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## Decision Incision Collision: Modeling Patient Choice With Social Network Analysis

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# Decision Incision Collision: Modeling Patient Choice With Social Network Analysis



A Summer Scholars Project by Justin Clark '19,  
Mentored by Jaret Treber (Associate Professor of Economics)

## Abstract:

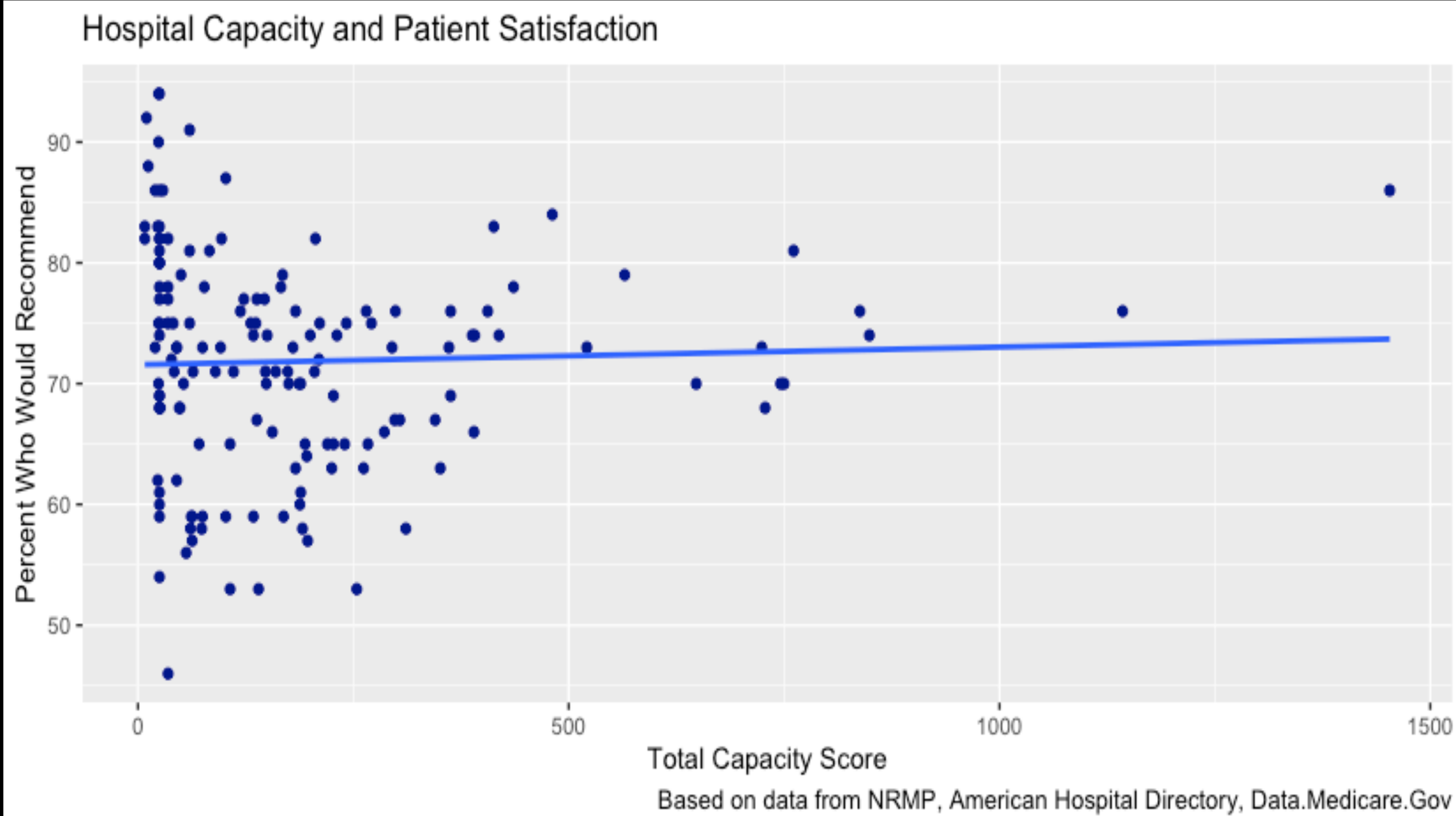
This project examines hospital choice through the lens of social network analysis. Specifically, we employ a *boundedly rational* model of social learning to describe how patients use information from both medical professionals and personal acquaintances. Our application suggests that patients with larger social networks are less likely to act on the information of any one individual. Additionally, we find that networks of strongly connected individuals are more likely to achieve consensus than participants in weakly-connected networks.

## Guiding Question and Initial Findings:

How do patients decide where to seek care for elective medical procedures? Previous studies suggest a role for distance and quality measures like rates of readmission and mortality. To start the research process, we plotted patient satisfaction against several possible determinants. No one predictor (hospital capacity, area population, safety score) was uniquely effective in explaining patient satisfaction. We hypothesize that patients indirectly aggregate these measures through social learning.

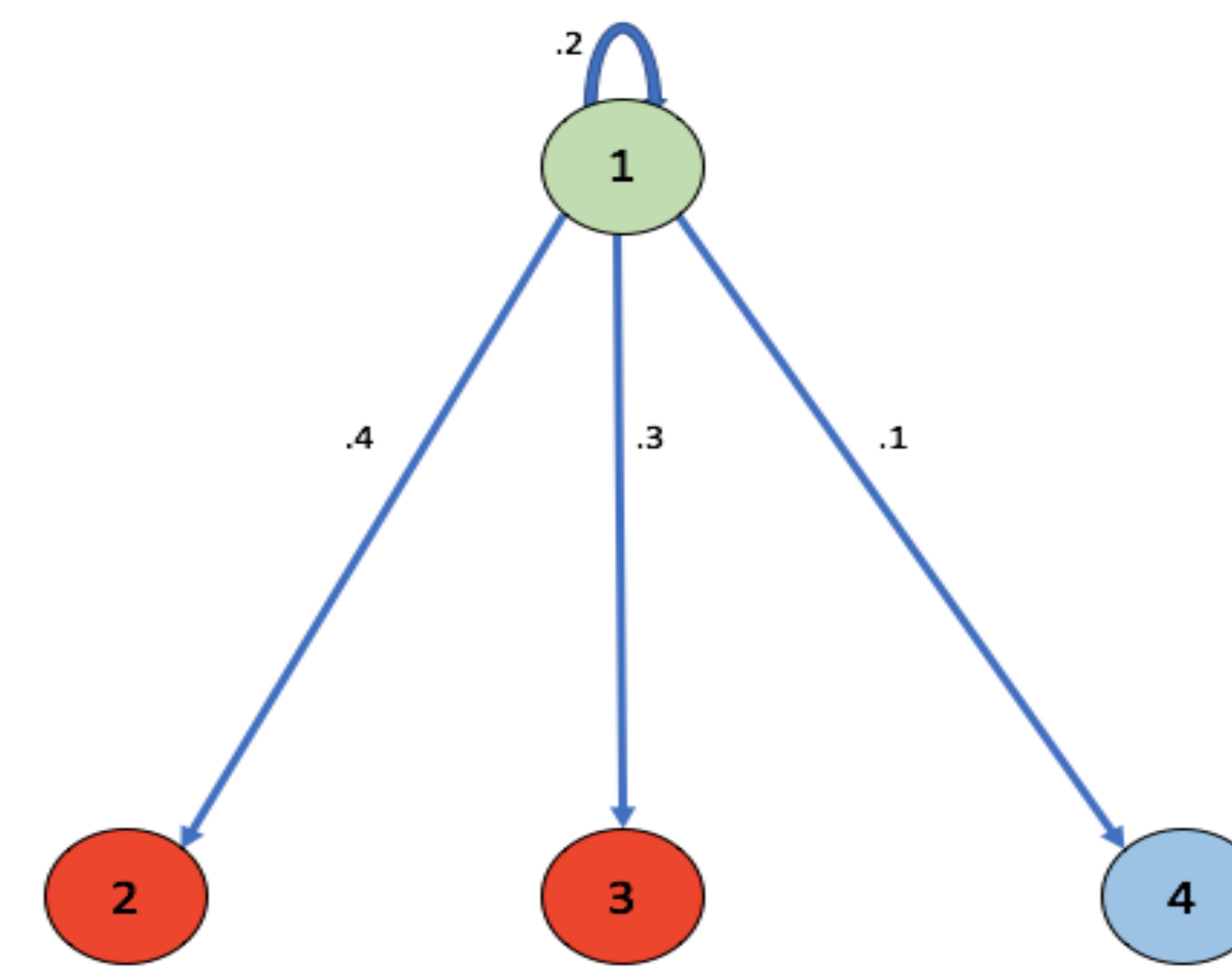
## Social Learning Model:

We formalized this approach through a social learning model where patients decide by a weighted average of the opinions in their social network (Golub and Sadler, 2016). The figure to the right shows a deciding patient (1) who places varying weights on the opinions of Agents 2, 3, and 4, and herself.



## Future Work:

Ultimately, we hope to test the model's results. Traditionally, collecting data on social network behaviors has posed a significant challenge. Today, measures like Facebook's Social Connectedness Index (SCI) (Bailey et al., 2017) are paving the way for future empirical study.



## References:

- Golub, B., & Sadler, E. (2016). Learning In Social Networks. In Y. Bramoullé, A. Galeotti, & B. Rogers, *The Oxford Handbook of the Economics of Networks*. Oxford: Oxford University Press.
- Bailey, M., Cao, R. (., Kuhler, T., Stroebel, J., & Wong, A. (2017, July). Measuring Social Connectedness. *NBER Working Paper Series*.

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