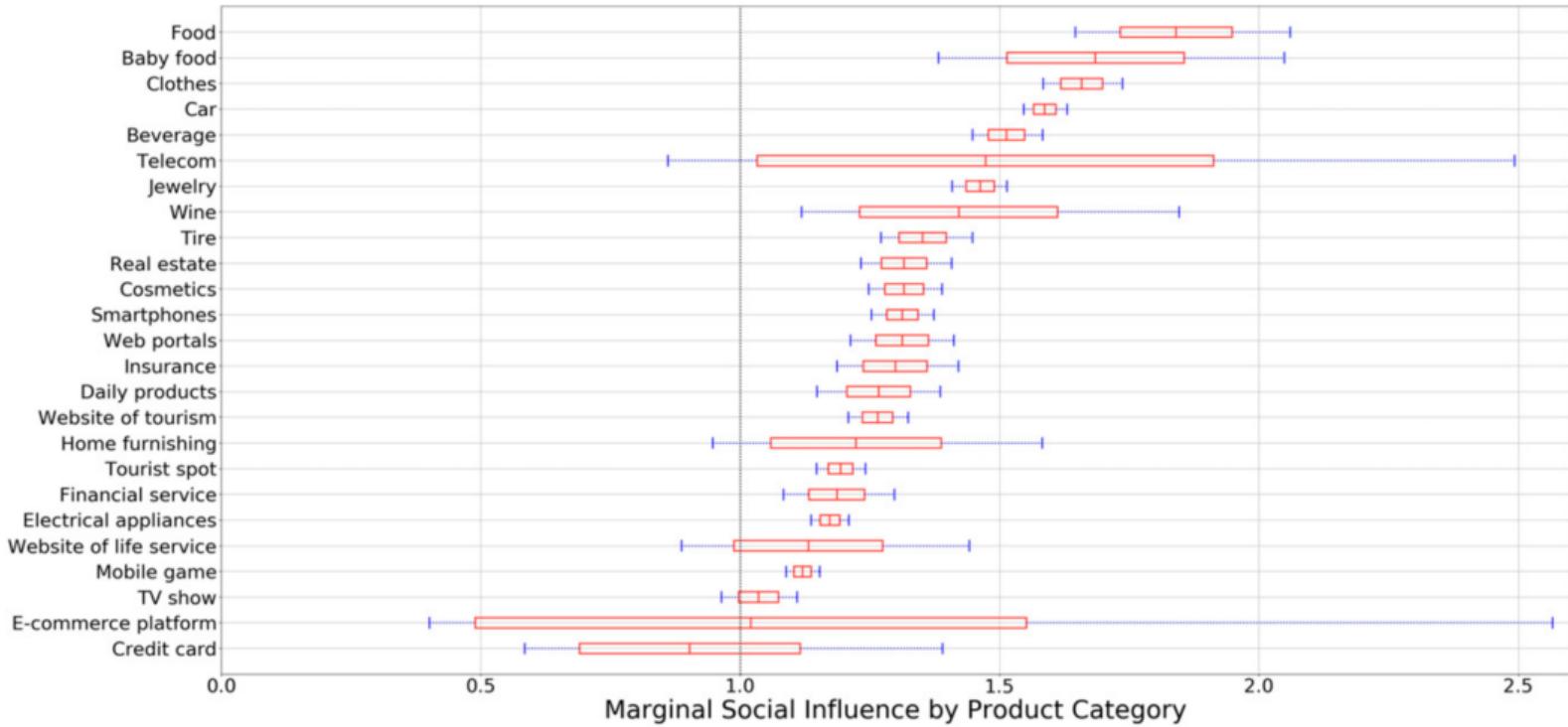


成成, adrianli德苑, xLi, 浩君

- ▶ 3 treatments: no social cue, one like, organic likes
- ▶ main comparison is between no social cue and one like
- ▶ displaying a social cue make users 33.75% more likely to click on an ad



- ▶ Effect was positive for virtually all 71 products



- ▶ Effect was biggest for food, baby food, clothes, and cars.
- ▶ Effect was smallest for credit card, e-commerce platform, and a TV show

## Conclusions:

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- ▶ network data can be used to target ads. The value of adding network data depends on the type of information the advertiser already has. In some cases, social helped in other cases it does not.
- ▶ network data can also be used as part of the ad itself, and social signals of different kinds can increase engagement (click-through-rate, likes)

Fixing social media:

- ▶ Frank, R.H. (2021). The economic case for regulating social media. *New York Times*.
- ▶ Pennycook, G. and Rand, D. (2020). The right way to fight fake news. *New York Times*.
- ▶ Bail, C.A. et al. (2018). Exposure to opposing views on social media can increase political polarization. *PNAS*.
- ▶ Kaiser, B. et al. (2021). Adapting security warnings to counter online disinformation. *30th USENIX Security Symposium (USENIX Security 21)*.