

Crowdfunding Community Formation: Fundraiser Race and Gender Homophily

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Abstract

Access to a community adds value to crowdfunding above and beyond the amount of capital a fundraiser is able to obtain. Despite the importance of community in crowdfunding, past work has not studied the individual contribution decisions leading to the formation of networks. In this work, we study the network that forms on Kickstarter.com when fundraisers contribute to the projects of fellow fundraisers. We explore the relationship between race and gender homophily, taste homophily, and tie formation in the network. We find strong evidence for these forms of homophily in terms of one-way contributions. However, racial homophily does not appear to substantially alter reciprocal contribution behaviors. On the other hand, taste-based homophily, as defined by fundraisers with projects in the same category (dance, music, etc.) does have a strong influence on the likelihood of reciprocity in this network. This has managerial implications for how fundraisers should strategically back other projects.

1 Introduction

This paper studies the dynamics of fundraiser community formation on Kickstarter.com. Entrepreneurs seeking capital to fund projects can choose between traditional funding models and online crowdfunding platforms. Crowdfunding comes with a host of challenges, and so access to a community of backers and other fundraisers has been shown to be necessary to make it a viable alternative to investor- or creditor-based funding models (Belleflamme et al. 2014). Crowdfunding participants are strongly motivated by access to community (Gerber et al. 2012), and Kickstarter.com promotes itself as providing access to “a vibrant community of backers.”¹ Past research in crowdfunding has not studied individuals’ contribution decisions (Alegre and Moleskis 2016), and therefore the formation of fundraiser networks is not well understood.

Furthermore, community dynamics also affect success rates. Fundraisers who contribute funds to other projects have an increased likelihood of success, due to both direct and indirect reciprocity by other fundraisers Zvilichovsky et al. (2015). Fundraisers can leverage the community to receive mentorship and feedback, as well as access knowledge resources (Hui et al. 2014). Furthermore, racial bias has been documented in crowdfunding success (Younkin and Kuppuswamy 2017, Rhue and Clark 2018), but a full understanding of the role that demographic-based bias plays in online crowdfunding is impossible without understanding the composition of the crowd and the behaviors of individual backers. Further complicating the picture is that demographics (race and gender) and backing decisions are also related to tastes—preferences for particular types of projects.

Our work characterizes the relationship between race, gender, and taste-based homophily and tie formation in the network of Kickstarter.com fundraisers. We focus on the community of fundraisers to enable investigation of reciprocity as well as initial backing decisions. Specifically, we explore the question of whether fundraisers are more likely to contribute to projects where the recipient-fundraiser is similar to the contributor in both demographics

¹<https://www.kickstarter.com/about?ref=global-footer>

(*status homophily*) and interests or tastes (*values homophily*), and also whether fundraisers are more likely to reciprocate contributions based on status and values homophily.

To the best of our knowledge, this work is the first to investigate the relationship between the demographic characteristics of the users of crowdfunding platforms and their contribution decisions, in part because it would be difficult to find enough fundraisers of specific demographic groups to participate in an experiment (Younkin and Kuppuswamy 2017). Our main contribution is a large-scale network analysis of more than 66,000 fundraiser pairs on Kickstarter.com. We use a novel dataset of fundraiser backings, and employ facial recognition software to identify individuals’ race and gender. We model the probability of a tie occurring in the network as a function of demographic and taste characteristics. Our results provide evidence for the presence of demographic homophily in the fundraiser network for contributions: fundraisers are significantly more likely to back projects created people that are demographically similar to them. Surprisingly, race does not appear to have a substantial influence on whether a contribution is reciprocated, although taste-based homophily does.

Our findings provide valuable lessons for both crowdfunding platforms and fundraisers. Given the strong demographic homophily in contributions, recruiting a more diverse set of fundraisers would be a way for Kickstarter to improve the well-documented racial disparities in fundraising success rates. In contrast, if fundraisers aim to strategically contribute to projects that are likely to lead to a reciprocal backing, they should seek campaigns with the greatest similarity to their own.

2 Theory and Background

Kickstarter promotes community as an important aspect of its platform. On any project page, a “Community” tab is available that displays information about the backers of a project. [Figure 1](#) is a screenshot of the community tab provided by Kickstarter on its blog to highlight this feature.² The social aspect of crowdfunding sets it apart from other more-traditional forms of entrepreneurial fundraising.

²<https://www.kickstarter.com/blog/introducing-the-community-tab>

Fundraisers can leverage the network on Kickstarter by strategically contributing to the projects of other fundraisers and hoping those fundraisers reciprocate. When fellow fundraisers back a project, they increase that project’s visibility on Kickstarter. Users are given the option to follow the activities of fundraisers they contribute to.³ The projects backed by followed fundraisers are shown when users browse for projects on the platform. Thus, strategic selection of fundraisers who are likely to reciprocate is an important way for Kickstarter fundraisers to promote their own work.

2.1 Race and Gender on Online Platforms

Prior literature has shown the role of racial bias in shaping behavior on online platforms such as Airbnb (Edelman and Luca 2014), Prosper.com (Pope and Sydnor 2011), Craigslist (Ghoshal and Gaddis 2015), eBay (Ayres et al. 2011), and Facebook (Hebl et al. 2012). Recent work has highlighted the disparities in success in crowdfunding for Black fundraisers in particular (Younkin and Kuppuswamy 2017). Racial signals are present in both user photos and text. Generic photos alone cannot eliminate racial disparities (Rhue and Clark 2018).

This vast body of literature shows quite clearly that platform users are quite adept at determining the demographics of other users. Users are particularly skilled at using photos to infer racial information (Hosoi et al. 2004, Fu et al. 2014). We expect that fundraisers behave similarly to other platform users, both inferring the demographics of other fundraisers from their profile images and using that information as a basis for their contribution decisions.

2.2 Homophily and Social Networks

Homophily can be summarized by the common phrase, “Birds of a feather flock together” (McPherson et al. 2001). People seek out interactions with others they are similar to. Scholars have extensively studied this phenomenon in the context of social networks. Information systems scholars have observed homophily in a number of online settings such as virtual investment communities (Bin Gu et al. 2014) and online health communities (Lu (Lucy)

³<https://www.kickstarter.com/blog/follow-creators-find-projects>

Yan et al. 2015). Additionally, the marketing literature has shown that racial homophily affects purchase decisions (Simpson et al. 2000). Given the strong evidence of homophily in other networks, we hypothesize that homophily is also present in the fundraiser network. We hypothesize that ties between fundraisers of the same race and gender occur more frequently than we would observe if ties were actually determined at random.

H1: Contributions to fundraisers with the same demographics as the contributor occur more frequently than we would expect if contributors chose projects for contribution at random (baseline). The extent of deviation from baseline varies with the contributor demographic group.

Sociological theory distinguishes between two main types of homophily: *status homophily* and *values homophily* (Lazarsfeld and Merton 1954). Status homophily is defined by the dimensions that create divisions within society such as race, gender, age, and education. Values homophily encompasses beliefs and interests. Multiple types or dimensions of homophily can overlap, making it difficult to discover the dominant source of homophily. This can occur because of correlation between two dimensions or because people sort into one dimension in order to interact with their preferred group (Wimmer and Lewis 2010). For example, Latino college students could self-select into the Latino studies major in order to befriend other Latinos. In that case, it would be difficult to identify homophily due to college major from homophily due to race/ethnicity.

In the context of the Kickstarter network, we hypothesize that race and gender are related to tastes (project category).

H2: Fundraiser race/gender is related to fundraiser interest (project category).

2.3 Reciprocity

Reciprocity occurs in the Kickstarter network when a fundraiser makes a contribution to another fundraiser and that fundraiser returns the favor by making a contribution at a later date. This is known as *direct reciprocity* (“I help you, you help me”), but scholars have also

studied “indirect reciprocity” (“I help you, you help someone else”) (Nowak and Sigmund 2005). The IS literature has studied reciprocity in many network contexts from social media (Bapna et al. 2017) to consumer message boards (Chan and Li 2010). We hypothesize that there is homophily in reciprocity in the online crowdfunding community as well.

H3: There are differences in the rate of reciprocal backing when the contributor and recipient are of the same race or gender relative to when they are not. The reciprocity rate varies with the combination of recipient/contributor characteristics.

Little scholarly work has linked homophily to reciprocity explicitly, though it has been discussed in the literature on network models. Chiang and Takahashi (2011) show in a theoretical simulation how homophily increases reciprocity. Block and Grund (2014) find that homophily increases reciprocity to a certain extent, though reciprocity decreases if there is sameness in too many dimensions. In the absence of much scholarship on this topic, we defer to the previous findings showing consistent, positive relationships between homophily and tie formation. We hypothesize that the relationship between demographic homophily and reciprocity will remain even after we account for taste homophily.

H4: The relationship between race/gender homophily among contributor and recipient fundraisers remains even when taste homophily is taken into account.

3 Fundraiser Network Formation

3.1 Data Collection

We construct the network of Kickstarter fundraisers using both the project creation history of fundraisers and their history of contribution to other projects. Our universe of projects consists of projects initiated between April 2009 and November 2014. This initial set encompasses 138,763 projects by 121,770 fundraisers. We obtained the complete project contribution history for all fundraisers in this universe through March 2017, a total of approximately 641,000 backings. To ensure availability of project and fundraiser characteristics, we restricted the backings to those that are in our project universe (58.4%).

As mentioned above, we specifically study fundraiser backings to enable investigation of reciprocity in addition to overall contribution patterns. Our primary unit of analysis is the fundraiser dyad, pairs of fundraisers that are connected via project contribution. We thus restrict our initial set of fundraisers to those who belong to a dyad. Dyads are directional; a fundraiser joins a dyad by either backing the project of another fundraiser or receiving backing from another fundraiser. We refer to the fundraiser receiving funding in the dyad as the *recipient fundraiser* and the fundraiser contributing funding as the *contributor fundraiser*. When a contributor fundraiser backs multiple projects of the same recipient fundraiser, their dyad appears in the final network dataset only once.

As illustrated in [Figure 2](#), one quarter of all connected fundraisers are recipients only (they provide backing to zero other recipients). Three-quarters of connected fundraisers provide funding to one or more other fundraisers. Among these, the most common number of recipient connections is one. The maximum number of backings by one fundraiser is 1,021.

Fundraiser characteristics make up the key independent variables in the subsequent analyses. Each Kickstarter campaign has an associated profile image associated with the fundraiser. We used the image classification software Face++, which has been found in past work to produce estimates of Kickstarter fundraisers' races that are acceptably accurate ([Rhue and Clark 2018](#)), to classify each fundraiser's race as Asian, black, or white, and gender as male or female. The data set was further filtered to only include fundraisers where Face++ identified only one race and gender, which comprise 41.8% of fundraisers in our universe. Each campaign is assigned a category by Kickstarter, including Arts, Comics & Illustration, Design & Tech, Film, Food & Craft, Games, Music, or Publishing. We use each campaign's project category as a proxy for the fundraiser's tastes, although we note that in future work we will use more detailed project information to assess the role of taste-based homophily.

3.2 Sample Selection

We create two samples for the purpose of our analysis. [Table 1](#) shows the number of dyads and the number of unique fundraiser nodes in each sample. Our main sample consists of all dyads in the project universe for which we can identify a single race and gender for both the recipient fundraiser and the contributor fundraiser (66,688 dyads with 26,232 unique fundraisers).

We also construct a sample for the purpose of examining reciprocity. To be included in this sample, the recipient fundraiser must have the opportunity to contribute to a future project created by the contributor fundraiser. This is only possible if the recipient fundraiser has a project in the project universe that ends after the contributor backs his or her project. For example, suppose contributor A backs recipient B’s project, which ends its fundraising period on January 1st, 2013. Then, recipient B can only reciprocate the backing if contributor A has a project that is still open for backing on January 2nd.

Descriptive statistics for the fundraisers in the main sample are shown in [Table 2](#). The majority of fundraisers are identified as white (86.5%). Roughly five percent are black and nine percent are Asian. Female fundraisers are more common than male fundraisers. The most common project category is Film (31.2%). Project categories are not mutually exclusive; fundraisers may have projects in multiple categories. However, only three percent of fundraisers have projects in multiple categories.

3.3 Network Visualization

To visualize homophily in the network of fundraisers, we present networks of the ties between recipient and contributor fundraisers with projects in the same category, excluding fundraisers who do not contribute to other projects. [Figure 3](#) shows example network graphs for fundraisers with projects in the art, music, and technology categories. Dyads between fundraisers of the same race are colored in red. Among dyads in the main sample, 75% of recipient and contributor dyads have the same race; 62% have the same gender. [Figure 3](#)

illustrates the fact that there are differences in fundraiser backing behavior across project categories areas. For instance, the technology fundraiser network is much more dense and active than the networks in art or music. It is not immediately clear from these graphs whether race homophily or project category is the main driver of network structure.

4 Network Analyses

4.1 Homophily in Tie Formation

We hypothesize that there is demographic-based homophily in the Kickstarter fundraiser network, and operationalize homophily as a more-frequently-than-expected chance of a tie occurring between fundraisers of the same race. Thus, to test **H1**, we test for the presence of homophily by testing for deviations in the share of backings by group from the population frequency. If there was no association between demographic homophily and dyad formation, we would expect the average share of contributions made to each demographic group to match the frequency of that demographic group in the fundraiser population. This is akin to someone drawing differently-colored, identical balls from an urn. If the drawer does not care about or cannot observe the color of the ball, then the selection of the ball should be made at random because all other attributes are identical. The rate of selection of the balls by color would match the share of balls of the same color in the urn. On the other hand, if the drawer could select the balls based on color, we would observe a deviation in the selection rate from the frequency of occurrence.

Table 3 presents the frequency of dyads by contributor and recipient characteristics. As mentioned, if contributors choose recipients at random, the share of recipients with a given characteristic should match the frequency of the characteristic in the fundraiser population. For example, connections from Asian fundraisers to other Asian fundraisers (via project contribution) comprises 12% of all connections from Asian contributors. 9% of all fundraisers are Asian, so the frequency of Asian-Asian dyads is 40% higher than expected. This difference is statistically significant based on a two-sided t test ($\alpha=.05$).

The frequencies of all combinations of contributor and recipient characteristics have a statistically significant deviation from expected except for Asian-Black and White-White. Notably, Asian-Asian and black-black fundraiser ties are the most disproportionately likely occurring groups. As mentioned above, Asian fundraisers are 40% more likely to back other Asian fundraisers than would be expected by random chance. Black fundraisers are 178% more likely to back other black fundraisers than would be expected by random chance. From this, we conclude that fundraisers of color have strong preferences for race-based homophily.

4.2 Demographics vs. Taste

Fundraiser demographic characteristics likely influence the selection of project categories, which further complicates the relationship between network structure, demographic homophily, and taste homophily. **H2** hypothesizes that there is an association between the demographic characteristics of fundraisers and their chosen project category. [Table 4](#) and [Table 5](#) show the share of fundraisers of each demographic group that have projects in each category. We use a chi-squared test to assess whether there is a relationship between project category and race or gender. In both cases, the chi-squared value is large ($p \ll .01$). We reject the null hypothesis that there is no relationship between project category and race or gender.

4.3 Homophily in Reciprocity

Section [4.1](#) established that race and gender homophily is present in the formation of ties within the fundraiser network. **H3** hypothesizes that homophily is also related to reciprocity. In fact, we expect there may be an even larger relationship between demographic homophily and reciprocity than demographic homophily and dyad formation. [Table 6](#) shows tests for differences in reciprocity rates between same-race dyads vs. different-race dyads, and same-gender dyads vs. different-gender dyads. Surprisingly, the reciprocity rates are surprisingly similar across racial groups; close to one-third of all ties are reciprocated. The only group significantly more likely to reciprocally contribute to a fundraiser of the same race is white fundraisers. Asian recipients are 11% less likely than white recipients to reciprocate funding

from a white contributor. Black fundraisers are 26% less likely.

On the other hand, there is strong evidence of gender effects in backing reciprocation. Both female and male fundraisers are close to 20% less likely to reciprocate backing from female fundraisers compared to other male fundraisers. Reciprocity rates from female to male fundraisers are also close to 20% less frequent than male to male. These results indicate less that there is gender-based homophily, and more that any fundraiser is likely to reciprocate a contribution from a male fundraiser. This is especially surprising given that females are significantly more likely to initiate backing another female fundraiser than they are to initiate backing a male fundraiser, as shown in Table 3.

4.4 Demographic vs. Taste-Based Homophily in Reciprocity

Section 4.3 shows that there are some demographic preferences in fundraiser’s contribution patterns, but we know from Section 4.2 that fundraiser demographics are also related to their tastes (H2). Differences in reciprocity for same/different gender dyads and dyads with white contributors may reflect the sorting of these groups into interest groups. To better understand the relationship between demographic homophily and reciprocity, we must also control for fundraiser tastes via the project category.

4.4.1 Identification Strategy

Figure 4 illustrates our identification strategy for reciprocity (H4). For contributors who back the projects of multiple recipients, there is variation in both reciprocity (dependent variable) and the demographic characteristics of the recipients (independent variables). In the figure scenario, Contributor 1 (C1) contributes to a project of recipient A (RA), who has a different race and gender from C1, and recipient B (RB), who has the same characteristics. We hypothesize that RB is more likely than RA to later contribute to a project of C1. Using logistic regression we estimate the average likelihood of reciprocity of a tie for fundraisers of the same race, gender, and project category. The estimated homophily relationships are driven by contributors who provide funding to more than one recipient.

We use a conditional logistic regression model to control for the unobserved characteristics of the contributor in the recipient’s reciprocal backing decision. For example, the decision of RB to reciprocate C1 may be related to C1’s fundraising skills and interesting projects, rather than race or gender homophily. We assume that talent for fundraising is consistent across projects and estimate a conditional logit model with the contributor’s ID acting similar to a fixed effect.

Note that in the conditional logit model we cannot estimate separate homophily effects for contributors of different races/genders. For example, we cannot estimate the relationship between reciprocity and the contributor and recipient being the same race conditional on the contributor being black. We run the model separately for white and non-white contributor dyads to rule out the relationship being driven by white fundraisers alone.

Equation 1 gives our final model for estimating the relationship between reciprocity and race, gender, and category, using same-race, same-gender, and same-category dummy variables and contributor fixed effects. The subscripts indicate the likelihood of reciprocity occurring for contributor i in dyad d .

$$\begin{aligned} \text{logit}(\text{reciprocity}_{id}) = & \beta_1 \text{race}_{id} + \beta_2 \text{female}_{id} + \beta_3 \text{same-race}_{id} + \beta_4 \text{same-gender}_{id} \\ & + \beta_5 \text{same-race}_{id} * \text{race}_{id} + \beta_6 \text{same-gender}_{id} * \text{female}_{id} + \beta_7 * \text{same-category}_{id} + \epsilon_{id} \end{aligned} \quad (1)$$

4.4.2 Model Results

The logistic regression models reveal a somewhat different story from the results in Table 6. As shown in Table 7, recipients are around 1.2 times more likely to reciprocate ties with the contributor if they are the same race as the contributor. We fail to find a statistically-significant difference in the same-race effect for Black and Asian contributors relative to White contributors. Reflecting the roughly equal reciprocity rates shown in Table 6, we do not see statistically significant average differences between contributors of different racial

groups (i.e. black and Asian contributors are no more or less likely than white recipients to have their contribution reciprocated.) Shared gender between the contributor and recipient appears to increase the likelihood of reciprocity for men, but not for women. In fact, on average, female fundraisers are less likely to receive a contribution from other female fundraisers.

The logistic regression models provide support for **H4**, that there is a relationship between demographic homophily and reciprocity, even after we control for category homophily. However, in practice these effect sizes may represent relatively small differences between groups. The same-category estimate is also substantially larger than the same-race or same-gender estimates, showing the large role tastes play in the reciprocity decision.

Finally, we check for the presence of homophily effects after accounting for unobserved differences between contributors that may affect recipients' reciprocity decision. [Table 8](#) shows the results of the conditional logit models, which estimate the homophily effects within contributors. Note that contributor characteristics and interactions are no longer present in the model because there is no variation in race, gender, and category for each contributor. In this specification, we find that the same-race effect is no longer statistically significant. However, the effect of the same category is both statistically significant and of similar magnitude to the logistic regression models.

Taken together, these results provide mixed support for Hypothesis 4. Future work will employ more robust modeling techniques to disentangle the effects of race, gender, and category homophily.

5 Conclusions and Extensions

This work contributes an analysis of the relationship between crowdfunders' demographic characteristics and their backing behaviors using a novel observational dataset. We study both overall contributions to campaigns and reciprocal contributions, and also consider contributor and recipient taste characteristics.

We find varying levels of support for our four hypotheses. **H1** is supported: there is racial

homophily in the fundraiser network. The effect is particularly pronounced for fundraisers of color, and is notably not significant for white fundraisers. **H2** is also supported, since we see that there are relationships between demographic characteristics and project categories. We find limited support for **H3**. White fundraisers are more likely to reciprocate backings from other white fundraisers, but Asian and black fundraisers do not demonstrate the same behavior. Our analysis also points to a preference for reciprocating backings from male fundraisers. Finally, we find that racial and gender homophily are evident when controlling for categories (**H4**). Furthermore, there is strong evidence of category-based homophily.

We plan to expand upon this work in four ways. First, it is possible that race and gender similarity are picking up on similarities in taste that are not accounted for by the project category. Category is a relatively limited proxy for fundraiser interests. Past work has found that there are often strong racial signals in crowdfunding campaign text descriptions ([Rhue and Clark 2018](#)). We can examine this possibility by comparing the project descriptions of fundraisers in the same dyad using text analytics techniques. We expect this analysis will also contribute to the crowdfunding literature more broadly. The text comparisons will provide a richer lens for understanding project portfolio diversity within and across fundraisers.

Second, we will incorporate recent advances in network models, either via Exponential Random Graph Models (ERGM) or longitudinal network analysis. This will allow us to account for other network structures that may be at play. For example, a fundraiser may be more likely to reciprocate a contribution from a contributor who is connected to another fundraiser with mutual ties.

Third, it is possible that the backing behavior of fundraisers may differ systematically from the backing behavior of non-fundraisers. We have gathered data on non-fundraiser contributors' behavior and plan to incorporate this into our results.

Finally, we would like to explore the interaction between project category and homophily. Based on our network graphs, it appears that certain project category networks have very different structures. In particular, technology stands alone as having a much denser network

with many more connections between fundraisers.

Our results provide a promising first step toward understanding the nature of crowdfunding fundraiser networks by looking at individual crowdfunders' behaviors. This fills a noted research gap in the crowdfunding literature, which tends to focus on determinants of individual projects' success. This work even points toward a way to overcome some of the noted limitations of the crowdfunding model faced by people of color. Given the demographic homophily among fundraisers, Kickstarter and other platforms should consider redoubling efforts to recruit a diverse set of fundraisers in order to mitigate racial disparities in success rates. We also see that category-based homophily is influential in terms of reciprocity, and so fundraisers seeking to back projects likely to result in reciprocity should look to those projects most similar to their own.

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Figures

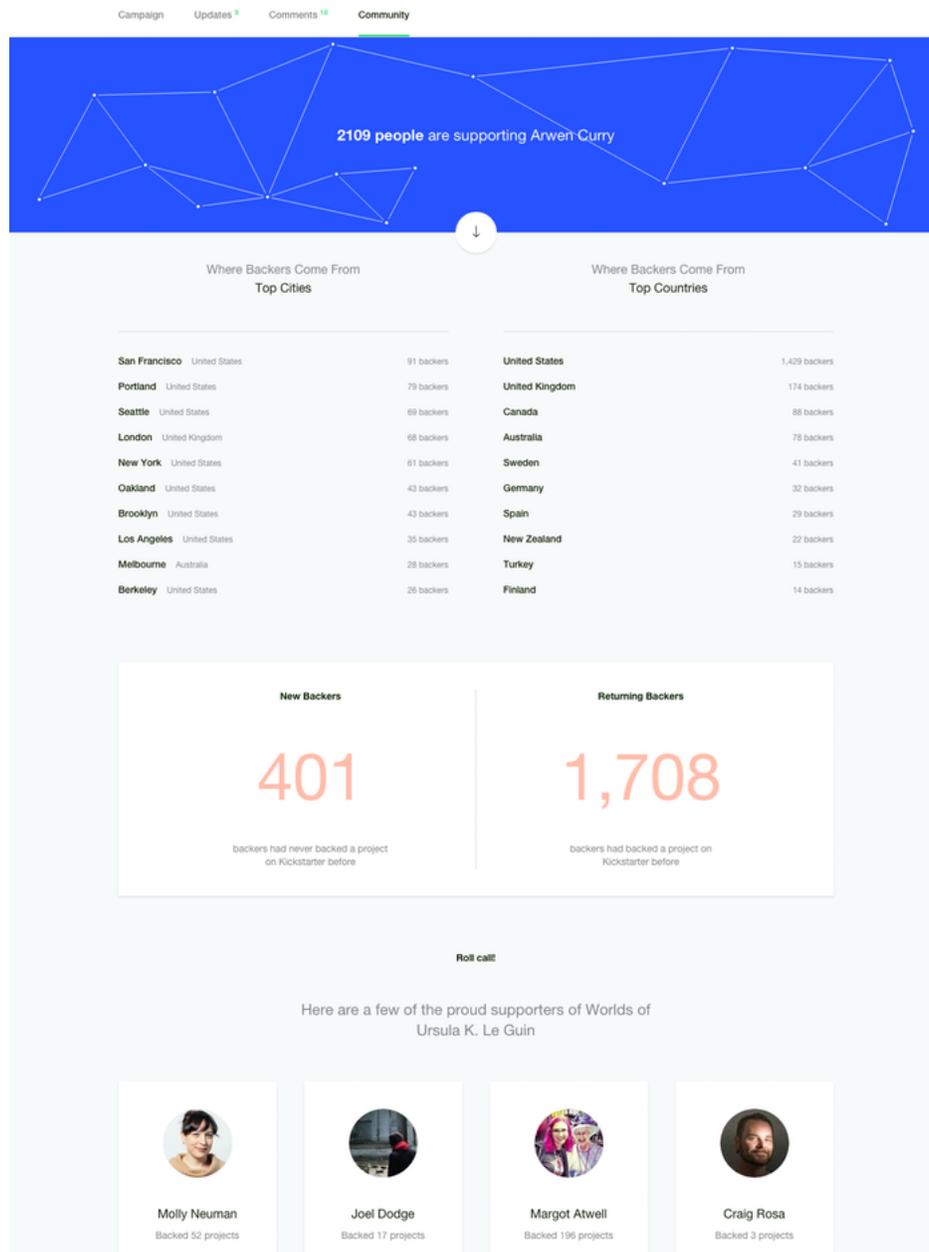


Figure 1: Screenshot of the Kickstarter Community Feature

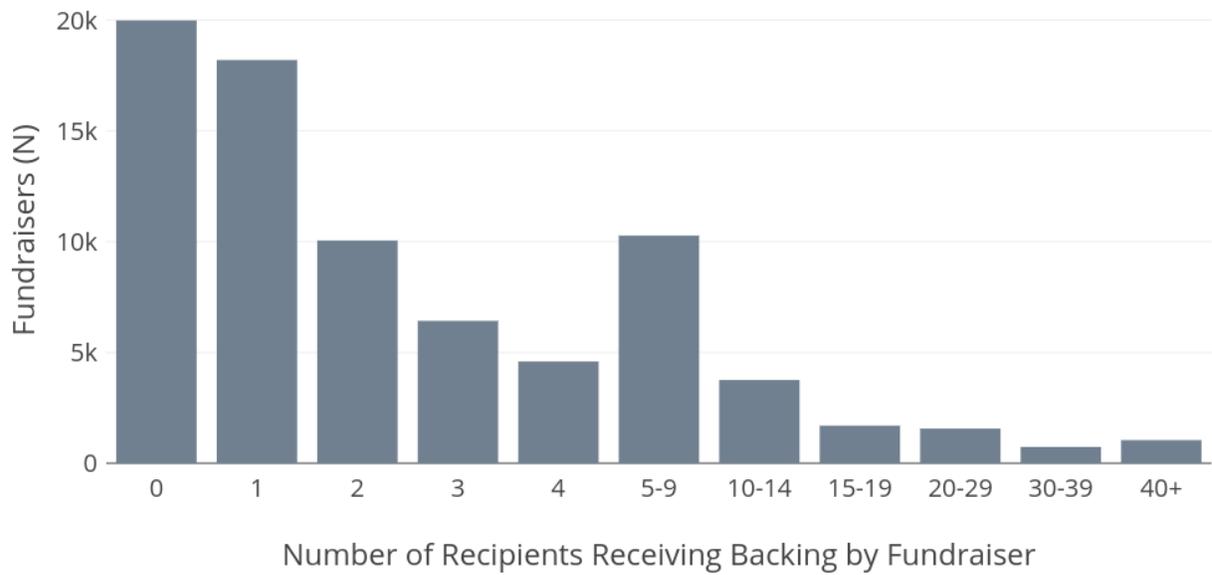
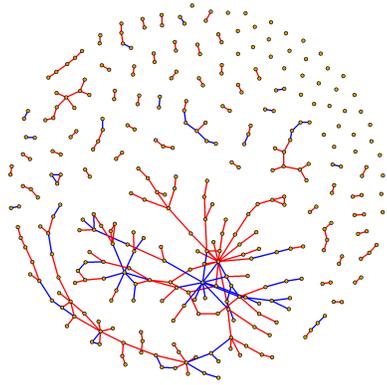
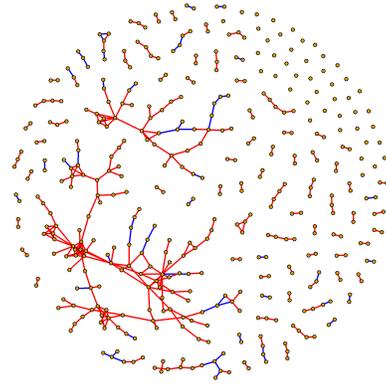


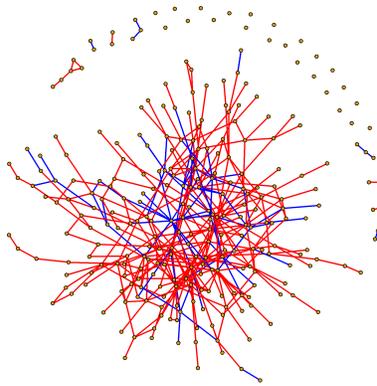
Figure 2: Distribution of the Number of Recipients Receiving Backing by Each Fundraiser
Note. Figure includes 78,340 fundraisers and 359,424 dyads from the project universe.



(a) Art



(b) Music



(c) Technology

Figure 3: Network Graph, Fundraisers in Three Categories

Note. Edges shown in red connect fundraisers with the same race. Blue edges connect fundraisers with different races. Included fundraisers have backed at least one project and received backing from another fundraiser on at least one project.

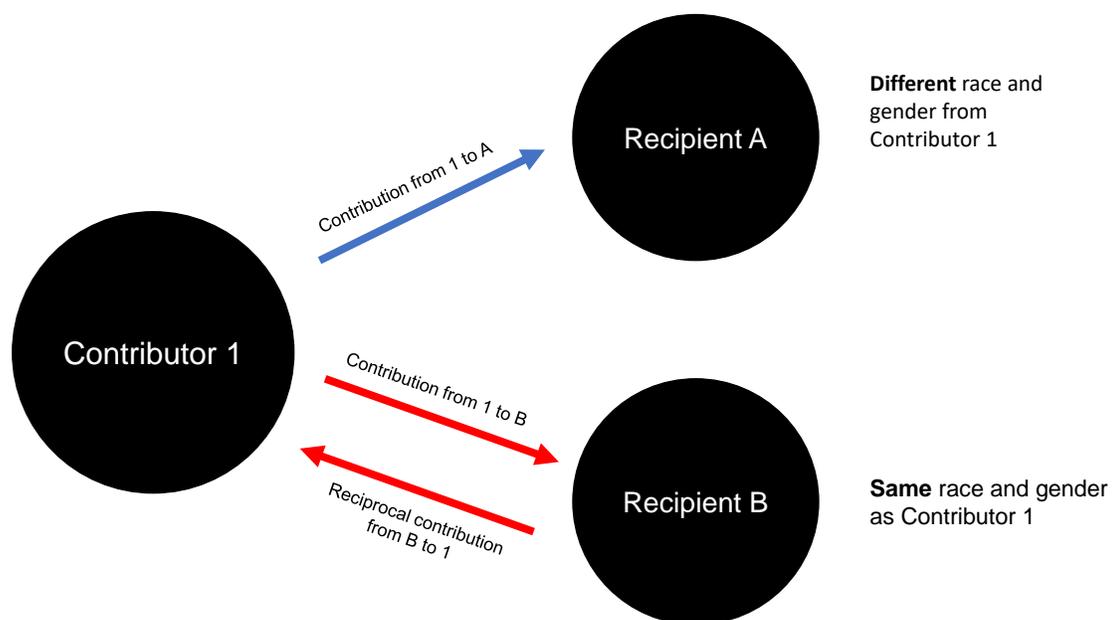


Figure 4: Identification Strategy: Variation in Reciprocity across Multiple Recipients Tied to Same Contributor

Tables

Table 1: Number of Dyads and Fundraiser Nodes in Analytic Samples

Sample	N Dyads	N Nodes
All Backings in Project Universe	359424	78340
Main Sample: Above + Identifiable Race and Gender	66688	26232
Reciprocity Sample: Above + Opportunity for Reciprocity	42233	21937

Table 2: Characteristics of fundraisers in main sample

	Mean	Std. Dev.	N
White	0.860	0.347	22548
Black	0.051	0.220	1342
Asian	0.089	0.285	2342
Male	0.368	0.482	9665
Female	0.632	0.482	16567
Art	0.094	0.292	2473
Comics	0.037	0.189	975
Crafts	0.017	0.130	449
Dance	0.012	0.111	325
Design	0.086	0.280	2251
Fashion	0.047	0.212	1242
Film	0.312	0.463	8173
Food	0.062	0.242	1637
Games	0.059	0.236	1554
Journalism	0.009	0.095	238
Music	0.094	0.292	2462
Photography	0.006	0.076	153
Publishing	0.113	0.316	2962
Technology	0.056	0.229	1457
Theater	0.032	0.176	841
Multiple Categories	0.033	0.178	864

Table 3: Deviation of Dyad Frequency from Random Chance

Note: T statistic tests difference between expected and actual share. Expected share is the frequency of the recipient characteristic in the overall fundraiser population. Critical value is approximately 1.96, two-sided at alpha=.05.

Contributor	Recipient	Dyad N	Contributor Char. N	Expected Share	Actual Share	Pct. Diff.	T
Asian	Asian	826	6619	0.09	0.12	0.40	32.36
Asian	Black	334	6619	0.05	0.05	-0.01	1.11
Asian	White	5459	6619	0.86	0.82	-0.04	3.30
Black	Asian	323	2929	0.09	0.11	0.24	12.73
Black	Black	416	2929	0.05	0.14	1.78	96.13
Black	White	2190	2929	0.86	0.75	-0.13	7.04
White	Asian	5762	57140	0.09	0.10	0.13	30.95
White	Black	2617	57140	0.05	0.05	-0.10	25.04
White	White	48761	57140	0.86	0.85	-0.01	1.72
Female	Female	32130	44078	0.63	0.73	0.15	32.37
Female	Male	11948	44078	0.37	0.27	-0.26	55.49
Male	Female	13387	22610	0.63	0.59	-0.06	9.40
Male	Male	9223	22610	0.37	0.41	0.11	16.11

Table 4: Relationship between Project Category and Race

Note. Columns represent the share of demographic group that falls within the project category. Vertical column total sums to 1. Fundraisers with projects in multiple categories (3%) are excluded.

Category	Black	White	Asian	N
Art	0.074	0.087	0.087	2186
Comics	0.047	0.033	0.035	855
Crafts	0.010	0.015	0.015	367
Dance	0.013	0.011	0.018	304
Design	0.052	0.081	0.086	2039
Fashion	0.080	0.042	0.055	1153
Film	0.328	0.311	0.320	7923
Food	0.051	0.062	0.062	1565
Games	0.039	0.057	0.051	1401
Journalism	0.009	0.008	0.007	205
Music	0.111	0.093	0.094	2387
Photography	0.005	0.006	0.005	141
Publishing	0.118	0.109	0.084	2715
Technology	0.033	0.054	0.054	1340
Theater	0.029	0.031	0.028	787
Race N	1302.000	21811.000	2255.000	
Chi-Squared	118.145			
P-Value (alpha=.05)	0.000			

Table 5: Relationship between Project Category and Gender

Note. Columns represent the share of demographic group that falls within the project category. Vertical column total sums to 1. Fundraisers with projects in multiple categories (3%) are excluded.

Category	Female	Male	N
Art	0.069	0.116	2186
Comics	0.041	0.021	855
Crafts	0.009	0.025	367
Dance	0.006	0.023	304
Design	0.102	0.044	2039
Fashion	0.033	0.066	1153
Film	0.330	0.282	7923
Food	0.049	0.083	1565
Games	0.073	0.024	1401
Journalism	0.007	0.010	205
Music	0.086	0.108	2387
Photography	0.006	0.005	141
Publishing	0.095	0.127	2715
Technology	0.070	0.024	1340
Theater	0.024	0.042	787
Gender N	15967.000	9401.000	
Chi-Squared	1650.405		
P-Value (alpha=.05)	0.000		

Table 6: Difference in Reciprocity Rates Relative to Same-Race or Same-Gender Dyads

Note: T statistic tests difference between reciprocity rate for the recipient/contributor characteristic combination relative to the reference value, which is the same-race or same-gender dyad rate. Critical value is two-sided at alpha=.05.

Contributor Char.	recipient Char.	Dyad N	Reciprocity Rate	Reciprocity Rate SD	Pct. Diff.	T Stat.	T Crit.
Asian	Asian	498	0.33	0.12			
Asian	Black	174	0.31	0.11	-0.12	0.55	1.97
Asian	White	3316	0.33	0.12	0.00	0.02	1.96
Black	Black	231	0.35	0.14			
Black	Asian	206	0.33	0.12	-0.12	0.53	1.97
Black	White	1520	0.32	0.12	-0.15	0.88	1.96
White	White	31082	0.34	0.13			
White	Asian	3729	0.32	0.12	-0.11	2.67	1.96
White	Black	1477	0.30	0.10	-0.26	4.38	1.96
Female	Female	20736	0.32	0.12			
Female	Male	7507	0.35	0.14	0.19	4.78	1.96
Male	Male	5633	0.37	0.16			
Male	Female	8357	0.34	0.13	-0.21	5.48	1.96

Table 7: Relationship between recipient and contributor characteristics and likelihood of reciprocity

Note: Logistic regression model estimates are shown as odds ratios. Standard errors in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

	Model 1	Model 2	Model 3	Model 4
Contributor Black	1.017 (0.08)	1.032 (0.09)	1.042 (0.091)	1.005 (0.088)
Contributor Asian	1.051 (0.063)	1.113 (0.075)	1.131 (0.077)	1.142 (0.078)
Contributor Female	0.831*** (0.027)	1.077 (0.05)	1.06 (0.05)	1.062 (0.05)
Same Race	1.192*** (0.051)	1.225*** (0.057)	1.217*** (0.057)	1.222*** (0.058)
Same Gender	0.991 (0.031)	1.313*** (0.064)	1.289*** (0.063)	1.271*** (0.062)
Contr. Black*Same Race		1.001 (0.21)	1.026 (0.217)	0.973 (0.207)
Contr. Asian*Same Race		0.793 (0.121)	0.792 (0.122)	0.785 (0.121)
Contr. Female*Same Gender		0.622*** (0.039)	0.616*** (0.039)	0.663*** (0.042)
Same Category			1.837*** (0.055)	1.667*** (0.053)
Category FE	No	No	No	Yes

Table 8: Conditional Logit Model: Relationship between Demographic and Taste Homophily and Likelihood of Reciprocity

Note. Model estimates are shown as odds ratios. Model 5B includes Black and Asian contributors only. Standard errors in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

	Model 5A	Model 5B
Same Race	1.09 (0.064)	0.868 (0.152)
Same Gender	1.027 (0.045)	1.359** (0.167)
Same Category	1.631*** (0.079)	1.583*** (0.213)