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Anatomy of Stigmatized Behavior: Peer Influence and Relative Concern[†]

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[†]*This paper is based on an ongoing joint work with David Sahn and Xiaobo Zhang.*

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INTRODUCTION

- Despite the resultant disutility, some people, in particular the poor, are still engaged in behavior carrying social stigma, such as selling body parts, child labor, prostitution, abduction and human trafficking, drug abuse as well as toxic wastes.
- Poverty is the immediate and popular interpretation of obnoxious markets. However, the fact that even among the poorest not everyone is engaged in stigmatized behavior suggests other factors matter.
- When consequences of falling behind on social ladders is grave, concern for status shapes stigmatized behavior. Examples:
 - Failure to access informal insurance;
 - Low likelihood of marriage in the tightening marriage market;
 - Mistrust, stress and poor health outcomes.
- We suspect that community level inequality measures may not be able to capture heterogeneity in the distribution.
- Moreover, peer influence might stigmatized behavior, as the associated disutility reduces when more peers engage in, generating negative externality due to the social multiplier.
- Empirical economic studies on stigmatized behavior are largely absent due to lack of data.

HOUSEHOLD SURVEY

- Three wave (2005, 2007, 2010) panel data
- Census-type, 800-900 households
- 18 random remote villages in rural Guizhou, China
- More than 20 ethnic groups
- Detailed information on household demographics, income, consumption, transfers, blood donation, and expenditures and incomes related to gift exchanges and household ceremonies.
- Blood donation compensation accounts for a large share of cash income for donors.
- The unique Karst landform in the surveyed area and the isolated remote rural communities enable reference group definition.



Fig. 1 Karst Landform for One of the Eighteen Villages

GIFT NETWORK DATA

- Long-term (10 years) gift-exchange records
- Spontaneous and written
- all households and all gift links
- 3 villages among the 18 surveyed villages
- Ceremonies: wedding, funeral, childbirth, moving, come-of-age...
- Cash gift and in-kind gift

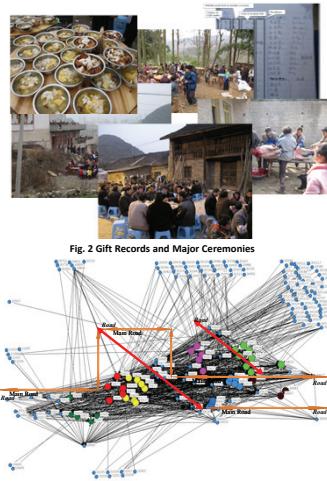


Fig. 2 Gift Records and Major Ceremonies

Fig. 3 The Clan System and Gift Exchange Network in One Village

RELATIVE CONCERN

- Reference Group Definition
Natural village boundary, Gift networks...
- Runciman (1966) argues that one is deprived if the others in the reference group possess something that one does not have.
- Conventional Relative Income Measures
Gini; Rank, Rankgini...
- RDA, RDI
$$RDA_i = \frac{1}{N} \sum_j (y_j - y_i) \quad \forall y_j > y_i \quad RDI_i = RDA_i / y_i$$
- Wildman Relative Deprivation Index
$$d_j(F) = \mu[1 - F_j(y)] - \mu[1 - F(y)]$$
- Deaton Relative Deprivation Index
$$(1/\mu) \int (y - x)dF(y) \quad \text{or} \quad (1/\mu)[1 - F(x)][\mu'(x) - x]$$

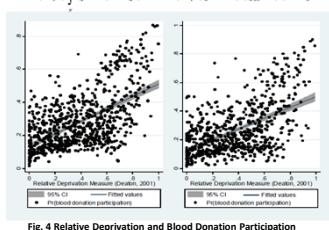


Fig. 4 Relative Deprivation and Blood Donation Participation

PEER INFLUENCE

Measuring Peers' Donation Behavior

- Simple average donation;
 - Average donation weighted by centrality;
 - Average donation weighted by gift intensity.
- Three Peer Effect Identification Strategies
 - Strategy 1: conventional IVs: community average income and sanitary conditions;
 - Strategy 2: centrality-based reweighting;
 - Strategy 3: spatial instruments from network structure: peers' peers characteristics and peers' peers characteristics.

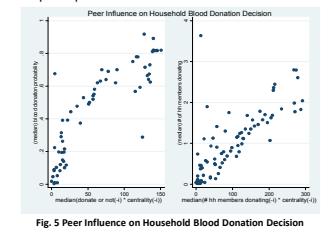


Fig. 5 Peer Influence on Household Blood Donation Decision

EMPIRICAL ESTIMATION (cont.)

Strategy III: Spatial Instruments Identification Based on Network Structure (Marginal Effects)					
Panel A: Weighted by Link Existence					
Donate or not (logit)	Donation value (log)	# hh members donate			
(lagged prob)	(ordered prob)	(probit)			
Peers' Mean Behavior	0.223*** (0.089)	0.122** (0.056)	0.301*** (0.044)	0.011** (0.053)	0.111** (0.042)
Relative Status	0.380 (0.359)	0.159** (0.078)	2.258 (1.346)	3.203*** (1.084)	0.168 (0.244)
Panel B: Weighted by Peer Intensity					
Peers' Mean Behavior	0.224*** (0.089)	0.203*** (0.059)	0.125** (0.062)	0.112** (0.059)	0.155** (0.071)
Relative Status	0.322 (0.358)	0.159** (0.076)	2.675 (4.377)	3.212*** (1.085)	0.025 (0.227)
Observations	697	697	697	697	697
Pseudo R ² (Panel A)	0.196	0.263	0.075	0.109	0.181
Pseudo R ² (Panel B)	0.204	0.213	0.073	0.115	0.166
Panel C: Weighted by Peer Intensity					
Peers' Mean Behavior	0.224*** (0.089)	0.203*** (0.059)	0.125** (0.062)	0.112** (0.059)	0.155** (0.071)
Relative Status	0.322 (0.358)	0.159** (0.076)	2.675 (4.377)	3.212*** (1.085)	0.025 (0.227)

MAIN CONCLUSIONS

- A 100% rise in peers' engagement in blood sales increases one's sales probability by 12%-21%, sales value by 9%-12%, and a second household member selling blood by 9%-16%. The results are robust to adding heterogeneous intensities of social ties and definitions of reference groups.
- Household-specific measures of relative status plays an important role in shaping stigma behavior. However, status concern is not captured by the conventional community-specific inequality measures.
- Our results call for a big caution using the well-accepted Gini index in predicting social behavior.
- Special attention should be given to the negative externality originated from peers' stigmatized behavior.

EMPIRICAL ESTIMATION

$$Y_{i,t} = \alpha + \beta_1 \text{ave}B_{i,t} + \beta_2 RD_{i,t} + X_{i,t} \mu + \gamma_i + \delta_t + \epsilon_{i,t} \quad (4)$$

$Y_{i,t}$ denotes three indicators of blood donation engagement: whether a household i donates blood; how much blood household i donates; how many household members donate. $\text{ave}B_{i,t}$ is lagged average blood donation behavior in the reference group r . Denoted by $RD_{i,t}$, relative income indicators gauge the extent to which the negative impact affects members in a society differently and whether it is biased towards the lower tail of the social hierarchy.

Strategy 1: Full Sample Estimation for Peer Effect and Relative Income (Marginal Effects)

	R1-Gini	R2-Rawling	R3-Deaton	R4-Deaton	R5-Gini	R6-Deaton
Median blood donation participation rate in previous year	0.414*** (0.082)	0.414*** (0.084)	0.421*** (0.084)	0.421*** (0.084)	0.421*** (0.084)	0.421*** (0.084)
Relative status	0.084 (0.001)	0.084 (0.001)	0.136** (0.001)	0.136** (0.001)	0.136** (0.001)	0.135** (0.001)
Excluded Instruments	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)
Travel time to major clinics	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.001)	-0.001*** (0.001)	-0.001*** (0.001)	-0.001*** (0.001)
Lagged average income in the community	-0.011*** (0.000)	-0.011*** (0.000)	-0.011*** (0.001)	-0.011*** (0.001)	-0.011*** (0.001)	-0.011*** (0.001)
Panel B: Blood Donation Value (R2s & F Panel Regressions)						
Median blood donation value in previous year	0.213*** (0.080)	0.462*** (0.084)	0.347*** (0.084)	0.347*** (0.084)	0.347*** (0.084)	0.347*** (0.084)
Relative status	0.084 (0.001)	0.084 (0.001)	0.136** (0.001)	0.136** (0.001)	0.136** (0.001)	0.135** (0.001)
Excluded Instruments	0.001 (0.000)	0.001 (0.000)	0.001 (0.000)	0.001 (0.000)	0.001 (0.000)	0.001 (0.000)
Travel time to major clinics	-0.011*** (0.000)	-0.011*** (0.000)	-0.009*** (0.001)	-0.009*** (0.001)	-0.009*** (0.001)	-0.009*** (0.001)
Lagged average income in the community	-0.006*** (0.000)	-0.006*** (0.000)	-0.006*** (0.001)	-0.006*** (0.001)	-0.006*** (0.001)	-0.006*** (0.001)
Observations	2452	2442	2462	2452	2452	2452
p-value overidentification test (Panel A)	0.651	0.286	0.245	0.235	0.252	0.252
p-value overidentification test (Panel B)	0.443	0.443	0.443	0.443	0.443	0.443
p-value overidentification test (Panel C)	0.273	0.262	0.282	0.433	0.354	0.354
Panel C: Family Members Donating Blood (IV & OLS Panel Probit)						
Median # members donating blood in previous year	0.031*** (0.031)	0.032*** (0.032)	0.027*** (0.032)	0.027*** (0.032)	0.027*** (0.032)	0.027*** (0.032)
Relative status	0.085*** (0.030)	0.085*** (0.030)	0.027*** (0.030)	0.027*** (0.030)	0.027*** (0.030)	0.027*** (0.030)
Excluded Instruments	0.001 (0.000)	0.001 (0.000)	0.015*** (0.015)	0.015*** (0.015)	0.015*** (0.015)	0.015*** (0.015)
Travel time to major clinics	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.001)	-0.001*** (0.001)	-0.001*** (0.001)	-0.001*** (0.001)
Lagged average income in the community	-0.006*** (0.000)	-0.006*** (0.000)	-0.006*** (0.001)	-0.006*** (0.001)	-0.006*** (0.001)	-0.006*** (0.001)
Observations	2452	2442	2462	2452	2452	2452
p-value overidentification test (Panel A)	0.651	0.286	0.245	0.235	0.252	0.252
p-value overidentification test (Panel B)	0.443	0.443	0.443	0.443	0.443	0.443
p-value overidentification test (Panel C)	0.273	0.262	0.282	0.433	0.354	0.354
Panel D: Centrality-based Reweighting of Peer Effect and Relative Income (Marginal Effects)						
	R1-Gini	R2-Deaton	R3-Gini	R4-Deaton	R5-Gini	R6-Deaton
Panel A: Identification Based on Natural Village Boundary						
Donate or not (logit)	0.223*** (0.082)	0.122** (0.056)	0.301*** (0.044)	0.011** (0.053)	0.111** (0.059)	0.095** (0.042)
Median Behavior	0.031*** (0.038)	0.107*** (0.037)	0.023*** (0.022)	0.023*** (0.023)	0.023*** (0.023)	0.023*** (0.023)
Relative Status	0.714* (0.399)	0.254** (0.119)	0.056 (0.047)	1.383** (0.576)	0.303 (0.292)	0.189 (0.111)
Excluded Instruments	0.017*** (0.006)	0.057*** (0.005)	0.057*** (0.005)	0.057*** (0.005)	0.057*** (0.005)	0.057*** (0.005)
Travel time to major clinics	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.001)	-0.001*** (0.001)	-0.001*** (0.001)	-0.001*** (0.001)
Lagged average income in the community	-0.006*** (0.000)	-0.006*** (0.000)	-0.006*** (0.001)	-0.006*** (0.001)	-0.006*** (0.001)	-0.006*** (0.001)
Observations	621	621	621	621	621	621
Pseudo R ² (Panel A)	0.205	0.207	0.187	0.195	0.204	0.205
Pseudo R ² (Panel B)	0.302	0.310	0.214	0.219	0.264	0.269
Panel E: Identification Based on Endogenous Gift Network						
Median Behavior	0.031*** (0.036)	0.057*** (0.036)	0.057*** (0.036)	0.057*** (0.036)	0.057*** (0.036)	0.057*** (0.036)
Relative Status	0.714* (0.399)	0.254** (0.119)	0.056 (0.047)	1.383** (0.576)	0.303 (0.292)	0.189 (0.111)
Excluded Instruments	0.017*** (0.006)	0.057*** (0.005)	0.057*** (0.005)	0.057*** (0.005)	0.057*** (0.005)	0.057*** (0.005)
Travel time to major clinics	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.001)	-0.001*** (0.001)	-0.001*** (0.001)	-0.001*** (0.001)
Lagged average income in the community	-0.006*** (0.000)	-0.006*** (0.000)	-0.006*** (0.001)	-0.006*** (0.001)	-0.006*** (0.001)	-0.006*** (0.001)
Observations	621	621	621	621	621	621
Pseudo R ² (Panel A)	0.205	0.207	0.187	0.195	0.204	0.205
Pseudo R ² (Panel B)	0.302	0.310	0.214	0.219	0.264	0.269

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