

## Online Appendix

# From Anonymity to Accountability: How Virtual Identity Disclosure Changes the Quantity and Quality of “Likes”

### Section A. Interface of the Group Discussion Section

Figure A1. Interface of the Group Discussion Section (After Policy Change)



Figure A1(a) shows the list of discussion articles for a particular topic. Figure A1(b) shows the structure of an article after the policy change. Specifically, in each article, the number of “likes” and the likers’ username were shown. Prior to the policy change, only the number of “likes” was displayed.

## Section B. Robustness Check—Supply Side of Articles

*Supply side analysis at the discussion group level.* In this analysis, we compared the number and characteristics of articles posted in each discussion group each week before and after the policy change. The dataset consists of all the 61,607 groups that posted at least one article during the study period. Table B1 shows the results. *PostNbr* is the number of articles posted in each group each week. *PostSwear*, *PostIdiom*, and *PostReadability* are the average percentage of swearwords, idioms, and HSK words in the articles posted in each group each week, respectively. *PostShare* is the average number of shares received by the articles posted in each group each week. *After* is a dummy that equals zero if the article was posted before the policy change and one if it was posted after the policy change. The results show that *the number and characteristics of articles posted in each group each week after the policy change were not significantly different from those posted before the policy change.* These results minimize the concern that the observed changes in users’ giving “likes” were caused by the changes in the supply side of articles.

**Table B1. Effect of Policy Change on Supply Side of Articles (Group Level)**

Dependent variable	<i>PostNbr</i>	<i>PostSwear</i>	<i>PostIdiom</i>	<i>PostReadability</i>	<i>PostShare</i>
Model	Poisson	OLS	OLS	OLS	OLS
	(1)	(2)	(3)	(4)	(5)
<i>After</i>	0.053 (0.043)	-0.000 (0.003)	-0.005 (0.006)	0.006 (0.109)	0.017 (0.011)
<i>Week</i>	0.011* (0.005)	0.000 (0.000)	0.001 (0.001)	0.086** (0.011)	-0.001 (0.001)
<i>Week</i> <sup>2</sup>	-0.000* (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.002** (0.000)	0.000 (0.000)
<i>PostLength</i>		0.000 (0.000)	0.000** (0.000)	-0.001** (0.000)	
Group Fixed	YES	YES	YES	YES	YES
Observations	2,649,101	536,026	536,026	536,026	536,026
<i>R</i> <sup>2</sup>	-	0.238	0.225	0.280	0.150

*Note.* Cluster-robust standard errors in parentheses (clustered on group).

\* $p < 0.05$ ; \*\* $p < 0.01$

*Supply side analysis at the article level.* We examined whether the articles differed in swearword usage, idiom usage, readability, and number of shares before and after the policy change. The dataset consists of all the 7,984,058 articles posted during the study period. Table B2 reports the results. *Swear*, *Idiom*, and *Readability* are the percentages of swearwords, idioms, and HSK words in each article, respectively. *After* is a dummy that equals zero if the article was posted before the policy change and one

if it was posted after the policy change. The results indicate that *the characteristics of the articles posted before and after the policy change were not significantly different*. These results are consistent with the group-level analysis, suggesting that the observed changes in users’ giving “likes” were not caused by changes in the supply side.

**Table B2. Effect of Policy Change on Characteristics of Posted Articles (Article Level)**

Dependent variable	<i>Swear</i>	<i>Idiom</i>	<i>Readability</i>	<i>Share</i>
Model	OLS	OLS	OLS	OLS
	(1)	(2)	(3)	(4)
<i>After</i>	0.003 (0.003)	0.010 (0.006)	0.284 (0.181)	0.016 (0.009)
<i>Week</i>	-0.000 (0.000)	-0.001 (0.001)	0.065** (0.018)	-0.001 (0.001)
<i>Week</i> <sup>2</sup>	0.000 (0.000)	0.000 (0.000)	-0.001** (0.000)	0.000 (0.000)
<i>Length</i>	-0.000** (0.000)	0.000** (0.000)	-0.002** (0.000)	
<i>Constant</i>	0.059** (0.004)	0.194** (0.009)	53.78** (0.437)	0.129* (0.053)
Observations	7,984,058	7,984,058	7,984,058	7,984,058
<i>R</i> <sup>2</sup>	0.000	0.001	0.002	0.000

*Note.* Cluster-robust standard errors in parentheses (clustered on group).

\* $p < 0.05$ ; \*\* $p < 0.01$

*Controlling for the supply side in baseline models.* In this analysis, we added the number of articles posted in each week (*WeekTotalNum*), the average percentage of swearwords (*WeekAverSwear*), idioms (*WeekAverIdiom*), and HSK words (*WeekAverReadability*), and the average number of shares (*WeekAverShare*) of the articles as control variables in Equations (1) to (5) to account for the influence of the supply side. Table B3 shows the results, which are consistent with the results of the baseline regressions (Tables 5 and 6).

**Table B3. Effect of Policy Change on Users' Giving of "Likes" (Supply Side Controlled)**

Dependent variable	<i>LikeNbr</i>	<i>LikeSwear</i>	<i>LikeIdiom</i>	<i>LikeReadability</i>	<i>LikeShare</i>
Model	Poisson	OLS	OLS	OLS	OLS
	(1)	(2)	(3)	(4)	(5)
<i>After</i>	-0.391 ** (0.007)	-0.006** (0.001)	0.066** (0.002)	1.088** (0.033)	3.966** (0.349)
<i>Week</i>	0.018** (0.001)	0.000 (0.000)	-0.001** (0.000)	0.062** (0.004)	4.258** (0.043)
<i>Week</i> <sup>2</sup>	-0.001** (0.000)	0.000 (0.000)	0.000** (0.000)	-0.001** (0.000)	-0.072** (0.001)
<i>WeekTotalNum</i>	0.005** (0.000)	0.000 (0.000)	-0.001** (0.000)	-0.007** (0.001)	-0.552** (0.011)
<i>WeekAverSwear</i>	7.619** (0.201)	-0.878** (0.046)	-1.779** (0.104)	-62.64** (1.745)	1,823.8** (22.02)
<i>WeekAverIdiom</i>	3.789** (0.169)	-0.196** (0.036)	-0.729** (0.078)	-3.546** (1.241)	772.6** (12.78)
<i>WeekAverReadability</i>	0.026** (0.003)	-0.002* (0.001)	-0.030** (0.002)	-0.396** (0.024)	-36.23** (0.294)
<i>WeekAverShare</i>	0.926** (0.071)	0.090** (0.014)	-0.618** (0.030)	2.274** (0.484)	104.6** (5.959)
<i>LikeLength</i>		0.000** (0.000)	0.000** (0.000)	-0.000** (0.000)	
User Fixed	YES	YES	YES	YES	YES
Observations	39,207,013	5,051,701	5,051,701	5,051,701	5,051,701
<i>R</i> <sup>2</sup>	-	0.234	0.224	0.309	0.296

Note. Cluster-robust standard errors in parentheses (clustered on user).

\**p* < 0.05; \*\**p* < 0.01

### Section C. Robustness Check—Monthly Aggregated Data

**Table C1. Effect of Policy Change on Users' Giving of "Likes" (Monthly Data)**

Dependent variable	<i>LikeNbr</i>	<i>LikeSwear</i>	<i>LikeIdiom</i>	<i>LikeReadability</i>	<i>LikeShare</i>
Model	Poisson	OLS	OLS	OLS	OLS
	(1)	(2)	(3)	(4)	(5)
<i>After</i>	-0.222** (0.006)	-0.008** (0.001)	0.020** (0.002)	0.495** (0.035)	11.80** (0.367)
<i>Month</i>	0.061** (0.003)	-0.001 (0.001)	-0.007** (0.001)	0.385** (0.016)	-10.02** (0.169)
<i>Month</i> <sup>2</sup>	-0.017** (0.000)	0.000** (0.000)	0.001* (0.000)	-0.016** (0.001)	0.799** (0.015)
<i>LikeLength</i>		0.000** (0.000)	0.000** (0.000)	-0.000** (0.000)	
User Fixed	YES	YES	YES	YES	YES
Observations	8,752,650	2,414,589	2,414,589	2,414,589	2,414,589
<i>R</i> <sup>2</sup>	-	0.457	0.441	0.531	0.491

Note. Cluster-robust standard errors in parentheses (clustered on user).

\**p* < 0.05; \*\**p* < 0.01

### Section D. Heterogeneous Effects

To investigate the heterogeneous effect of the policy change, we used the number of followers each user had and the total number of articles they posted before the policy change as indicators of how much

they cared about their image. We extended the baseline specifications by adding the interaction of these indicators with *After* in Equations (1) to (5). The results are reported in Tables D1 and D2. *Follower* is the number of followers each user had, and we used a logarithm transformation due to the high skewness of its distribution. *ArticleCount* is the number of articles each user posted before the policy change (in hundreds).

**Table D1. Heterogeneous Effects of Policy Change by User Follower Count**

Dependent variable	<i>LikeNbr</i>	<i>LikeSwear</i>	<i>LikeIdiom</i>	<i>LikeReadability</i>	<i>LikeShare</i>
Model	Poisson	OLS	OLS	OLS	OLS
	(1)	(2)	(3)	(4)	(5)
<i>After</i>	-0.201** (0.011)	-0.007** (0.001)	0.017** (0.002)	0.614** (0.032)	3.303** (0.352)
<i>Week</i>	0.025** (0.001)	0.000* (0.000)	-0.003** (0.000)	0.027** (0.002)	-0.445** (0.022)
<i>Week</i> <sup>2</sup>	-0.001** (0.000)	0.000 (0.000)	0.000** (0.000)	0.000* (0.000)	0.016** (0.001)
<i>After</i> *log( <i>Follower</i> +1)	-0.027** (0.005)	-0.001** (0.000)	0.003** (0.001)	0.038** (0.011)	0.559** (0.131)
<i>LikeLength</i>		0.000** (0.000)	0.000** (0.000)	-0.000** (0.000)	
User Fixed	YES	YES	YES	YES	YES
Observations	39,207,013	5,051,701	5,051,701	5,051,701	5,051,701
<i>R</i> <sup>2</sup>	-	0.234	0.223	0.309	0.290

Note. Cluster-robust standard errors in parentheses (clustered on user).

\**p* < 0.05; \*\**p* < 0.01

**Table D2. Heterogeneous Effects of Policy Change by User Article Count Before Change**

Dependent variable	<i>LikeNbr</i>	<i>LikeSwear</i>	<i>LikeIdiom</i>	<i>LikeReadability</i>	<i>LikeShare</i>
Model	Poisson	OLS	OLS	OLS	OLS
	(1)	(2)	(3)	(4)	(5)
<i>After</i>	-0.243** (0.007)	-0.009** (0.001)	0.021** (0.002)	0.683** (0.025)	4.281** (0.262)
<i>Week</i>	0.025** (0.001)	0.000* (0.000)	-0.003** (0.000)	0.027** (0.002)	-0.443** (0.022)
<i>Week</i> <sup>2</sup>	-0.001** (0.000)	0.000 (0.000)	0.000** (0.000)	0.000 (0.000)	0.016** (0.001)
<i>After</i> * <i>ArticleCount</i>	-0.252* (0.108)	-0.004* (0.002)	0.015* (0.007)	0.103 (0.108)	2.875** (0.888)
<i>LikeLength</i>		0.000** (0.000)	0.000** (0.000)	-0.000** (0.000)	
User Fixed	YES	YES	YES	YES	YES
Observations	39,207,013	5,051,701	5,051,701	5,051,701	5,051,701
<i>R</i> <sup>2</sup>	-	0.234	0.223	0.309	0.290

Note. Cluster-robust standard errors in parentheses (clustered on user).

\**p* < 0.05; \*\**p* < 0.01

## Section E. DID Analysis: Liking Behavior vs. Commenting Behavior

In this analysis, we used users' commenting behavior as the control group for their "liking" behavior, as the commenting function on the platform did not experience the policy change of virtual identity disclosure (i.e., the commenters' usernames were disclosed throughout the study period). We focused on the 405,795 users in our dataset who had "liking" and commenting activities during the study period. We estimated the impact of the policy change on their "liking" activities relative to their commenting activities using a Poisson regression model. Table F1 shows the results. The dependent variable *ActivityNbr* is the number of likes or comments each user gave each week. *LikeVsComment* is a dummy that equals zero for commenting activities and one for "liking" activities. We controlled for user fixed effect and week fixed effect and dropped *After* and *Week* due to their collinearity with the fixed effects. The coefficient for *After\* LikeVsComment* is negative, suggesting that users' "liking" activities decreased after the policy change compared to their commenting activities.

We tested the parallel trend assumption using a relative time model (Greenwood and Wattal 2017; Huang et al. 2017; Lu et al. 2019). Specifically, we included the interaction of week dummies with the treatment indicator *LikeVsComment* and dropped *LikeVsComment\*After* to estimate the treatment effect over time. Figure E1 shows the coefficients associated with each interaction of week dummy and *LikeVsComment*, omitting the week immediately before the policy change (week 19, the reference week) (Lu et al. 2019). The results suggest no significant differences in pretreatment trends between control and treatment groups.

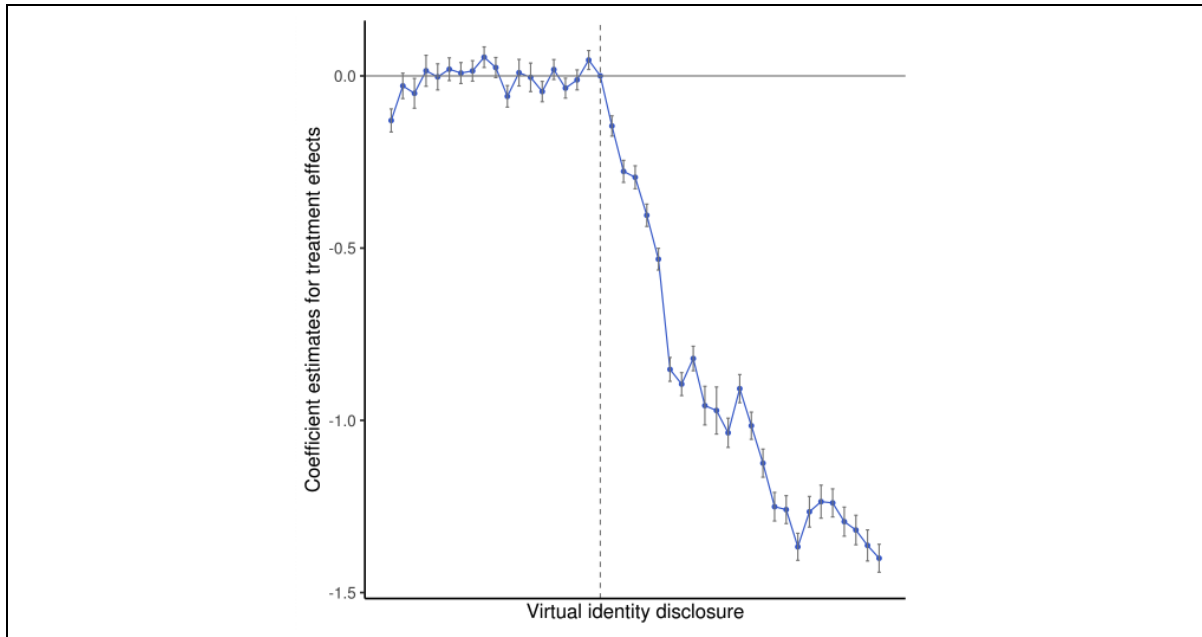
**Table E1. Effect of Policy Change on Users' Liking Behavior  
(Commenting Behavior as Control Group)**

Dependent variable	<i>NbrActivity</i>
Model	Poisson
<i>LikeVsComment</i>	-0.727** (0.010)
<i>After* LikeVsComment</i>	-0.897** (0.012)
User Fixed	YES
Week Fixed	YES
Observations	34,898,370

*Note.* Cluster-robust standard errors in parentheses (clustered on user).

\* $p < 0.05$ ; \*\* $p < 0.01$

**Figure E1. Treatment Effects Over Time  
(Liking Behavior vs. Commenting Behavior)**



## References

- Greenwood, B. N., and Wattal, S. 2017. "Show Me the Way to Go Home: An Empirical Investigation of Ride-Sharing and Alcohol Related Motor Vehicle Fatalities," *Management Information Systems Quarterly* (41:1), pp. 163-187.
- Huang, N., Hong, Y. K., and Burtch, G. 2017. "Social Network Integration and User Content Generation: Evidence from Natural Experiments," *Management Information Systems Quarterly* (41:4), pp. 1035-1058.
- Lu, Y., Gupta, A., Ketter, W., and van Heck, E. 2019. "Information Transparency in Business-to-Business Auction Markets: The Role of Winner Identity Disclosure," *Management Science* (65:9), pp. 4261-4279.