Social Capital's Impact on the COVID-19 Response in the US on a County-Level

Author: Justin Esposito

Faculty Advisors: Professor Lewis Davis and Professor Arsalan Khan

Social Capital

Social capital can be defined as collective values, norms, bonds and trust within a group of individuals, either formal or informal groups, that allow these individuals to have greater amounts of communication and collective action (Bourdieu 1986; Coleman 1988; Putnam 1994).

Putnam (2000) expands upon the theoretical understanding of social capital in which it is proposed two types of social capital: bridging social capital and bonding social capital. Putnam (2000) explains that bridging social capital connects different groups of individuals, whether that be along class lines, religious denominations, race groups, etc. Bonding social capital is among individuals that already exist within the same groupings or communities.

Bourdieu (1986) writes that the amount of social capital of an individual is dependent on the number of connections that are made, as well as the number of other forms of capital that each connection possesses. These other forms of capital include the previously mentioned economic and cultural capital, but also symbolic capital. Social capital cannot be unlinked from social class.

Methods and Data

Empirical Models

$$Mask = \alpha + \beta Social\ Capital + \delta_C + \delta_{SFE} + \varepsilon$$

$$HomeNov7 = \alpha + \beta Social\ Capital + \delta_C + \delta_{SFE} + \varepsilon$$

Data Selection: Mask wearing data was compiled by global survey firm Dynata, at the request of The New York Times. Data on social distancing comes from the Google COVID-19 Community Mobility Reports. Social Capital data was obtained from the Penn State Social Capital database for 2014 and the 2019 American Community Survey 5 Year Demographic and Housing Estimates from the US Census Bureau. Data for the control variables was obtained from 2019 American Community Survey 5 Year Demographic and Housing Estimates from the US Census Bureau and Bureau of Economic Analysis for the year of 2019.

Summary Statistics

VARIABLES	OBS	MEAN	STD. DEV.	MIN	MAX
sk2014	3,141	-3.15E-06	1.261	-3.183281	21.80883
Bonding	3,141	71.48074	161.9073	0	4052
Bridging	3,141	23.59885	62.08423	0	1588
IncomeEqual	3,142	0.5545657	0.0367366	0.293	0.6977
EdueEqual	3,142	0.2486405	0.0306343	0.181034	0.619031
RaceEqual	3,142	0.6871561	0.1828123	0.236346	1
Mask	3,142	71.58183	13.10801	25.5	99.2
HomeJuly11	824	3.019417	2.812852	-4	14
HomeNov7	1,739	9.582519	3.790919	-2	28
HomeJan9	1,159	6.734254	1.808192	1	15
InfectRateJuly11	3,072	0.6567622	0.8393552	0.0106338	14.73952
InfectRateNov7	3,132	3.198827	1.8906	0.0706714	17.86727
InfectRateJan9	3,135	7.29199	2.796406	0.2201508	29.2666
LogIncome	3,142	10.70409	0.2410466	9.876733	12.34507
Population	3,142	103341.1	331170.1	66	1.01E+07
PopDensity	3,142	104.5096	696.3425	0.0143621	27819.8
SixFiveOlder	3,142	18.78886	4.656265	3.2	56.7
College	3,142	21.97521	9.574237	0	77.6
HighSchool	3,142	34.15493	7.232638	7.3	57.4
Republican	3,141	63.51437	15.61304	4.122067	95.27273
Male	3,142	50.08511	2.352158	42.8	72.7

Empirical Results

Table 5: Putnam Versus Bourdieu Social Capital

VARIABLES	(1) Mask	(2) HomeNov7	(3) Mask	(4) HomeNov7
sk2014	-0.984***	-0.310***		
	(-6.032)	(-5.620)		
Bonding			-8.83e-05	-0.00133
			(-0.0231)	(-1.572)
Bridging			0.00419	0.00467**
			(0.444)	(2.212)
IncomeEqual	24.23***	13.53***	25.34***	14.79***
	(5.236)	(8.439)	(5.405)	(9.057)
EducEqual	-11.71*	9.455***	-13.27**	8.081***
	(-1.957)	(5.257)	(-2.179)	(4.403)
RaceEqual	-1.823	0.271	-1.198	0.375
	(-1.334)	(0.664)	(-0.861)	(0.897)
LogIncome	2.483**	1.147***	1.133	0.785**
	(2.502)	(3.457)	(1.148)	(2.291)
College	0.278***	0.142***	0.272***	0.143***
	(10.66)	(16.98)	(10.23)	(16.91)
PopDensity	-0.000831***	0.000110**	-0.000830***	0.000116**
	(-3.669)	(2.256)	(-3.602)	(2.346)
Population	5.08e-07	3.36e-07***	1.39e-07	2.23e-07
	(1.004)	(3.044)	(0.0901)	(0.658)
SixFiveOlder	0.192***	-0.174***	0.0922**	-0.194***
	(4.633)	(-13.06)	(2.408)	(-14.91)
Republican	-0.235***	-0.0646***	-0.243***	-0.0658***
	(-16.31)	(-13.82)	(-16.81)	(-13.93)
Male	0.160**	0.188***	0.146**	0.175***
	(2.349)	(5.866)	(2.134)	(5.432)
State FE	Y	Y	Y	Y
Constant	32.19***	-17.74***	49.50***	-13.05***
	(2.887)	(-4.678)	(4.497)	(-3.352)
Observations	3,139	1,739	3,139	1,739
R-squared	0.657	0.824	0.653	0.821

t-statistics in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7: Additional Robustness Tests

VARIABLES	(1) Mask	(2) Mask	(3) HomeNov7	(4) HomeNov7
sk2014	-0.919***		-0.254***	
	(-5.585)		(-4.573)	
Bonding		0.00224		-0.00130
		(0.584)		(-1.540)
Bridging		0.00242		0.00354*
		(0.254)		(1.679)
IncomeEqual	24.23***	25.52***	13.76***	14.72***
	(5.178)	(5.392)	(8.547)	(9.020)
EducEqual	17.77***	15.91***	24.01***	23.03***
	(3.092)	(2.717)	(14.74)	(13.90)
RaceEqual	-1.422	-0.720	0.574	0.627
	(-1.032)	(-0.514)	(1.406)	(1.504)
LogIncome	4.662***	3.242***	1.611***	1.298***
	(4.820)	(3.396)	(5.075)	(4.001)
HighSchool	-0.244***	-0.242***	-0.174***	-0.177***
	(-7.518)	(-7.313)	(-16.69)	(-16.93)
PopDensity	-0.000964***	-0.000971***	4.97e-05	5.68e-05
	(-4.225)	(-4.194)	(1.024)	(1.159)
Population	9.15e-07*	-1.97e-07	4.56e-07***	4.98e-07
	(1.802)	(-0.127)	(4.126)	(1.464)
SixFiveOlder	0.170***	0.0794**	-0.170***	-0.185***
	(4.052)	(2.042)	(-12.68)	(-14.12)
Republican	-0.247***	-0.253***	-0.0655***	-0.0662***
	(-16.89)	(-17.26)	(-14.00)	(-14.02)
Male	0.0966	0.0895	0.150***	0.139***
	(1.416)	(1.302)	(4.689)	(4.328)
State FE	Y	Y	Y	Y
Constant	19.94*	36.97***	-15.77***	-11.59***
	(1.747)	(3.307)	(-4.069)	(-2.947)
Observations	3,139	3,139	1,739	1,739
R-squared	0.651	0.647	0.823	0.821

t-statistics in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Conclusions

This paper estimates that an increase in bonding social capital associations led to a decrease in the percent change in time spent at home. Conversely, this paper estimates that an increase in bridging social capital is associated with an increase in the percent change in time spent at home.

Counties with higher levels of income equality are estimated to be more likely to be willing to wear masks in public and be more likely to stay at home and social distance more than areas with more income inequality.

Areas with higher levels of equal educational attainment are estimated to be more likely to stay at home more often.

Educational equality is estimated to be both positively and negatively associated with the willingness to wear a mask in public. With higher levels of educational attainment, such as a bachelor's degree or higher, held constant, educational equality is negatively associated with mask wearing. With lower levels of educational attainment held constant, such as a high school diploma or equivalent, educational equality is positively associated with mask wearing.

This paper provides evidence that the levels of social capital within counties do impact the response to the COVID-19 pandemic in the United States. To promote positive responses to any future epidemics would require an increase in bridging social capital associations across the United States. Also, it would be important to decrease the level of income inequality within US counties and across the US. Lastly, an important factor would be to increase the level of educational attainment across the United States. Educational equality can have a positive impact on pandemic responses, but only when the level of educational attainment is higher.