

Comments to Qinyou Hu's "*Breaking
Down Bullying: Empathy, Social
Networks, and Adolescents*"

Miguel Sarzosa

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- **Bullying is bad**
- Bullying requires a social arena (**Sarzosa, 2021**)
- The paper intends to assess how **empathy** helps prevent bullying in schools.
- Why empathy? Affects the formation **social networks**.
 - Tighter networks might prevent the imbalance of power. More friends
 - Might not bully the friend of your friend

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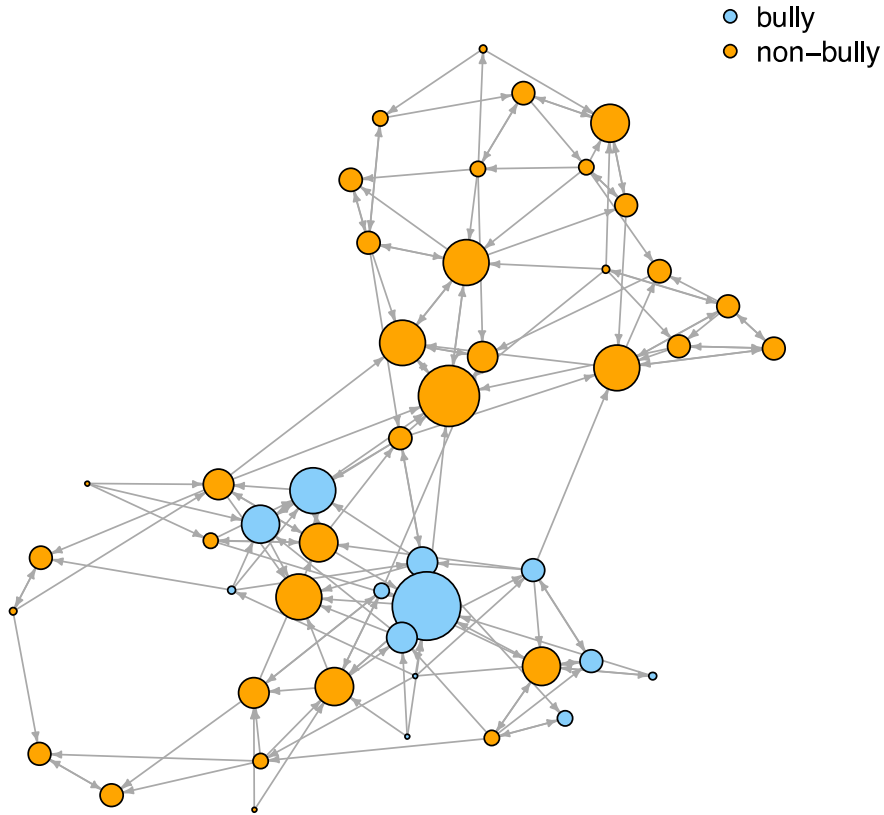
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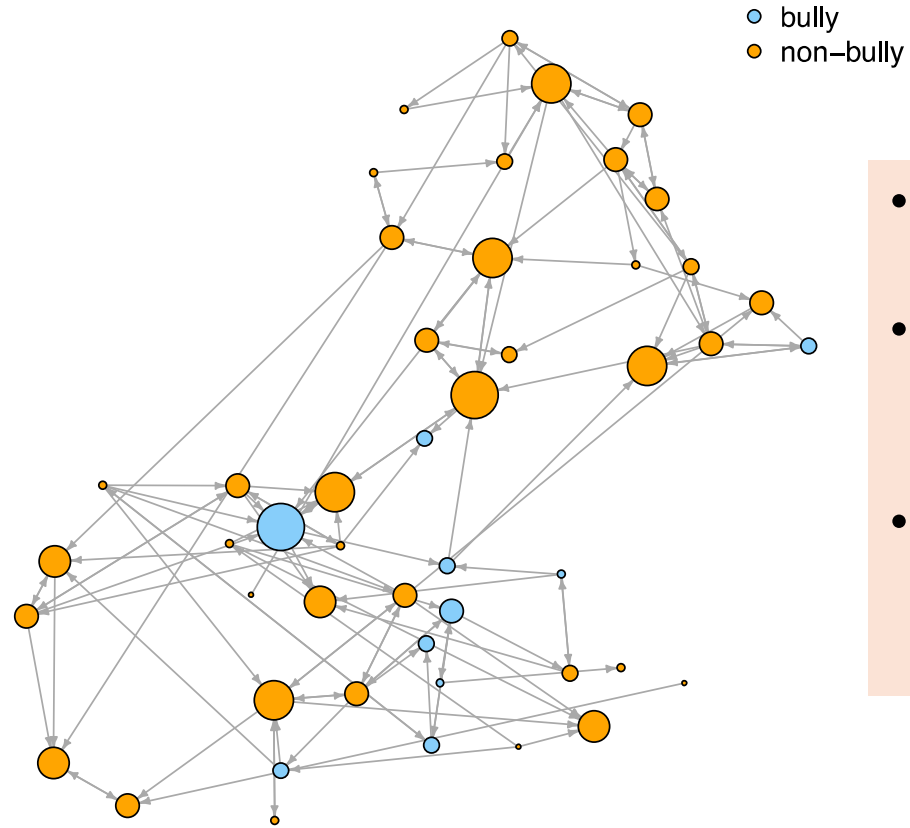
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 1. Helps build friendships
 2. Affects the private marginal effect of being a **bully**

Intuition



(a) Baseline



(b) Follow-up

- At baseline bullies tend to befriend bullies.
- At follow-up social circles of bullies break up. Bullies become less popular
- Importantly, there is an **increase in in-degree** in treated classrooms

Model: Parents Decision to Participate

- Parents' utility function: $U_i = \gamma_0 + \gamma_1 \underbrace{(H_{i,1}^1 - H_{i,1}^0)}_{\text{gain in empathy}} + \gamma_2 X_i - \gamma_3 C_i + \vartheta_i$

- C_i is the opportunity cost of participation
- Child i 's empathy given parental participation:

$$H_{i,1}^0 = \beta_0 + \beta_{1,0} H_{i,0} + \epsilon_i$$

$$H_{i,1}^1 = \beta_0 + \delta + \beta_{1,1} H_{i,0} + \epsilon_i$$

- Children's follow-up empathy if (not) participating is $(H_{i,1}^0) H_{i,1}^1$
- Parents participate if $U_i \geq 0$, otherwise they do not participate

Network Formation

- Model friendship formation based on homophily. i and j are friends at follow-up ($w_{1ij} = 1$) if

$$w_{1ij} = \mathbf{1} (w_{0ij}\psi_0 + V_{ij}'\psi_v + X_j'\gamma + \Xi_{ij} > 0)$$

- $V_{ij} = \left(\sum_{\rho=1}^R (V_{i\rho} - V_{j\rho})^2 \right)^{1/2}$ is the distance between i and j in R dimensions of characteristics including empathy
- X_j is receiver j 's characteristics, including empathy.
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- $\Xi_{ij} = \tau_i + \xi_{ij}$ where $V_{ij} \perp \xi_{ij}$ **(not Graham 2017 structure)**
- i 's empathy not included in ability of making friends

Bullying Perpetration

- ▶ Students make decisions on bullying $b_i \in \mathbb{R}$:

$$U(b_i) = \underbrace{d_i(\mathbf{x})b_i - \frac{1}{2}b_i^2}_{\text{private net benefit}} - \underbrace{\frac{\phi}{2} \left(b_i - \sum_{j \neq i}^N \tilde{w}_{1ij} b_j \right)^2}_{\text{conformity cost}}$$

- ▶ $d_i(\mathbf{x})$: marginal benefit of engaging in bullying affected by characteristics including **empathy**

$$d_i(\mathbf{x}) = \sum_{m=1}^M \beta_m x_{mi} + \nu_i$$

- $\text{cov}(\nu_i, \tau_i) \neq 0$, τ_i unobserved heterogeneity in network formation
- ▶ ϕ : peer effect

Identification. Three Problems

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3. Reflection problem. My bullying affects your bullying that affects my bullying.

- **Idea:** use friends-of-friends $\widehat{\mathbf{W}}_1^2$ and friends-of-friends-of-friends $\widehat{\mathbf{W}}_1^3$ as instruments ([Bramoullé et al., 2009](#)).

Results: Does Treatment Shift Empathy?

Parameter	Label	(1) Value	(2) Std. Err
Using treatment group (T=1)			
β_0^1	average empathy change at level	-0.083	(0.159)
δ	average empathy change at level when participating	0.246	(0.210)
$\beta_{1,0}^1$	marginal return of baseline empathy skill when not participating	0.235***	(0.037)
$\beta_{1,1}^1$	marginal return of baseline empathy skill when participating	0.287***	(0.057)
$\sigma_{\epsilon\vartheta}$	covariance of empathy shock ϵ and parents' utility shock ϑ	-0.113	(0.140)
σ_{ϑ}^2	variance of parents' preference shock ϑ	0.061	(0.069)
σ_{ϵ}^2	variance of empathy shock ϵ	1.060	(0.077)
Using control group (T=0)			
β_0^0	average empathy change at level	-0.066	(0.039)
$\beta_{1,0}^0$	marginal return of baseline empathy skill when not participating	0.239***	(0.035)
Validation: Tests of equality of coefficients			
$\beta_0^1 = \beta_0^0$		p = 0.916	
$\beta_{1,0}^1 = \beta_{1,0}^0$		p = 0.926	
Joint tests		p = 0.989	

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- No strong evidence of treatment shifting empathy.
- Not surprised. Treatment was small nudge

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friends at baseline	0.463***	(0.016)
$\mathbb{1}[x_i = x_j]$		
bully at baseline	0.002	(0.001)
victim at baseline	0.003	(0.002)
$ x_i - x_j $		
age	-0.007**	(0.003)
empathy index	-0.001	(0.001)
height	-0.002***	(0.000)
time spent on studying	-0.001	(0.001)
time spent on leisure	-0.002*	(0.001)
pocket money	-0.002	(0.001)
test score	-0.001	(0.002)
x_j		
male	-0.002	(0.002)
only child	-0.001	(0.002)
empathy index	0.003***	(0.001)
test score rank	-0.001	(0.001)
R^2	0.241	
N	102,054	
# students	2,231	

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- Empathy of receiver matters in building friendships
- Not a lot of other characteristics mattering
- Most important is baseline friendship. Which is not exogenous
- Issue: Akin to having weak instruments

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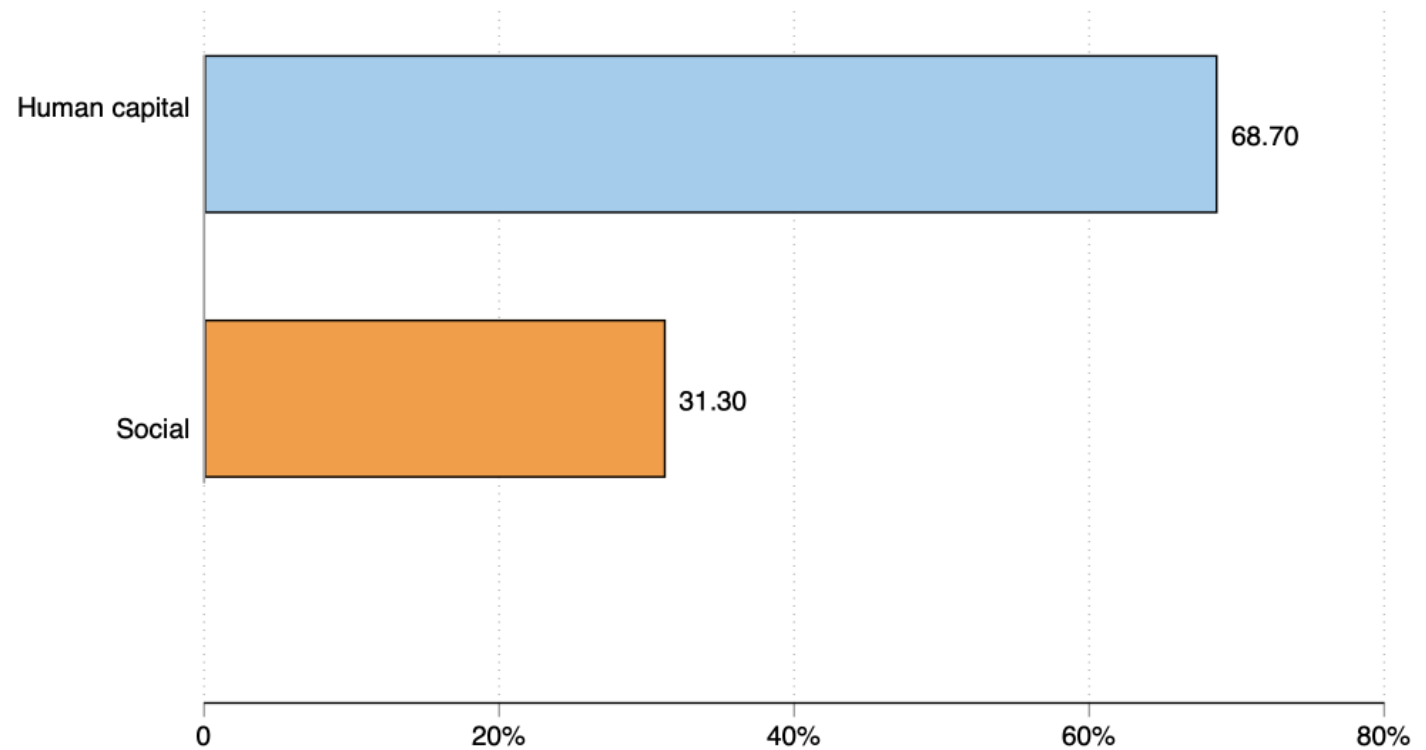
	(1) Value	(2) Std.Err
peer bullying score ϕ	0.484***	(0.129)
empathy index β	-0.139***	(0.024)
male	0.161***	(0.040)
urban hukou	0.082**	(0.038)
bully at baseline	0.562***	(0.074)
victim at baseline	0.162***	(0.042)
Instruments	$\widehat{W}_1^2 X, \widehat{W}_1^3 X$	
Cragg-Donald Wald F-statistic	20.534	

- Empathy significantly reduces bullying
- Having more bully friends makes me more likely to be a bully

Decomposing Empathy Effect

- Empathy can affect i 's perpetration in two ways: **direct** and **indirect** (social effect)

$$U(b_i) = \underset{\substack{\text{direct} \\ \downarrow}}{d_i(\mathbf{x})} b_i - \frac{1}{2} b_i^2 - \frac{\phi}{2} \left(b_i - \sum_{j \neq i}^N \underset{\substack{\text{Indirect} \\ \downarrow}}{\tilde{w}_{1ij}} b_j \right)^2$$



Additional Comments: Modelling Choices

- What are you modelling?

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 - Other's empathy affects i 's bullying only through changes in network.
 - Assumes no empathy spillovers
- Assumption of independence on decisions of choice of friends and who do I bully is very strong

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- One way forward is a control function approach as in [Johnsson and Moon \(2021\)](#) and [Santavirta and Sarzosa \(forthcoming\)](#).

Thank You