Follow the Crowds? A Quasi-Experimental Study of "Social Signal" Effects on Online Design Ratings

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Introduction

How does the availability of social signals change voters' behavior in three voter constituencies?

1. The volume of scores:

   H1: The availability of social signals **increases** the volume of judgments provided by regular voters and non-regular voters.

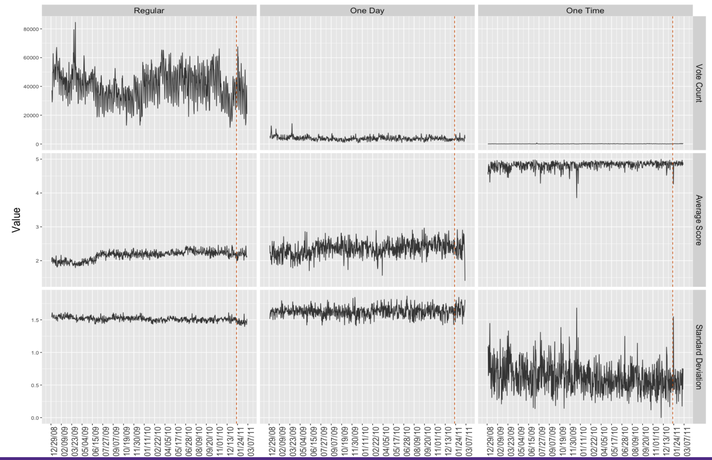
2. The mean of scores:

   H2: The availability of social signals is more likely to change the mean of judgments among regular voters than non-regular voters.

3. The variance of scores:

   H3a: The availability of social signals **increases** the variance of judgments among regular voters.
   H3b: The availability of social signals **decreases** the variance of judgments among non-regular voters.

Results



H1: Volume of Scores per Day

Voter Type	Regular Voters		One-Day Voters		One-Time Voters	
ARIMA(p,d,q)	(1,1,3)	(1,1,3)	(1,1,1)	(1,1,1)	(2,1,1)	(2,1,1)
AR1	0.41***	0.42***	0.28***	-0.34	0.63***	0.63***
AR2					-0.09**	-0.09**
MA1	-0.80***	-0.80***	-0.94***	-0.36	-0.94***	-0.94***
MA2	0.08	0.08				
MA3	-0.17***	-0.17***				
Intervention	**5,687.01**	**2,717.85**	**82.75**	**45.62**	**32.71**	**31.88**
Delay(Inter)		**-0.31**		**0.00**		**-0.03**
# Design	94.15***	92.34***	4.42***	3.87***	0.32***	0.32***
R-squared	0.70	0.70	0.28	0.10	0.56	0.56
Ljung-Box	0.00	0.24	0.01	12.81***	0.01	0.01

Note: *p<0.1;**p<0.05;***p<0.01. N = 792 days.

H2: Mean of Scores per Day

Voter Type	Regular Voters		One-Day Voters		One-Time Voters	
ARIMA(p,d,q)	(4,1,4)	(4,1,4)	(1,1,1)	(1,1,1)	(0,1,2)	(0,1,2)
AR1	0.29	0.26	0.06*	0.06*		
AR2	-0.66***	-0.67***				
AR3	0.69***	0.66***				
AR4	0.00	0.00				
MA1	-1.05***	-1.03***	-0.96***	-0.96***	-0.82***	-0.82***
MA2	0.81***	0.81***			-0.14***	-0.14***
MA3	-1.14***	-1.13***				
MA4	0.44**	0.42*				
Intervention	**-0.02**	**-0.16*** **	**0.19**	**0.21**	**0.00**	**0.00**
Delay(Inter)		**0.85*** **		**-0.35**		**0.00**
# Designs	-0.00***	-0.00***	-0.00***	-0.00***	0.00***	0.00***
R-squared	0.72	0.72	0.13	0.13	0.20	0.20
Ljung-Box	0.00	0.00	0.00	0.00	0.01	0.01

Note: *p<0.1;**p<0.05;***p<0.01. N = 792 days.

H3a & 3b: Variance of Scores per Day

Voter Type	Regular Voters		One-Day Voters		One-Time Voters	
ARIMA(p,d,q)	(1,1,1)	(1,1,1)	(2,0,0)	(2,0,0)	(0,1,1)	(0,1,1)
AR1	0.11***	0.11***	0.06*	0.06*		
AR2			0.05	0.05		
MA1	-0.93***	-0.93***			-0.97***	-0.97***
Intervention	**-0.03****	**-0.03**	**0.04****	**0.04**	**0.01**	**0.01**
Delay(Inter)		**0.00**		**0.00**		**-0.00**
# Designs	-0.00	-0.00	0.00*	0.00*	-0.00***	-0.00***
Intercept			1.57***	1.57***		
R-squared	0.29	0.29	0.04	0.04	0.11	0.11
Ljung-Box	0.00	0.00	0.00	0.00	0.07	0.07

Note: *p<0.1;**p<0.05;***p<0.01. N = 792 days.

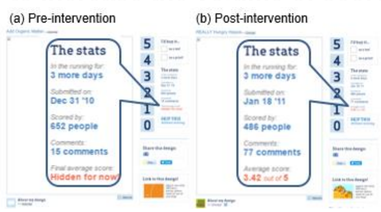
Method

Sample from Threadless:

- Over 35 million votes cast between January 1, 2009 and March 3, 2011
- A total of 792 observational days
- Around 286,000 unique voters, and 68,000 design graphics

Intervention:

- **Threadless made the current average score of t-shirt designs available to voters immediately after their votes for designs on January 20, 2011**
- **Its intent was to increase the volume of scores on designs**



Voter constituencies:

- One-time voters: those who only voted once
- One-time voters: those who voted multiple times over the course of one day
- Regular voters: other voters who voted on multiple days

Outcome Measures:

- The volume of scores per day: an aggregate number of votes for designs per day among each voter constituency
- The mean of scores per day: the mean of all scores cast by each voter constituency per day
- The variance of scores per day: standard deviation of scores per day among each voter constituency

Acknowledgements

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Discussion

1. The volume of scores:
   - Our results do not support for the effect of the intervention on the volume of scores **(H1 → X)**

   → The intent of the intervention was not fulfilled

2. The mean of scores:
   - The intervention decreases the average score per day by regular voters **(H2 → O)**

   → the observational learning among regular voters occurred

3. The variance of scores:
   - The intervention increases the variance of scores per day among regular voters **(H3a → X)**
   - The intervention decreases the variance of scores among one-day voters **(H3b → X)**

   → The intervention has conditional effects on the variance of scores among voter constituencies