

Supporting Information for

## ***“The Double-Edged Sword of Inflated Help”*: Unravelling the Motivation Crowding in Community Question-Answering Platforms**

Vaibhav Krishna<sup>1,2\*</sup>, Yash Raj Shrestha<sup>3</sup>, Georg von Krogh<sup>4,5</sup>

<sup>1</sup> Yale Institute of Network Science, Yale University, New Haven, Connecticut, United States of America

<sup>2</sup> Department of Sociology, Yale University, New Haven, Connecticut, United States of America

<sup>3</sup> Faculty of Business and Economics (HEC), University of Lausanne, Lausanne, Switzerland

<sup>4</sup> Department of Management, Technology and Economics, ETH Zürich, Zürich, Switzerland

<sup>5</sup> ETH AI Center, ETH Zürich, Zürich, Switzerland

\*Corresponding author

Email: [vaibhav.krishna@yale.edu](mailto:vaibhav.krishna@yale.edu)

### **Contents**

#### **Robustness checks results**

Table S1: Empirical results – Ask Ubuntu CQA community	2
Table S2: Empirical results – Unix & Linux CQA community	3
Table S3: Empirical results – SuperUser CQA community – Mixed-effect logistic regression	4
Table S4: Empirical results – SuperUser CQA community ( <i>DV-Answer Vote Score; Model - Mixed Effect Negative Binomial Regression</i> )	5

**Table S1:** Empirical results – Ask Ubuntu CQA community

	<i>Model 1 Baseline</i>	<i>Model 2+ Main effect</i>	<i>Model 3+ Moderation effect</i>
<i>Intercept</i>	-1.405*** (0.019)	-1.328*** (0.019)	-1.215*** (0.020)
<b>Main effect</b>			
Recent average reward gain		0.230*** (0.009)	0.275*** (0.013)
Contribution frequency		0.322*** (0.021)	0.208*** (0.023)
Contribution frequency ^2		-0.233*** (0.022)	-0.146*** (0.022)
<b>Moderating effect</b>			
Past accumulated experience			0.203*** (0.017)
Recent average reward gain * Past accumulated experience			-0.096*** (0.006)
Contribution frequency * Past accumulated experience			-0.151*** (0.028)
Contribution frequency ^2 * Past accumulated experience			0.078** (0.030)
<b>Control</b>			
seeker's status	0.057*** (0.010)	0.048*** (0.009)	0.047*** (0.009)
question length	-0.007 (0.009)	0.009 (0.009)	-0.009 (0.009)
answer length	0.058*** (0.0120)	0.034*** (0.010)	0.024* (0.010)
presence of code	0.538*** (0.021)	0.438*** (0.021)	0.405*** (0.021)
number of external references (URLs)	0.072*** (0.010)	0.047*** (0.010)	0.045*** (0.010)
days to answer	-0.906*** (0.025)	-0.752*** (0.024)	-0.712*** (0.024)
<i>Log-likelihood</i>	-36349	-35818	-35650
$\chi^2$ (model improvement #)		1062.58***	335.62***
<i>AIC</i>	72711.59	71655.01	71327.39
<i>BIC</i>	72774.97	71745.55	71454.15
<i>N</i>	63201	63201	63201

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

#Likelihood ratio test statistic

**Table S2:** Empirical results – Unix & Linux CQA community

	<i>Model 1 Baseline</i>	<i>Model 2+ Main effect</i>	<i>Model 3+ Moderation effect</i>
<i>Intercept</i>	-1.020*** (0.025)	-0.926*** (0.025)	-0.828*** (0.026)
<b>Main effect</b>			
Recent average reward gain		0.196*** (0.013)	0.332*** (0.021)
Contribution frequency		0.360*** (0.020)	0.223*** (0.024)
Contribution frequency ^2		-0.242*** (0.020)	-0.138*** (0.025)
<b>Moderating effect</b>			
Past accumulated experience			0.166*** (0.019)
Recent average reward gain * Past accumulated experience			-0.072*** (0.004)
Contribution frequency * Past accumulated experience			-0.110*** (0.025)
Contribution frequency ^2 * Past accumulated experience			0.052* (0.026)
<b>Control</b>			
seeker's status	0.006 (0.008)	-0.004 (0.008)	-0.007 (0.008)
question length	0.021* (0.008)	0.039*** (0.008)	0.041*** (0.008)
answer length	0.162*** (0.009)	0.123*** (0.009)	0.117*** (0.009)
presence of code	0.434*** (0.026)	0.324*** (0.027)	0.288*** (0.027)
number of external references (URLs)	0.115*** (0.009)	0.111*** (0.009)	0.109*** (0.009)
days to answer	-0.464*** (0.017)	-0.407*** (0.017)	-0.390*** (0.017)
<i>Log-likelihood</i>	-44165	-43721	-43561
$\chi^2$ (model improvement #)		886.85***	321.04***
<i>AIC</i>	88343.70	87462.85	87149.81
<i>BIC</i>	88407.78	87554.39	87277.97
<i>N</i>	69839	69839	69839

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
 #Likelihood ratio test statistic

**Table S3:** Empirical results – SuperUser CQA community – Mixed-effect logistic regression

	<i>Model 1 Baseline</i>	<i>Model 2+ Main effect</i>	<i>Model 3+ Moderation effect</i>
<i>Intercept</i>	-1.202*** (0.023)	-1.19*** (0.024)	-1.136*** (0.031)
<b>Main effect</b>			
Recent average reward gain		0.027** (0.010)	0.027** (0.010)
Contribution frequency		0.061* (0.030)	0.125** (0.041)
Contribution frequency ^2		-0.052* (0.024)	-0.154* (0.073)
<b>Moderating effect</b>			
Past accumulated experience			0.101 (0.070)
Recent average reward gain * Past accumulated experience			-0.027* (0.010)
Contribution frequency * Past accumulated experience			-0.084*** (0.021)
Contribution frequency ^2 * Past accumulated experience			0.068** (0.023)
<b>Control</b>			
seeker's status	0.017* (0.008)	0.017* (0.008)	0.017* (0.008)
question length	-0.022* (0.009)	-0.022* (0.009)	-0.022* (0.009)
answer length	0.050*** (0.010)	0.050*** (0.010)	0.050*** (0.010)
presence of code	0.333*** (0.019)	0.333*** (0.019)	0.333*** (0.019)
number of external references (URLs)	0.088*** (0.010)	0.088*** (0.010)	0.087*** (0.010)
days to answer	-0.487*** (0.019)	-0.484*** (0.019)	-0.478*** (0.019)
contributor expertise	0.276*** (0.025)	0.264*** (0.025)	0.260** (0.035)
contributor random-effect	yes	yes	yes
<i>Log-likelihood</i>	-42366	-42360	-42350
$\chi^2$ (model improvement #)		12.47***	20.22***
<i>AIC</i>	84750.40	84743.93	84731.72
<i>BIC</i>	84833.18	84854.30	84878.88
<i>N</i>	72959	72959	72959

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
 #Likelihood ratio test statistic

**Table S4:** Empirical results – SuperUser CQA community  
 DV-Answer Vote Score; Model - Mixed Effect Negative Binomial Regression

	<i>Model 1 Baseline</i>	<i>Model 2+ Main effect</i>	<i>Model 3+ Moderation effect</i>
<i>Intercept</i>	-0.039*** (0.013)	-0.044*** (0.011)	-0.045*** (0.017)
<b>Main effect</b>			
Recent average reward gain		0.011** (0.004)	0.010* (0.005)
Contribution frequency		-0.069*** (0.015)	-0.035** (0.012)
Contribution frequency ^2		0.021 (0.012)	
<b>Moderating effect</b>			
Past accumulated experience			-0.062* (0.032)
Recent average reward gain * Past accumulated experience			0.002 (0.004)
Contribution frequency * Past accumulated experience			-0.002 (0.004)
<b>Control</b>			
seeker's status	0.028*** (0.003)	0.028*** (0.003)	0.028*** (0.003)
question length	-0.036*** (0.004)	-0.037*** (0.004)	-0.037*** (0.004)
answer length	0.060*** (0.004)	0.060*** (0.004)	0.060*** (0.004)
presence of code	0.047*** (0.004)	0.047*** (0.005)	0.047*** (0.005)
number of external references (URLs)	0.065*** (0.004)	0.065*** (0.004)	0.065*** (0.004)
days to answer	-0.054*** (0.005)	-0.054*** (0.005)	-0.054*** (0.005)
contributor expertise	0.053*** (0.015)	0.072*** (0.015)	0.101*** (0.019)
contributor random-effect	yes	yes	yes
<i>Log-likelihood</i>	-99814	-99784	-99782
<i>X<sup>2</sup> (model improvement #)</i>		59.84***	3.41
<i>AIC</i>	199647.0	199593.2	199593.8
<i>BIC</i>	199738.3	199711.9	199730.7
<i>N</i>	68253	68253	68253

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
 #Likelihood ratio test statistic

DV: number of votes received by each answer in one year time window from its posting  
 We consider the potential impact of outlier noise in DV, leading to significant skewness in our dataset. To mitigate this potential bias, we exclude observations with outlier values in the DV. Subsequently, the skewness decreases from 18.43 to 1.17