Ties That Bind (and Social Distance): How Social Capital Helps Communities Weather the COVID-19 Pandemic

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Abstract

The COVID-19 pandemic represents the largest world-wide shock in at least a decade. Moreover, the spread of the virus has been highly heterogeneous. This paper investigates the role of social capital as a potential mediating factor for the spread of the COVID-19 virus. On one hand, higher social capital could imply greater in-person interaction and risk of contagion. On the other hand, because social capital is associated with greater trust and relationships within a community, it could endow individuals with a greater concern for others, thereby leading to more hygienic practices and social distancing. Our results suggest that moving a county from the 25th to the 75th percentile of the distribution of social capital would lead to a 20% decline in the number of infections, as well as a 0.28 percentage point decline in the growth rate of the virus (nearly 20% of the median growth rate). Moreover, our results are robust to many demographic characteristics, controls, and alternative measures of social capital.

Keywords: COVID-19; expectations; social capital; social distancing.

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I. Introduction

A growing body of literature, including research on recent outbreaks—SARS in 2003, the 2014 Ebola outbreak, and Zika one year later—stresses the essential role that social capital might play in preventing and controlling epidemics (see e.g., Koh et al. 2008; Kruk et al.2015; Blair et al. 2017; Wilkinson and Fairhead; 2017; Vinck et al. 2019; Trapido 2019). Social capital, in the form of trust, norms, and networks, can play an integral role in facilitating calm, peaceful, and collective action during an outbreak. In fact, Dynes (2006) remarked that social capital may serve as one of the most important ingredients in accomplishing critical tasks in emergency situations. Even if capital is destroyed, social resilience and collaboration can help communities rebound. The primary purpose of this paper is to examine whether social capital helps communities weather the COVID-19 pandemic and how it may also influence their expectations about economic recovery and broader well-being.

The COVID-19 pandemic represents the largest world-wide shock in at least a decade. Locally, however, the pandemic has affected certain communities much more than other. In the United States, for example, Figure 1 presents the distribution of infections per capita across counties as of April 17th, showing that there is significant heterogeneity in exposure to the virus. Whereas the median county has roughly 45 infections per 100 people, counties in the 90th percentile have nearly five-times as much.

[Insert Figure 1: Distribution of Infections per Capita]

Why COVID-19 is so heterogeneous across space? While many epidemiologists and medical practitioners have built scientific models for understanding the spread and severity of the virus across space, social scientists have had less to say. However, social forces and economic behavior are potentially important transmission mechanisms for the virus (Ali et al. 2016). Building on a large literature about the importance of social capital and its impact on communities (e.g., Dynes 2006; Koh et al. 2008; Chetty et al. 2014; Kruk et al.2015; Blair et al. 2017; Wilkinson and Fairhead; 2017; Vinck et al. 2019), we argue that social capital may help explain the severity of the pandemic. On one hand, higher social capital could imply greater in-person interaction and risk of contagion. On the other hand, because social capital is associated with greater trust and relationships within a community, it could endow individuals with a greater concern for others, thereby leading to more hygienic practices and social distancing.

Using county-level data for over 2,700 counties, we investigate how changes in social capital explain the level of infections and the growth rate of infections thus far. We find that counties with a standard deviation (sd) higher level of social capital have 0.27% fewer infections and 0.35 percentage points (pp) lower average week-to-week growth in infections. Moreover, these results are robust to controlling for a wide array of county demographic characteristics that could be correlated with the risk of infection, including: population density, the age and education distributions, and the poverty rate. Because social capital is pre-determined with respect to the unanticipated pandemic shock, we argue that these results reflect meaningful and plausibly exogenous variation for causal inference. We nonetheless report a number of robustness exercises, including additional controls and an instrumental variables strategy. We also show that our results are robust to alternative measures of social capital.

The structure of the paper is as follows. Section II provides a theoretical discussion of social capital and its effects on economic activity and sociological relationships. Section III applies the theoretical discussion and background to the context of the COVID-19 pandemic. Section IV introduces the data and reports several descriptive statistics. Section V presents the empirical strategy and discusses potential threats to the identification assumption. Section VI presents the main results. Section VII investigates various robustness exercises. Section VIII concludes.

II. Theory and Background

A. Defining Social Capital

Social capital is inherently intangible. While social scientists have had a tough time explicitly defining it, there is a general recognition that it exists in social groups interactions and takes many forms. The concept of social capital was introduced to account for group processes that are beyond an individual's control in explaining inequalities and social actions (Loury 1977; Bourdieu 1986; Coleman 1988). While economists (Loury 1977) and sociologists (Bourdieu 1985; Coleman 1988) are the founding theorists of social capital since they introduced the term systematically for the first time, political scientist Robert Putnam (1993; 2000) popularized it. In fact, the concept of social capital has become so fashionable in recent decades after he used it to explain differences in the economic and government performance of northern and southern Italy (Putnam 1993) and raised the public concern over the declining of social capital in the US (Putnam 2000). However, the essential idea behind it can be traced long back to the Durkheimian sociological tradition (Portes 1998; Rothstein 2003).

Sociologists typically conceptualize social capital as the *resources* that inhere within social networks (see also Portes 1998; Carpiano 2006). Bourdieu (1986: 248) defines social capital as "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition". Coleman (1988: S101) shares a similar definition and views social capital as a resource for action that "comes about through changes in the relations among persons that facilitate action". Lin (2002:24) also emphasizes two essential components in defining the concept, namely, "resources embedded in social relations rather than individuals" and "access and use of such resources reside with the actors".

In *Making Democracy Work*, Putnam (1993: 167) provides thus far the most widely used definition, referring to social capital as "features of social organizations, such as trust, norms, and networks, that can improve the efficiency of society by facilitating coordinated actions" (Putnam 1993: 167). However, we also see inconsistence across Putnam's work on the subject (see also Carpiano 2006). In *Bowling Alone*, for example, Putnam (2000:19) specifically defines social capital as "connections among individuals—social networks and the norms of reciprocity and trustworthiness that arise from them". This second definition differs from the earlier one in the sense that, instead of "features" of social organizations, trust and norms become the *consequences* of social connections. Nonetheless, three core components including degree of trust, co-operative norms as well as networks and associations are consistent across Putnam's varying definitions (see also Carpiano 2006). Following Putnam, scholars have largely come to agree that trust, norms, and networks are three essential elements of social capital (e.g., Messner et al. 2004; Kawachi 2006; Yip et al. 2007).

B. The Economic and Sociological Implications of Social Capital

There is now a general recognition that social capital matters. It plays a key role in shaping economic and financial (Knack and Keefer 1997; Guiso et al. 2004; Chetty et al. 2014) and social outcomes (Coleman 1993; Putnam 1993; 2000; Fukuyama 1995; Lin 2002; see also Rice 2001; Knowles 2007; Wu

2020). Indeed, decades of research have shown that societies with higher levels of social capital function better (Coleman 1990; Putnam 1993; Newton 2001), are richer (Knack and Keefer 1997; Woolcock 1998; Bjørnskov 2012; Algan and Cahuc 2014), are safer (Rosenfeld et al. 1997; Sampson e al. 1997; Buonanno et al. 2009), are healthier and happier (Kawachi et al. 2008; Helliwell et al. 2014), are less corrupt (Bjørnskov 2003; Uslaner 2018), and are more democratic (Almond and Verba 1963; Newton 1997; Paxton 2002; Waren 1999).

Social capital drives economic growth. For example, Putnam (1993) shows that the stock of social capital largely explains the regional difference in the long-run economic growth between southern and northern Italy. Cross-nationally, Knack and Keefer (1997) present empirical evidence that social capital in its form of trust and civic norms predicts faster economic growth across 29 economies. Social capital can raise economic growth by facilitating the accumulation of human capital (Loury 1977; Coleman 1988), strengthening schooling and the rule of law (Knack and Keefer 1997; Bjørnskov 2012; Algan and Cahuc 2014), lowering transaction cost (Arrow 1972; Putnam 1993; Knack 2002), and promoting collaboration and cooperation (Fukuyama 1995; Ostrom 2000) as well as fostering the exchange of and creation of ideas through socialization (Lucas and Moll 2014)

Social capital explains quality of government. In fact, scholars have empirically established this association at various levels of government including national and subnational level (Booth and Richard 1998; Tavits 2006), regional level (Putnam 1993; Milner and Ersson 2000), state level (Knack 2002; Wu et al. 2020), and city and community level (e.g., Cusack 1999; Rice 2001; Goldfinger and Ferguson 2009). Social capital is related to government performance for various reasons (see also e.g., Almond and Verba 1963; Putnam 1993, 2000; Fukuyama 1995; Tavits 2006; Andrews and Brewer et al. 2014). For example, Kanck (1999) outlines three major ones. First, more social capital means higher political engagement and this can broaden governmental accountability (see also Jottier et al. 2012; Nannicini et al. 2013). Second, social capital can unite people of different backgrounds and political preferences and help promote collective actions (see also Adger 2010; You and Hon 2019), and 3) social capital facilitates cooperation with the bureaucratic elites of a polity and leads to greater policy innovation and flexibility (see also Zheng 2010; Murphy et al. 2016).

Social capital also means more social cohesion and higher collective efficacy. Research shows that social capital can reduce crime and produce positive impacts on population health and wellbeing (Sampson et al. 1997; Kawachi et al. 2008; Helliwell et al. 2014). For example, Sampson and colleagues (1997) find that neighborhoods with more social capital are more cohesive and have less crime because people's mutual trust in each other can provide an informal social control and people with higher collective efficacy are more likely to intervene for common good (see also Lee 2000). A growing body of research also show that people with more social capital are more likely to engage in healthier behaviors and have better mental and physical health (Kawachi et al. 2008; Nieminen 2013; Helliwell et al. 2014).

While most scholars focus on the good side of social capital, it also is associated with some challenges (Portes 1998; 2014). In fact, Coleman (1988: S98) has long pointed out that a given form of social capital that is valuable in facilitating certain actions may be useless or even harmful for others. Similarly, whereas social capital may lead to beneficial outcomes for some individuals or groups, it may lead to detrimental outcomes for others (Portes 1998, 2014; Portes and Landolt 1996). Indeed, like any social force or mechanism, social capital can propagate inequalities within society. This is to suggest that analyzing how social capital may shape social life will require a critical perspective.

III. Application to the COVID-19 Pandemic and its Spread

A growing body of research has suggested that, in the times of crisis, higher levels of social capital may enhance individuals or communities' ability to prepare for, respond to, as well as recover from such crises (e.g., Klinenberg 2003; Aldrich 2012, 2015; Helliwell et al. 2014; Reininger et al. 2013). For example, Aldrich (2010) finds that social capital in the form of trust among community members leads to greater sharing of information about facts, procedures or threats to the community which is critical when facing extreme events. Individuals with few social ties are less likely to take preventative action such as evacuate, and to seek medical help and receive assistance from others (Dynes 2006).

Similarly, Reininger et al. (2013) et al. find that mutual trust during social interactions fosters preparedness for a disaster as trusting individuals are more willing to implement the necessary planning steps and to share needed information and resources with others. In his study of the 1995 Chicago heat wave, Klinenberg (2003) shows that individuals with less social capital such as isolated, elderly, poor, and racialized individuals were the most likely to die and not be found for days. Aldrich (2015) explains specifically that, in responding to crises, social capital networks enable individuals and communities easier access to various resources such as information, aid, and financial resources along with emotional and psychological support. Helliwell et al. (2014) shows that societies with more social capital and trust can respond to economic crisis and institutional transitions more happily and effectively.

Social capital matters not only immediately following crisis, but also afterwards during the long period of recovery. As Aldrich writes (2010:1) writes, "social capital - the bonds which tie citizens together – functions as the main engine of long term recovery." Lindström and Giordano (2016) find that after the 2008 economic crisis social capital and trust can become an important buffer against poor psychological wellbeing. Moreover, using data between 2008 and 2017, Makridis et al. (2020) show that religiosity also mediates the effects of business cycle fluctuations on individual well-being: while the average individual exhibits significant cyclicality in their reported life satisfaction, active Christians not only exhibit higher levels of life satisfaction, but also acyclical levels.

Focusing specifically on epidemics and pandemics, several studies have shown that social capital is critical to the containment of outbreaks. For example, Pronyk et al. 2008 and Gregson et al. (2014) show that participation in local community groups is often positively associated with successful avoidance of HIV, Holtgrave et al. (2004) find that more social capital is associated with lower the tuberculosis case rate across US states, and Zoorob et al. (2017) shows that social capital help mitigate the drug overdose epidemic in the US. Research on recent outbreaks—SARS in 2003, the 2014 Ebola outbreak, and Zika one year later—stresses the essential role that social capital and trust in particular play in preventing and controlling epidemics (see e.g., Blair et al. 2017; Wilkinson and Fairhead; 2017; Vinck et al. 2019; Trapido 2019). Indeed, the WHO's own outbreak guidelines (2005) stress that trust is needed to implement the measures needed to control and mitigate the spread of disease.

In the face of the COVID-19 outbreak, prompt isolation of those with disease, the quarantining of close contacts, and enforcement of infection control and hygiene measures are key containment measures. Most recently, two studies have looked into how social capital might shape the spread of COVID-19. On one hand, Kuchler et al. (2020) show that one dimension of social capital-social networks measured using Facebook Social Connectedness Index is strongly and positively correlated with COVID-19 prevalence across US counties. On the other hand, Wu et al. (2020) use social capital and trust to explain the quality of response in the face of COVID-19 across US states. They find that states that have higher levels of social capital and trust tend to have higher testing rates.

In this paper, we argue that social capital can affect the spread of COVID-19 in two major ways. First, social capital might affect the spread of COVID-19 in the forms of its economic, health, and political benefits in pre-crisis context. Although social capital and median household income only have a 0.40 correlation, communities with more social capital often perform better economically and politically and have rich and healthy individuals (Putnam 1993; Knack and Keefer 1997; Kawachi et al. 2008). Since wealthier communities have higher performing healthcare facilities and likely have an easier time acquiring personal protective equipment, these areas may experience a lower number of infections and a faster recovery. Moreover, wealthier individuals are concentrated in jobs that often involve less social contact and public transportation. Governments might also be more responsive in communities with high social capital because of the repercussions associated with ignoring their constituents.

Second, social capital might mitigate the spread of COVID-19 in the forms of shared norms and trust as well as networks. For example, residents in areas with greater social capital may also use more hygienic practices and greater responsibility out of trust and care for their neighbors and community members. Moreover, to contain COVID-19, governments and health officials need to rely on citizen trust in order to organize and implement effective responses. Individuals in a high social capital community have higher levels of informal guardianship, and they are more active in intervening for common good (Sampson et al. 1997; Lee 2000). Lack of trust in government is associated with people's low compliance with control interventions and high refusal to adopt preventive behaviors (Meredith et al. 2007; Blair et al. 2017; Vinck et al. 2019). Low trust will also challenge the effective emergency responses as it will cause disruptions of community interactions, public panic, and fragmentation, and create a vicious cycle between lack of trust, non-compliance, hardships and further distrust (Blair et al. 2017; Ryan et al. 2019; Vinck et al. 2019). Furthermore, when societies have more trust and civic norms, they become less depend on formal institutions (Arrow 1972; Knowles 2007). Social capital in the forms of networks and ties facilitates collective actions, information sharing and decision-making within communities and unites people of different backgrounds and political preferences (Coleman 1990; Putnam 1993; Kanck 2002; Grootaert and Van-Bastelaer 2002; Alonge et al. 2019).

IV. Data and Measurement

The data for this research come from multiple sources. To measure the spread of the COVID-19 across US communities, we use data on COVID-19 infections collected by the New York Times at the county-level each day. The data is publically available through (provide a weblink here?). We also obtain many measures of a county's demographic characteristics between 2014 and 2018 using the the Census Bureau's five-year American Community Survey (ACS).We use the Joint Economic Committee (JEC) measure of social capital at the county-level (JEC, 2018), which contains indicators "related to family structure and stability, family interaction and investment, civil society, trust and confidence in institutions, community cohesion, institutions, volunteerism, and social organization." These indicators, at the county-level, include: the share of births in the past year to women who were unmarried, the share of women ages 35-44 who are currently married and not separated, the share of own children living in a single-parent family, registered non-religious non-profits per 1,000, religious congregations per 1,000, an informal civil society sub-index, and the average of votes in the Presidential election per citizen ages 18 and over.[2] These data are generally compiled based off of estimates from 2012 to 2016—well before COVID-19.

Figure 2 plots the resulting heterogeneity in infections per capita and social capital across locations. Counties with higher social capital cluster much more in the North, which could reflect some of the long-run and persistent effects of slavery in the south. There is also a fairly strong negative correlation between these two series. Table 1 also documents standard summary statistics about the data. We see that the mean (not standardized) index on social capital is -0.09, which is in large part due to lower levels of community health. We also find significant variation in the index: the standard deviation is roughly ten-times as large as the mean. Turning to demographics, we see that most of the age distribution is clustered within ages 35 to 64, but that some counties may have significant proportions of individuals over 65 years old. We also see similar heterogeneity in educational attainment and poverty.

[Insert Figure 2: Spatial Heterogeneity in Infections per Capita and Social Capital]

[Insert Table 1: Summary Statistics]

V. Empirical Strategy

To understand the relationship between COVID-19 infections and social capital, we consider regressions:

$$INFECT_{ct} = \gamma SC_c + g(X_c, \theta) + \phi_s + \lambda_t + \epsilon_{ct}$$

where *INFECT* denotes the logged number of (COVID-19) infected individuals within a county-day pair, *SC* denotes a standard-normal z-score of social capital in the county, $g(X, \theta)$ denotes a semi-parametric function of demographic controls, and ϕ and λ denote fixed effects on state and day. We cluster standard errors at the county-level to allow for arbitrary degrees of autocorrelation within a geography.

We include a wide array of controls within our semi-parametric function, $g(X, \theta)$, including: the age distribution (share of individuals under age 18, age 18-24, age 25-34, 35-64, and 65+), the education distribution (the share of individuals 25 and older with less than a high school degree, a high school degree, some college, and more than college), the race distribution (the share of individuals who are white and the share who are black), the share of married households, the poverty rate (for individuals below age 18, between 18-64, and 65+), and population density. We also have experimented with controls over the unemployment rate and real gross domestic product (GDP) growth in 2012 prices using data recently made available by the Bureau of Economic Analysis (BEA).

Our inclusion of these demographic characteristics and population density is especially important since one potential threat to identification is that areas with higher social capital are more rural and, therefore, less likely to experience infection since there are fewer opportunities for social contact. Moreover, our inclusion of state fixed effects allows us to compare counties within the same state. This is potentially important since states have exerted varying degrees of emergency powers, ranging from strict stay-at-home orders to more standard quarantines. These differences in state policy could be correlated with social capital if communities vary in their tastes and elect different governors to power.

[2] The civil society sub-index includes: combination of share who volunteered, who attended a public meeting, who report having worked with neighbors to fix/improve something, who served on a committee or as an officer, who attended a meeting where politics was discussed, and who took part in a demonstration in the past year.

While we view this statistical approach as holding a causal interpretation of the effect of social capital on the spread of the virus particularly given that social capital is pre-determined with respect to our outcome variable, we nonetheless recognize that there are potential other omitted variables. To obtain more causal estimate, we exploit plausibly exogenous variation in social networks based off of a new measurement approach of the Social Connectedness Index (SCI) from Bailey et al. (2018). The SCI is based off of a 2016 snapshot of Facebook connections, giving the number of ties between each county and every other county in the United States. In particular, it captures the probability that individuals in any two regions are linked through a friendship tie on Facebook, which we operationalize at the county-level since that is the level of disaggregation of our outcome and right-hand-side variables.

VI. Main Results

Table 2 presents the main results associated with regressions of logged number of cases and the average county week-to-week growth in the number of cases on our measure of social capital, conditional on controls and fixed effects. Columns 1 and 4 show that counties ranking a standard deviation higher in social capital have a 0.27% fewer number of infections and 0.35 percentage points lower growth in the number of infections. However, one concern with these cross-sectional results is that counties with higher social capital are less population dense and, therefore, are less likely to experience as much of the pandemic than other areas, like New York City.

To address these types of concerns, columns 2 and 5 introduce a wide array of semi-parametric controls for a county's demography, including population density. Not surprisingly, we see that a 1% rise in population density is associated with a 0.43% rise in the number of cases and a 0.44pp rise in the weekly growth in cases. We also control for the age and education distributions, together with the share of males and married households and the poverty rate for different age brackets. Importantly, the inclusion of these controls only marginally lowers the absolute value of our cross-sectional estimate, suggesting that omitted variables bias is an unlikely culprit of our main result: a 1sd rise in social capital is associated with a 0.21% decline in infections and a 0.28pp decline in the growth rate.

We further address concerns about the presence of omitted variables bias and cross-sectional differences across states by including state and time fixed effects, which allows us to exploit variation across counties in the same state. If, for example, states with higher levels of social capital lead to the voting in of certain politicians that pass better policy that contains the virus, then we might be concerned that our results are simply driven by different political choices. However, our results are robust to the inclusion of these fixed effects: a 1sd rise in social capital is now associated with a 0.10% decline in the number of cases and a 0.21pp decline in average weekly growth of cases.

[Insert Table 2: The Effects of Social Capital on Infections and the Spread of COVID-19]

We have also experimented with specifications that only use the latest COVID-19 data, thereby removing the time series variation in our outcome variable. Doing so produces coefficients that are larger in magnitude. However, out of abundance of caution, we include these daily data to create more observations and trace out the gradient of the infection rate to different levels of social capital.

VII. Robustness and Heterogeneity Analysis

We begin by investigating the sensitivity of our results to alternative measures of social capital, recognizing that the definition remains contested. We separately regress the logged number of cases on z-scores of the four different inputs that go into the overall score from the Joint Economic Committee. We also include another measure of social capital from Chetty et al. (2014), which has 0.60 correlation with the JEC measure. These results are summarized in Table 3.

We begin with our baseline results in columns 1 and 2, which show the cross-sectional relationship and conditional correlations. While family unit is negatively correlated with the number of infections in the cross-section, the correlation disappears after introducing our controls. This does not necessarily imply that family structure is irrelevant for the number of infections, but rather that most of the association likely operates through selection effects. Not surprisingly, our measure of community health is highly predictive of infections. Institutional health is as well, but interestingly the cross-sectional correlation implies a positive association even though the conditional correlation flips negative, as in our main result. One possible explanation stems from the fact that areas with greater institutional health are likely more urban and wealthy areas, but those areas have lower social capital. Finally, our baseline effects are nearly the same when we use the measure from Chetty et al. (2014).

[Insert Table 3: Robustness Results with Alternative Social Capital Measures]

An additional concern with our results thus far is that differences in social capital could be correlated with direct measures of economic activity. Using 2018 data on county-level real GDP (in 2012 prices), we now include the growth rate of GDP between 2017 and 2018 and the log of real GDP in 2018 as additional controls (2019 data is not available). We find that our baseline coefficient declines in magnitude to -0.098, but remain statistically significant at the 1% level. Moreover, we find that a 1% rise in real GDP is associated with a 0.43% rise in infections—reflecting the fact that areas with greater activity were more at risk—and that a 1pp rise in GDP growth is associated with a 0.31% decline in the number of cases—reflecting the fact that areas experiencing greater growth have more resources to deal with the crisis. We do not claim that we have controlled for every possible confounding effect, but rather that the robustness of our results to a wide variety of controls suggest a meaningful relationship.

Another concern is that our outcome variable may contain measurement error in the number of true infections or the number who have yet to be identified. While measurement in the outcome variable will generally create attenuation (Chen et al., 2011), we nonetheless address this concern by introducing the logged number of total test results and the ratio of positive to negative test results as additional controls. Unfortunately, these are only available at the state-level, but we view it as a useful check. Including both these variables as controls does not produce statistically different results.

A final dimension of heterogeneity that we wish to explore in our ongoing work involves the role of religion as an additional mediating factor. For example, in a cross-sectional regression, we found that a 1sd rise in social capital for counties with a high share of religious adherents (above the median county) is associated with an even larger 0.34% decline in infections, which compares with a 0.20% decline for less religious counties. However, when we add our demographic controls, the correlation declines in significance. We will introduce additional data from Gallup to investigate the role of religious affiliation and both expectations and subjective well-being as a function of social capital and the pandemic.

VIII. Conclusion

We have experienced a steady increase in the frequency of disease outbreaks over the past three decades. Given the growing rate of travel, urbanization, and interaction with the environment and natural resources (Madhav et al. 2017; Kapiriri and Ross 2018), these trends are likely to continue. In addition well-functioning healthcare systems and developing vaccines to mitigate the risk to disease, social forces are important for binding communities together during crises and creating resilience.

This paper provides the first account of the effects of social capital on COVID-19 infections. Rather than leading to a spread of the virus through greater social interaction, social capital has a significant negative effect on the number of infections and growth of the virus. For example, if we moved a county that ranks in the 25th percentile to the 75th percentile in the distribution of social capital, our baseline estimates suggest that their infections would decline by roughly 20%. Moreover, the virus would have not spread as fast. While we cannot isolate the exact mechanism, these results are consistent with the view that trust and social cohesion are integral characteristics for managing a crisis.

Our results also have clear policy implications. Stable and vibrant communities are not luxuries, but important priorities for managing emergencies. Investing in social capital and interpersonal relationships helps us manage negative shocks and retain levels of interconnectedness and well-being.

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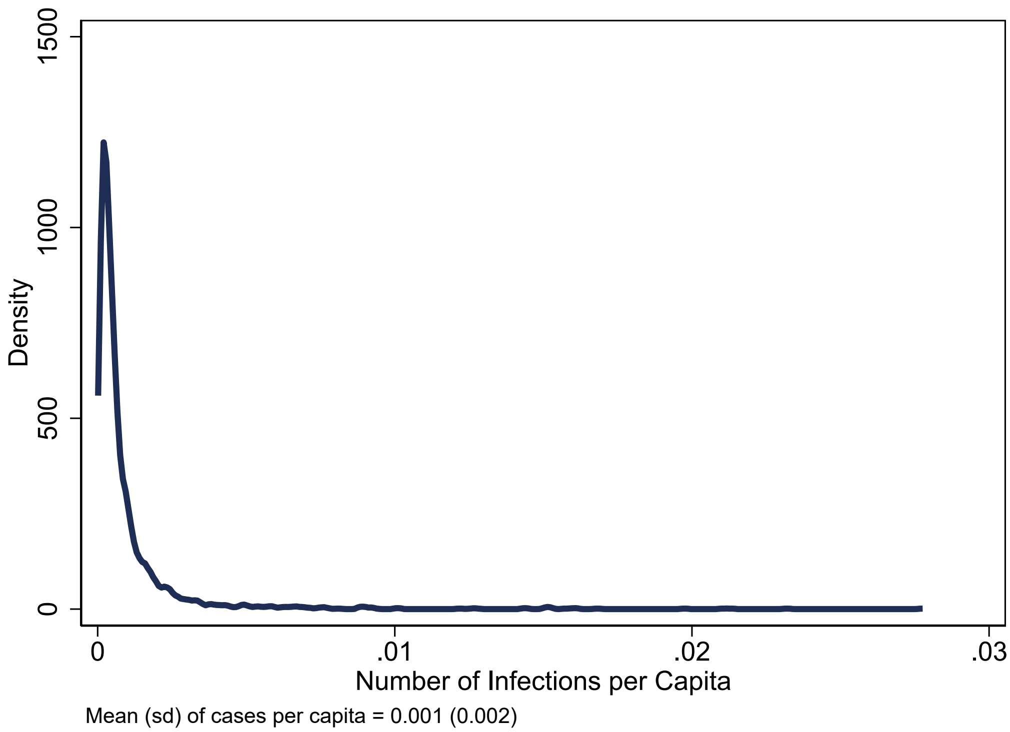
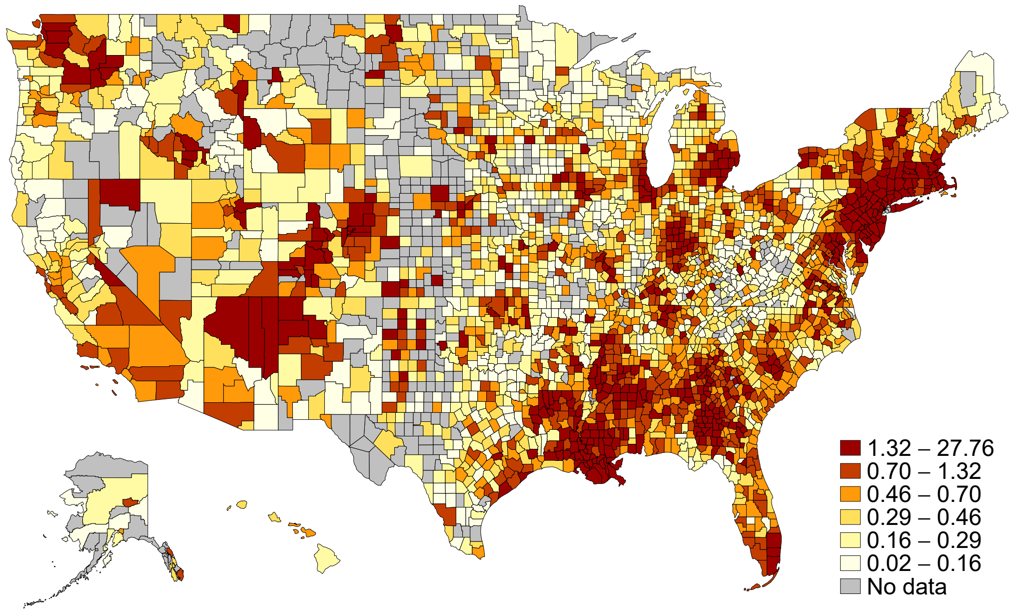


Figure 1: Distribution of Infections per Capita Across Counties

Notes.–Sources: New York Times and Census Bureau. The figure plots the number of infections per capita across counties based off of April 17, 2020 data.

Panel A: Herogeneity in COVID-19 Cases per Capita * 1000



Panel B: Heterogeneity in Social Capital

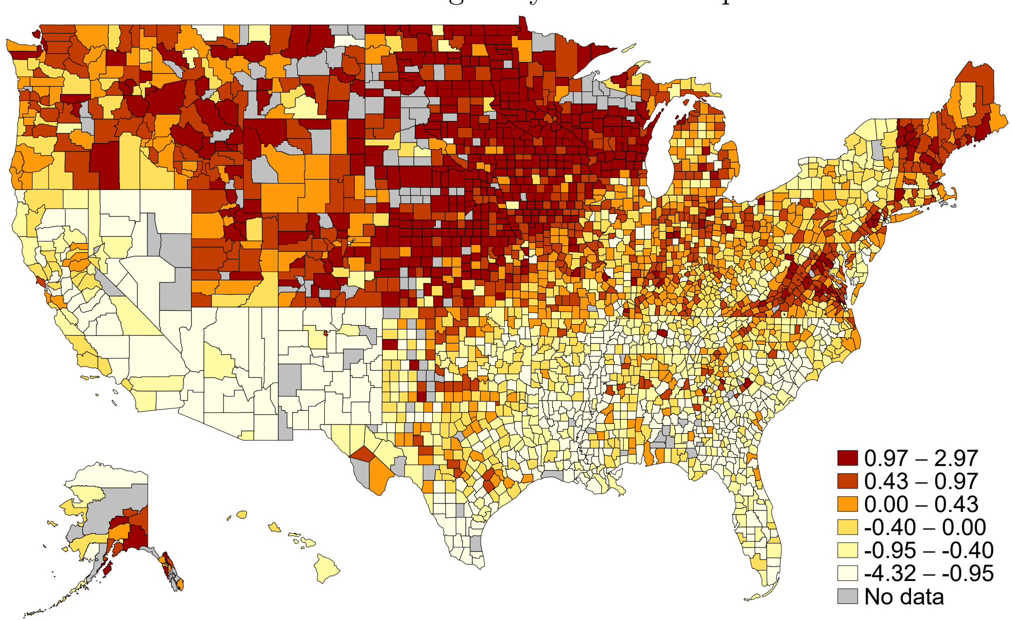


Figure 2: Spatial Heterogeneity in Cases Per Capita and Social Capital

Notes.–Sources: Joint Economic Committee, Census Bureau, and New York Times. Panel A plots the spatial heterogeneity in the number of COVID-19 infections per capita and Panel B plots the spatial heterogeneity in social capital (as an index).

Table 1: Summary Statistics

	Mean	SD	Min	Max
Social capital (index)	-0.09	0.96	-4.32	2.70
Family unity (index)	-0.05	0.98	-4.93	2.66
Community health (index)	-0.17	0.81	-1.67	5.54
Institutional health (index)	-0.02	0.97	-3.86	2.81
Collective efficacy (index)	-0.06	0.99	-7.60	1.22
Infections	208	1216	1	28539
Infections per 100,000	94	180	2	2776
Deaths	9	54	0	1356
Population Density	217	677	0	11041
Age Under 18, %	0.22	0.03	0.07	0.40
Age 18-24, %	0.09	0.04	0.02	0.52
Age 25-34, %	0.12	0.02	0.04	0.25
Age 35-64, %	0.39	0.03	0.18	0.55
Age 65+, %	0.18	0.04	0.04	0.56
White, %	0.82	0.17	0.05	1.00
Black, %	0.10	0.15	0.00	0.87
Less than high school, %	0.13	0.06	0.01	0.49
High school, %	0.34	0.07	0.05	0.56
Some college, %	0.30	0.05	0.11	0.47
College, %	0.14	0.06	0.03	0.48
Post-graduate, %	0.08	0.05	0.01	0.43
Male, %	0.50	0.02	0.44	0.79
Married, %	0.51	0.07	0.18	0.72
Poverty rate under 18, %	0.22	0.10	0.01	0.73
Poverty rate 18-64, %	0.15	0.06	0.03	0.52
Poverty rate 65+, %	0.10	0.04	0.00	0.38
Observations	2717			

Notes.–Sources: Joint Economic Committee, Census Bureau, and New York Times. The table reports the mean, standard deviation, minimum value, and maximum value for the number of COVID-19 infections, infections per capita, deaths, and a wide array of demographic variables, including: population density, the age distribution, the education distribution, the share of males, and the share of married households.

Table 2: Baseline Effects of Social Capital on the Spread of COVID-19

Dep. var. =	log(Number of Cases)			Average Weekly Growth in Cases		
	(1)	(2)	(3)	(4)	(5)	(6)
Social capital (z-score)	-.278***	-.207***	-.105**	-.354***	-.276***	-.208***
	[.028]	[.029]	[.041]	[.029]	[.038]	[.052]
log(Population Density)		.431***	.677***		.429***	.450***
		[.020]	[.027]		[.032]	[.034]
Age Under 18, %		4.840**	3.782*		9.211***	5.846**
		[1.999]	[2.008]		[2.591]	[2.316]
Age 18-24, %		.142	1.066		5.236**	4.157**
		[1.872]	[1.772]		[2.267]	[1.964]
Age 35-64, %		2.438	2.680		4.827**	3.135
		[1.719]	[1.643]		[2.145]	[1.948]
Age 65+, %		2.263	1.816		4.859**	2.486
		[1.571]	[1.545]		[1.981]	[1.767]
White, %		-1.152***	-1.528***		-.256	-.577
		[.292]	[.352]		[.409]	[.468]
Black, %		-.816***	-.463		-.058	.180
		[.286]	[.384]		[.393]	[.495]
Less than High School, %		.083	1.330**		-2.639***	.675
		[.504]	[.660]		[.712]	[.855]
Some College, %		-.177	-.365		-2.384***	-.076
		[.402]	[.594]		[.666]	[.779]
College, %		3.874***	4.759***		.197	1.038
		[.733]	[.854]		[.918]	[.892]
Post-graduate, %		3.529***	1.984*		.261	-1.126
		[1.039]	[1.120]		[1.241]	[1.097]
Male, %		-.248	-1.928*		.281	-1.910
		[1.005]	[1.154]		[1.380]	[1.360]
Married, %		-3.053***	-1.483***		-3.192***	-.667
		[.482]	[.572]		[.706]	[.673]
Poverty rate under 18, %		-.110	.084		.496	.372
		[.394]	[.443]		[.531]	[.499]
Poverty rate 18-64, %		-3.236***	-3.126***		-4.767***	-2.709***
		[.581]	[.688]		[.871]	[.817]
Poverty rate 65+, %		1.224**	.892		1.358*	.365
		[.562]	[.632]		[.825]	[.766]
R-squared	.03	.39	.73	.07	.40	.51
Sample Size	63685	63661	63661	63580	63556	63556
Controls	No	Yes	Yes	No	Yes	Yes
State FE	No	No	Yes	No	No	Yes
Day FE	No	No	No	No	No	No

Notes.–Sources: Joint Economic Committee, Census Bureau, and New York Times. The table reports the coefficients associated with regressions of daily county logged number of cases and the average county week-to-week growth rate in number of cases on a standardized *z*-score of county social capital, conditional on controls. Demographic controls include: logged population density, the age distribution (normalized to the share of individuals between ages 25 and 34), the education distribution (normalized to the share of individuals with a high school degree), the share of males, and the share of married households. Standard errors are clustered at the county-level.

Table 3: Robustness Results with Alternative Social Capital Measures

Dep. var. =	log(Number of Cases)									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Social capital	-.278***	-.207***								
	[.028]	[.029]								
Family unity			-.067**	.012						
			[.029]	[.031]						
Community health					-.495***	-.170***				
					[.029]	[.023]				
Institutional health							.087***	-.125***		
							[.026]	[.022]		
Collective efficacy										
Chetty et al. (2014)									-.254***	-.136***
									[.022]	[.019]
R-squared	.03	.39	.00	.38	.09	.39	.00	.39	.02	.39
Sample Size	63685	63661	64022	63998	64967	64943	64630	64606	64625	64601
Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
State FE	No	No	No	No	No	No	No	No	No	No
Day FE	No	No	No	No	No	No	No	No	No	No

Notes.–Sources: Joint Economic Committee, Census Bureau, and New York Times. The table reports the coefficients associated with regressions of daily county logged number of cases and the average county week-to-week growth rate in number of cases on a standardized z-score of overall county social capital from the JEC, its four separate inputs, and a measure of social capital from Chetty et al. (2014), conditional on controls. Demographic controls include: logged population density, the age distribution (normalized to the share of individuals between ages 25 and 34), the education distribution (normalized to the share of individuals with a high school degree), the share of males, and the share of married households. Standard errors are clustered at the county-level.