

Accepted Manuscript

Privacy-constrained network formation

Daron Acemoglu, Ali Makhdoui, Azarakhsh Malekian, Asuman Ozdaglar

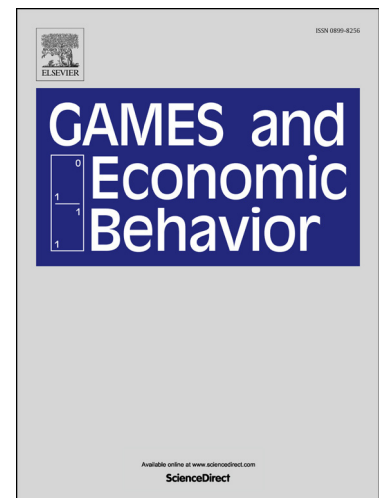
PII: S0899-8256(17)30134-3
DOI: <http://dx.doi.org/10.1016/j.geb.2017.08.001>
Reference: YGAME 2724

To appear in: *Games and Economic Behavior*

Received date: 11 August 2015

Please cite this article in press as: Acemoglu, D., et al. Privacy-constrained network formation. *Games Econ. Behav.* (2017), <http://dx.doi.org/10.1016/j.geb.2017.08.001>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Privacy-Constrained Network Formation [☆]

Daron Acemoglu^a, Ali Makhdoumi^b, Azarakhsh Malekian^c, Asuman Ozdaglar^d

^a*Department of Economics, Massachusetts Institute of Technology, Cambridge, MA, 02139 daron@mit.edu*

^b*Department of Electrical Engineering and Computer Science, Massachusetts Institute of Technology, Cambridge, MA, 02139 makhdoum@mit.edu*

^c*Rotman School of Management, University of Toronto, Toronto, ON, M5S 3E6 azarakhsh.malekian@rotman.utoronto.ca*

^d*Department of Electrical Engineering and Computer Science, Massachusetts Institute of Technology, Cambridge, MA, 02139 asuman@mit.edu*

Abstract

We study the effects of privacy concerns on social network formation. Each individual decides which others to form links with. Links bring direct benefits from friendship but also lead to the sharing of information via a percolation process. Privacy concerns are modeled as a disutility that the individual suffers as a result of her private information being acquired by others. We specify conditions under which pure-strategy equilibria exist and characterize both pure-strategy and mixed-strategy equilibria. The resulting equilibrium networks feature clustered connections and homophily. Clustering emerges because if player a is friend with b and b is friend with c , then a 's information is likely to be shared indirectly with c anyway, making it less costly for a to befriend c . Homophily emerges because small additional benefits of friendship within a group make linkages and thus information sharing within that group more likely, further increasing the likelihood within-group links.

Keywords: Network formation, Networks, Privacy

JEL: D85

[☆]We thank anonymous reviewers and various numerous seminar and conference participants for useful suggestions. We gratefully acknowledge financial support from the Toulouse Network with Information Technology and Army Research Office, ARO MURI W911NF-12-1-0509.

Download English Version:

<https://daneshyari.com/en/article/5071402>

Download Persian Version:

<https://daneshyari.com/article/5071402>

[Daneshyari.com](https://daneshyari.com)