Appendices

This appendix will be available online Zhou (2018). We included it as supplementary material for the convenience of the anonymous reviewers.

In this appendix, we present the dotplots of the Spearman multiple ρ^2 of each factor for the bounty question solving-likelihood model (Figure 2) and the bounty question solving-time model (Figure 2).

We also show the Wald χ^2 value and the statistical significance (p-value) of all factors in the model for solving-likelihood of bounty questions 1 and the model for solving-time of bounty questions 2 .

References

Zhou, J. (2018). Supplementary material for our paper. `https://github.com/SAILResearch/wip-18-jiayuan-SO-bounty-SupportMaterials/blob/master/appendix.pdf`.

Table 1: The result of our logistic regression model that is for understanding the relationship between the studied factors and the bounty question solving-likelihood. Factors are ordered by their variable importance (i.e., their Wald's χ^2 value).

Factors		**Overall**	**NL**
Q_answer_num	D.F.	1	
	χ^2	1348.604 ***	
B_value	D.F.	9	
	χ^2	597.668 ***	
T_solving_likelihood_normal_min	D.F.	4	3
	χ^2	473.843 ***	7.921 ***
B_days_before_bounty	D.F.	1	
	χ^2	382.611 ***	
T_answerer_num_sum	D.F.	2	3
	χ^2	359.326 ***	108.199 ***
T_solving_likelihood_normal_max	D.F.	3	2
	χ^2	349.808 ***	54.763 ***
B_solved_likelihood_median	D.F.	4	3
	χ^2	164.312 ***	128.110 ***
B_solved_likelihood_min	D.F.	3	2
	χ^2	106.017 ***	104.622 ***
T_age_min	D.F.	1	
	χ^2	64.624 ***	
Q_codesnippet_num	D.F.	1	
	χ^2	50.250 ***	
B_solved_likelihood_max	D.F.	3	2
	χ^2	44.900 ***	41.039 ***
Q_body_len	D.F.	1	
	χ^2	29.932 ***	
T_age_max	D.F.	1	
	χ^2	21.996 ***	
Q_url_num	D.F.	1	
	χ^2	17.373 ***	
U_asker_answer_num	D.F.	1	
	χ^2	12.798 ***	
U_asker_question_num	D.F.	1	
	χ^2	8.061 **	
U_backer_reputation	D.F.	1	
	χ^2	7.130 **	
T_answerer_num_min	D.F.	1	
	χ^2	6.216 *	
Q_favorite_num	D.F.	1	
	χ^2	5.167 *	
Q_score	D.F.	1	
	χ^2	2.645	
T_age_sum	D.F.	1	
	χ^2	1.514	
Q_code_proportion	D.F.	1	
	χ^2	1.508	

P-value of the χ^2 test: '***' < 0.001; '**' < 0.01; '*' < 0.05

Table 2: The result of our logistic regression model that is for understanding relationship between the studied factors and solving-time. Factors are ordered by their variable importance (i.e., Wald's χ^2 value).

Factors		**Overall**	**NL**
Q_answer_num	D.F.	1	
	χ^2	2032.150 ***	
U_answerer_answer_num	D.F.	3	2
	χ^2	581.880 ***	361.452 ***
T_solving_likelihood_normal_min	D.F.	3	2
	χ^2	391.171 ***	76.639 ***
T_age_max	D.F.	1	
	χ^2	317.732 ***	
T_solving_likelihood_normal_max	D.F.	1	
	χ^2	243.640 ***	
B_days_before_bounty	D.F.	1	
	χ^2	173.308 ***	
Q_code_proportion	D.F.	1	
	χ^2	144.062 ***	
Q_favorite_num	D.F.	1	
	χ^2	74.265 ***	
Q_body_len	D.F.	2	
	χ^2	58.913 ***	
T_age_sum	D.F.	1	
	χ^2	45.573 ***	
T_answerer_num_sum	D.F.	1	
	χ^2	42.458 ***	
Q_codeSnippet_num	D.F.	1	
	χ^2	15.294 ***	
B_solved_likelihood_max	D.F.	1	
	χ^2	14.696 ***	
B_value	D.F.	1	
	χ^2	11.257 **	
T_age_min	D.F.	1	
	χ^2	10.580 **	
Q_url_num	D.F.	1	
	χ^2	10.191 **	
U_asker_answer_num	D.F.	1	
	χ^2	5.888 *	
T_answerer_num_min	D.F.	1	
	χ^2	5.446 *	
U_answerer_question_score_median	D.F.	1	
	χ^2	2.564	
B_solved_likelihood_median	D.F.	1	
	χ^2	2.358	
U_asker_question_num	D.F.	1	
	χ^2	1.203	
U_backer_reputation	D.F.	1	
	χ^2	0.640	
B_solved_likelihood_min	D.F.	1	
	χ^2	0.603	
U_answerer_question_num	D.F.	1	
	χ^2	0.11	
U_answerer_answer_score_median	D.F.	1	
	χ^2	0.011	
Q_score	D.F.	1	
	χ^2	0.011	

P-value of the χ^2 test: '***' < 0.001; '**' < 0.01; '*' < 0.05

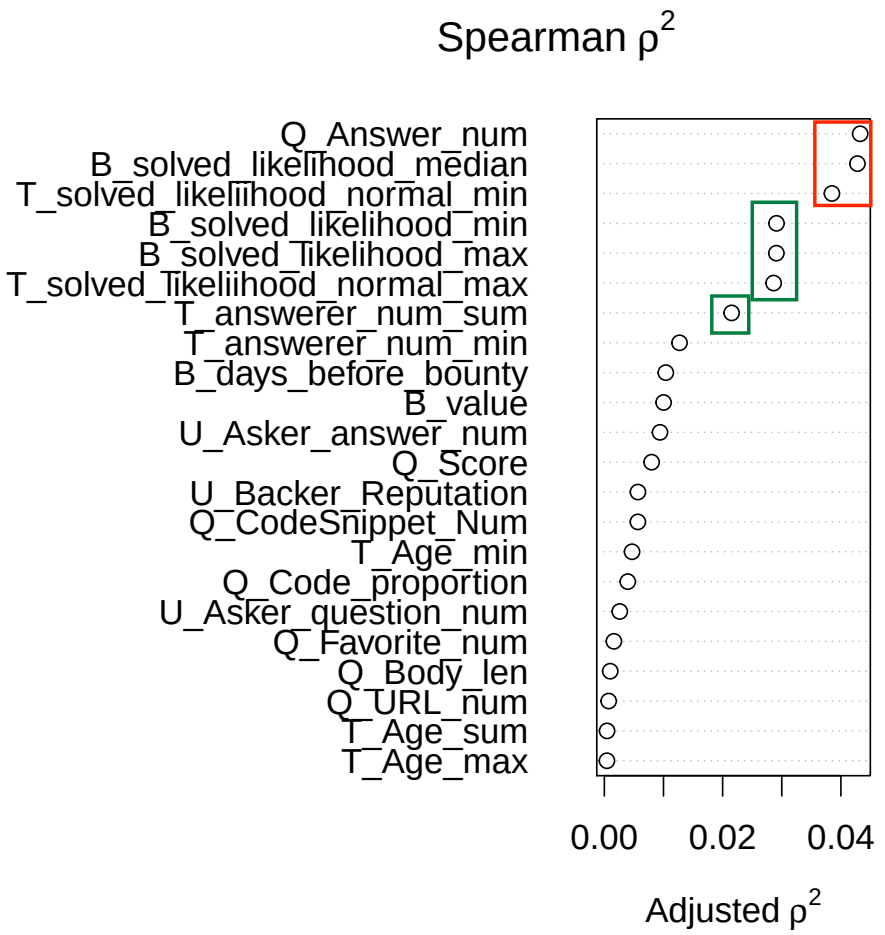

Fig. 1: Dotplot of the Spearman multiple ρ^2 of each factor in the bounty question solving-likelihood model. The larger the ρ^2 value, the more likely the factor has a non-linear relationship with the response variable. By observing the rough clustering of the factors according to their ρ^2, we clustered the factors into four groups according to the Spearman multiple ρ^2 values. We assigned the first, second, and third groups of factors (categorized by the ρ^2 value) which are highlighted by red rectangle, black rectangle and green rectangle, 5, 4, and 3 degrees of freedom, respectively.

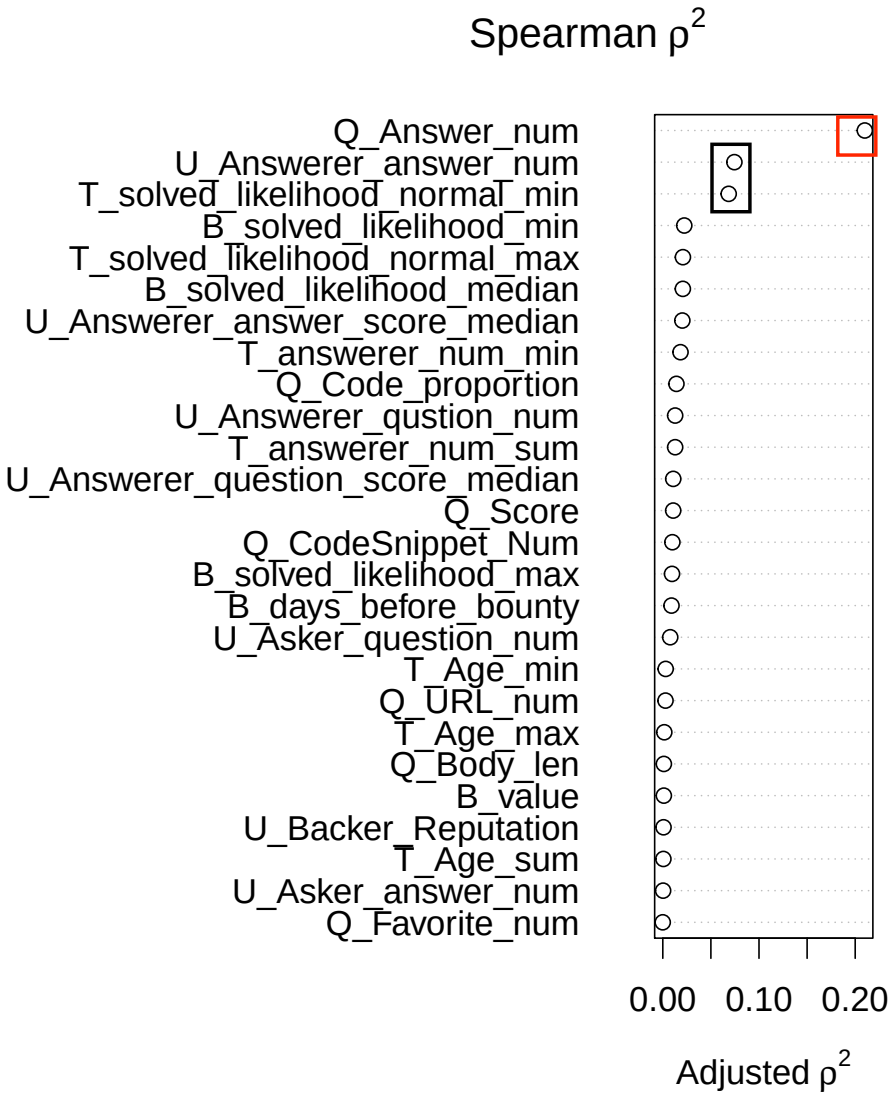

Fig. 2: Dotplot of the Spearman multiple ρ^2 of each factor in the bounty question solving-time model. The larger the ρ^2 value, the more likely the factor has a non-linear relationship with the response variable. By observing the rough clustering of the factors according to their ρ^2, we clustered the factors into four groups according to the Spearman multiple ρ^2 values. We assign the first and second groups of factors (categorized by the ρ^2 value) which are highlighted by red rectangle and black rectangle, 5 and 4 degrees of freedom, respectively.