Intervening to Increase Community Trust for Fair Network Outcomes

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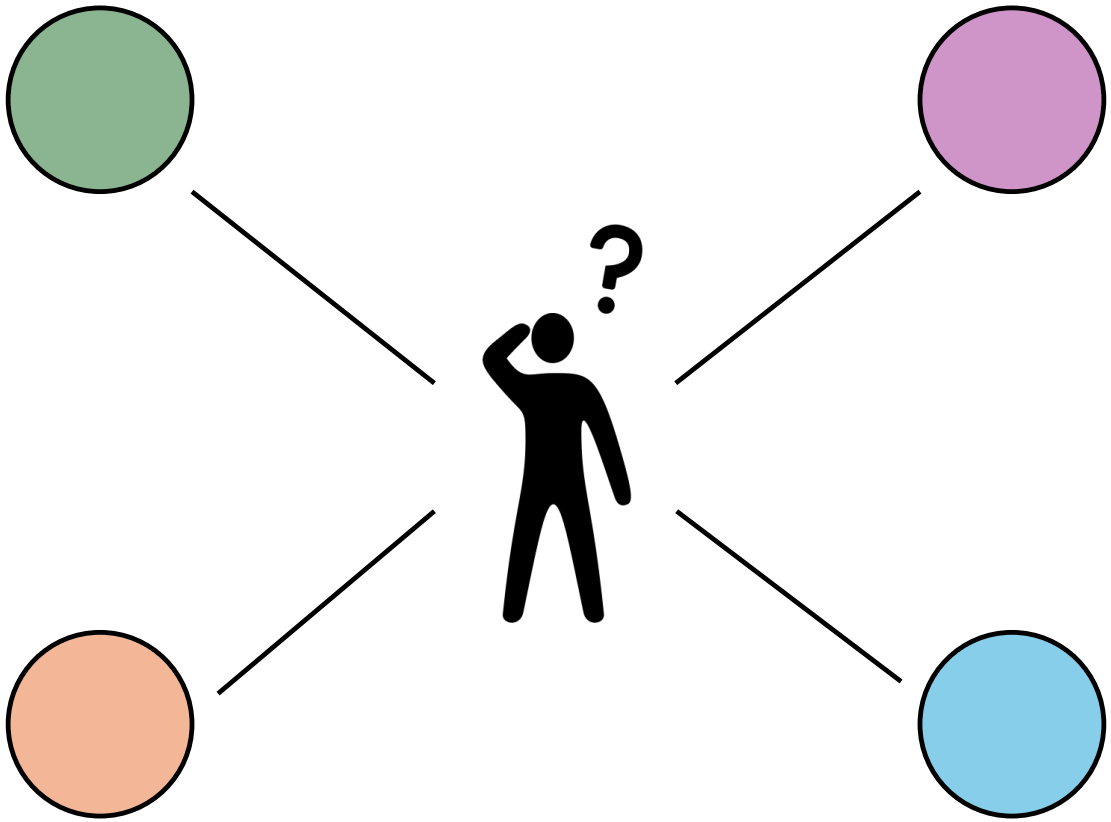
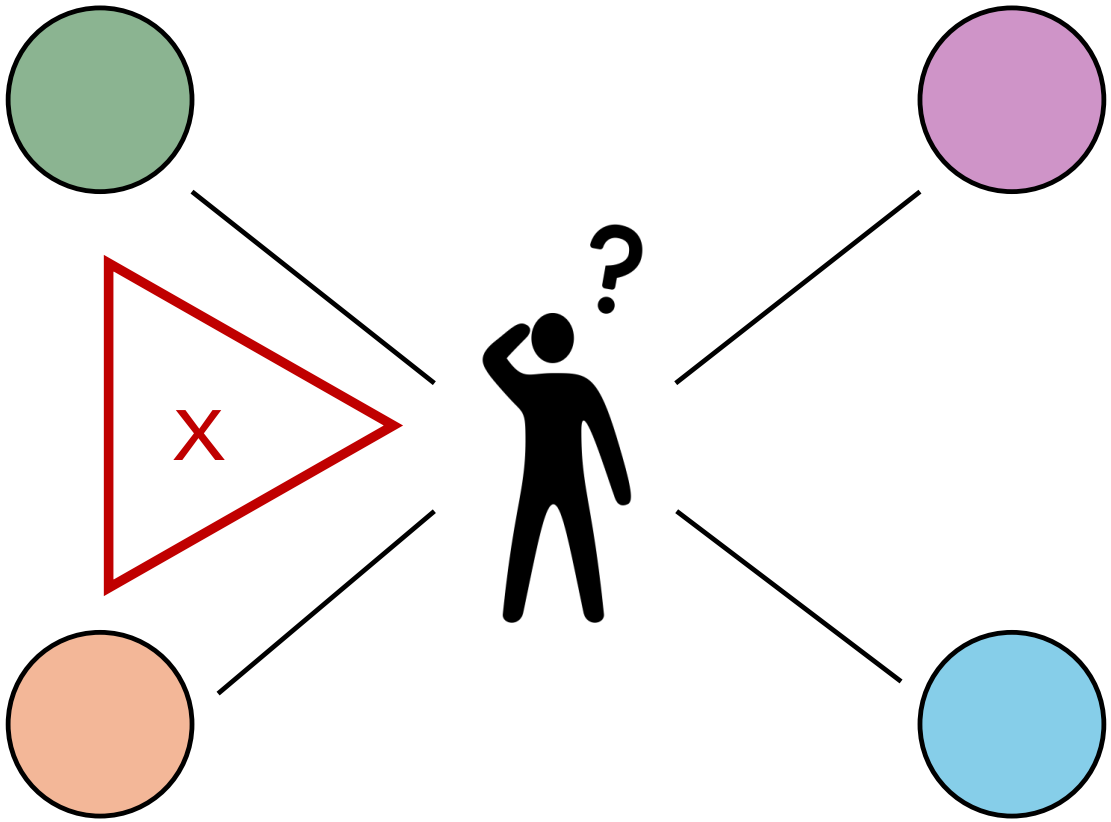
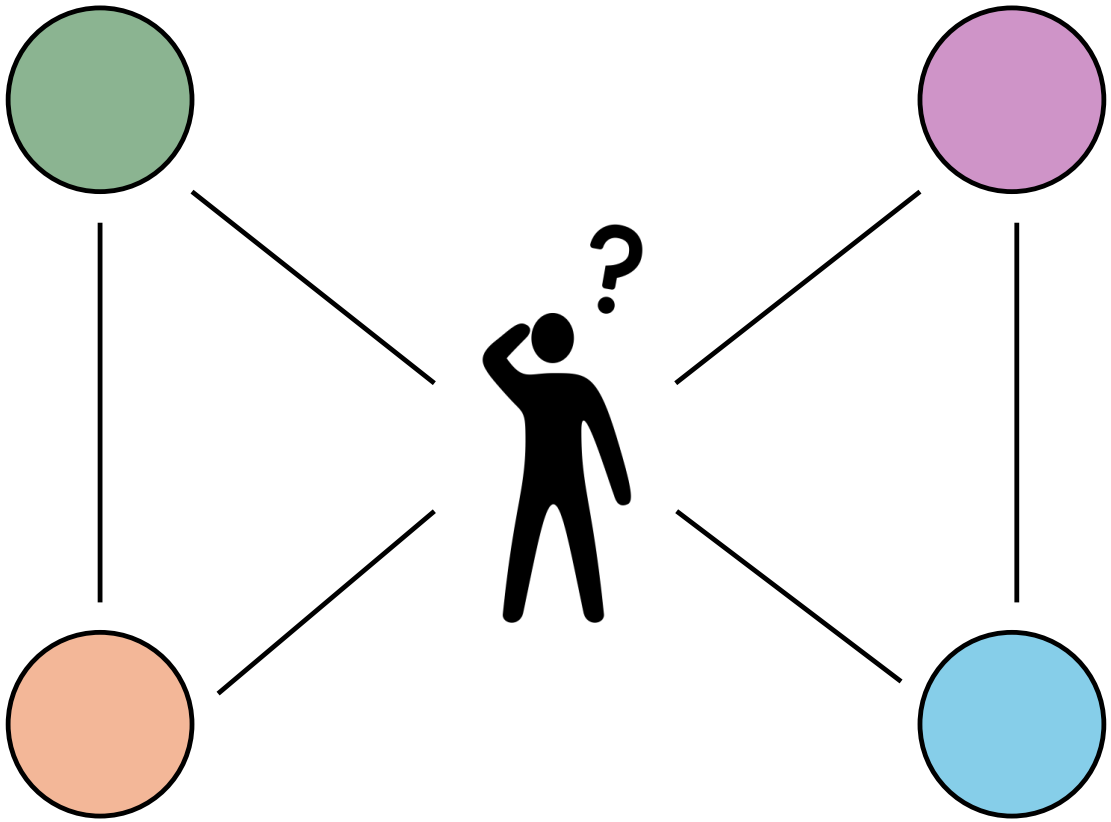




(Bearman and Moody 2004)



Our findings emphasize the importance of trust

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(RQ2 and RQ3) Can we design community interventions to increase trust and therefore fairness?

Our findings emphasize the importance of trust

(RQ1) What is the tradeoff between agent trust and the public entity's resource constraint when trying to boost triangle count?

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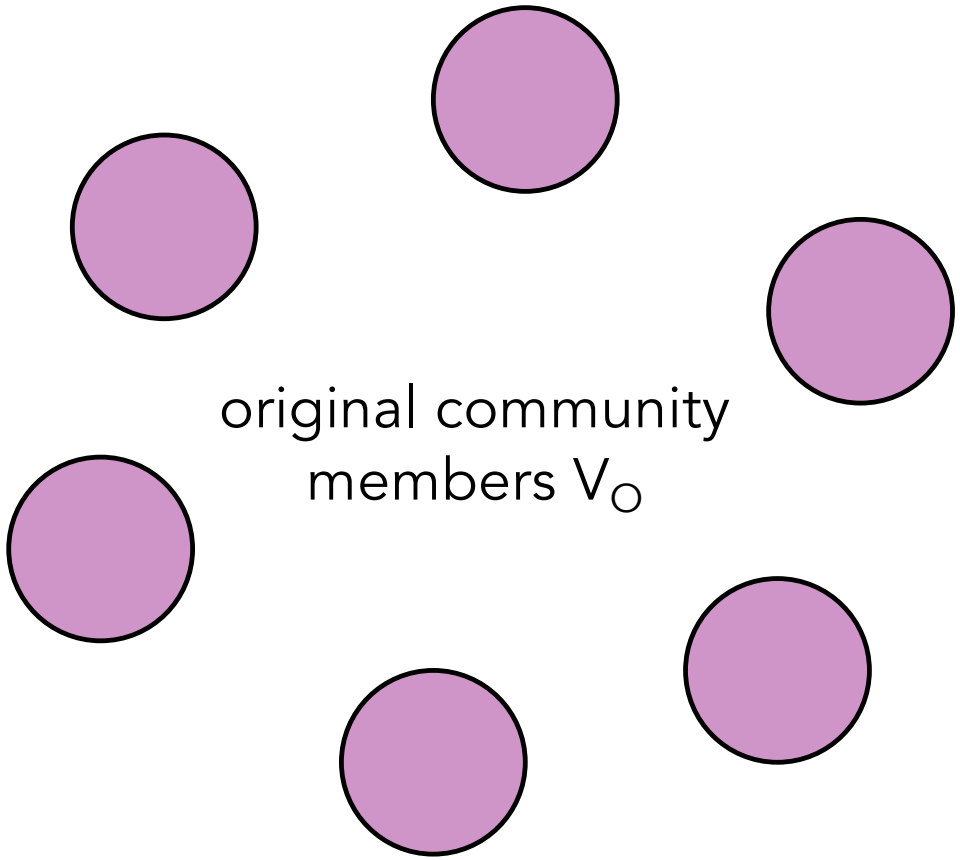
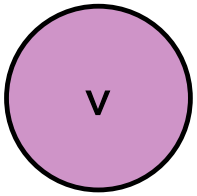
(RQ2 and RQ3) Can we design community interventions to increase trust and therefore fairness?

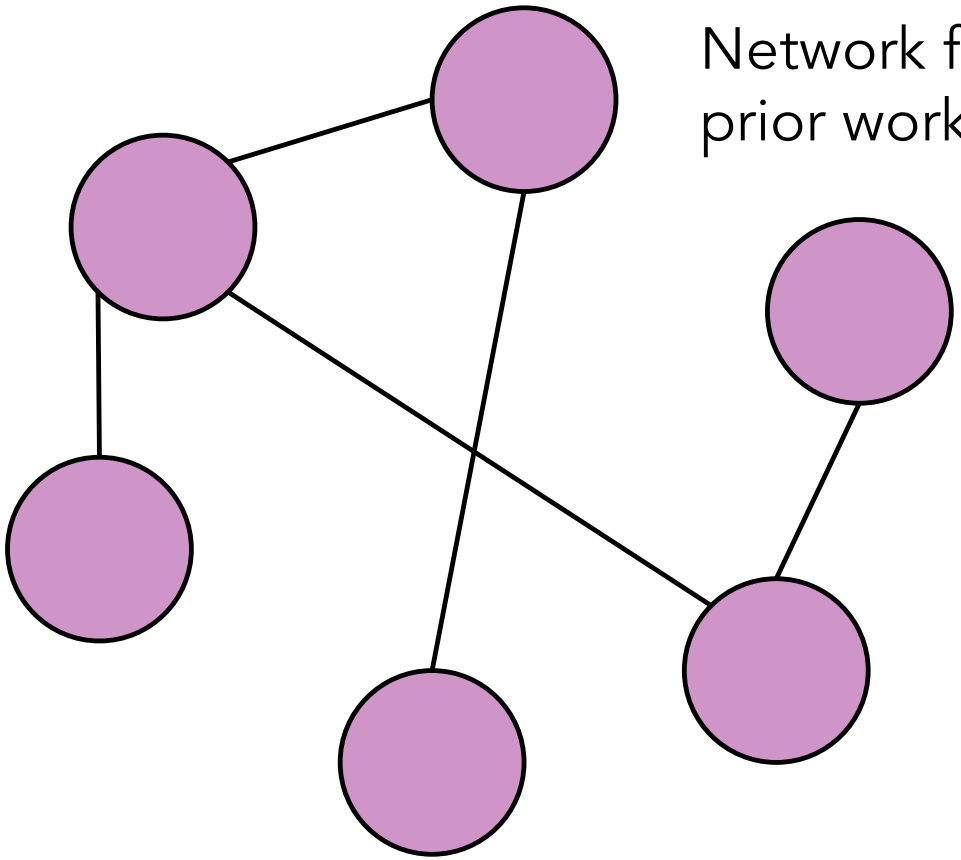
Yes, we design two successful interventions centered around advertising and transparency.



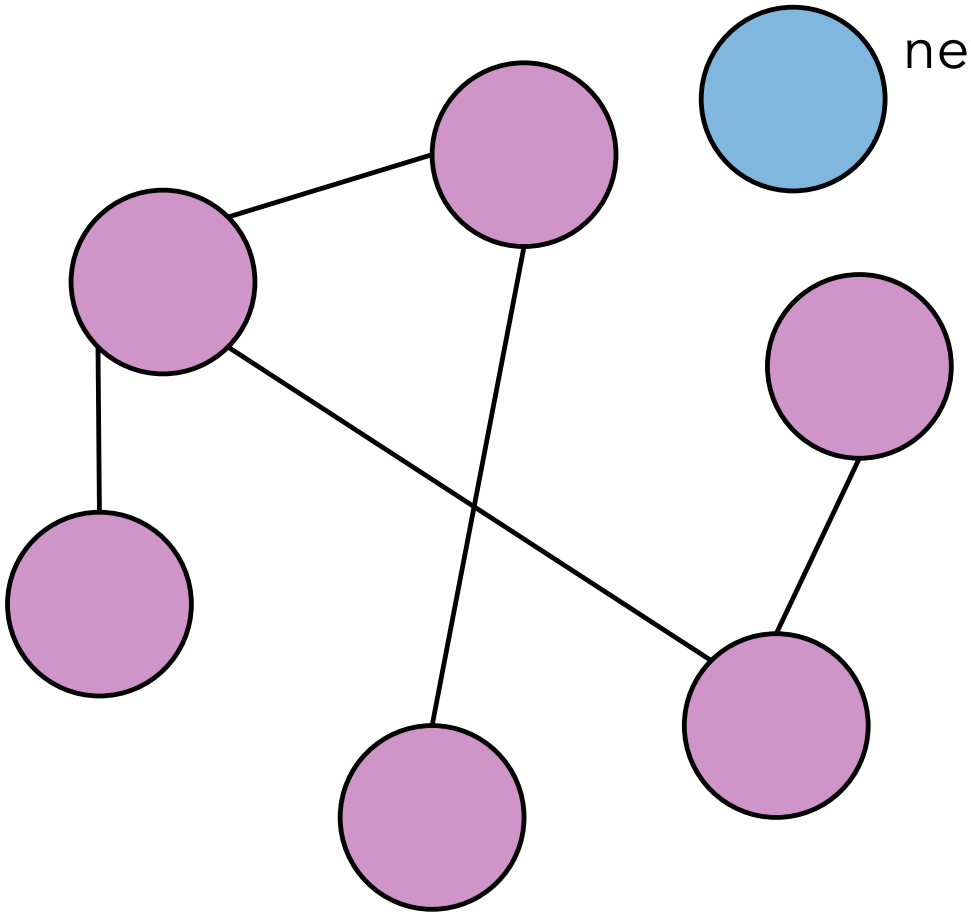
public entity P



has utility function f_v for edge formation

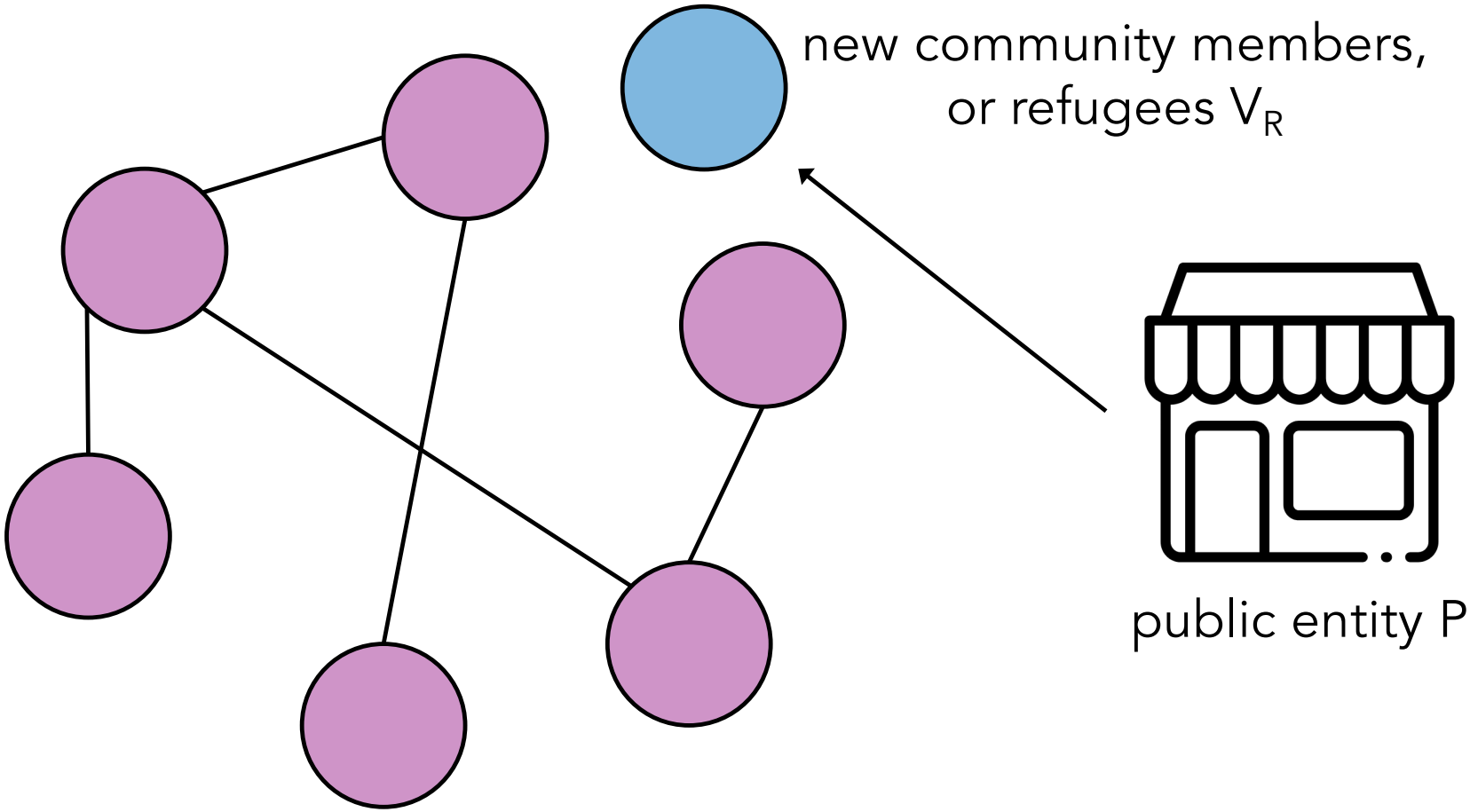


Network formation process according to prior work (Christakis, et. al. 2020)



new community members,
or refugees V_R

public entity P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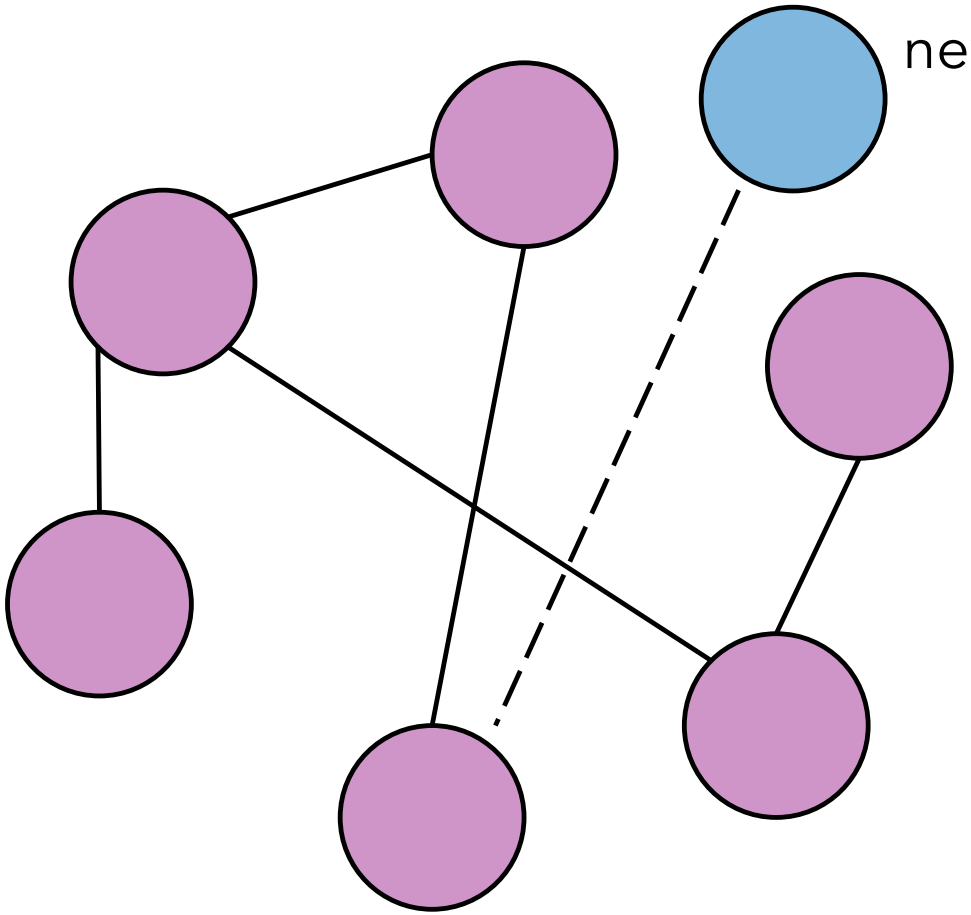


new community members,
or refugees V_R

public entity P

Who?

What goal?

Who?

ρ agents who joined most recently

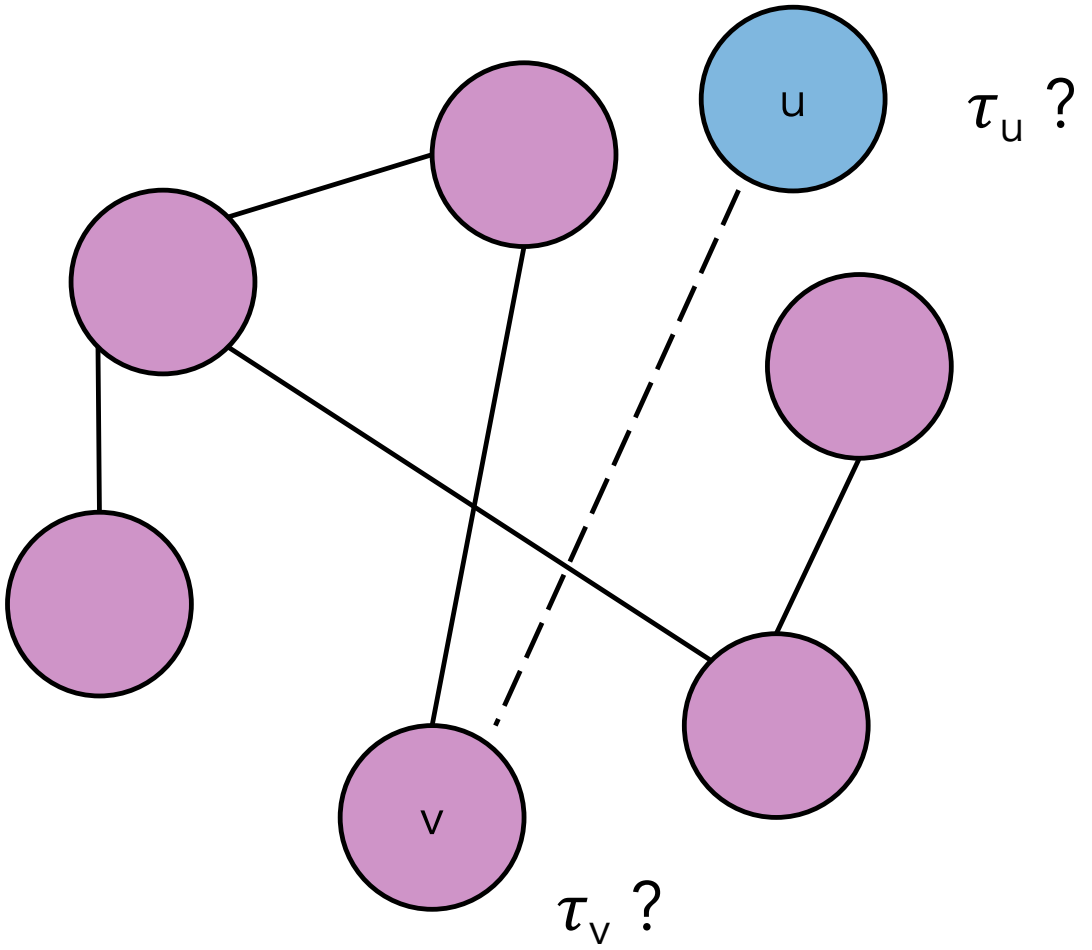
What goal?

Who?

ρ agents who joined most recently

myopically increase fairness F

What goal?



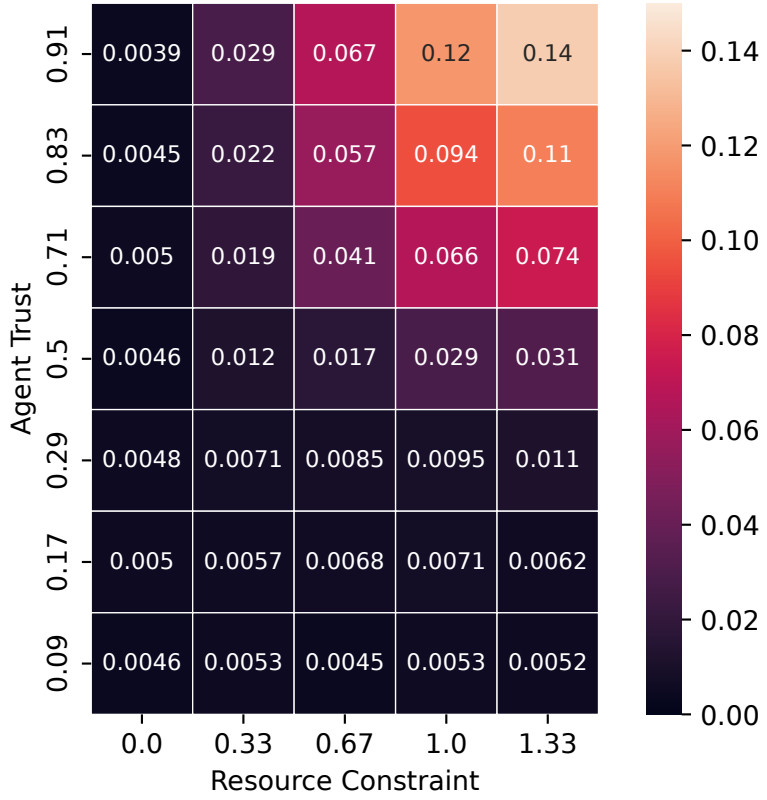
public entity P

What is the tradeoff between agent trust and the public entity's resource constraint?

Can increasing the public entity's resources compensate for low trust as the public entity tries to improve F ?

(RQ1)

How does fairness (F) change with agent trust and public entity's resource constraint?



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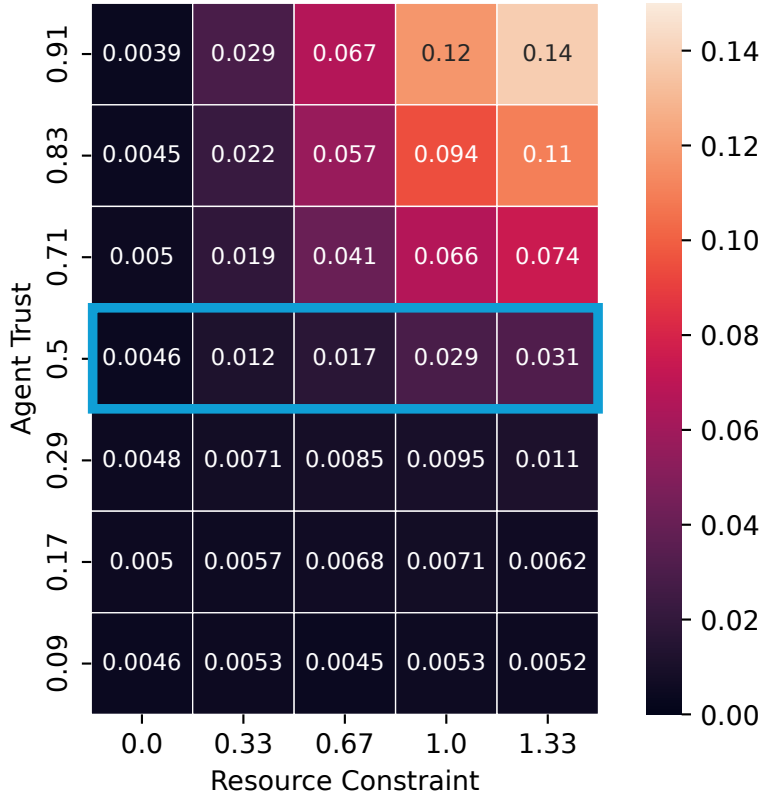

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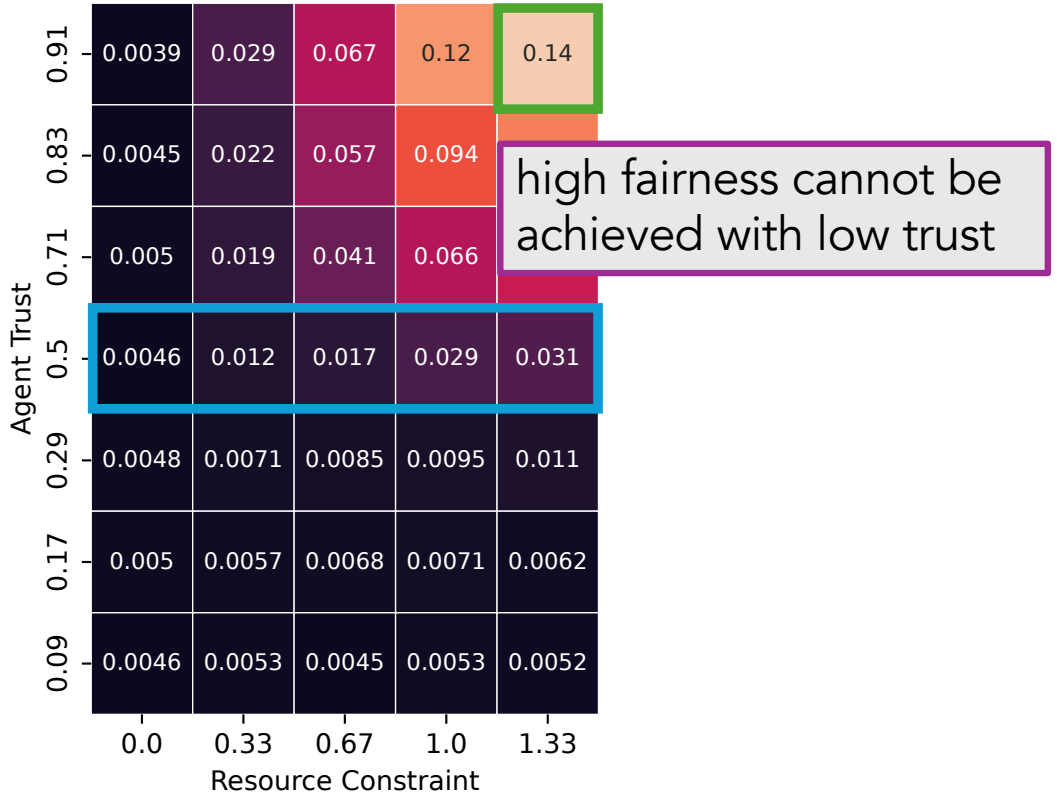

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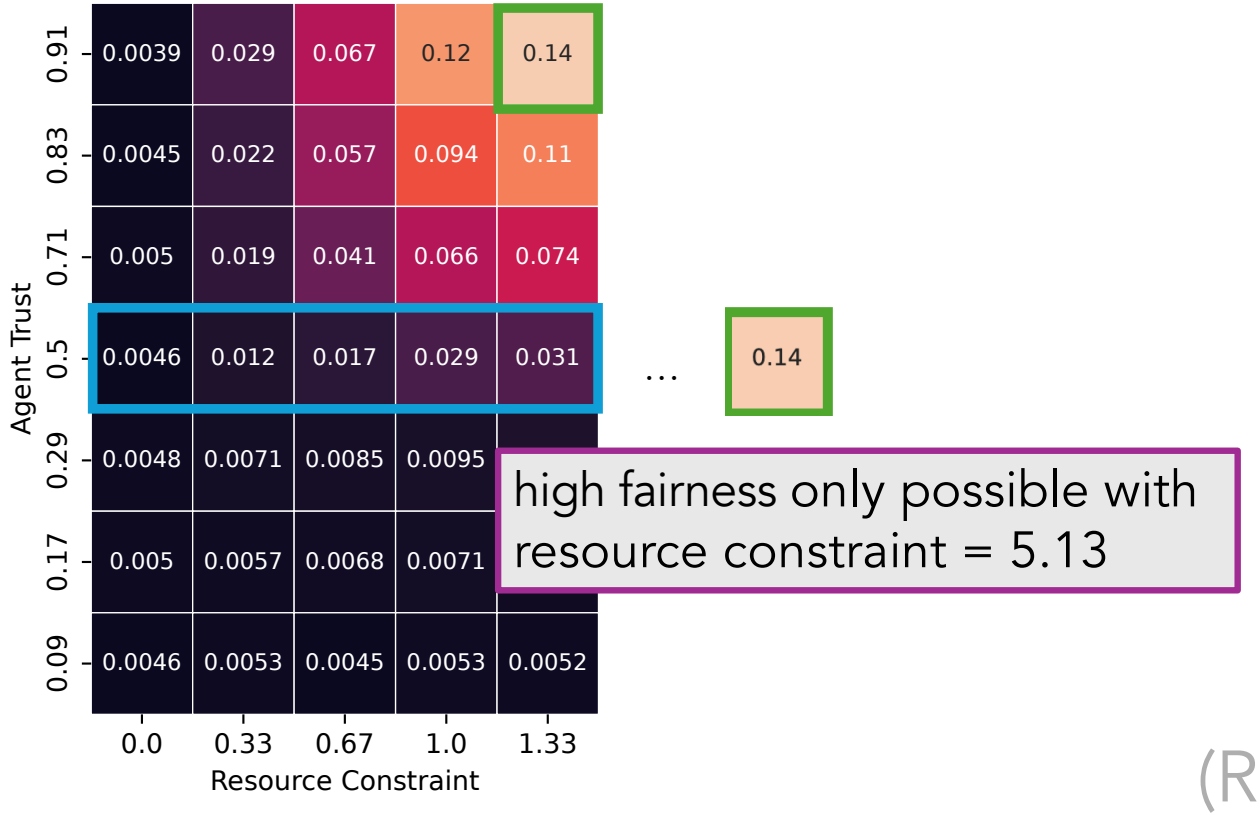


(RQ1)

No, low trust cannot be compensated for with additional resources.

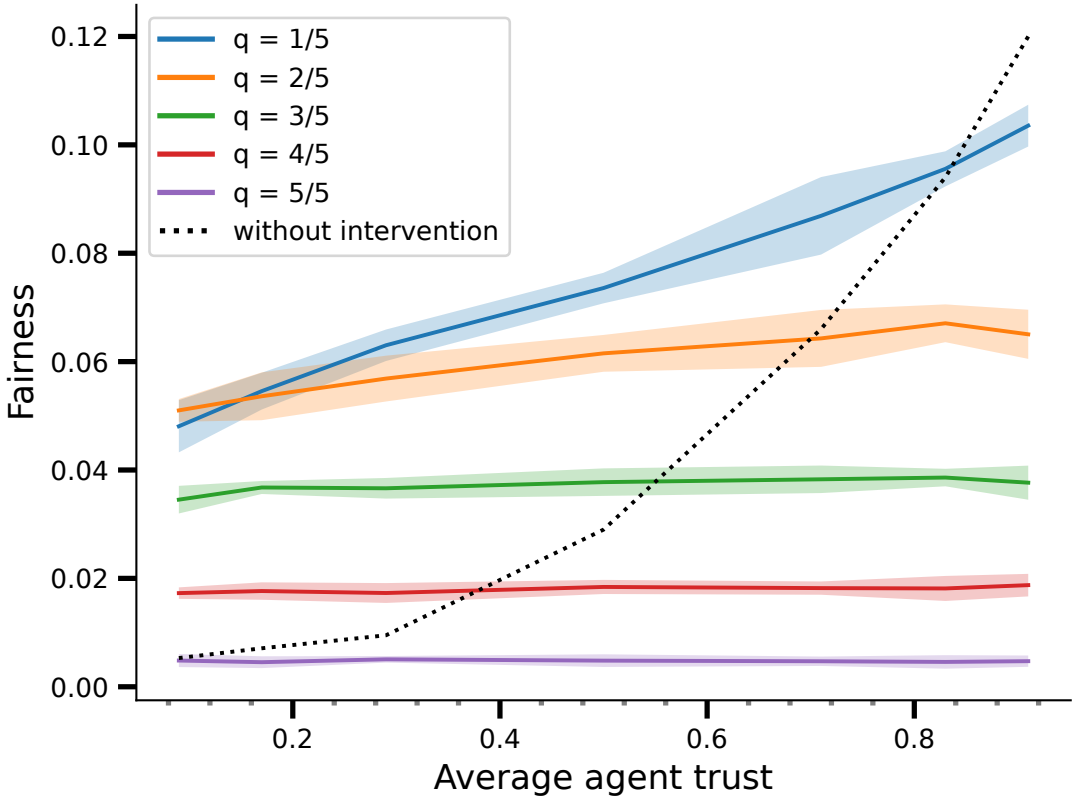
(RQ1)

If an agent's trust τ_v is known by the public entity, can the public entity target agents with low trust via advertising to increase trust and fairness?

How much money would the public entity spend on this campaign?

(RQ2)

Can diverting resources to low trust agents increase fairness (F)?



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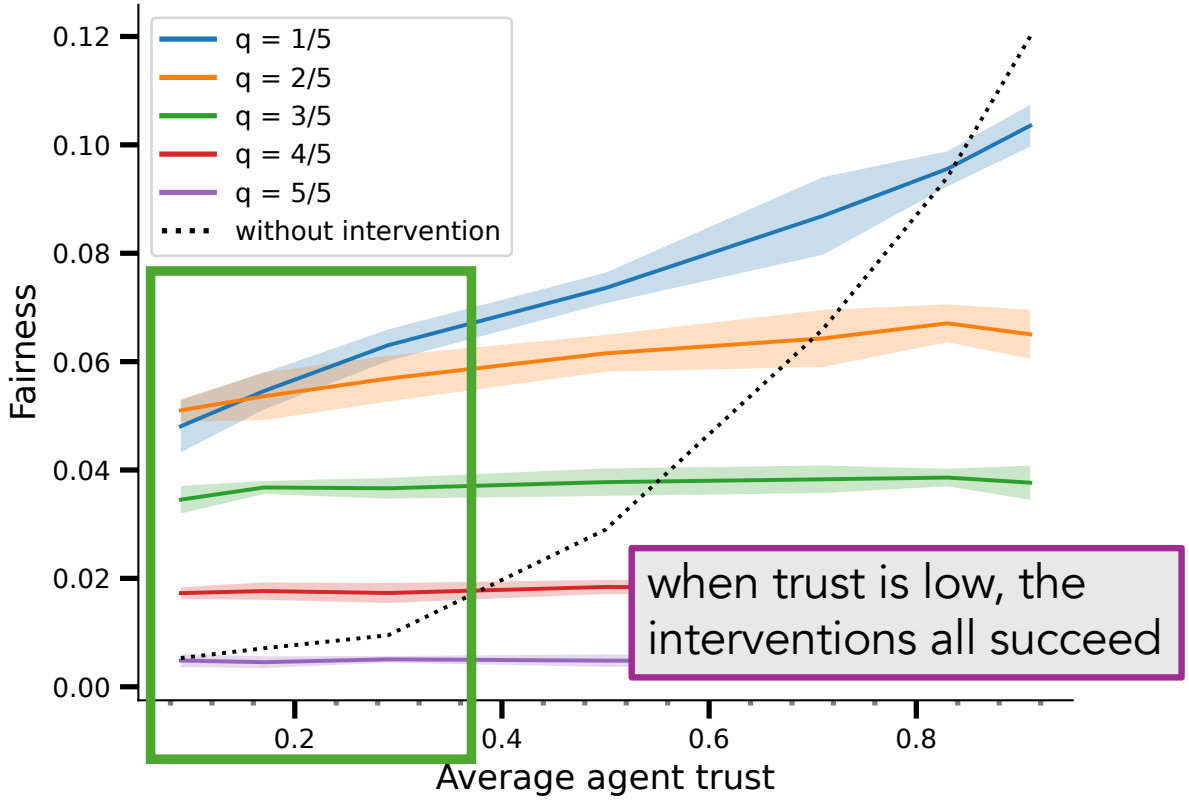

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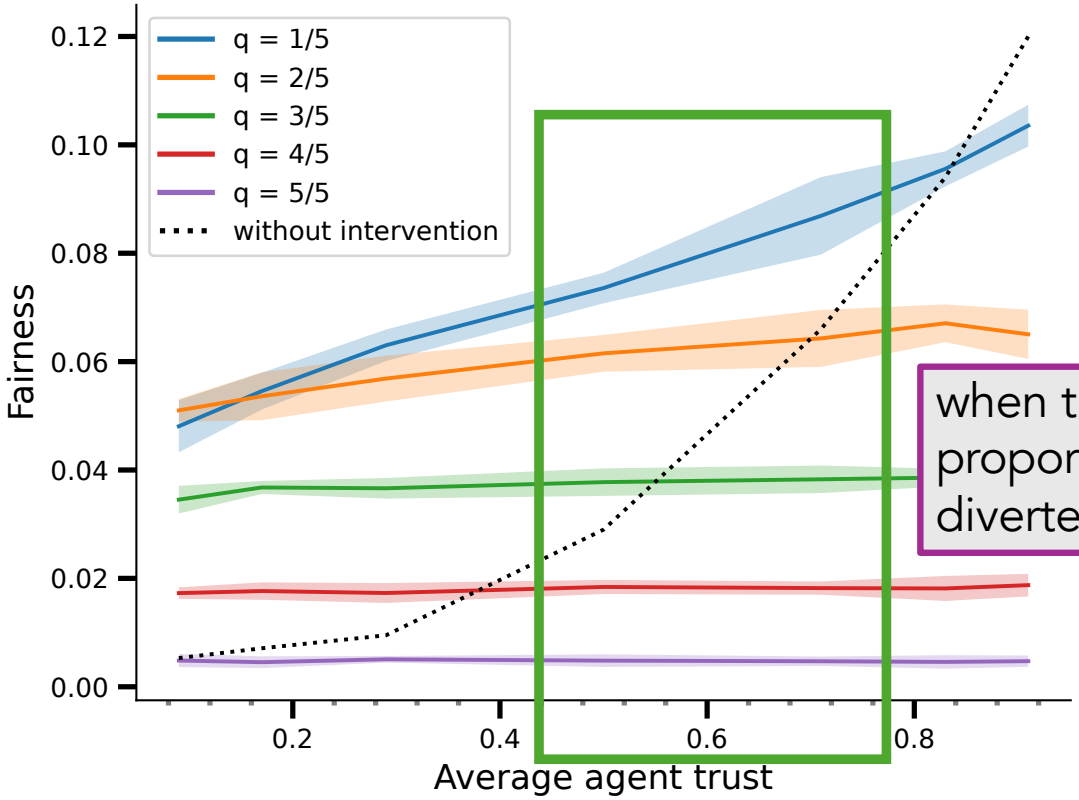
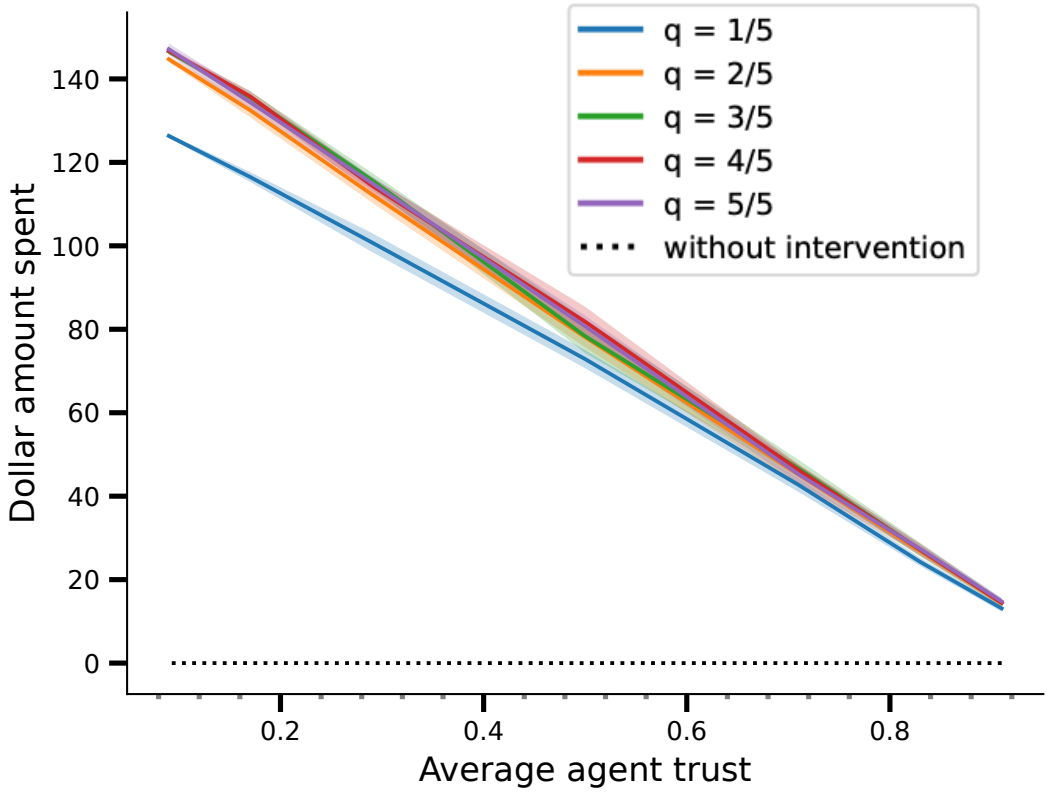


when trust is high, lower proportions of resources diverted dominate

(RQ2)

How much money would the public entity spend?



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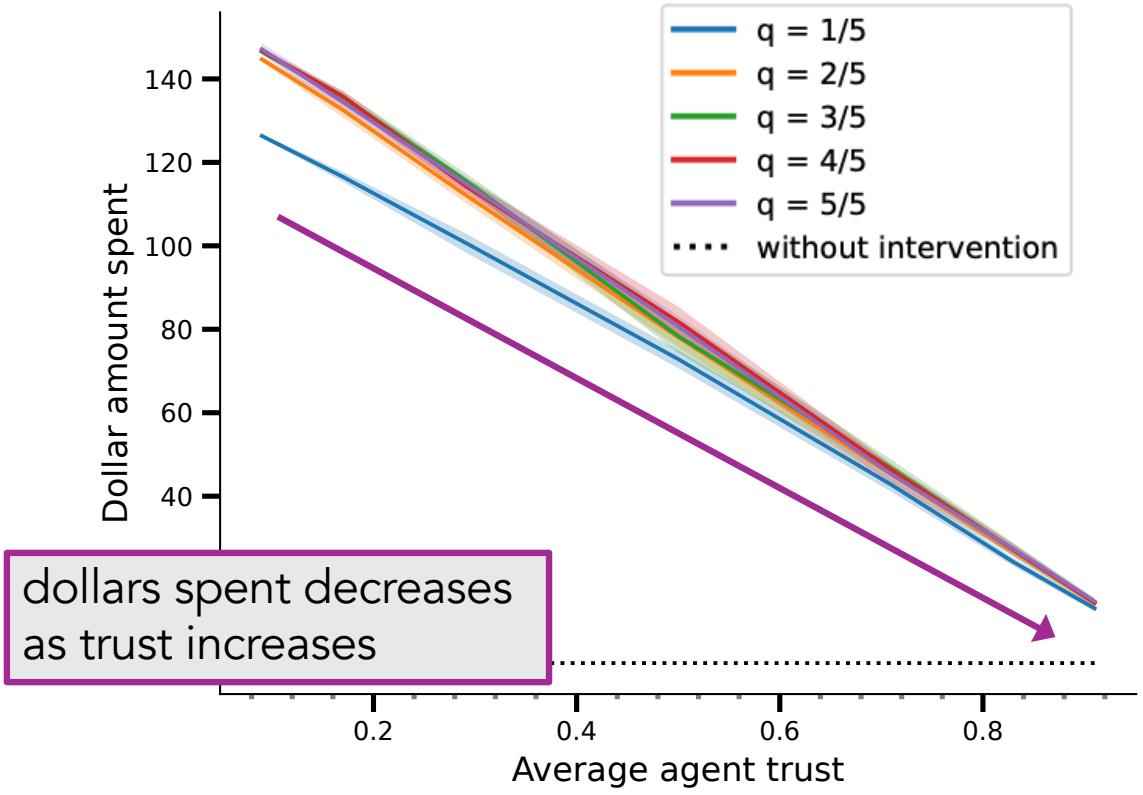


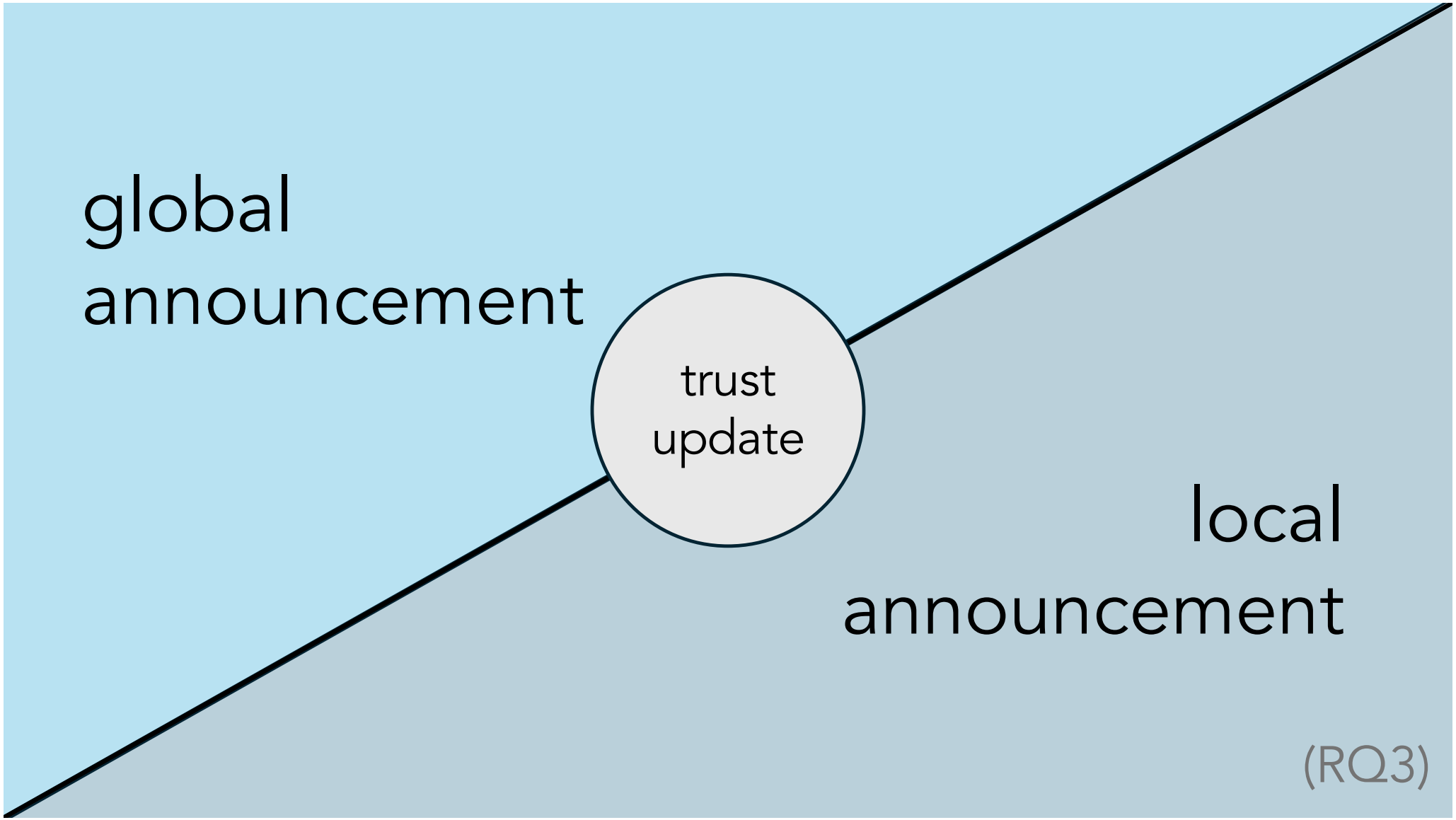
(RQ2)

Diverting resources from making recommendations to trust-building improves fairness.

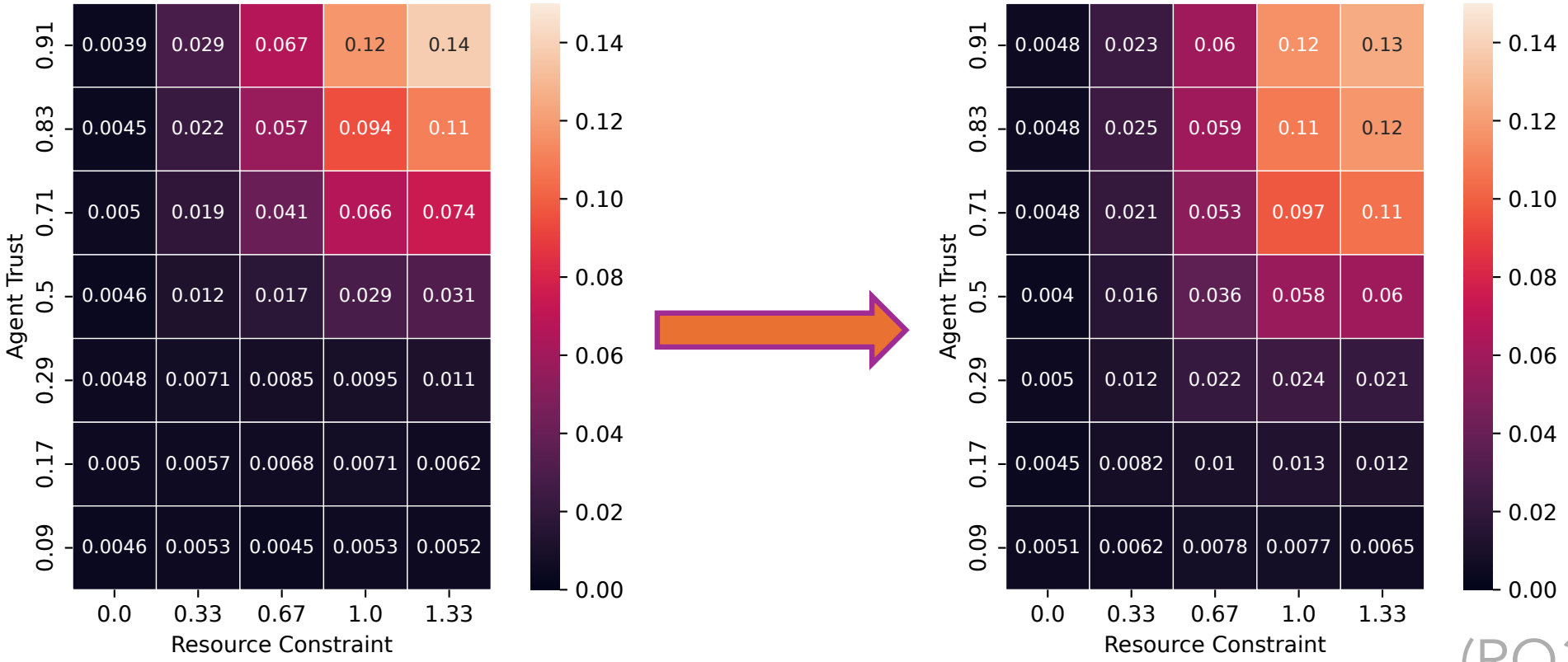
(RQ2)

Consider a schema where the public entity transparently announces the effects of its interventions on fairness. If an agent's trust level τ_v is affected by this announcement, can transparency lead to improved fairness?

(RQ3)


global
announcement
trust
update
local
announcement
(RQ3)

Can local transparency increase fairness (F)?



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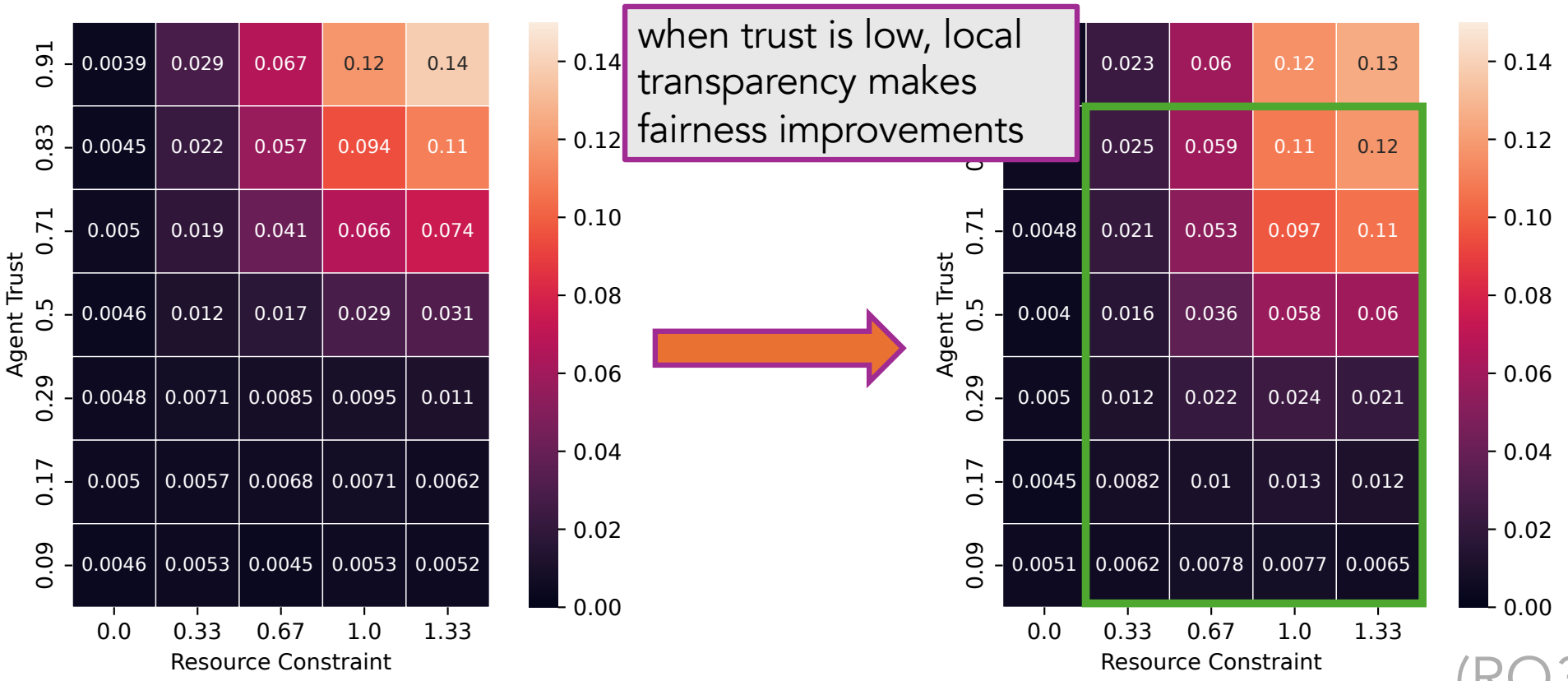

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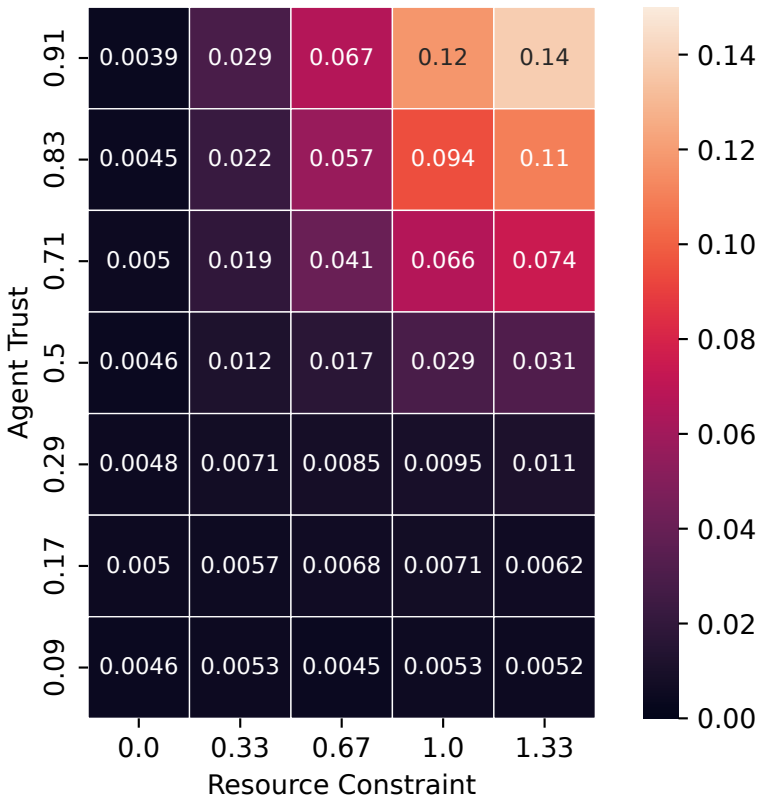
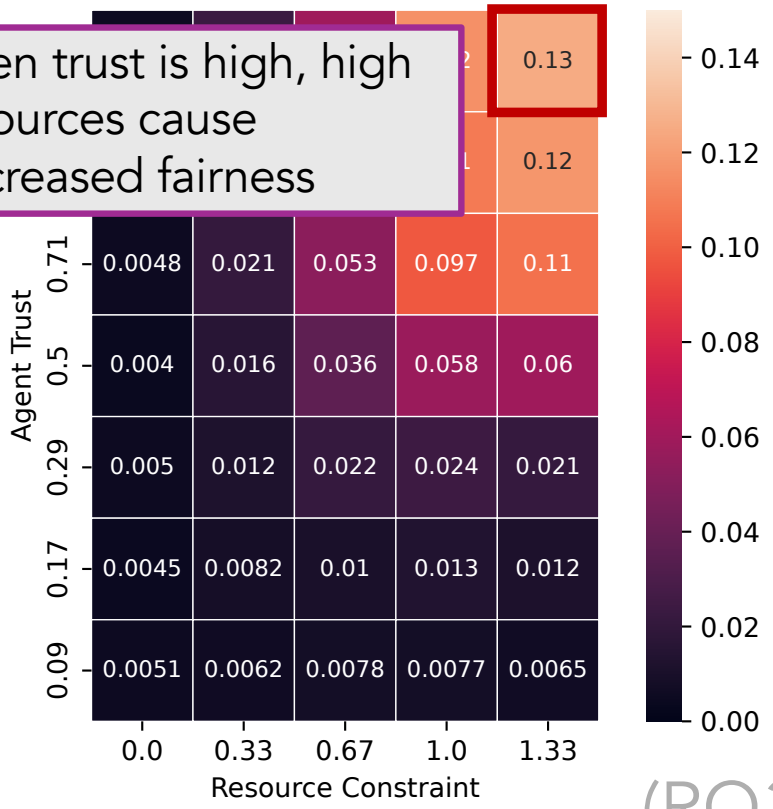
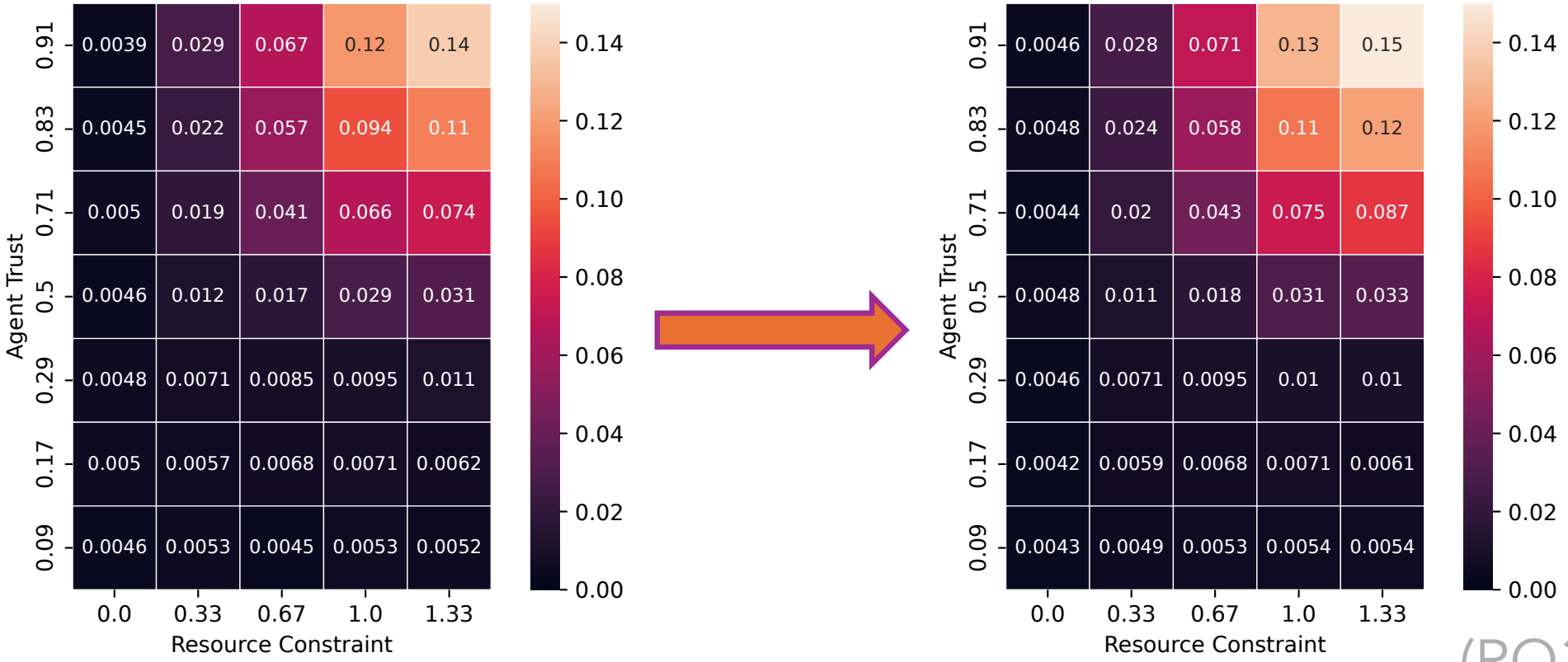


when trust is high, high resources cause decreased fairness



(RQ3)

Can global transparency increase fairness (F)?



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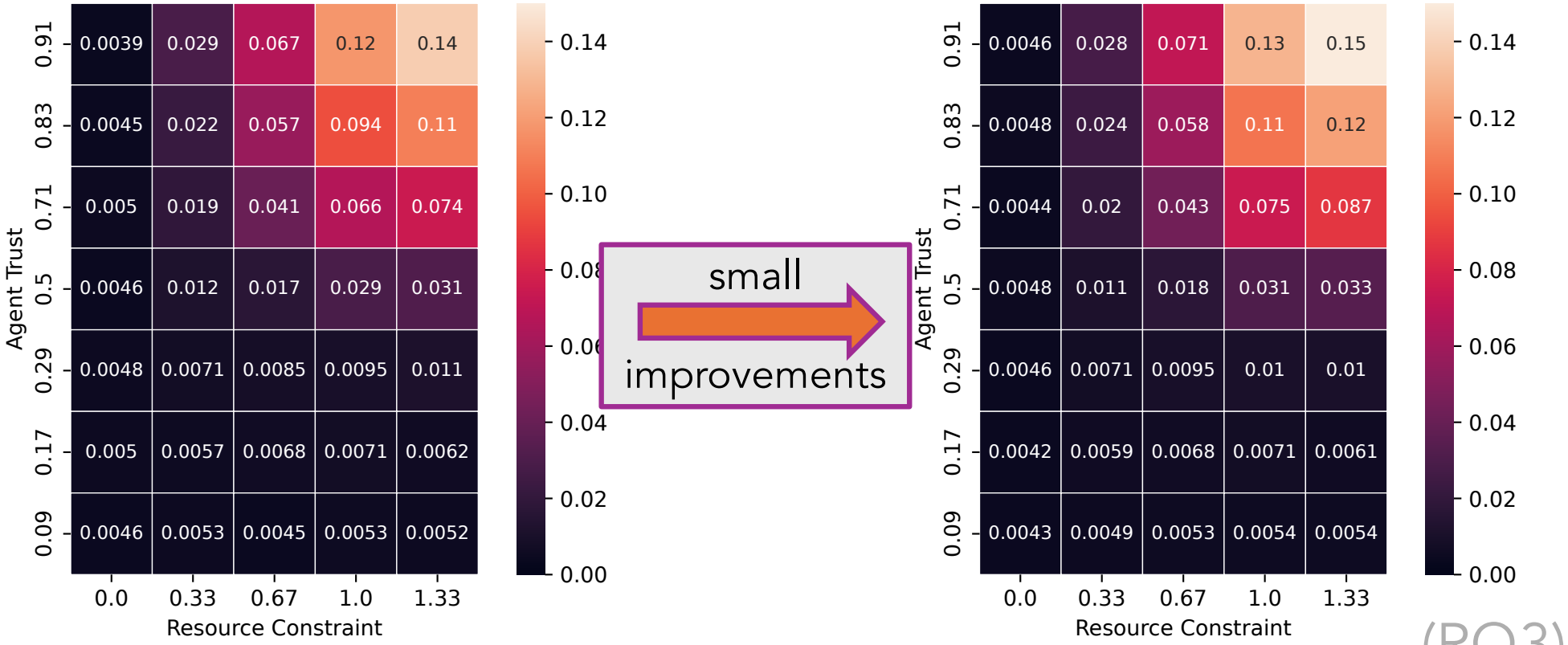


(RQ3)

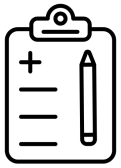
Transparency is a minimally resource-expending method to increase trust.

(RQ3)

Future work can help us better understand our communities

interrogate assumptions

engage real communities



collect data

Trust is essential.

By redirecting resources or being transparent, public entities can gain the trust of communities.

References

Nicholas Christakis, James Fowler, Guido W Imbens, and Karthik Kalyanaraman. 2020. An empirical model for strategic network formation. In *The Econometric Analysis of Network Data*. Elsevier, 123–148.

Peter S Bearman and James Moody. 2004. Suicide and friendships among American adolescents. *American journal of public health* 94, 1 (2004), 89–95.

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