

The Company We Keep: Predicting Civic Engagement Through Statistical Analysis of Facebook Cliques

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ABSTRACT

Background: Widespread distrust of others is a cause of decline in civic participation, or ways individuals involve themselves by participating in their communities. Should we become too insular and distrustful, so too will our society's quality-of-life decline. The goal of this research is to determine whether the effects of socioeconomic status (SES) on friendships cultivated between individuals affect their later participation in civil engagements, such that a predictive model may be created and implemented for future policy recommendations. We hypothesize that a greater proportion of connections across socio-economic statuses will create a more involved community.

Methods: Data were acquired from the Humanitarian Data Exchange's Social Connectedness Index in collaboration with Meta's Data For Good, who compiled an anonymized measurement of active Facebook users and their friend groups in 3090 US counties to quantify the intensity of their social connectedness.

All non-numeric dimensions were removed from the data set as they provided no predictive significance in this analysis. The retained dimensions assessed biases, group support, and wealth exposure amongst the population with unique specificity, which warranted their retention. The log of population statistics was used to increase normalcy. Jolliffe's Criterion justified the creation of 6 factors. Two covariances were ultimately excluded to avoid computational error.

[1]	9.9339066387	6.0686623859	1.3172562114	0.9557470660	0.8411671182
[6]	0.7247172431	0.6266863107	0.4412141152	0.3254553607	0.3021542219
[11]	0.1984052607	0.0998760949	0.0825549966	0.0514276915	0.0212831849
[16]	0.0061192881	0.0018623289	0.0014250173	0.0010206056	0.0006273648
[21]	0.0004296883	-0.0019981934			

Results: Our measures of fit are as follows.

npar	fmin	chisq	df	pvalue	baseline.chisq	baseline.df
69.000	9.177	49794.694	162.000	0.000	122564.166	210.000
baseline.pvalue	cfi	tli	nnfi	rfi	pnfi	
0.000	0.594	0.474	0.474	0.473	0.594	0.458
ifi	rni	logl	unrestricted.logl	aic	bic	ntotal
0.595	0.594	-40514.124	-15616.777	81166.248	81573.749	2713.000
bic2	rmsea	rmsea.ci.lower	rmsea.ci.upper	rmsea.pvalue	rmr	rmr_nomean
81354.514	0.336	0.334	0.339	0.000	0.166	0.166
srmr	srmr_bentler	srmr_bentler_nomean	crmr	crmr_nomean	srmr_mplus	srmr_mplus_nomean
0.185	0.185	0.185	0.179	0.179	0.173	0.173
cn_05	cn_01	gfi	agfi	pgfi	mfi	ecvi
11.499	12.267	0.441	0.203	0.309	0.000	18.405

Our model did not reach many of the common statistical thresholds, but in predicting the behavior of humans we expected results similar to these. Our model accounted for 44.1% of the variability of the original data.

Our predicting parameters are as follows.

	lhs <dbl>	op <chr>	rhs <chr>	est <dbl>	se <dbl>	z <dbl>	pvalue <dbl>	ci.lower <dbl>	ci.upper <dbl>
28	CivilEngagement	~	WealthExposure	0.211	0.032	6.691	0.000	0.149	0.273
29	CivilEngagement	~	Standardization	-0.193	0.027	-7.078	0.000	-0.247	-0.140
30	CivilEngagement	~	ChildhoodWealthExposure	0.053	0.058	0.922	0.356	-0.060	0.166
31	CivilEngagement	~	FriendingBias	-0.041	0.012	-3.254	0.001	-0.065	-0.016
32	CivilEngagement	~	WealthyFriendingBias	0.082	0.018	4.655	0.000	0.047	0.116
33	CivilEngagement	~	GroupSupportAvailability	0.114	0.015	7.791	0.000	0.085	0.143
34	CivilEngagement	~	clustering_county	-0.125	0.015	-8.145	0.000	-0.156	-0.095
35	CivilEngagement	~	child_bias_county	0.025	0.011	2.419	0.016	0.005	0.046
36	CivilEngagement	~	ec_high_se_county	0.188	0.030	6.188	0.000	0.129	0.248

Notably, our model found that Childhood Wealth Exposure is not a significant predictor of Civil Engagement. The rest of the parameters of our model were found to be significant, save for three covariances between variables. However, despite the significance we may infer that these predictors indicate minimal change due to the smaller estimated effect sizes.

Discussion: Our model posits having more friendships with people of different socio-economic statuses corresponds to greater levels of community engagement, and the opposite occurs when wealthy individuals have a greater proportion of friendships with other wealthy individuals. Additionally, insular friend groups correspond to lower levels of community engagement.

We conclude that the integration across socio-economic levels creates a greater sense of community. Knowing and relating with people from diverse statuses and backgrounds is significant in facilitating a more involved society.

