

# CONTRIBUTIONS IN CROWDFUNDING: PRELIMINARY RESULTS OF THE STUDY ON THE MOTIVATION OF CONTRIBUTORS AND THE STRUCTURE OF REWARDS

Szymon Mazurek – Mikołaj Klimczak – Jakub Sobczak

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## Abstract

In recent years we can observe the swift and multilateral development of crowdsourcing, especially crowdfunding. Crowdfunding platforms are where originators look for the financing of projects that would otherwise have difficulty to be realised. With the support of the "crowd" originators can carry out cultural or social projects and develop innovative entrepreneurship. Crowdfunding is a modern and bottom-up way to prevent the harmful effects of market failures (in the form of inefficient financial markets) and government failures (in the form of the unreliability of various policies). The crowdfunding platforms can be grouped into several general categories. Some of them are no-equity (no-share) platforms, where contributors donate money without taking part in shares, only for remuneration, and sometimes even without it. This study aims to explore a theoretical framework for a more in-depth analysis of contributors' motivation in non-equity reward-based crowdfunding. Based on data obtained from one of the largest Polish crowdfunding platforms, the authors will also present preliminary conclusions concerning general factors motivating donors to transfer money to a specific project and the relationship between the structure of rewards and success of fundraising.

**Key words:** crowdfunding, sharing economy, two-sided markets, network effects

**JEL Code:** D85, M13, O16

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## Introduction

In recent years, the swift and multi-faceted development of crowdsourcing has been observed worldwide. One aspect of this phenomenon is the development of crowdfunding. **Crowdfunding** is a process in which creators of various types of projects (**originators**) seek funding for their ventures. In contrast to the traditional financial industries (capital markets, personal and business loan markets, issuing bonds etc.), this financing does not come from a small group of investors (or single individual), but rather from a large number of contributors (**crowd**), allocating usually small amounts of money. The intermediary in contacts between project creators and contributors is a specialized Internet **platform**, which usually charge a

small commission (Belleflamme, Lambert, & Schwiendbacher, 2014). A crowdfunding website is, therefore, a typical example of a **two-sided platform** (Belleflamme, Omrani, & Peitz, 2015). On the one hand, some originators want to obtain funding for their projects, and on the other hand, there is a "crowd" whose members pursue their own internal goals. The platform features a number of **network effects** that affect the benefits achieved by participants. These effects can be both positive and negative, and they can occur directly within the same group of participants, the groups can influence each other across mutually, as well as the impact can also occur through complementary goods. Each side in crowdfunding can draw both benefits and costs from this process, which in this case are associated with opportunities and risks.

Originators may finance many different projects. **Business** ventures usually involve financing start-ups, which declare to deliver a new innovative project, usually using new technologies, frequently having a material nature. **Cultural** projects can consist of financing specific projects, e.g. filming, music recording, preparation of a video or board game, publishing a book, preparation of theatre performances, etc. **Social** projects involve initiatives to finance activities aimed at improving the quality of life of specific communities (e.g. building a playground, renovation of a park, school or kindergarten, integration of residents, etc.). **Scientific** projects may focus on both basic research and implementation of research. **Personal** projects concern the financing of undertakings whose primary beneficiary is a specific person and may concern health, recreational travel, sports trips, training and courses, etc.

Generally, there are two main types of crowdfunding platforms: reward and equity ones (Clifford, 2014). However, we propose slightly different typology, modified from the proposals of Dziuba (2016) or Pierrakis & Collins (2012). The first type of crowdfunding is **equity** crowdfunding. Here, a contributor invests money in a specific project and obtains some co-ownership in it. In exchange, contributors may receive (a) financial rewards and returns on investment in the form of royalties or a share in profit or revenue, or (b) equities.

The second type of crowdfunding is **non-equity** crowdfunding. This category is broader and contains three different subcategories. Firstly, crowdfunding can take the form of **non-reward donation** model, where contributors do not receive anything from originators. Secondly, crowdfunding may contain some kind of **reward** received by the contributors from the originators of the project. These may take various tangible and intangible forms: public acknowledgement, various gifts, or a specific good that is the result of the project (e.g. music, game, book, device, etc.). Thirdly, crowdfunding may be based on a **loan** to a creator of a project who undertakes to repay it with or without interest (the latter form is a socially motivated loan, which is similar to a model without rewards). The second type of crowdfunding seems to

be generally perceived as representative by the average Internet user, while the first appears not to be generally known. However, no more profound studies in the area are known to the authors, and this hypothesis is based upon the intuition and non-representative observations.

Both Dziuba (2016, pp. 56-57) and Pierrakis & Collins (2012, p. 3) attempt to identify the motivations of both contributors and project creators. Extrinsic and intrinsic motivators are also widely studied (see, e.g. Allison, Davis, Short, & Webb, 2015, 2017; Gerber & Hui, 2013). We propose more elaborate attempt of classification of motivations based upon general observations as well as types and functions of crowdfunding (table 1).

**Tab. 1: Typology of motivations**

Type of crowdfunding	Factors motivating originators	Factors motivating contributors
Equity	<ol style="list-style-type: none"> <li>1) Source of capital</li> <li>2) Expanding possibilities</li> <li>3) Crowdmaking</li> <li>4) Capture market data</li> </ol>	<ol style="list-style-type: none"> <li>1) Investment (financial) motivations: obtaining returns and long-term equities</li> <li>2) Intrinsic motivations</li> <li>3) Social motivations</li> </ol>
Non-equity (general)	<ol style="list-style-type: none"> <li>1) Raising funds</li> <li>2) Intrinsic motivations</li> <li>3) Social motivations</li> </ol>	<ol style="list-style-type: none"> <li>1) Intrinsic motivations</li> <li>2) Social motivations</li> </ol>
<ul style="list-style-type: none"> <li>• non-reward</li> </ul>		1) Tax exemption
<ul style="list-style-type: none"> <li>• reward</li> </ul>	<ol style="list-style-type: none"> <li>1) Capture market data</li> <li>2) Crowdmaking</li> </ol>	<ol style="list-style-type: none"> <li>1) Acquiring the product</li> <li>2) Acquiring other rewards</li> <li>3) Advertising</li> </ol>
<ul style="list-style-type: none"> <li>• loan</li> </ul>	<ol style="list-style-type: none"> <li>1) Preserving control over the project</li> <li>2) Lower costs (lower interest and risk)</li> </ol>	<ol style="list-style-type: none"> <li>1) Financial motivations: returns on investment (interest)</li> <li>2) Access to the decision process</li> </ol>

Source: own, based upon Dziuba (2016) and Pierrakis & Collins (2012).

In our study, we focus on non-equity reward-based crowdfunding. This topic has been explored in recent years. Kraus, Richter, Brem, Cheng and Chang studied successful strategies for reward-based crowdfunding campaigns (2016). The involvement of individual and territorial social capital was studied by Giudici, Guerini and Rossi-Lamastra (2013). Bi, Liu and Usman (2017) explore the informational scope of reward-based crowdfunding. In the paper, we aim at presenting some preliminary conclusions about general factors motivating donors to contribute and the relationship between the structure of rewards and the success of fundraising.

## 1 Reward-based model and reward structure

The crowdfunding platform operating in the reward-based model allows announcing on its website the projects for which the creators want to obtain funding. Each project must have a specific financial goal and the date by which the crowdfunding will last. Usually, if within this time the individuals supporting the project declare financial support in the amount equal to or

higher than the financial goal, the project will receive funding. If not, no amount will be transferred to the creators. However, there is also a possibility that the creator of the project will receive all the funds to be paid, regardless of whether the minimum amount is reached.

The campaign is conducted on the basis of declarations of support. These declarations are made by selecting a specific amount of support from a list of possibilities prepared by the creator (**creator-defined rewards**). Most of the amounts are related to some form of reward for the contributor, which will be given to him/her if the project is funded (but sometimes only if it is implemented). This amount represents the minimum sum that must be declared in order to receive a prize. At the lowest amounts, the rewards are purely symbolic (e.g. various forms of gratitude). In the case of higher amounts, they take the form of material prizes, declarations of service provision or various forms of participation in the project. Such a set of rewards with minimum support values assigned to them is called a reward structure. Each project has a unique reward structure (which does not exclude similarity of rewards between projects).

Each of the contributors selects the amount of support and the associated prize (**contributor-selected rewards**) and deposits funds for this purpose on the crowdfunding platform. Different contributors can choose the same prizes, although creators can limit the number of prizes (e.g. a reward for the first ten contributors declaring a certain amount of money). This is similar to shopping in an online store, where the goods are rewards and the price is the minimum declared value of support. It also means that not all prizes must be of interest to supporters (both because of their "price" and their character). It can be assumed that the creators of the projects will strive to offer rewards that will be of interest to potential contributors, and **the structure of rewards may influence the chances of achieving the financial target.**

## **2 The study of the rewards structure**

### **2.1 General information**

The research on the structure of awards in crowdfunding projects was based on data provided by the Polish platform PolakPotrafi.pl (<http://www.polakpotrafi.pl>). The submitted database includes 56 629 records of rewards defined in the projects posted on the platform between 13.03.2011 and 20.06.2018.

Before starting the analyses, 89 records containing faulty data were deleted from the set. This included 15 records (the entire reward structure) of the only project with a financial goal set at 1 PLN and collecting 686 PLN. Since the situation concerns only one project, the value

is abnormally low (supporting this project with one of the cheapest prizes means achieving the goal) and the next one, in terms of the value of the goal, has the goal set at 100 PLN, we believe that the project worth 1 PLN is a project without any real economic justification.

Ultimately, the analysis includes 56 540 creator-defined rewards in 3 522 projects (this gives an average of 16 awards in a project, with the most common variant being 11 awards in a project). For each of these awards, we have information on how many times (0 or more) the supporters have chosen it. This allowed us to create and analyse an additional set of 220 867 contributor-selected rewards.

## 2.2 Basic statistics

Comparison of basic statistics on the value of rewards in both collections (Table 2) shows significant differences between the structure defined in the projects and the choices of contributors.

**Tab. 2: Summary statistics of the value of the rewards by type**

Type	Contributor-selected	Creator-defined	Type	Contributor-selected	Creator-defined
Sample size (n)	220867	56540	Lower quartile	20	20
Mean	82,28	489,79	Upper quartile	80	250
Median	40	70	10th percentile	10	1
Mode	50	1	90th percentile	150	1000
Mode frequency	28578	5737	Range	89999	99999
Min	1	1	Interquartile range	60	230
Max	90000	100000	Standard deviation	318,82	2364,73

Source: own calculation.

Significant differences are found in the median, upper quartile, 90th percentile, interquartile range and standard deviation. They indicate that the set of defined rewards is characterised by a considerable variation and range of values. At the same time, the values of the selected rewards show higher concentration. Half of the contributor-selected rewards have a value between 20 and 80 PLN; 80% between 10 and 150 PLN. The same indicators for creator-defined rewards are 20 – 250 PLN and 1 – 1,000 PLN respectively.

However, these differences cannot generally be interpreted as a mismatch between the reward structures and the expectations of the audience. The main reason for these differences is the different origin of the value of the rewards in both samples. Project developers create reward structures with a broad range of values to give supporters the chance to find a position that matches their abilities and willingness to contribute. Individual values are usually not repeated in the project's reward structure (although this is possible and some creators are using

it). In other words, when creating a structure, the creators do not express any expectations about the potential interest in the reward of a specific value.

On the contributing side, the situation is different. Their choices superimposed on the reward structure cause that some of the values defined by a single creator are not included in the contributor-selected rewards at all (this applies especially to higher-value awards, which in an average structure are as frequent as low-value awards, because each of them is defined only once), and others are included many times.

The creators of the projects start the reward structures usually from 1 PLN. This happens in 92% of projects. It is also the most frequently recurring value among the defined rewards (it constitutes 10.15% of the whole collection). At the same time, the reward is disproportionately rarely chosen by supporters; it accounts for only 1.14% of all cases. Besides, this applies to all rewards with a value of less than 5 PLN. In total, they constitute only 1.64% of the selected rewards. Therefore, it seems justified for creators to give up rewards of these extremely low values. It should not be expected, however, that it will significantly affect the distribution of the value of rewards chosen by the supporters. Instead, it will sanction natural trends in their behaviour.

## 2.2 Changes over time

The analysis of changes in basic descriptive statistics over time in both reward groups (table 3) provides interesting information.

**Tab. 3: Summary statistics of the value of rewards by year**

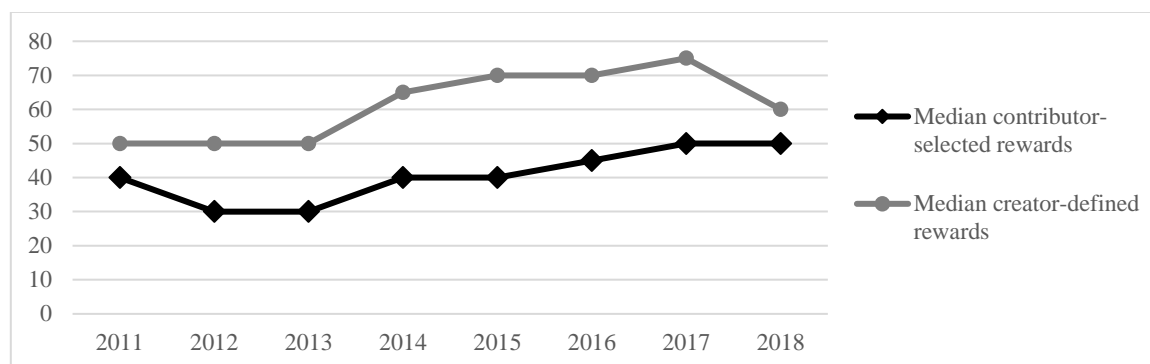
Year	Contributor-selected rewards					Creator-defined rewards				
	Sample size (n)	Mean	Lower quartile	Upper quartile	Interquartile range	Sample size (n)	Mean	Lower quartile	Upper quartile	Interquartile range
2011	642	66,42	25,00	50,00	25,00	302	647,90	10,00	250,00	240,00
2012	2243	72,65	10,00	100,00	90,00	1008	360,02	10,00	200,00	190,00
2013	13519	62,70	15,00	50,00	35,00	4586	431,39	15,00	250,00	235,00
2014	43293	72,11	20,00	75,00	55,00	11077	438,25	20,00	200,00	180,00
2015	52264	79,63	20,00	75,00	55,00	13479	489,45	20,00	220,00	200,00
2016	54579	88,79	20,00	97,00	77,00	11834	515,94	20,00	250,00	230,00
2017	39535	93,41	25,00	100,00	75,00	9893	513,83	25,00	299,00	274,00
2018	14792	87,69	20,00	80,00	60,00	4361	576,74	18,00	200,00	182,00

Source: own calculation.

Although for years the most popular value of the reward chosen by supporters has been almost invariably (except for the unusual 2012) 50 PLN, the median value of this value has increased from 30 to 50 PLN (fig. 1). This trend is also slightly visible in the lower and upper quartiles, while at the same time the range of the value of support expressed in the interquartile

range is increasing. Creators seem to follow this trend. The median value of creator-defined awards increased from PLN 50 in 2011 to PLN 75 in 2017. In this case, however, it is not possible to speak at the same time of increasing the span of the value of rewards, as it is invariably substantial. The observed upward trend may have a cause in the improving financial situation of crowdfunding platform users or in their greater inclination to support the creators.

**Fig. 1: Median contributor-selected and creator-defined rewards between 2011 and 2018**



Source: own calculation.

### 2.3 Comparison of different categories of reward-based projects

The grouping of rewards according to the categories of projects defined by the crowdfunding platform shows the diversity of rewards structures and, above all, statistics of contributions depending on the subject matter of the project (Table 4). In the case of rewards selected by supporters, the differences are apparent and apply to both medians (from 30 to 55 PLN with 40 PLN for the entire sample) and modes (from 10 to 100 PLN with 50 PLN for the entire sample).

**Tab. 4: Summary statistics of the value of contributor-selected rewards by project categories**

Category	Contributor selected-rewards						Creator-defined rewards			
	Sample size (n)	Mean	Median	Mode	Mode freq	Max	Sample size (n)	Mean	Median	Max
Travel	17057	75,34	35,00	20,00	1822	6000,00	5577	452,11	61,00	90000,00
Games	3393	79,80	50,00	35,00	283	2500,00	985	407,45	55,00	50000,00
Technology	7273	90,38	35,00	50,00	1042	10000,00	2367	715,91	65,00	99000,00
Education	11217	85,49	40,00	10,00	1723	20000,00	3567	397,71	75,00	30000,00
Video/film	19175	92,42	50,00	50,00	2770	20000,00	5082	544,94	75,00	100000,00
Music	36413	81,46	45,00	50,00	5467	23300,00	8631	545,24	70,00	60000,00
Community	23281	73,86	35,00	50,00	3150	15000,00	4679	480,38	75,00	99000,00
Sport	26579	98,80	50,00	50,00	3622	25000,00	6057	687,38	85,00	99000,00
Publishing	31130	78,05	50,00	50,00	3279	20000,00	6286	338,40	57,00	50000,00
Fashion	518	86,13	50,00	10,00	53	1000,00	401	280,75	70,00	10001,00
Theatre	6187	74,44	35,00	50,00	851	5000,00	1889	356,31	70,00	20000,00
Other	3598	62,80	30,00	50,00	526	2000,00	1463	433,29	70,00	40000,00
Events	12534	64,24	30,00	10,00	1856	10000,00	4302	346,91	50,00	99000,00
Art	5669	109,29	40,00	100,00	864	90000,00	1625	627,26	60,00	90000,00

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Comics	789	80,96	50,00	50,00	167	5000,00	213	464,40	75,00	10000,00
Photography	3622	90,11	55,00	50,00	437	5000,00	745	357,55	80,00	25000,00
Design	3184	84,56	45,00	50,00	584	12000,00	788	666,60	100,00	30000,00
Food	3520	53,95	30,00	30,00	670	5000,00	645	430,38	65,00	50000,00
Journalism	3783	92,71	50,00	100,00	513	5000,00	570	522,58	75,00	18000,00
Dance	1945	67,21	30,00	10,00	393	5100,00	668	368,32	70,00	12000,00

Source: own calculation.

This time it is also interesting to observe the maximum value of contribution in particular categories (as well as the upper quartile). The smallest of the maximum values of support amounted to 1,000 PLN and concerned the “fashion” category. The biggest one is 90,000 PLN in the “art” category, which seems quite unusual compared to other categories. Nevertheless, in 5 out of 20 cases the maximum value of support reached at least 20,000 PLN. All this together suggests that there are some categories in which supporters are more willing to engage higher amounts of contributions than in other categories. Differentiation of maximum values (as well as other statistics) in rewards structures may, on the one hand, support this observation and on the other hand, show the differentiation of financial needs of project creators in particular categories. Anyway, the differences in the chances of achieving a goal depending on the category are unambiguous (Table 5). In 8 out of 20 categories, the share of projects that received funding is higher than in the entire sample (i.e. greater than 48%). Disproportions between categories are very large: 66% of projects from the “theatre” category received funding, while in the “fashion” category it was only 16%.

**Tab. 5: Number of projects by category and goal status**

Category	Goal not achieved	Goal achieved	All	Category	Goal not achieved	Goal achieved	All
Theater	39 (34%)	77 (66%)	116	Art	52 (55%)	42 (45%)	94
Music	197 (38%)	318 (62%)	515	Comics	9 (56%)	7 (44%)	16
Dance	19 (41%)	27 (59%)	46	Journalism	25 (56%)	20 (44%)	45
Sport	140 (42%)	193 (58%)	333	Education	150 (64%)	84 (36%)	234
Photography	21 (47%)	24 (53%)	45	Food	21 (68%)	10 (32%)	31
Travel	145 (48%)	159 (52%)	304	Design	31 (69%)	14 (31%)	45
Events	137 (51%)	130 (49%)	267	Other	66 (70%)	28 (30%)	94
Community	133 (51%)	129 (49%)	262	Technology	137 (76%)	43 (24%)	180
Video/film	192 (53%)	172 (47%)	364	Games	54 (79%)	14 (21%)	68
Publishing	227 (53%)	204 (47%)	431	Fashion	27 (84%)	5 (16%)	32
				TOTAL	1822 (52%)	1700 (48%)	3522

Source: own calculation

## 2.4 Reward structure and financial goal

The main objective of the analysis of the structure of rewards in crowdfunding projects and the nature of the support they receive is to determine their relationship with the achievement of the



financial objective. The contributor-selected rewards statistics (Table 6) clearly show the importance of the choices made by the supporters for a positive outcome of the campaign.

**Tab. 6: Summary statistics of the value of rewards by goal status**

Goal status	Contributor-selected rewards					Creator-defined rewards				
	Sample size (n)	Mean	Median	Mode	Mode frequency	Sample size (n)	Mean	Median	Mode	Mode frequency
Achieved	190069	84,33	45,00	50,00	24826	29929	433,51	70,00	1,00	2855
Not achieved	30798	69,57	35,00	10,00	4130	26611	553,10	70,00	1,00	2882

Source: own calculation.

The projects which achieved funding (1 701 out of 3 522, i.e. 48%) received 86% of all declarations of support. At the same time, the declared unitary support for them was significantly higher than for projects that did not achieve the goal. The median value of the selected reward was 45 PLN, and 35 PLN, respectively for funded and not funded projects and the mode was 50 PLN and 10 PLN. However, this difference cannot be explained by basic statistics describing the structure of prizes in projects. The creator-defined rewards (Table 6) divided by the status of the objective (funded and not funded) differ only to a small extent from each other.

## Conclusion

Presented analyses are preliminary, and they do not allow to draw firm and decisive conclusions on the relationship between the structure of rewards, motivations of supporters and the chance to achieve the crowdfunding goal of a project. Nevertheless, the conducted study confirms that the behaviour of supporters expressed in the selection of specific rewards is entirely different in the case of projects that do not gain their acceptance and projects that eventually receive funding. Convinced by the supporting idea, contributors not only support the project more often but also offer higher support amounts. However, the tendency to support is not equally distributed throughout the set of project data. The analysis shows that the fate of projects in various thematic categories is very different. Regardless, the value of single support offered to crowdfunding projects increases from year to year.

The above study is the early phase of a more comprehensive research project, the aim of which is to answer the question, which features of the project and what structure of rewards increase the tendency to offer support by the supporters and, consequently, lead to the achievement of the financial goal.

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## Contact

Mikołaj Klimczak  
Wroclaw University of Economics  
Komandorska 118/120, 53-345 Wrocław, Poland  
mikolaj.klimczak@ue.wroc.pl

Szymon Mazurek  
Wroclaw University of Economics  
Komandorska 118/120, 53-345 Wrocław, Poland  
szymon.mazurek@ue.wroc.pl

Jakub Sobczak  
Polakpotrafi.pl  
ul. Botaniczna 8, 60-586 Poznań, Poland  
jsobczak@polakpotrafi.pl