

# **Social signaling in public goods provision: Evidence from green online crowdfunding**

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# 1. Introduction

## Motivation

- Private persons can actively contribute to climate financing efforts by their financial investments in socially responsible investments, microfinance programs, or “green” crowdfunding campaigns
- Recently, sustainable entrepreneurial projects have been increasingly funded by web-based crowdfunding platforms



## Motivation

- Crowdfunding has several advantages in comparison to traditional forms of finance
  - It is categorized as donation, reward, equity, or lending-based
  - Although platforms such as Startnext, Vision Bakery, Companisto, and Seedmatch are well established in Germany, the green counterparts still lack visibility
- A comprehensive view of what motivates individuals to lend money for sustainable projects is essential

## Previous studies

- Considerable research has examined the success factors of crowdfunding (e.g. Devaraj and Patel, 2016; Mollick, 2014; Ansink et al., 2017)
  - Only few studies in online microfinance examine the supply side
    - *Friendship network (Lin and Pursiainen, 2018; Liu et al., 2015; Zvilichovsky, et al., 2013)*
    - *Herding (Burtch, 2013a; Kuppuswamy and Bayus, 2013 ; Zhang and Liu, 2013)*
    - *Social signaling: information / comparison of individuals (Burtch et al., 2013a)*
- In-depth empirical investigations exploring the relevance of crowdfunding for society from a sociological and economic perspective have not been undertaken yet

## Objective of the study

- Examine the individual determinants of (green) crowdfunding on a disaggregated basis
- Account for two distinct models of crowdfunding, namely donation- and reward-based crowdfunding strategies
- Investigate the relevance of several determining factors for (green) crowdfunding simultaneously to disentangle their relevance including individual preferences, psychological motives, and social context factors in addition to a wide range of socio-economic variables in the econometric analysis

# 2. Data and variables

## Data

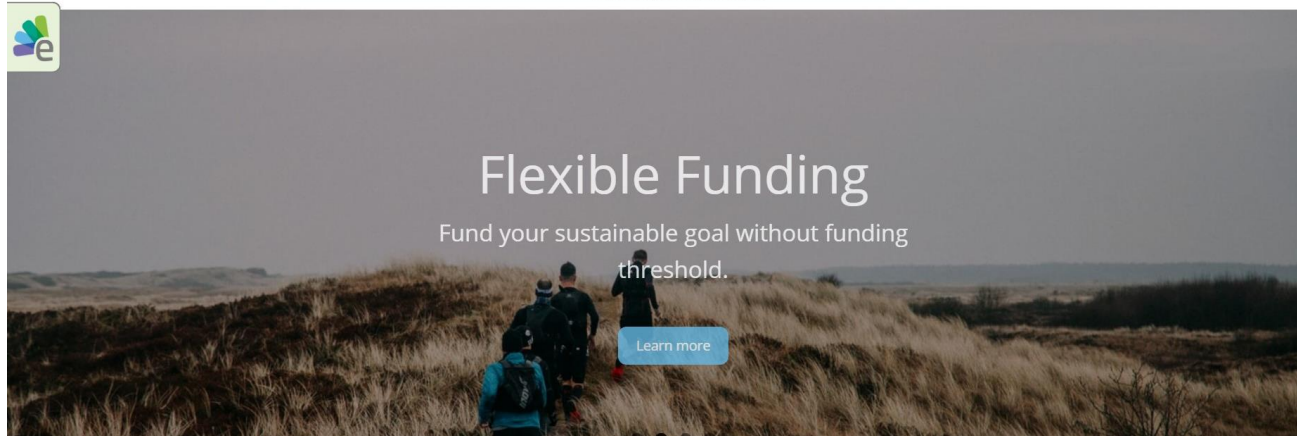
- Online survey among 973 visitors of EcoCrowd
- Conducted between August 2018 and January 2019
- The platform kept track of the information on whether and how much the participants that took our survey supported the projects financially
- Participants had the possibility to receive a reward in exchange to their financial support, unless they wanted to donate the money





LEARN  
to fund money

LOGIN  
and start



## Current Crowdfunding Projects



NEW

### Paraguay, nachhaltiges Leben in Freiheit of Graf Michael and Bettina Schweiger

Wir wollen einen Ort schaffen, wo friedliches Leben im Einklang mit der Natur möglich ist, einen Ort, an dem eine Lebensgemeinschaft mit überschaubarem Geld aufgebaut werden kann.

Innsbruck, AT



FUNDED	STAGE GOAL	TO GO
430 €	1.250 €	22 days



### Finca Pata Negra – Ein Fruchtwald in Andalusien of Johanna Rollenmiller

Wir möchten Menschen aus aller Welt für die biologische Landwirtschaft und Ernährung begeistern. Es soll ein Raum entstehen, in dem Wissen über diese Themen vermittelt und direkt praktisch umgesetzt werden kann.

München, DE



FUNDED	STAGE GOAL	TO GO
9.557 €	11.000 €	28 days



SOON ENDING

### BUGA2019 – Garten der Umweltverbände of Die Umweltverbände – NaturFreunde – NABU – BUND

Wir möchten unsere Chance auf der BUGA 2019 nutzen und mit unserem nachhaltigen Bildungsprojekt zum Thema Artenschutz, Klimaschutz und Erneuerbare Energien so viele Menschen wie möglich erreichen und zum Umdenken und Handeln anregen.

Stuttgart, DE



FUNDED	STAGE GOAL	TO GO
200 €	1.000 €	3 days

## Control variables

- Age (in years)
- Female
- High education (highest level of education is at least university degree)
- Past contribution in a crowdfunding platform
- $\log(\text{distance to Berlin})$

## Behavioral factors

- “Risk\_general” and “Risk\_trust” are based on validated SOEP questions with eleven ordered response categories, the value 0 means “risk averse” and the value 10 means “fully prepared to take risks”

## Individual values and norms

- Environmental preferences: „NEP“ is an index on basis of six standardized statements on five stage scale from social and behavioral science
- Dummies for regional identification, feeling of responsibility, reward-seeking behavior, expectation of society, warm-glow, behavior of social environment

## Social contextual variables

- Number of friends
- Sharing before and after contribution with family/partner and friends/acquaintances

## Dependent variables

- Dummy variable for financial contribution
  - Amount of financial contribution (Euros)
  - Dummies for reward and donation-based crowdfunding
- Application of probit models

# Descriptive statistics

VARIABLES	mean	sd	min	max
Contribution	0.101	0.302	0	1
Contribution amount	5.184	36.74	0	1,000
Reward_based	0.0438	0.205	0	1
Donation_based	0.0576	0.233	0	1

# Descriptive statistics

VARIABLES	mean	sd	min	max
Age	43.01	14.50	12	77
Risk_general	5.333	1.975	0	10
Risk_trust	5.585	2.245	0	10
Past contribution	216.2	1,576	0	35,000
Number of friends	7.393	13.11	0	200
NEP	4.924	1.239	0	6
Female	0.483	0.500	0	1
High education	0.767	0.423	0	1
Talk_before_family_partner	0.455	0.498	0	1
Talk_before_friend_acquaintances	0.111	0.314	0	1
Talk_after_family_partner	0.588	0.492	0	1
Talk_after_friend_acquaintances	0.257	0.437	0	1
Regional identification	0.494	0.500	0	1
Feeling of responsibility	0.718	0.450	0	1
Reward seeking	0.243	0.429	0	1
Expectation of society	0.170	0.376	0	1
Warmglow feelings	0.823	0.382	0	1
Behavior of social environment	0.344	0.475	0	1
Distance to Berlin (km)	371.1	251.5	0.890	1,000



# 3. Preliminary econometric results

## Binary Probit Models

(Dependent variable = Contribution dummy)

- Sharing with family and partner before financial contribution has a negative significant effect
- Feeling of responsibility and trust have positive significant effect
- General risk preferences effect contributions negatively
- Negative relevance of distance to Berlin and contribution in the past variables

# Estimation results

VARIABLES	Maximum likelihood estimates (Robust z-statistics)	Estimates of average and marginal discrete effects
Friends	-0.0026 (0.0036)	
talk_before_fampart	-0.3429** (0.1374)	-0.06**
talk_before_friendaq	-0.0376 (0.2087)	
talk_after_fampart	-0.1530 (0.1704)	
talk_after_friendaq	-0.3092 (0.1890)	
Regional identification	-0.1585 (0.1191)	
Feeling of responsibility	0.2710* (0.1580)	0.04*
Risk_trust	0.0658** (0.0284)	0.01**
Risk_general	-0.0604* (0.0320)	-0.01*
Past contribution	-0.0003* (0.0002)	-0.00*
logdist	-0.1374*** (0.0317)	-0.02***
Constant	-0.2278 (0.3919)	

## Bivariate Probit Model (Reward vs. donation based)

- Reason for analysis: Identification of possibly different determinants for belonging to two different crowdfunding models
  - Significantly negative effect of general risk preferences on reward based crowdfunding
  - Significantly negative effect of sharing with family and partner before financial contribution, reward seeking behavior, and distance to Berlin on donation based crowdfunding
  - Significantly positive effect of trust on donation based crowdfunding

# Estimation results

VARIABLES	Reward based	Donation based
talk_before_fampart	-0.1787 (0.1796)	-0.3727** (0.1621)
talk_before_friendaq	-0.1333 (0.2633)	0.0395 (0.2418)
talk_after_fampart	-0.2229 (0.2138)	-0.0979 (0.2021)
talk_after_friendaq	-0.2880 (0.2257)	-0.2821 (0.2339)
Rewardseeking	0.1085 (0.1685)	-0.3285** (0.1671)
Risk_trust	0.0325 (0.0336)	0.0804** (0.0346)
Risk_general	-0.1200*** (0.0402)	0.0093 (0.0376)
Log(dist)	-0.0358 (0.0422)	-0.1745*** (0.0349)

# Discussion

- Limitation of survey data
- Omitted variables
- Additional inclusion of experimental approaches for future studies
- More research in the field is needed

**Thank you!**