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RESEARCH ARTICLE

EMBEDDEDNESS, PROSOCIALITY, AND SOCIAL INFLUENCE: EVIDENCE FROM ONLINE CROWDFUNDING

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Appendix A

IV Regression

We explore the robustness of our main estimates to endogeneity. This is a concern if social media activity is, for example, influenced by campaign fundraising, implying simultaneity. Because we lack a traditional, theoretically motivated instrument, we employ the method of Lewbel (2012), constructing orthogonal instruments mathematically from covariates specified as exogenous. We treat the cumulative fundraising percentage and duration elapsed as exogenous, and construct instruments for the various endogenous terms incorporating embeddedness, tweet volumes, and their interactions with campaigns' prosocial orientation. We implement the regressions via the *ivreg2h* command in STATA, employing the *fe* option to account for our campaign fixed effects and incorporating daily time dummies. The results appear in Table A1.

Table A1. IV Regression Using Generated Instruments (DV = $\ln(\text{contribution})_{it}$)		
	(1) Transitivity	(2) Overlap
$Embeddedness_{t-1}$	0.137(0.331)	1.846(1.193)
$PublicOrientation * Embeddedness_{t-1}$	-0.065(0.036)	-0.300*(0.125)
$ln(tweets)_{t-1}$	0.244***(0.046)	0.249***(0.049)
$Embeddedness_{t-1} * ln(tweets)_{t-1}$	-0.084(0.141)	-0.670(0.496)
$PublicOrientation * ln(tweets)_{t-1}$	-0.005(0.003)	-0.006(0.003)
$PublicOrientation * Embeddedness_{t-1} * ln(tweets)_{t-1}$	0.029*(0.015)	0.123*(0.051)
Pct_target_{t-1}	0.023***(0.003)	0.023***(0.003)
$Pct\_duration_{t-1}$	0.136(0.076)	0.138(0.076)
Observations	29,965	29,965
Number of Projects	1,126	1,126
Project Fixed Effects	Yes	Yes
R-square	0.58	0.58
F-stat	478.88 (67, 28772)	477.71 (67,28772)
Kleibergen-Paap rk LM Chi²	618.839 (359)	472.032 (359)
Cragg-Donald Wald F	21.808	22.984

Notes: 1. Standard errors reported in parentheses, clustered by campaign.
2. ***p < 0.001, **p < 0.01, *p < 0.05.
3. Instruments for social network structure, tweet volumes, and interactions between the two and prosocial orientation are instrumented using generated instruments. Other covariates treated as exogenous.

Appendix B

Cross-Media Focus and Comparison

We contrast activity manifesting across different social media, to provide some evidence in support of our suggestion in the discussion section that crowdfunding campaign organizers (and marketers in general) may be better served by focusing on certain social media, depending on the nature of the message they are pushing (e.g., media that tend to exhibit higher closure rates should be preferable for marketing messages that play to a greater degree on public good/prosocial motives). This is valuable for practitioners because allocating resources to different social media channels is likely to be a straightforward consideration for an individual campaign organizer or marketer. In contrast, engaging in targeted advocacy within a given network, toward clusters of users exhibiting embeddedness, is likely to be more challenging for a typical campaign organizer or marketer. We thus focus on the contrast between Facebook and Twitter, the social media most commonly integrated into leading crowdfunding platforms.

The differences in design affordance between Facebook and Twitter are likely to lead to behavioral differences amongst users (Kane 2014). Twitter is particularly useful for information gathering (Granovetter 1973), broadcasting, and dissemination (Kwak et al. 2010). In contrast, Facebook servers as a true social venue, providing conditions better suited to the manifestation of cooperative norms and social image concerns. Empirical evidence in the academic literature supports the supposition that Facebook networks exhibit greater levels of embeddedness than Twitter networks, on average. As an example, Ugander et al. (2011) report that the median Facebook user exhibits a local clustering coefficient of 0.14, whereas Han et al. (2016) report that Twitter users of comparable degree exhibit a local clustering coefficient of just 0.10, indicating that Twitter users of comparable network size maintain fewer embedded ties and more open networks than comparable Facebook users. Accordingly, we have cause to believe that public-good oriented campaigns should benefit more from Facebook buzz than Twitter buzz, a belief we test empirically in our Kickstarter data.

To test for this association, we revisited the Kickstarter campaigns in our sample, scraping the aggregate Facebook share volumes associated with each campaign at the time of data collection (well after campaign completion). We then aggregated our panel data from our main analyses

to the campaign level, resulting in a cross-sectional sample of campaigns, wherein we observe total fundraising, goal, duration, category, prosocial orientation (based on our LIWC dictionary approach), total tweet volumes, and total Facebook shares. We then estimated a simple regression of the natural log of the total dollar fundraising outcome onto these various factors, interacting our prosociality measure with each social media activity measure. Ultimately, we compare the two interaction effects, to assess the relative value of each type of social media activity, depending on campaigns' orientations. The results of this regression are reported in Table B1. Figure B1 presents an interaction plot of the resulting marginal effect estimates, as a spotlight analysis (+/– 1 standard deviation around the average of our prosocial measure).

Finally, to alleviate the endogeneity concern of this cross-sectional analysis, we again employ the method of Lewbel (2012). We specify five endogenous variables, *ln(tweets)*, *ln(fb shares)*, *PublicOrientation*, and interaction terms between *PublicOrientation* and *ln(tweets)*, *ln(fb shares)*, respectively. The results are reported in Column (3) of Table B1. Overall, we observe the same pattern as the estimation results without IV.

Table B1. Cross-Media Estimation

	(1) OLS ln(contribution)	(2) OLS ln(contribution)	(3) IV ln(contribution)
ln(tweets)	0.225*** (0.037)	0.526*** (0.119)	1.146***(0.181)
ln(fb shares)	0.474*** (0.039)	0.329*** (0.091)	0.102(0.154)
PublicOrientation	—	-0.015 (0.058)	-0.081(0.117)
*PublicOrientation*ln(tweets)*	—	-0.032** (0.012)	-0.103***(0.020)
*PublicOrientation*ln(fb shares)*	—	0.016* (0.010)	0.068***(0.020)
Ln(goal)	0.249*** (0.034)	0.253*** (0.034)	0.174***(0.039)
Duration	-0.002 (0.003)	-0.002 (0.003)	-0.002(0.003)
Constant	2.909*** (0.261)	2.921*** (0.588)	2.802***(0.988)
Category FEs	Yes	Yes	Yes
Observations	1,091	1,091	1,091
R-squared	0.506	0.514	0.456

Notes: 1. Standard errors reported in parentheses.
2. Coefficients significant at level ***p < 0.01, **p < 0.05, *p < 0.1.
3. A few campaigns from the original sample were dropped because they were no longer visible when we performed subsequent Facebook data collection.

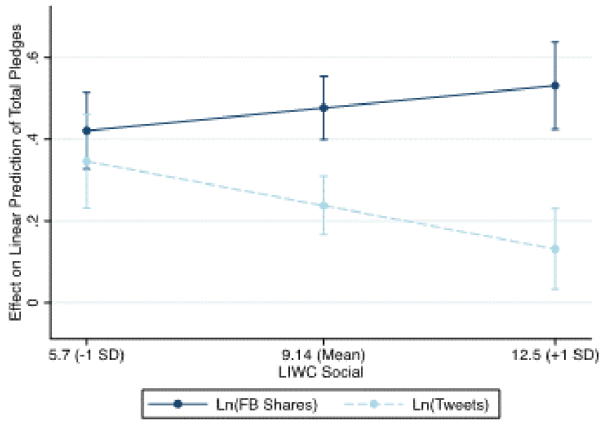

Figure B1. Spotlight Analysis

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