

When Do People Trust Their Social Groups?

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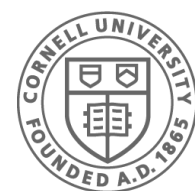
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@therealshankar

Mor Naaman

@informor



**CORNELL
TECH**



Frith (2007), Lieberman (2013)




Glasgow Buy and Sell >

CLOSED GROUP · 25.2K MEMBERS

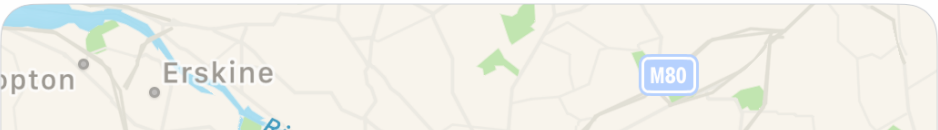
Join Group

About

Business posts/promotions are permitted every Monday 00:00 hrs to 12 noon (will be removed by 12) - each business... **See More**

 Closed group
Anyone can find the group and see who runs it. Only members can see who's in it and what they post.

 This group is located in **Glasgow, United Kingdom**





CHI Meta >


PUBLIC GROUP · 2.3K MEMBERS



Chats Announcements Photos Event

 Write something... 

 Live  Photo  Recommend

Your Group's Story 

Popular Group Topics 

feedback cliffisawesome twitter








Wingspan Board Game >

CLOSED GROUP · 4.8K MEMBERS




Chats Photos Events Files Album

 Write something... 

 Live  Photo  Recommend

Your Group's Story 

New Activity 

What is a "good" group?

What is a trustworthy group?

What is a trustworthy group?
(i.e., when do people trust their social groups?)

WHY STUDY TRUST?

Trust correlates with...



Economic
growth



Institutional
improvements



Life
satisfaction

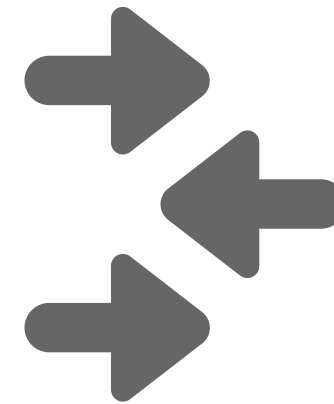
Knack & Keefer (1997), Helliwell & Putnam (1995), Uslaner (2002), Kroll (2008)

WHY STUDY TRUST IN GROUPS?

Trust in groups...



Increases
group cohesion



Reduces
conflict



Improves task
performance

Walther & Bunz (2005), Peterson & Behfar (2003), Dirks (1999)

TODAY

When do people trust their social groups?

TODAY

When do people trust their social groups?

- Q1 How do we measure trust in a group?
- Q2 What predicts trust in a group?
- Q3 Can trust predict future group outcomes?

Q1

How do we measure trust in a group?

WHAT IS TRUST?

Trust is a decision to be vulnerable to another party.

Mayer et al. (1995)

FACTORS OF TRUST



Ability



Integrity



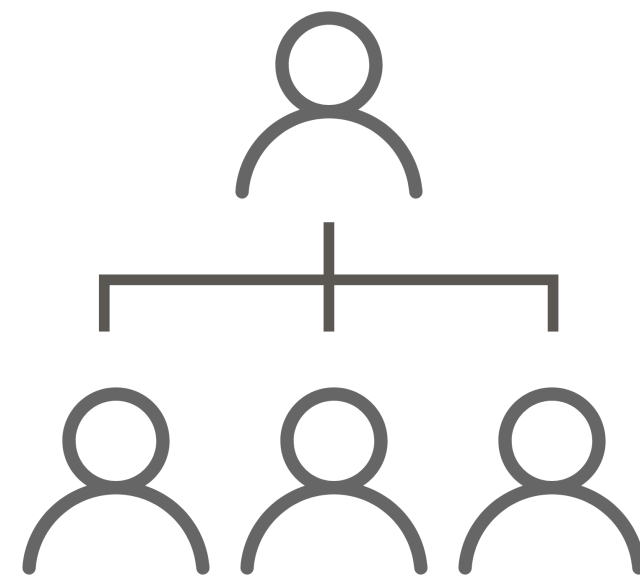
Benevolence

Mayer, et al. (1995)

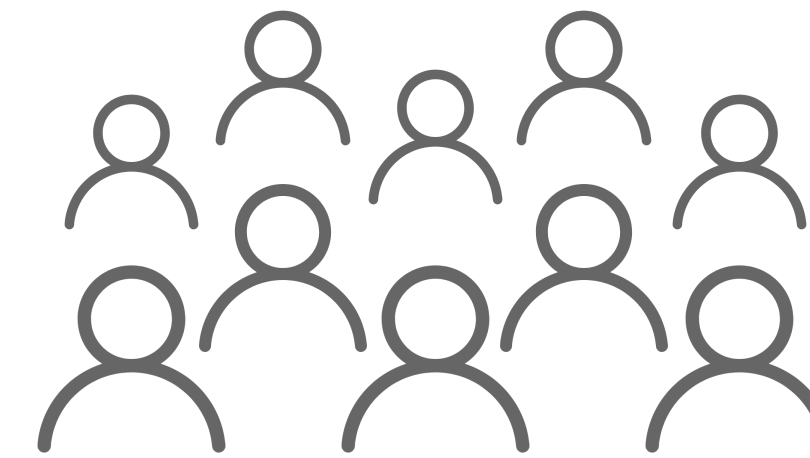
LEVELS OF TRUST



Individuals



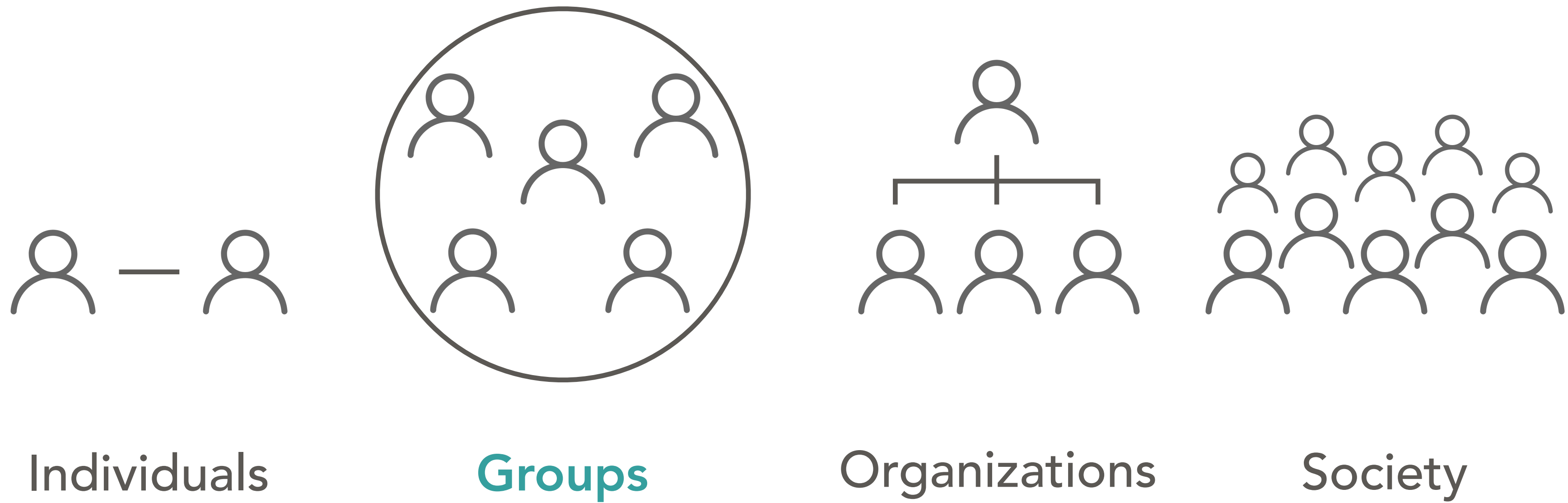
Organizations



Society

Nannestad (2008), Fine & Holyfield (1996), Rosseau, et al. 1998

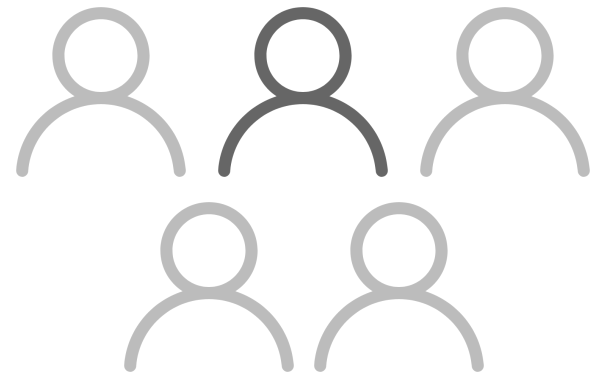
LEVELS OF TRUST



Nannestad (2008), Fine & Holyfield (1996), Rosseau, et al. 1998

METHODOLOGY

To measure trust in groups...



Sample individual-
group pairs

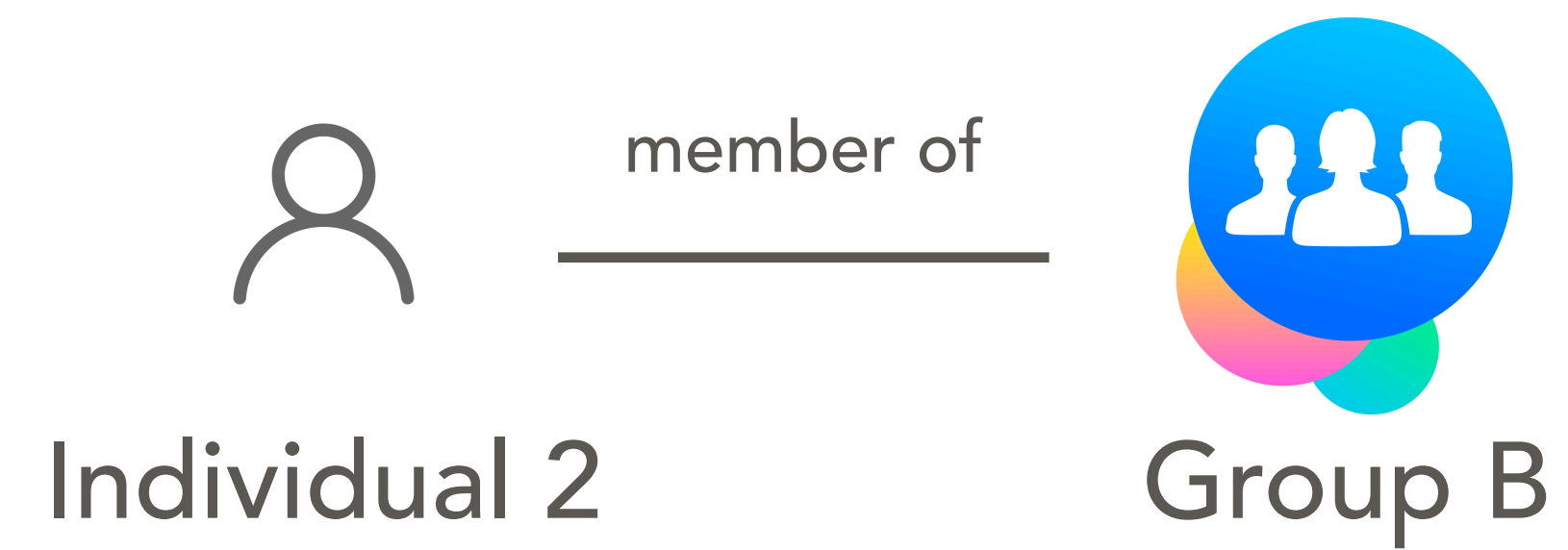


Survey on
trust in groups



Augment with
log data

SAMPLE INDIVIDUAL-GROUP PAIRS



...

SURVEY ON TRUST IN GROUPS

1

Individual
differences

2

Trust
in groups

3

Group
category

SURVEY ON TRUST IN GROUPS

1	2	3
Individual differences	Trust in groups	Group category
Variable	Statement	
Disposition to trust	Most people can be trusted.	
General social support	There are people in my life who give me support and encouragement.	
General risk attitude	I'm willing to take risks.	
General in-group loyalty	I would describe myself as a "team player".	

World Values Survey, Barrera & Ainlay (1983), Van Vugt & Hart (2004), Miller & Mitamura (2003)

SURVEY ON TRUST IN GROUPS

1	2	3
Individual differences	Trust in groups	Group category
Variable	Statement	
Care	Other members of the group care about my well-being.	
Reliability	Other members of this group can be relied upon to do what they say they will do.	
Integrity	Other members of this group are honest.	
Risk-taking	I feel comfortable sharing my thoughts in this group.	

Mayer, et al. (1995), Rotter (1971), Johnson-George & Swap (1982), Ashleigh, et al. (2012)

SURVEY ON TRUST IN GROUPS

1

Individual
differences

2

**Trust
in groups**

3

Group
category

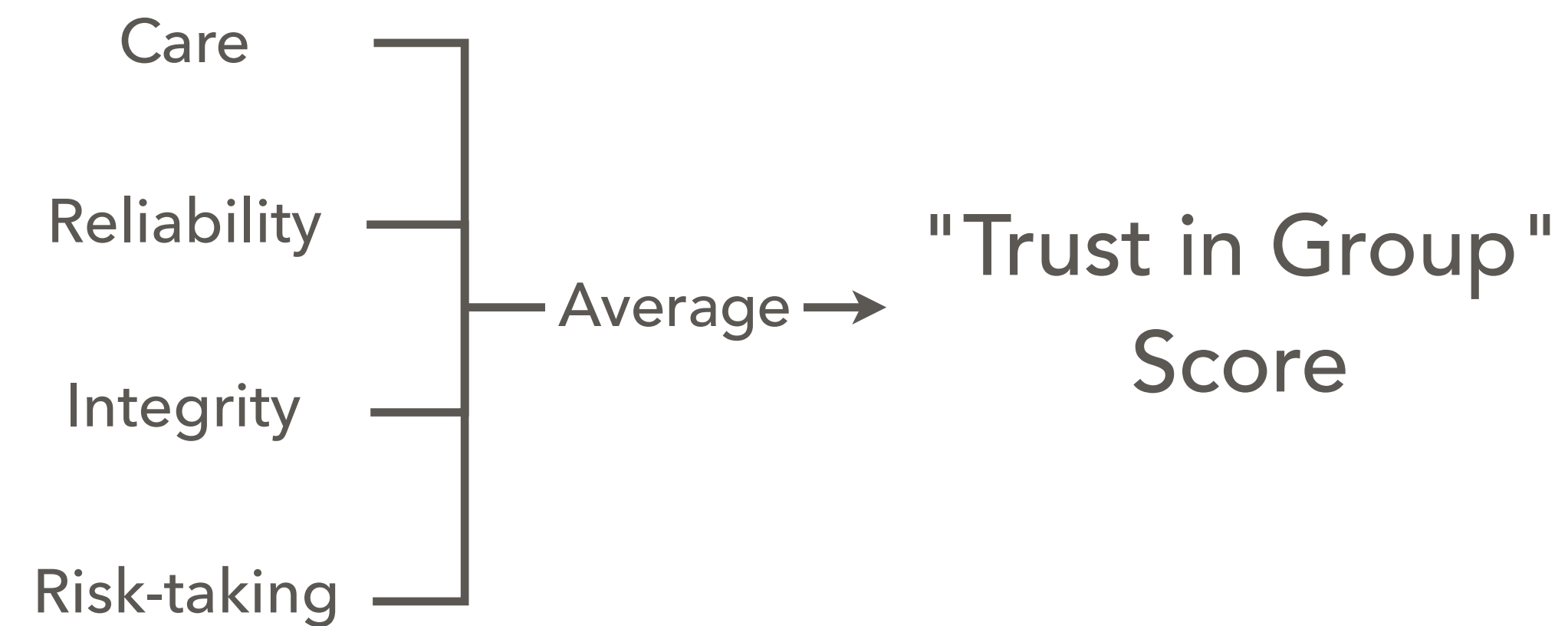
Care

Reliability

Integrity

Risk-taking

SURVEY ON TRUST IN GROUPS



SURVEY ON TRUST IN GROUPS



Friends & Family (e.g., close friends, extended family)

Education & Work (e.g., college, job, professional)

Interest-based (e.g., hobby, book club, sports)

Identity-based (e.g., lifestyle, health, faith, parenting)

Location-based (e.g., neighborhood or local organization)

SURVEY ON TRUST IN GROUPS

6,383 completed survey responses (US-only)

AUGMENTING WITH LOG DATA

De-identified, aggregated log data on group properties, group membership, and activity in the group.

Q2

What predicts trust in a group?

PREDICTION FRAMEWORK

Feature Set	Example Variables

PREDICTION FRAMEWORK

		Feature Set	Example Variables
Individual	[Demographics	Age, gender
		General Attitudes Towards Others	Disposition to trust, general social support, general risk attitude, general in-group loyalty
Group	[

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Abrahao, et al. (2017)

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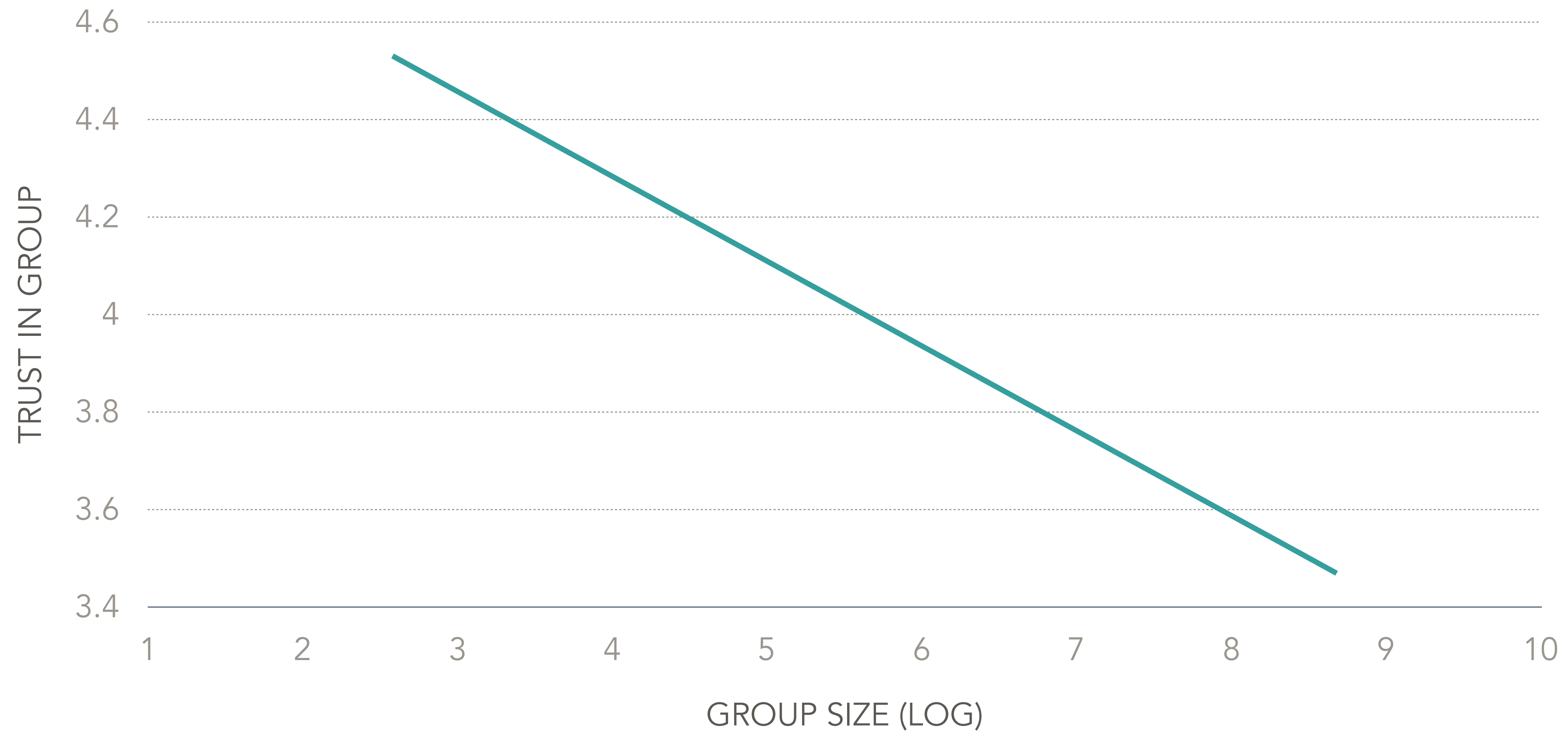
Random Forest: $R^2 = 0.26$, $MSE = 0.53$

PREDICTION FRAMEWORK

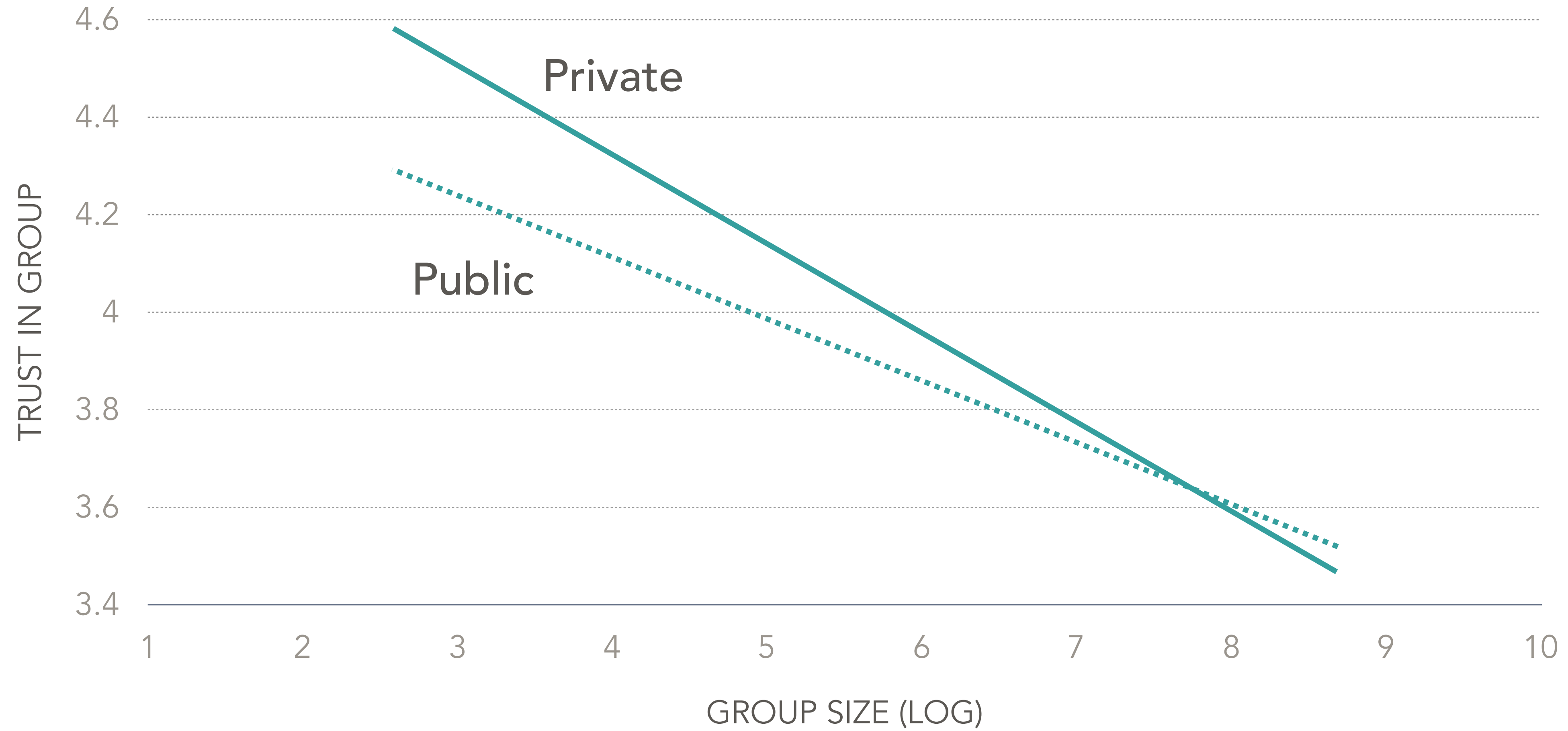
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How do basic group properties relate to
a person's trust in a group?

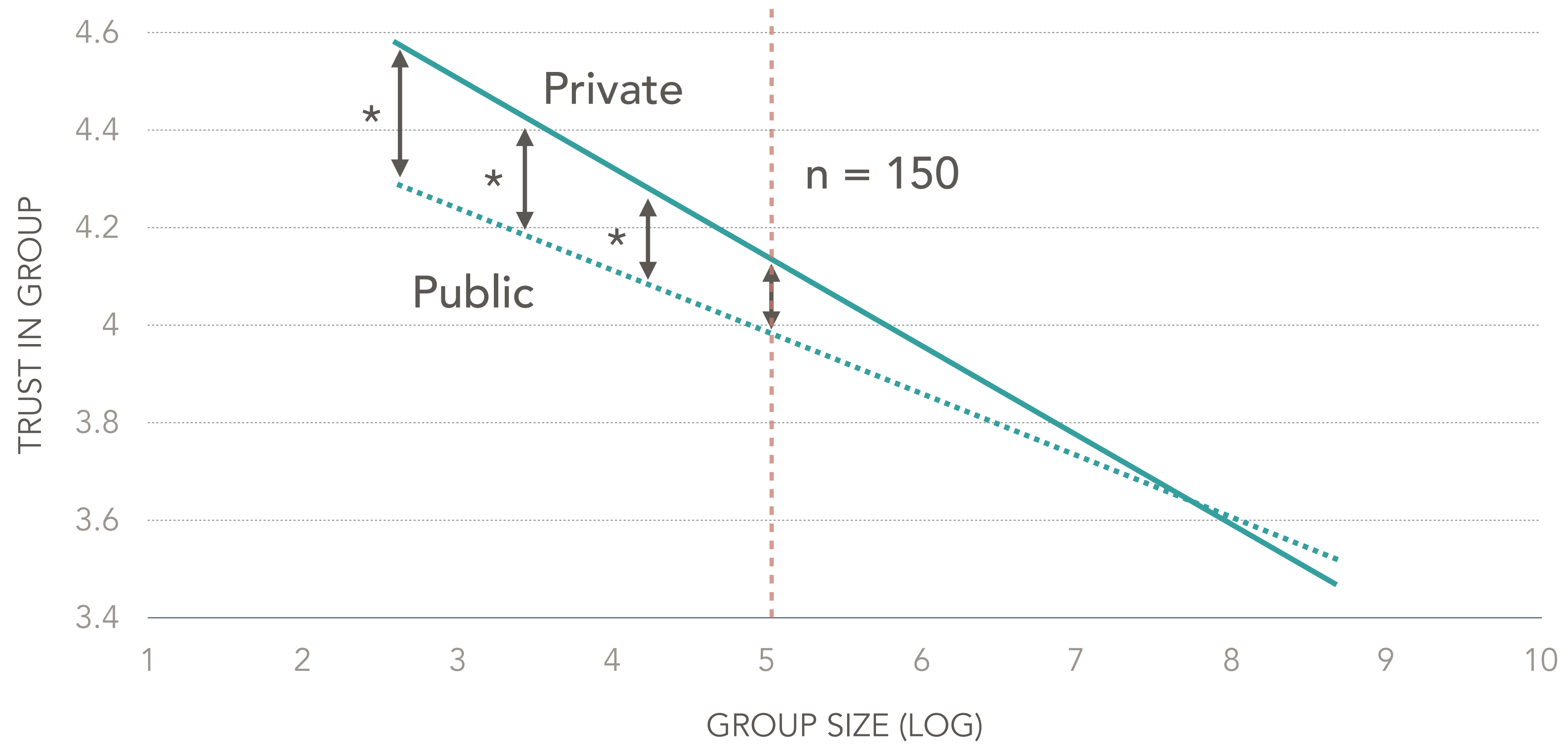
TRUST DECREASES WITH GROUP SIZE



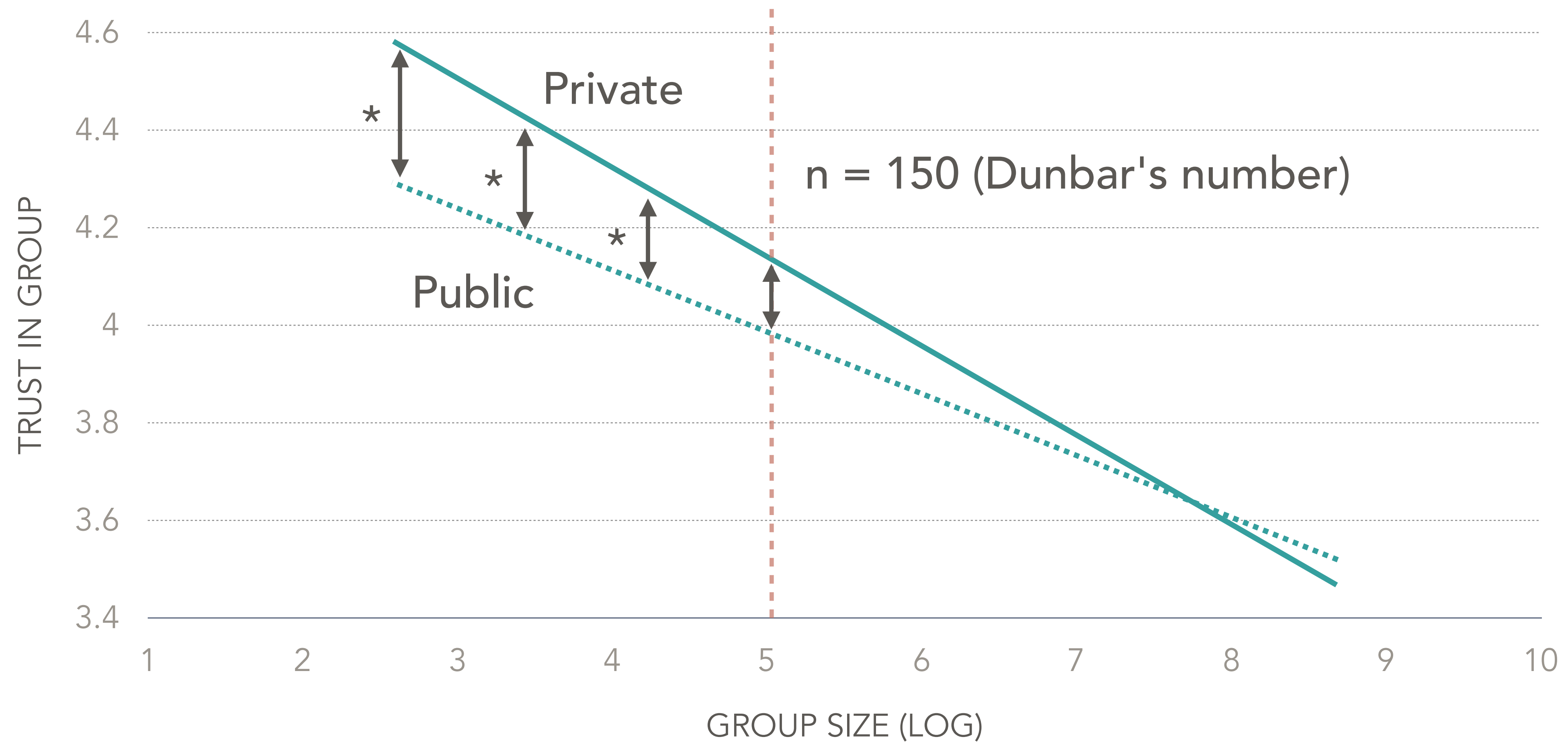
PRIVATE GROUPS ARE TRUSTED MORE...?



...UNTIL THE GROUP HAS ≥ 150 MEMBERS

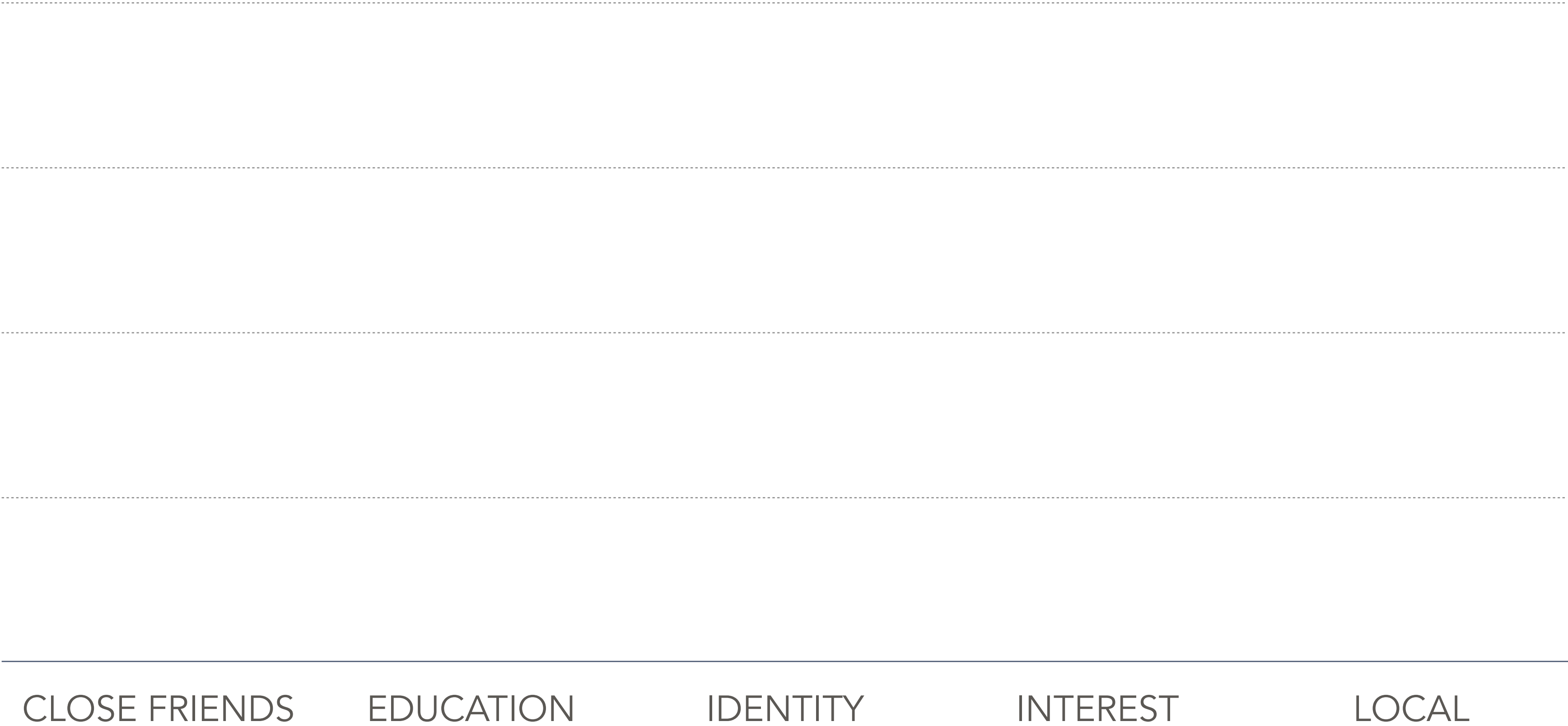


...UNTIL THE GROUP HAS ≥ 150 MEMBERS

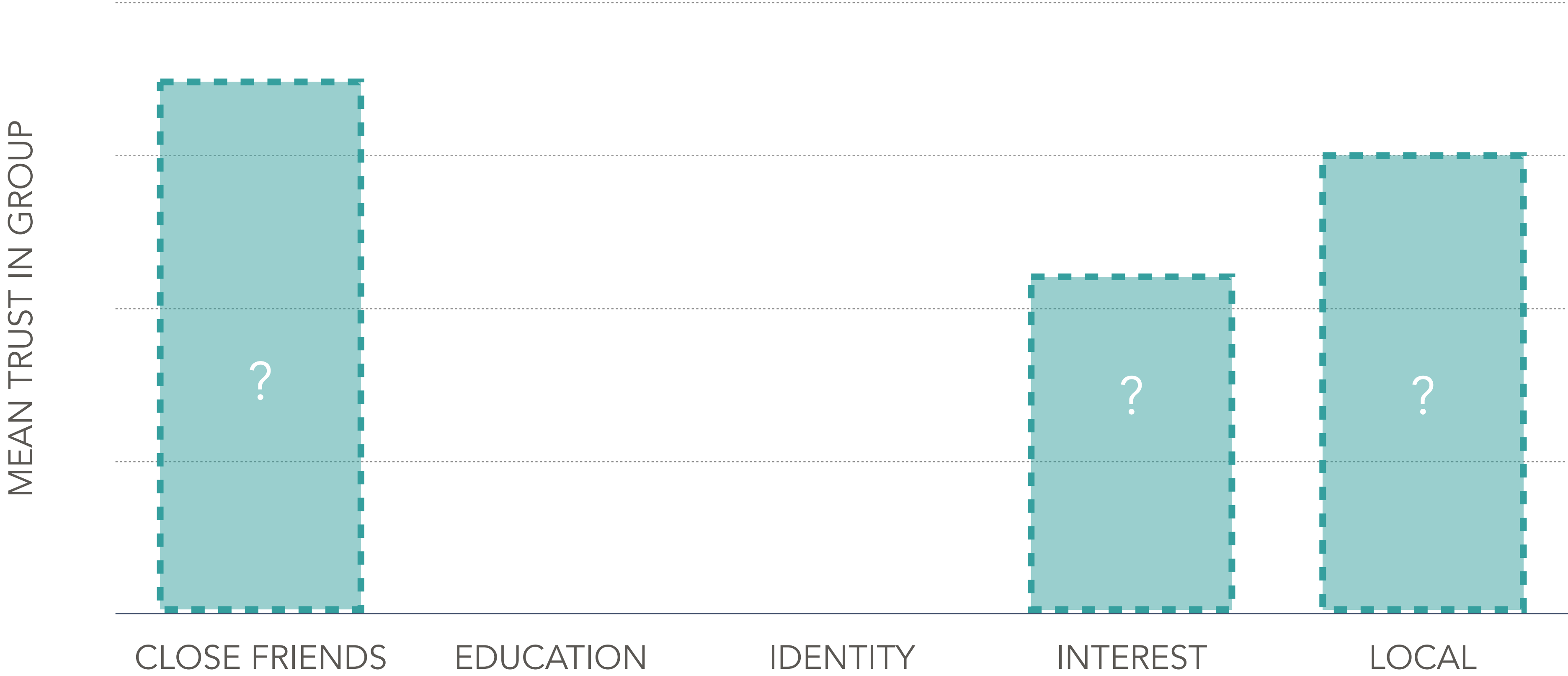


TRUST AND GROUP CATEGORY

MEAN TRUST IN GROUP

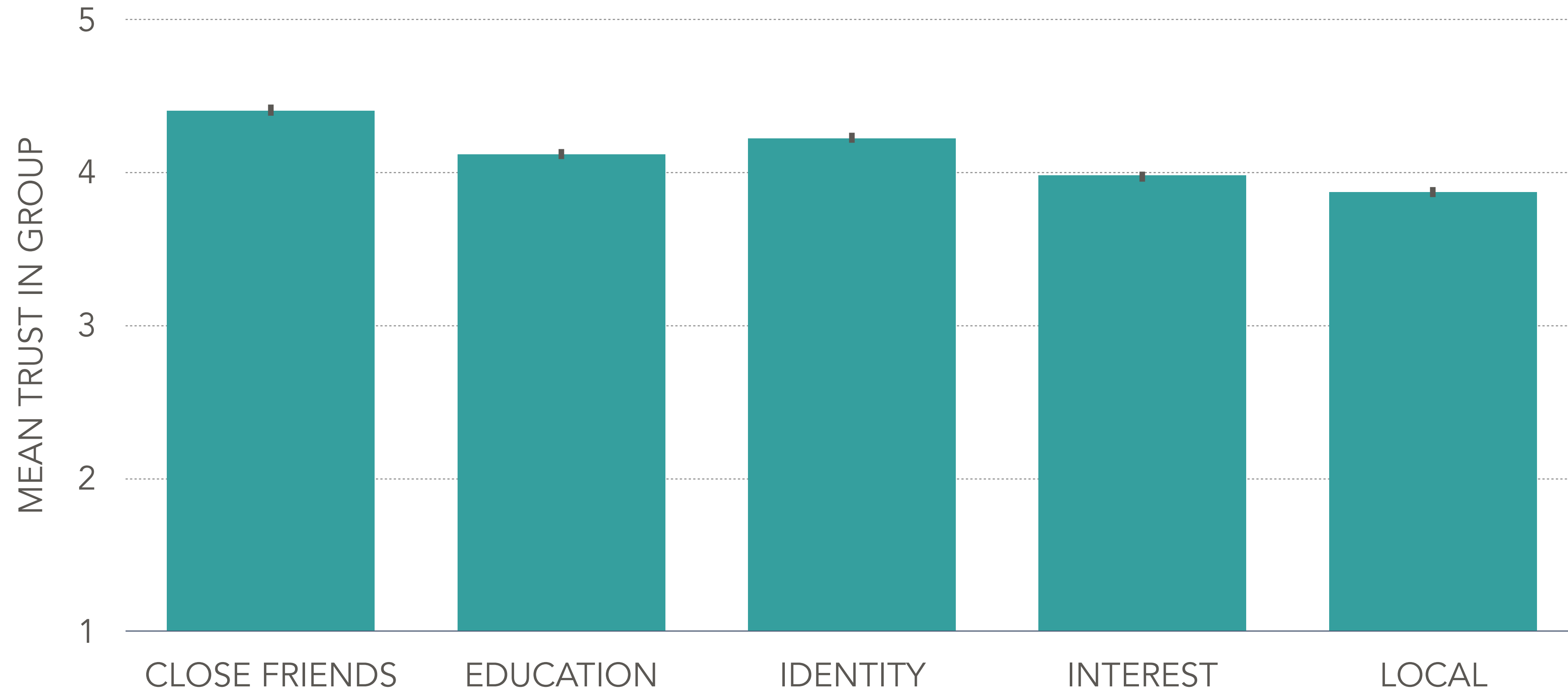


TRUST AND GROUP CATEGORY



Levin & Cross (2004), Putnam (2000)

LOCATION-BASED GROUPS HAVE LOW TRUST



How does a group's network structure relate to a person's trust in a group?

GROUP NETWORK STRUCTURE

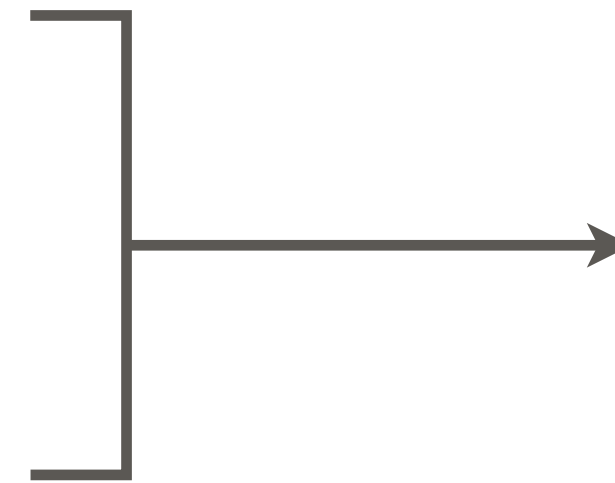
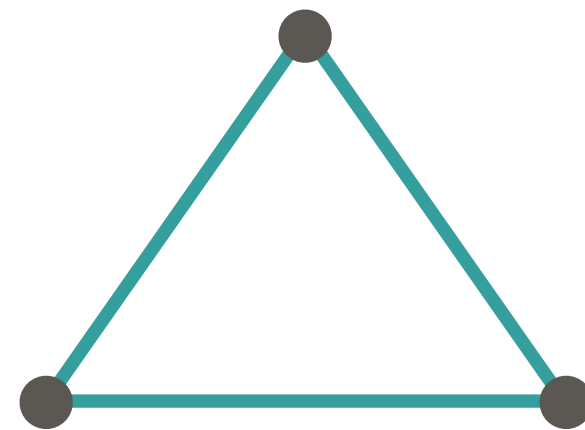
Group member (node)



Friendship (edge)

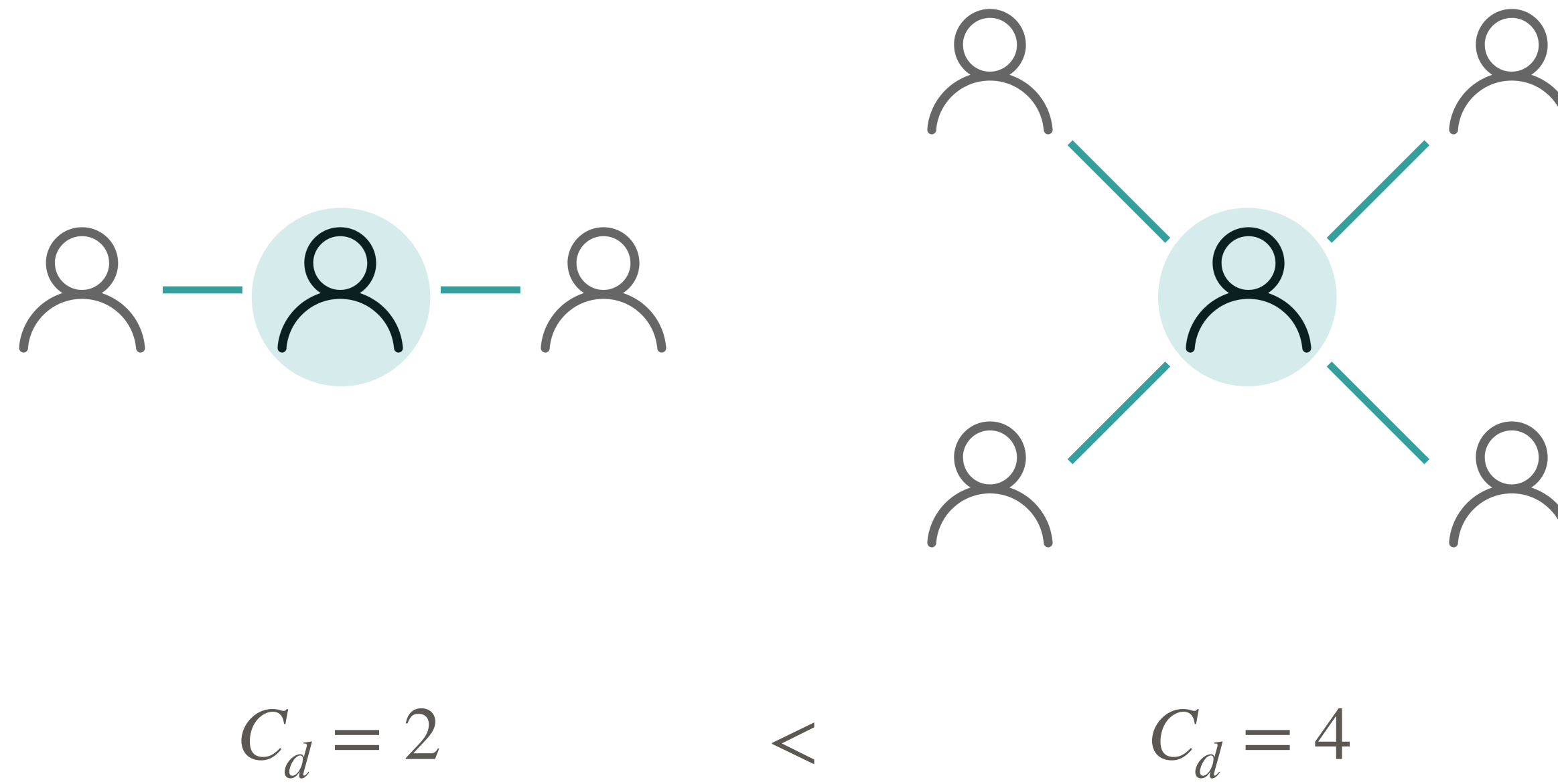


Group network



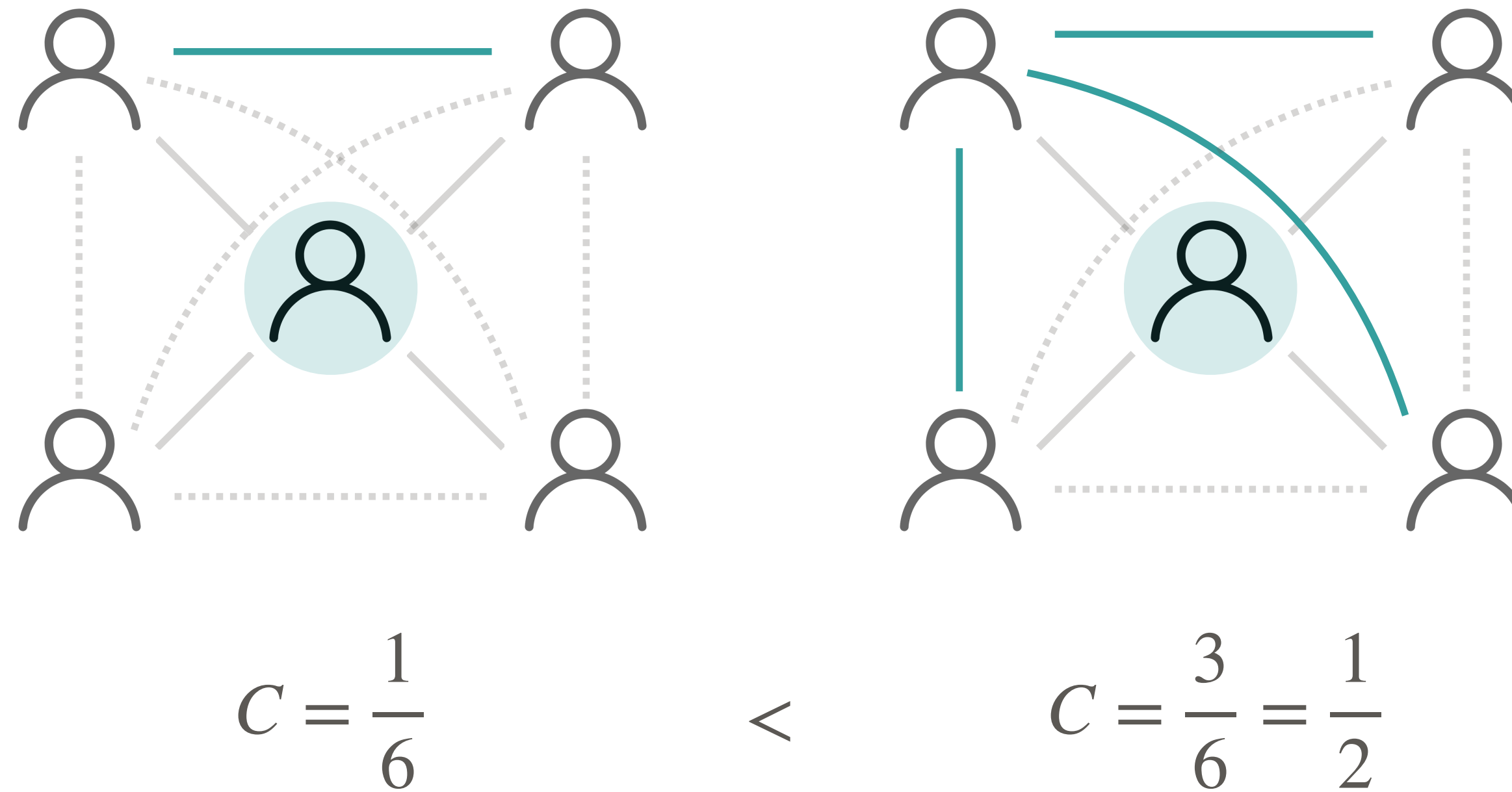
**Network
statistics**

GROUP NETWORK STATISTICS



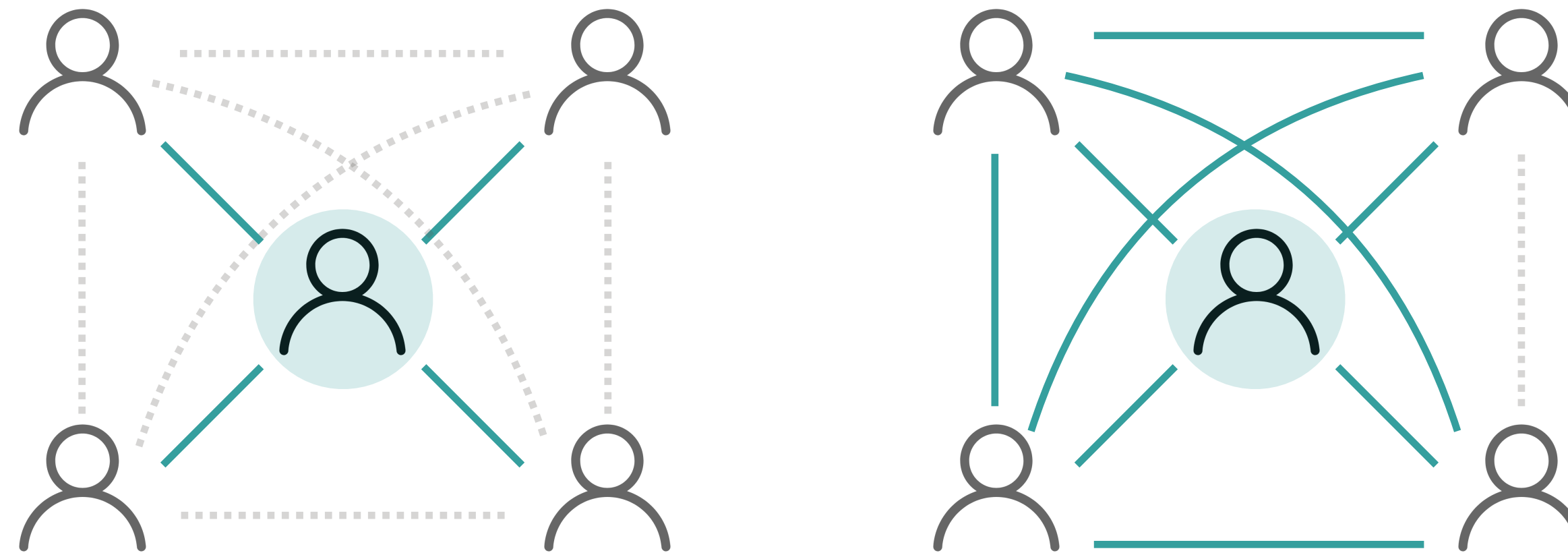
Degree Centrality

GROUP NETWORK STATISTICS



Clustering Coefficient

GROUP NETWORK STATISTICS



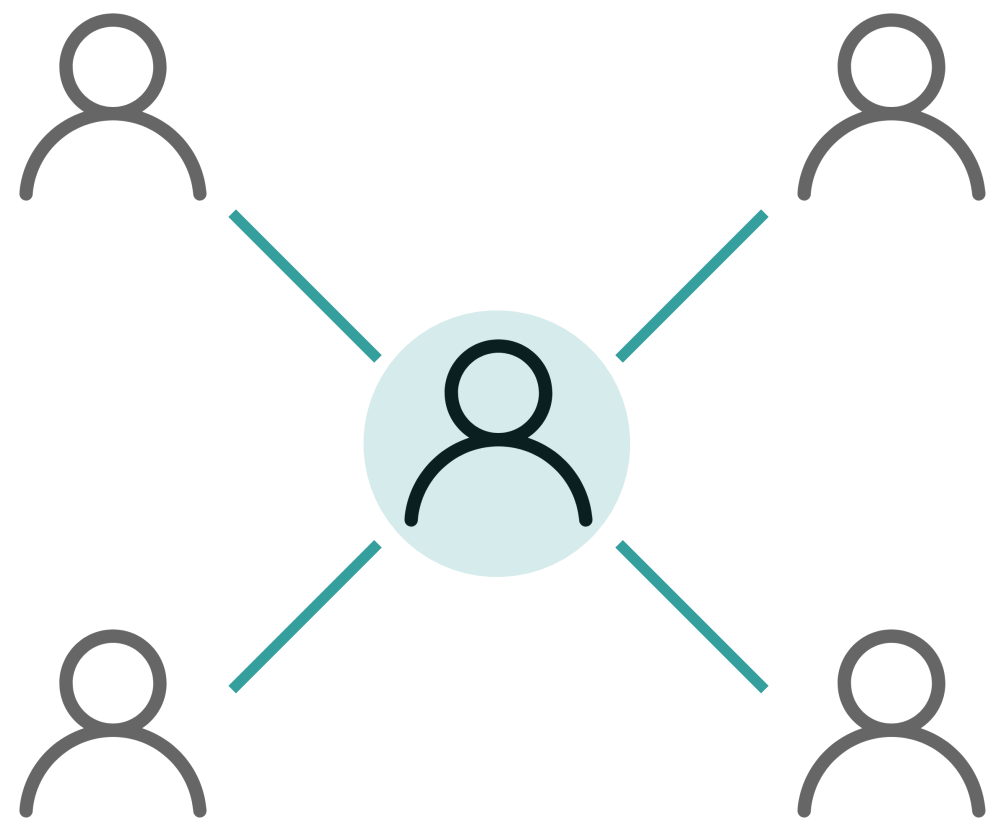
$$D = \frac{4}{10} = 0.4$$

<

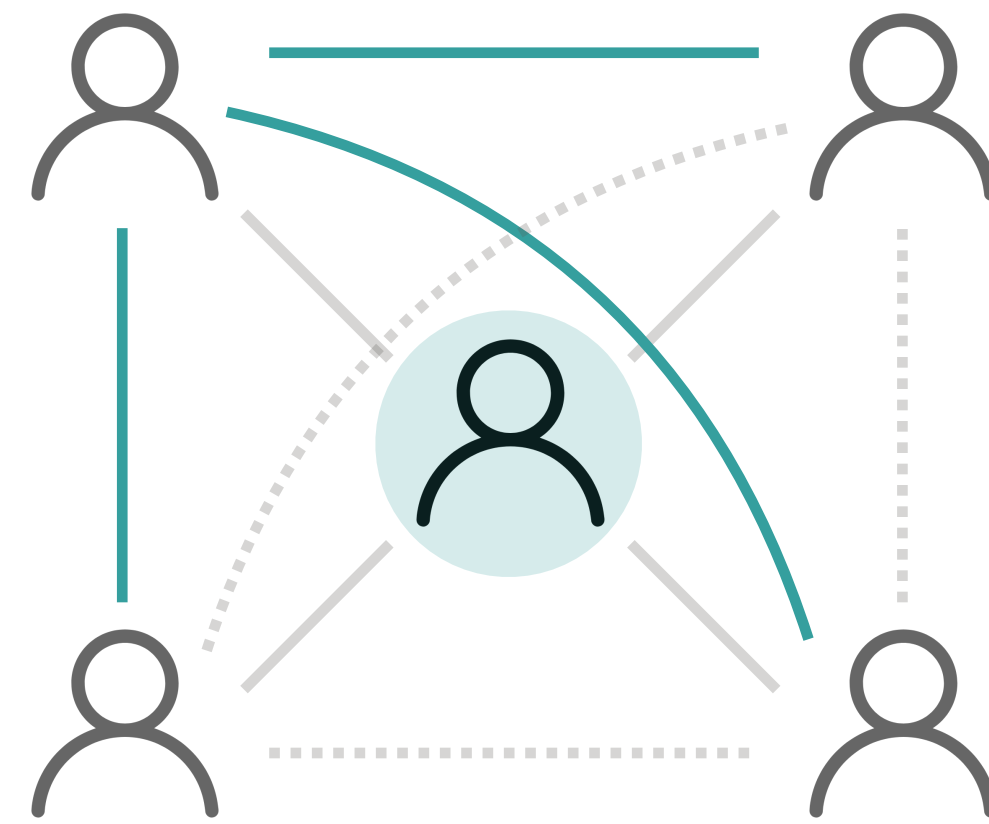
$$D = \frac{9}{10} = 0.9$$

Network Density

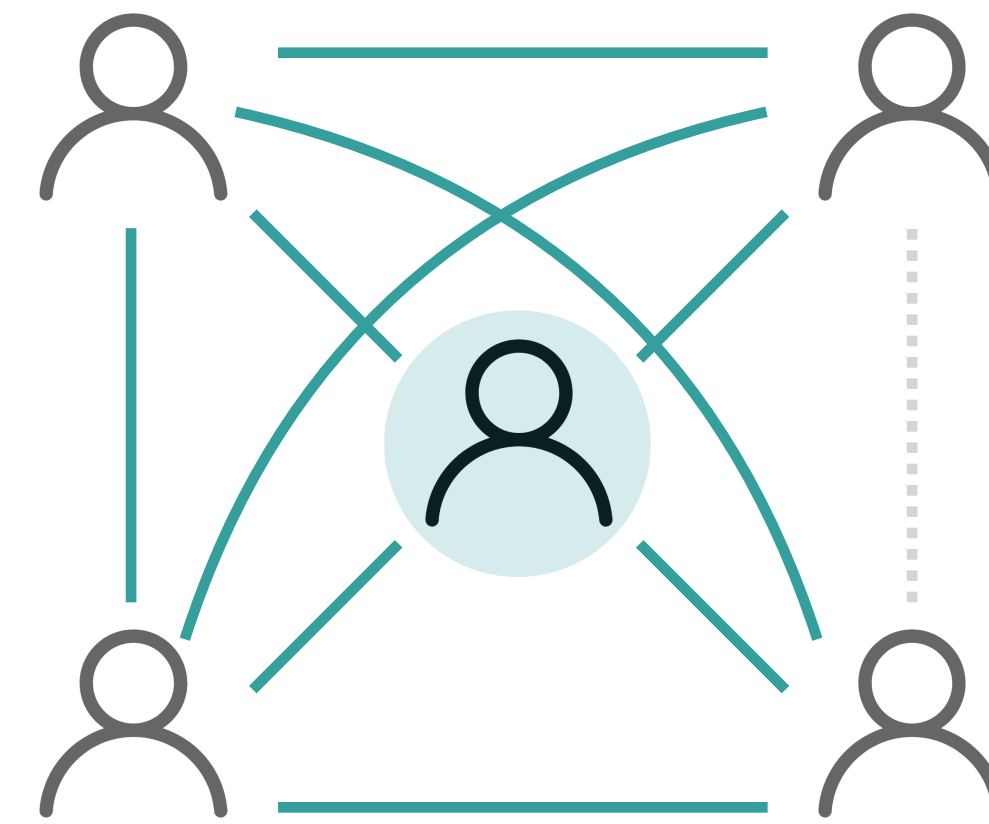
GROUP NETWORK STATISTICS



Degree Centrality

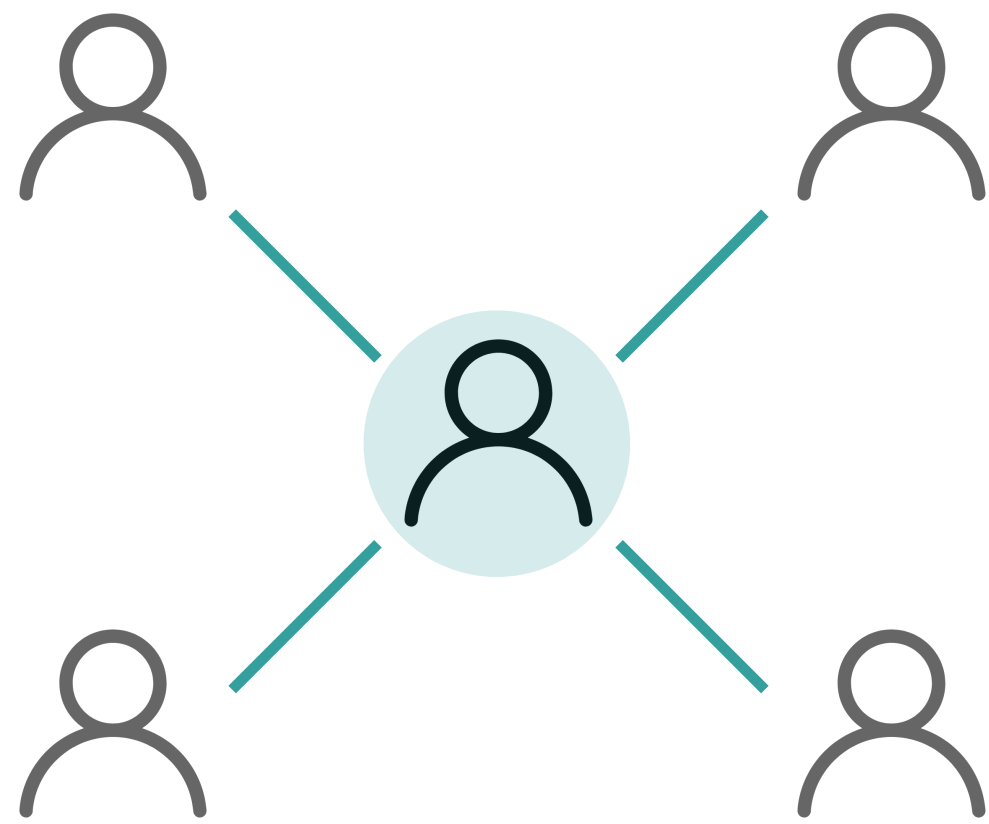


Clustering Coefficient



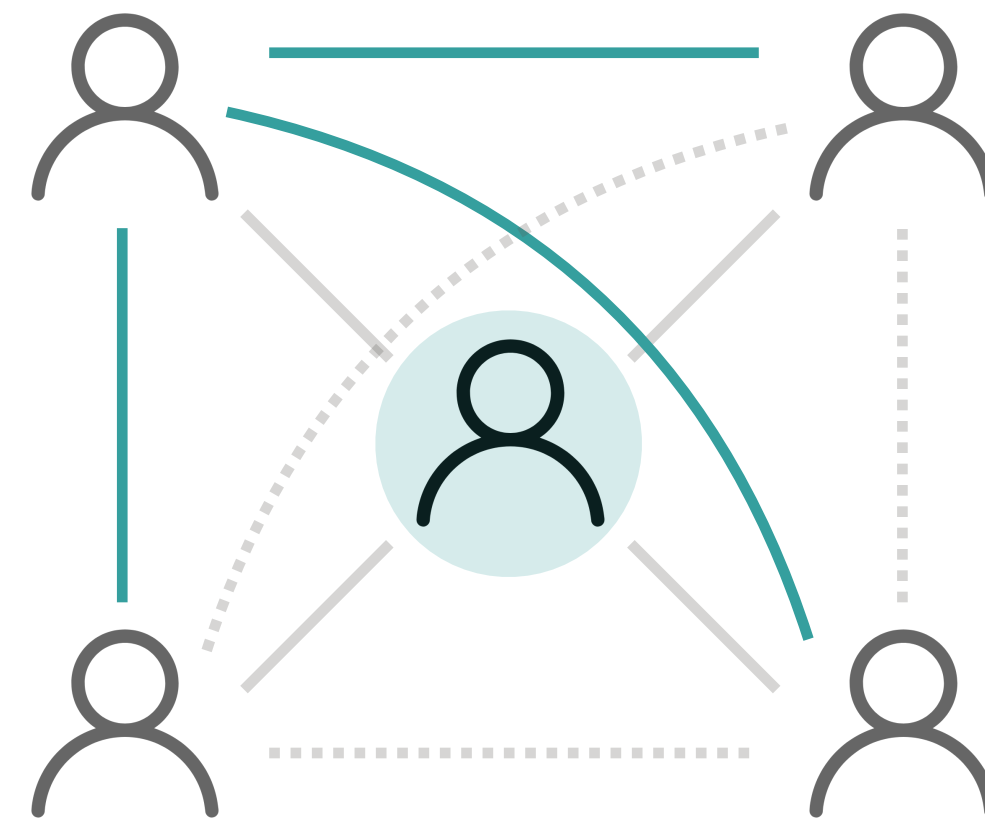
Network Density

GROUP NETWORK STATISTICS



Greater

Degree Centrality



Greater

Clustering Coefficient



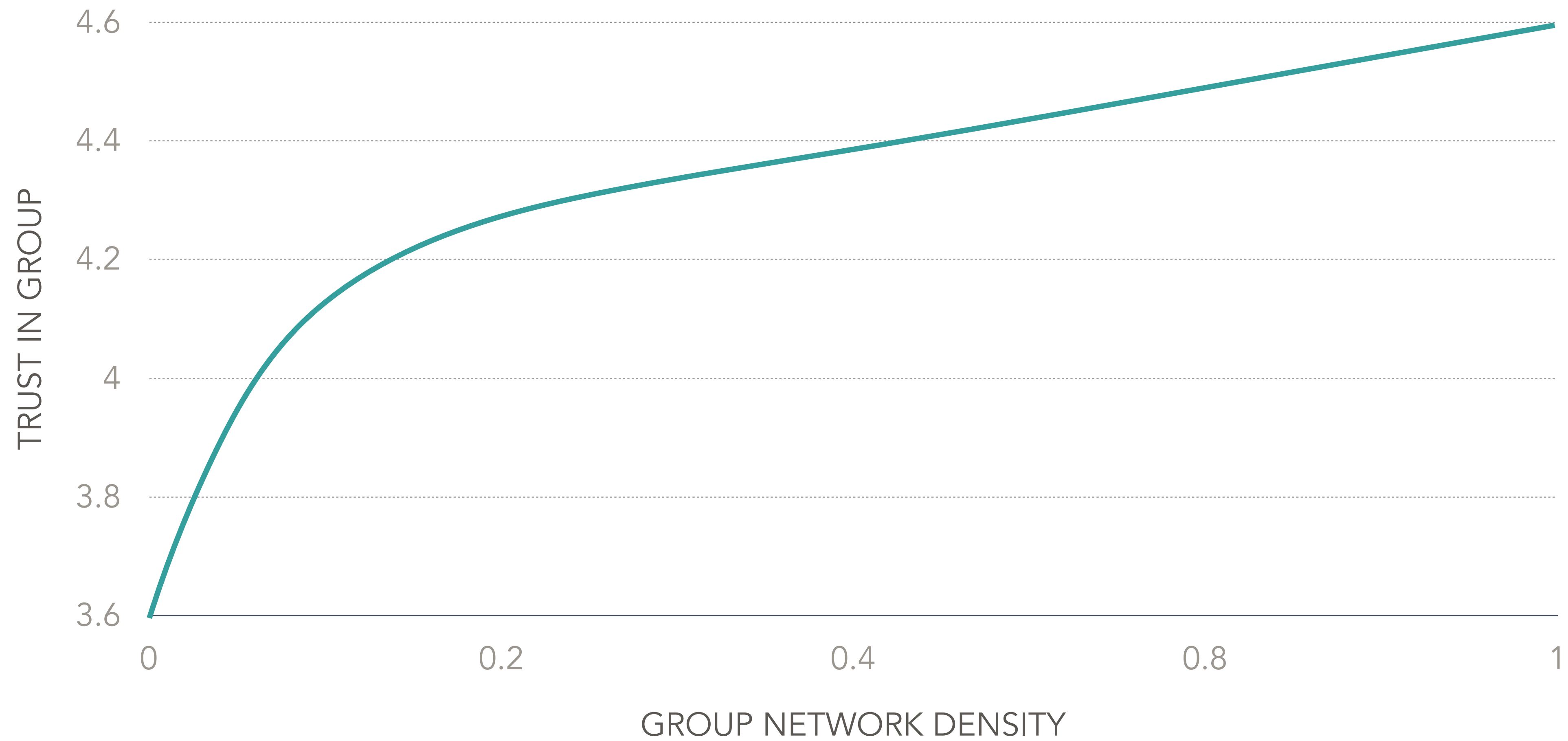
Greater

Network Density

...is associated with greater trust.

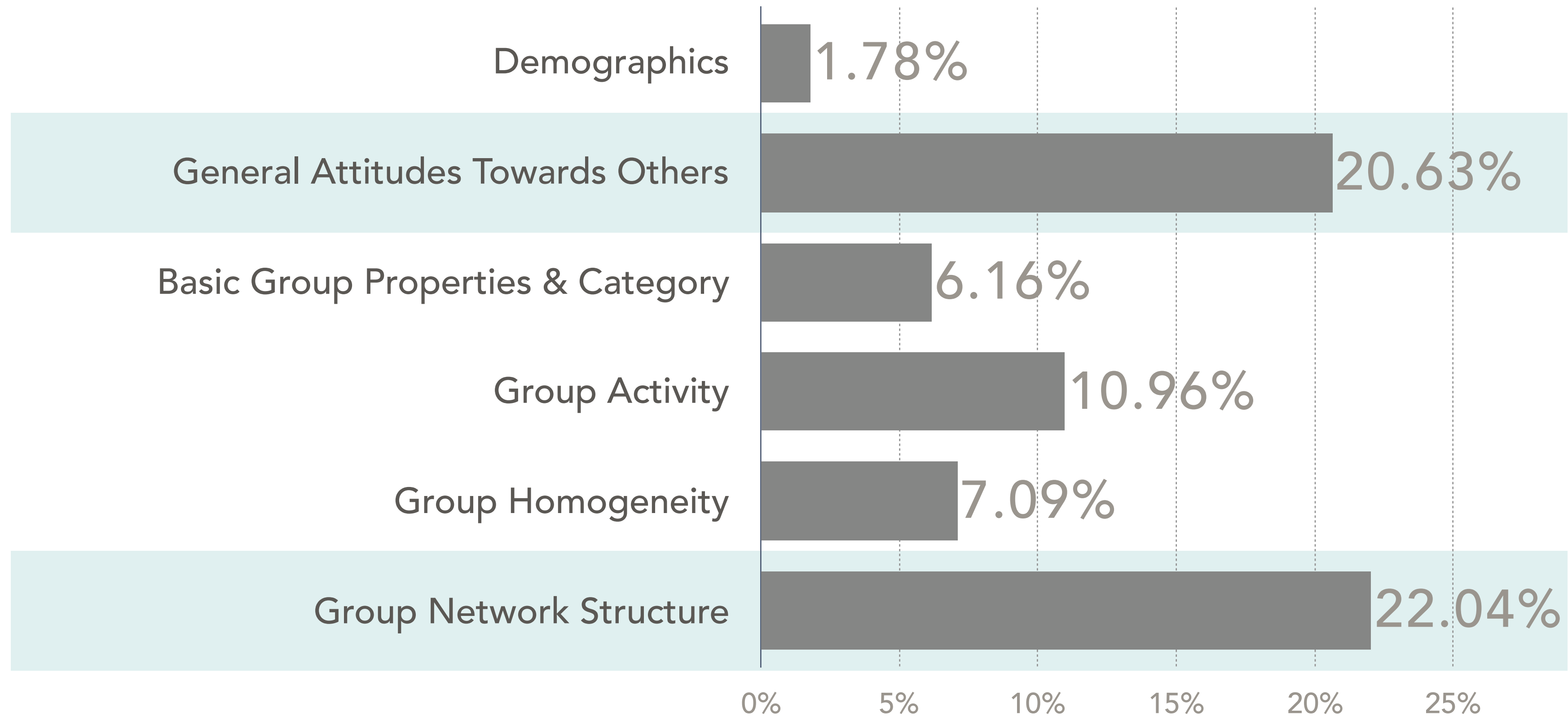
Coleman (1988)

TRUST INCREASES WITH GROUP DENSITY

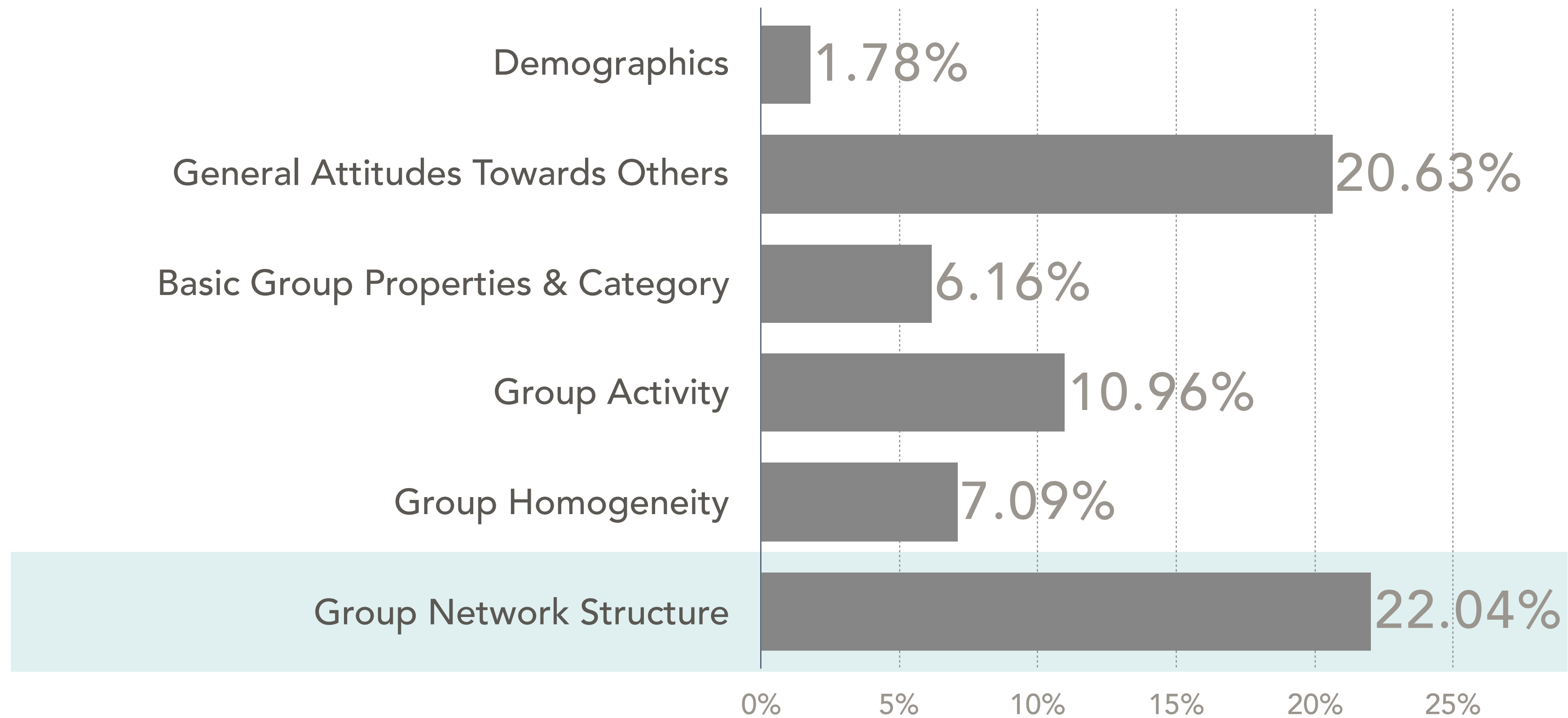


Which features are most important in predicting trust in a group?

FEATURE IMPORTANCE



FEATURE IMPORTANCE

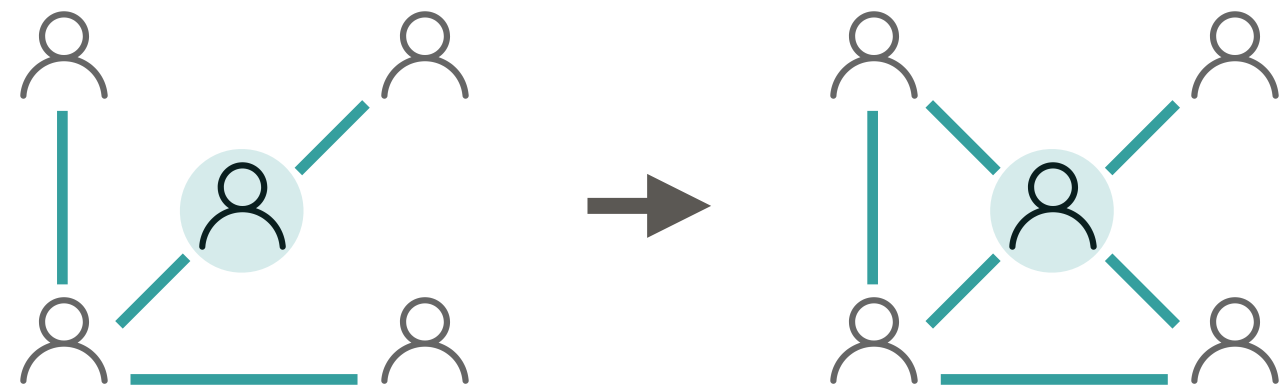


also see Moody and White (2003)

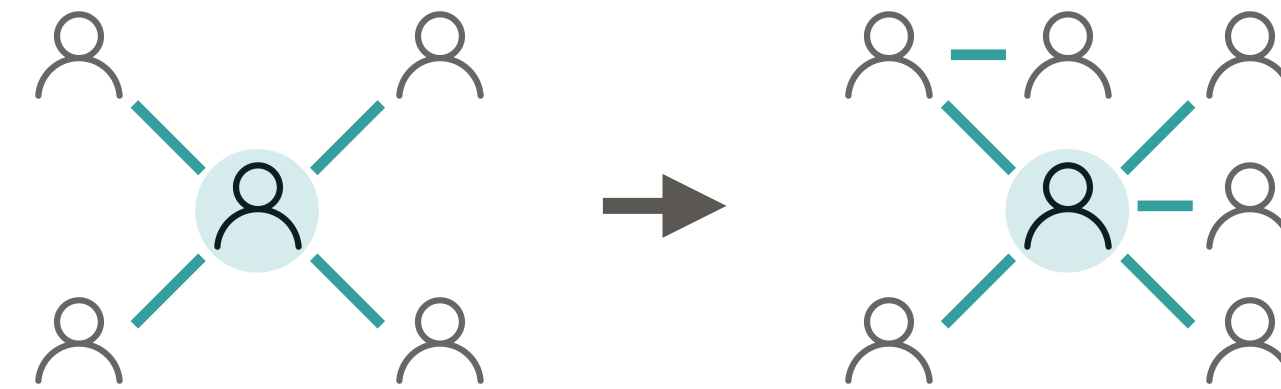
Q3

Can trust predict future group outcomes?

CAN TRUST PREDICT FUTURE OUTCOMES?

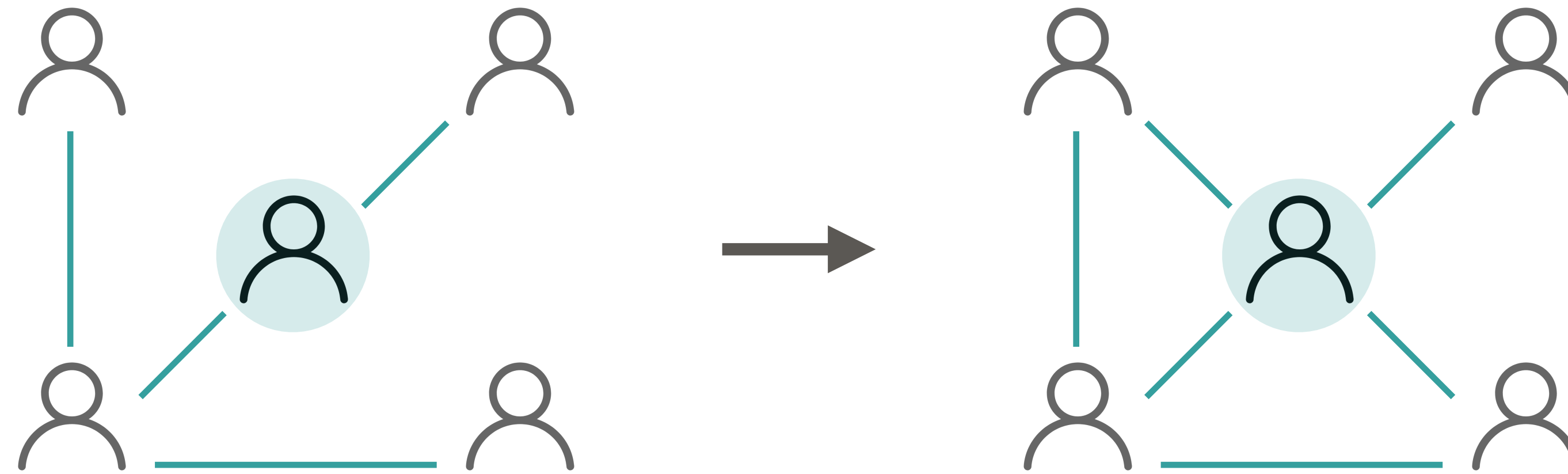


Can trust predict
new tie formation?



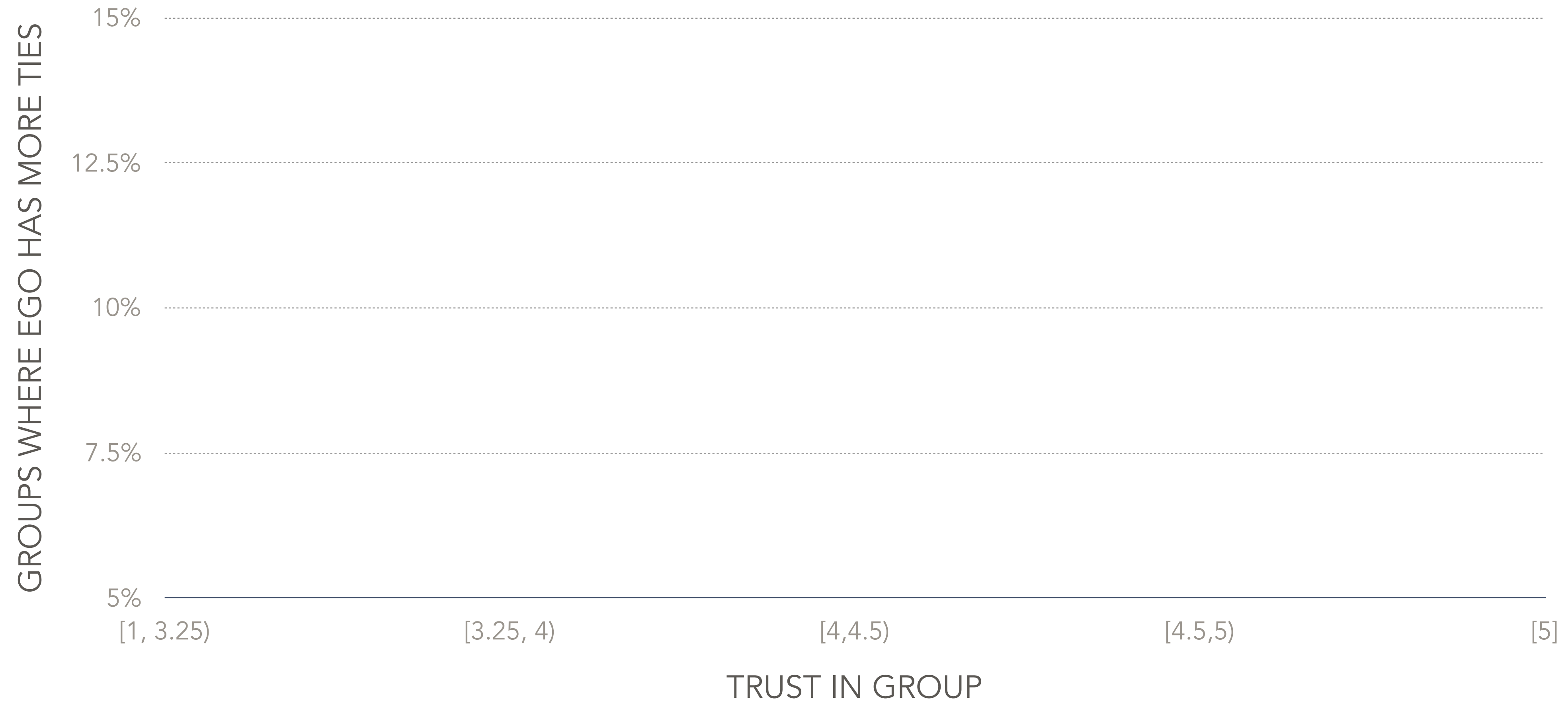
Can trust predict
future group size?

CAN TRUST PREDICT NEW TIE FORMATION?

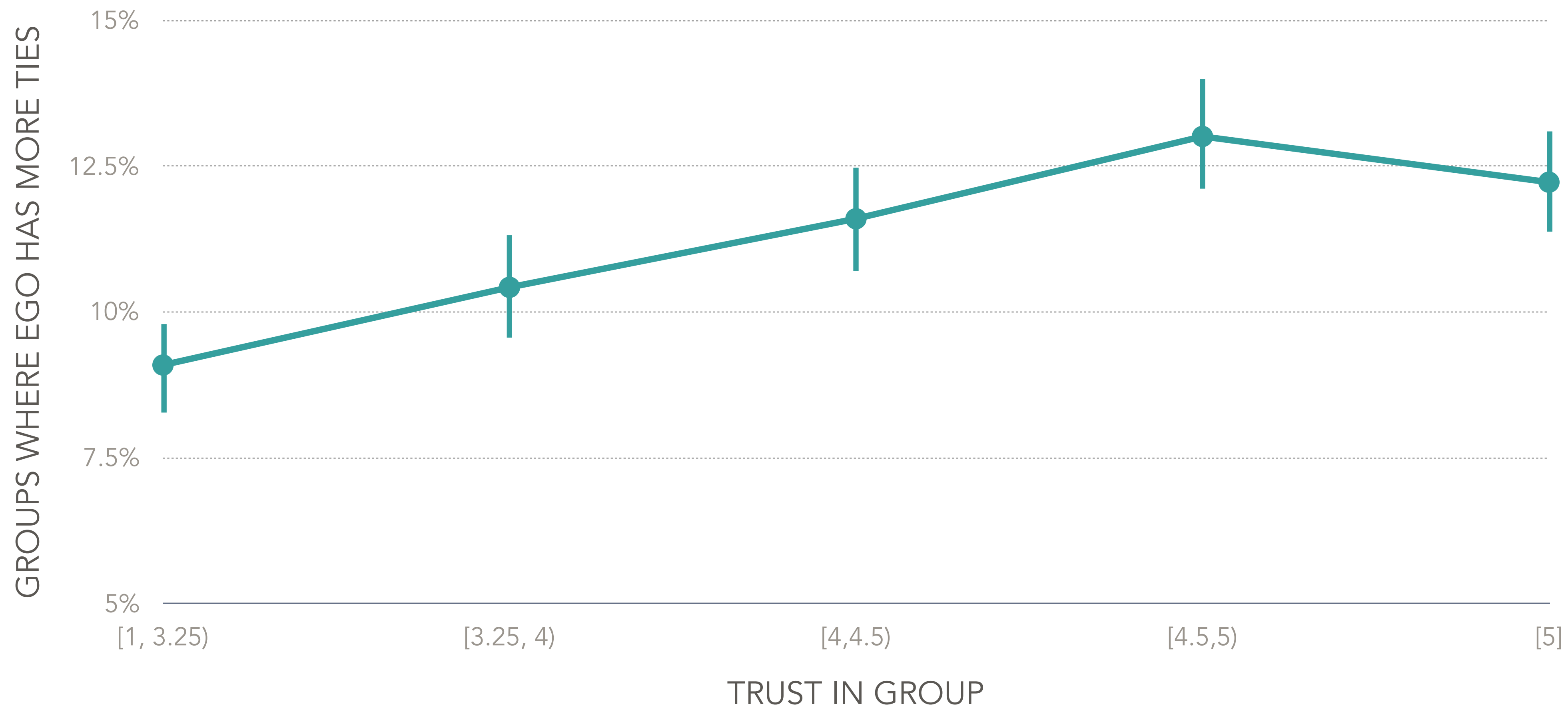


The likelihood of the participant forming
 $\geq 1\%$ new in-group ties in the month following the survey

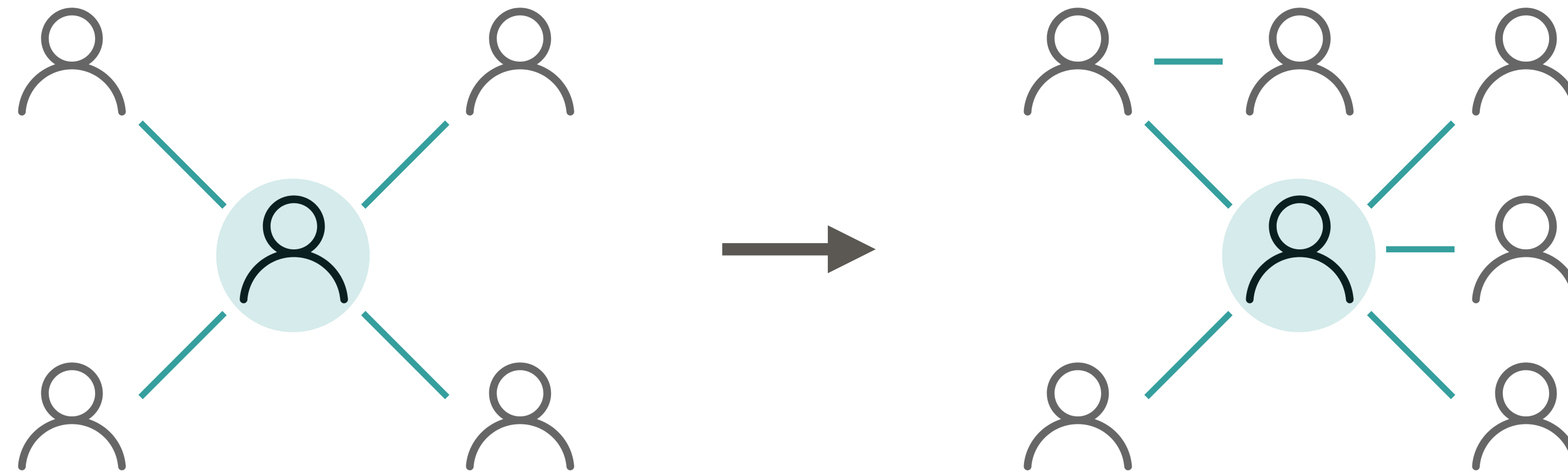
CAN TRUST PREDICT NEW TIE FORMATION?



GREATER TRUST LEADS TO MORE TIES



CAN TRUST PREDICT FUTURE GROUP SIZE?

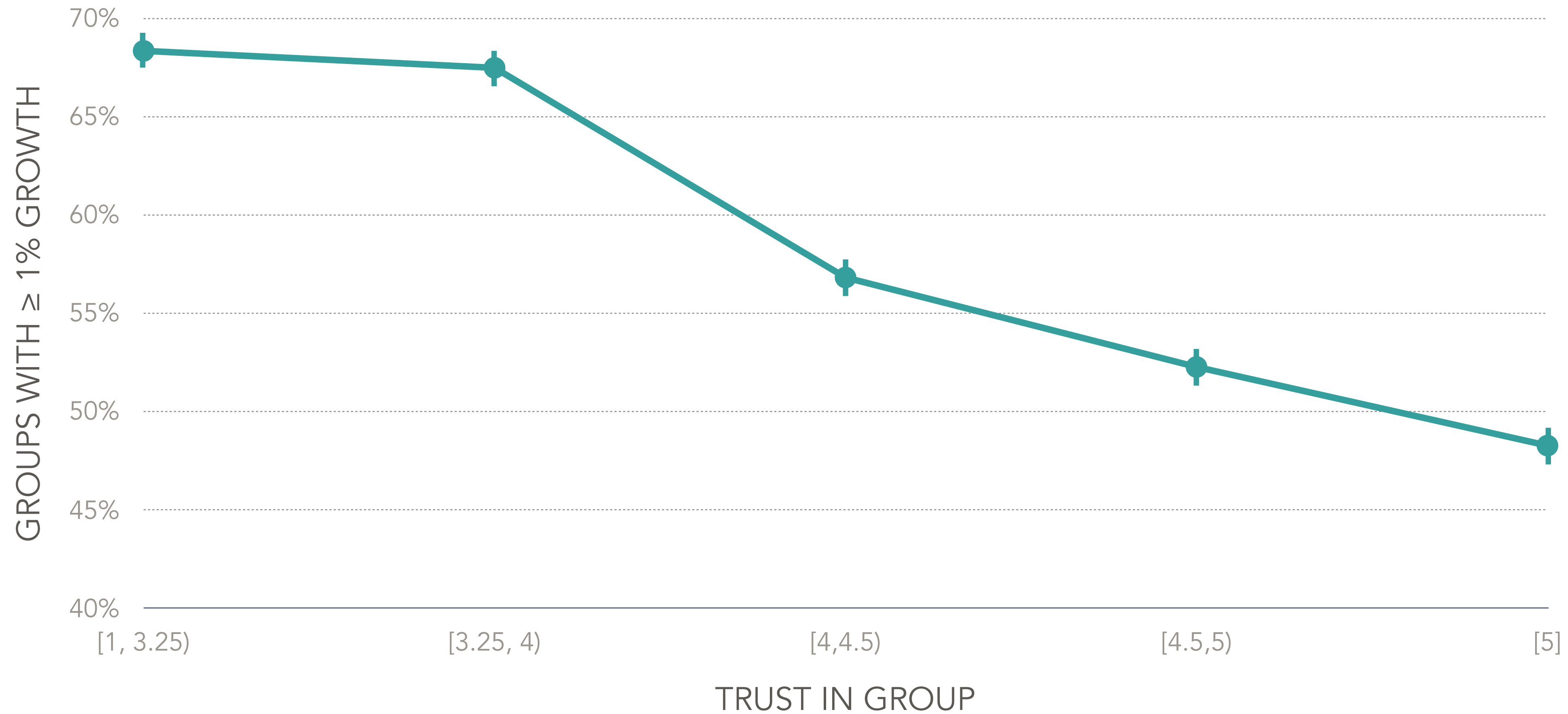


The likelihood that group size increases by $\geq 1\%$ in the month following the survey.

CAN TRUST PREDICT FUTURE GROUP SIZE?



GREATER TRUST MEANS SLOWER GROWTH



also see Backstrom, et al. (2006)

OPEN QUESTIONS

- ▶ What is the causal relationship between trust in group and observed behaviors?
- ▶ Do these findings apply in other settings?
- ▶ How may these findings inform design?
 - ▶ E.g., recommend smaller, less popular groups
- ▶ What are other measures of "good" groups?

SUMMARY

Groups that are smaller, denser, and more clustered are perceived as more trustworthy.
Network structure is a strong predictor of trust.
Trust in a group can, in turn, predict group outcomes.

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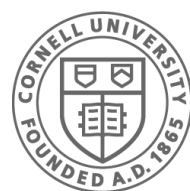


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http://bit.ly/trust_in_groups



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