

Are replication rates the same across academic fields? Community forecasts from the DARPA SCORE program

Michael Gordon^{1,†}, Domenico Viganola^{2,†}, Michael Bishop³, Yiling Chen⁴, Anna Dreber^{5,6}, Brandon Goldfedder⁷, Felix Holzmeister⁶, Magnus Johannesson⁵, Yang Liu⁸, Charles Twardy^{9,10}, Juntao Wang⁴, Thomas Pfeiffer¹

[†]The two first authors contributed equally to this work.

¹New Zealand Institute for Advanced Study, Massey University, Auckland, New Zealand; ²Department of Systems Engineering and Operations Research, George Mason University, Fairfax, VA, USA; ³Michael Bishop Consulting, Ottawa, Canada; ⁴John A. Paulson School of Engineering and Applied Sciences, Harvard University, Cambridge, MA, USA; ⁵Department of Economics, Stockholm School of Economics, Stockholm, Sweden; ⁶Department of Economics, University of Innsbruck, Innsbruck, Austria; ⁷Gold Brand Software, LLC, Herndon, VA, USA; ⁸Department of Computer Science and Engineering, University of California, Santa Cruz, CA, USA; ⁹Jacobs Engineering Group Inc., Herndon, VA, USA; ¹⁰C4I & Cyber Center, George Mason University, Fairfax, VA, USA

Supplementary Material

Table S1. List of Journals and Discipline Clusters

Journal	Discipline Cluster
American Economic Journal: Applied Economics	Economics
American Economic Review	Economics
Econometrica	Economics
Experimental Economics	Economics
Journal of Finance	Economics
Journal of Financial Economics	Economics
Journal of Labor Economics	Economics
Journal of Political Economy	Economics
Quarterly Journal of Economics	Economics
Review of Financial Studies	Economics
American Educational Research Journal	Education
Computers and Education	Education
Contemporary Educational Psychology	Education
Educational Researcher	Education
Exceptional Children	Education
Journal of Educational Psychology	Education
Learning and Instruction	Education
Academy of Management Journal	Marketing, Management and Related Areas
Journal of Business Research	Marketing, Management and Related Areas
Journal of Consumer Research	Marketing, Management and Related Areas
Journal of Management	Marketing, Management and Related Areas
Journal of Marketing	Marketing, Management and Related Areas
Journal of Marketing Research	Marketing, Management and Related Areas
Journal of Organizational Behavior	Marketing, Management and Related Areas
Journal of Public Administration Research and Theory	Marketing, Management and Related Areas
Journal of the Academy of Marketing Science	Marketing, Management and Related Areas
Leadership Quarterly	Marketing, Management and Related Areas
Management Science	Marketing, Management and Related Areas
Organization Science	Marketing, Management and Related Areas
Organizational Behavior and Human Decision Processes	Marketing, Management and Related Areas

Public Administration Review	Marketing, Management and Related Areas
American Journal of Political Science	Political Science
American Political Science Review	Political Science
British Journal of Political Science	Political Science
Comparative Political Studies	Political Science
Journal of Conflict Resolution	Political Science
Journal of Experimental Political Science	Political Science
World Development	Political Science
World Politics	Political Science
Child Development	Psychology
Clinical Psychological Science	Psychology
Cognition	Psychology
European Journal of Personality	Psychology
Evolution and Human Behavior	Psychology
Health Psychology	Psychology
Journal of Applied Psychology	Psychology
Journal of Consulting and Clinical Psychology	Psychology
Journal of Environmental Psychology	Psychology
Journal of Experimental Psychology: General	Psychology
Journal of Experimental Social Psychology	Psychology
Journal of Personality and Social Psychology	Psychology
Psychological Medicine	Psychology
Psychological Science	Psychology
American Journal of Sociology	Sociology & Criminology
American Sociological Review	Sociology & Criminology
Criminology	Sociology & Criminology
Demography	Sociology & Criminology
European Sociological Review	Sociology & Criminology
Journal of Marriage and Family	Sociology & Criminology
Law and Human Behavior	Sociology & Criminology
Social Forces	Sociology & Criminology
Social Science and Medicine	Sociology & Criminology

Table S2. List of questions in the initial survey and market

- Q1) What will be the average replication rate in SCORE?
 Q2) What will be the average replication rate in economics?
 Q3) What will be the average replication rate in political sciences?
 Q4) What will be the average replication rate in psychology?
 Q5) What will be the average replication rate in education research?
 Q6) What will be the average replication rate in sociology and criminology?
 Q7) What will be the average replication rate in marketing, management and related areas?
 Q8) What will be the average replication rate for papers published in 2009/10?
 Q9) What will be the average replication rate for papers published in 2011/12?
 Q10) What will be the average replication rate for papers published in 2013/14?
 Q11) What will be the average replication rate for papers published in 2015/16?
 Q12) What will be the average replication rate for papers published in 2017/18?

Table S3. *p*-values for pairwise *t*-tests for time-specific responses (*df* = 225 for all tests)

	2009/10	2011/12	2013/2014	2015/2016
2011/2012	t = 2.741, p = 0.00662			
2013/2014	t = 10.6641, p < 0.00001	t = 6.3453, p < 0.00001		
2015/2016	t = 9.7299, p < 0.00001	t = 13.7561, p < 0.00001	t = 5.0903, p < 0.00001	
2017/2018	t = 14.9263, p < 0.00001	t = 13.6037, p < 0.00001	t = 14.6781, p < 0.00001	t = 8.9061, p < 0.00001

Table S4. *p*-values for pairwise *t*-tests for topic-specific responses (*df* = 225 for all tests)

	Economics	Education	Marketing & Management	Political Science	Psychology
Education	t = -14.4446, p < 0.00001				
Marketing & Management	t = -12.866, p < 0.00001	t = 1.8142, p = 0.08190			
Political Science	t = -11.6888, p < 0.00001	t = 6.8161, p < 0.00001	t = 5.0736, p < 0.00001		
Psychology	t = -16.202, p < 0.00001	t = 0.4283, p = 0.6688	t = -1.2820, p = 0.2155	t = -7.3937, p < 0.00001	
Sociology & criminology	t = -11.5689, p < 0.00001	t = 4.3917, p = 0.00003	t = 1.8982, p = 0.07368	t = -3.9677, p = 0.00015	t = 3.2547, p = 0.00179

Table S5. Relation between forecast for the overall replication rate in score and demographic characteristics. The reference category for career stage is ‘student’; category ‘other’ includes those who did not provide an answer as well as those who chose ‘prefer not to answer’ and ‘other’. ‘Academia’ indicates those participants currently involved in academic activities either as a student or an employee. ‘Prediction market’ refers to participants who had been involved in a previous prediction markets. ‘Replication’ indicates that the participants have been involved in a replication study before. There is suggestive evidence that having being involved in a replication study reduces the response for the overall SCORE replication rate forecast. An ANOVA indicates that the career stage variable has no statistically significant joined effect on the forecast ($F_4 = 0.396$, $p = 0.8115$).

Term	Estimate	SE	Statistic	<i>p</i> -value
Intercept	51.0722	5.5696	9.1697	> 0.00001
Career stage: early career	0.9058	2.4419	0.3709	0.7110
Career stage: mid career	2.3884	2.7892	0.8563	0.3928
Career stage: other	-3.5457	5.1816	-0.6843	0.4945
Career stage: senior career	0.09366	3.6697	0.02552	0.9797
Academia	-1.0654	5.2513	-0.2029	0.8394
Prediction market	2.1015	1.8282	1.1495	0.2516
Replication	-5.2153	1.8943	-2.7531	0.0064