

# **The COVID-19 pandemic, immigrants, and minority communities in the United States**

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## **Introduction**

Pandemics are rare events, there have only been five since the Spanish Flu of 1918. Not surprisingly, for many medical and public health professionals, scholars, and government officials around the globe, the current outbreak of SARS-CoV-2 is the first pandemic in their lifetime. COVID-19 is an illness like no other in our epidemiological history, leaving societies dependent on management coordination between governments and health specialists, while exposed to disinformation and political messaging on critical public health issues.

The new COVID-19 pandemic has also served as a global experiment in which an indiscriminating bio-physical process of contagion works as an exogenous force that brings to light pre-existing, non-randomly distributed social inequities in the population. People with pre-existing chronic conditions like diabetes, hypertension, and cardiovascular disease, and conditions related to obesity, are at higher risk for severe COVID-19. Research shows that the great majority of these pre-existing conditions are strongly socially patterned (1). Individuals of low socioeconomic status (SES), and racial and ethnic minorities, tend to register these conditions at much higher rates than those of higher SES and members of the majority racial and ethnic group in any given society (2).

Socio-political inequalities are shown to be critical underlying reasons why a pandemic rarely affects sociodemographic groups homogeneously. Existing legislation, governmental policies and programs, and institutional dynamics are the most powerful forces that distribute the

public goods and services that ultimately shape the social determinants of health (3-5), including those that determine who does and who does not get infected with the novel coronavirus SARS-CoV-2. As national and local governments have enacted their COVID-19 pandemic responses, the full distribution of resources has followed the same established socio-political paths through which their country-specific hierarchies were created. Although it is poor individuals and those from racial and ethnic minorities who comprise the lion's share of COVID-19 cases and deaths (6), there is still limited reporting of pandemic-related indicators and data by race, ethnicity, and SES. This generalized situation further exposes individuals at the bottom of the socioeconomic ladder and other vulnerable communities to a higher risk of COVID-19-related illness, disability, and mortality.

In the United States, as in the rest of the globe, there are strong intersectionalities among SES, gender, race and ethnicity, and immigration status. The intersection of these indicators has worked in concert with other powerful social markers of vulnerability, like residential segregation, increasing the propensity of getting infected. In line with these relationships, our goal in this chapter is to illustrate how higher concentration of immigrants across counties interact with non-white/white residential segregation, thus representing some of the sociodemographic conditions that facilitate the transmission of the virus. The theoretical motivation behind our analysis is that residential segregation exacerbates the vulnerability of immigrant communities, thus leaving them more exposed to the social, economic, geographic, labor, and public health conditions that enable infections.

It has been determined that social indicators of vulnerability work as 'pre-existing conditions' for contracting severe COVID-19. In the United States, for example, poor and low-education individuals (who are predominantly comprised of racial and ethnic minorities,

including immigrants) tend to experience lower rates of health insurance coverage as well as lower access to and lower quality of healthcare services. In the sociodemographic environment, these communities also show higher unemployment, work instability, and weaker job benefits; higher exposure to pollution and environmental hazards; lower levels of political power and representation; and higher residential segregation among many other disadvantages (4, 7-13).

The purpose of the present chapter is, therefore, to offer a global account of the harmful effects that the COVID-19 pandemic has had on the U.S. society overall and, particularly, on poor, racial and ethnic, and immigrant communities. We describe the current U.S. political context, pre-existing social inequalities, and how they have interacted, resulting in a weak, and many times incongruous, response against the spread of SARS-CoV-2. We present a statistical analysis to illustrate how non-white/white residential segregation interacts with the concentration of immigrant communities to produce higher infection rates across U.S. counties<sup>1</sup>. We conclude by offering a summary of possible policy solutions that could be, or could have been, implemented to ameliorate the detrimental economic and health effects of the pandemic.

### **COVID-19 and pre-existing health disparities in the U.S.**

There is no scientific evidence of significant genetic predispositions varying by race or ethnicity to acquire, develop, and die of COVID-19 (14-16). Nevertheless, in the United States, Black people, Native Americans, and peoples of Hispanic descent (of all races) currently show COVID-19-related mortality rates that are about three times those of white individuals (17).

These differences exacerbate up to four times among Black people compared to white people in

<sup>1</sup> In the United States, counties are the smallest geographic administrative divisions with some degree of governmental authority. All 50 states are divided into counties, adding up to 3,143 counties and county-equivalents countrywide as of 2020.

several counties in the Midwest and the South, and among Hispanics (compared to white people) in several counties in the Midwest, mid-Atlantic and Northwest areas. In some states, including Illinois, the share of COVID-19 cases and deaths among Black people is as high as 37 and 45 percent of all cases and deaths, respectively, while this racial group represents only 16 percent of the state's population (18).

This pattern of racial and ethnic health inequality is not specific to certain localities, as it holds at the national level too. Whereas the share of the Black population nationwide is only 13 percent, Black patients have accounted for 23 percent of all COVID-19 deaths (6, 19). As to Hispanics, according to a study of medical records filed between March and May of 2020 at four hospitals at the University of Cincinnati, Hispanic patients diagnosed with COVID-19 were twice as likely to require hospitalization and almost three times as likely to suffer from severe COVID-19 as white patients (20).

Even though the United States is the largest recipient of immigrants in the world, immigrants—especially those of low SES—are particularly absent from current official epidemiological statistics, face enormous barriers to COVID-19 testing and treatment, and tend to live and work in conditions that increase their risk of being exposed to SARS-CoV-2. As the U.S. entered the initial phases of the pandemic in March, the federal government listed its “essential workers” guidelines, identifying the essential labor activities that would not be suspended during shelter-in-place orders (21). Twenty states out of the 42 that adopted essential worker orders embraced the federal guidelines, while the others developed their own according to their industry needs. In this process, most states took into consideration the needs of the agricultural and construction industries—which heavily employ immigrants—in their essential workers guidelines (22). For instance, unauthorized immigrants represent about 5 percent of the

U.S. civilian labor force but comprise 15 percent of the agricultural workforce and 13 percent of construction labor (23). As essential workers, these immigrants had to continue working during the pandemic, with wages below the median national wage. In most cases, their work involved face-to-face interaction in close physical proximity, putting them at higher risk of exposure to SARS-CoV-2 (24, 25).

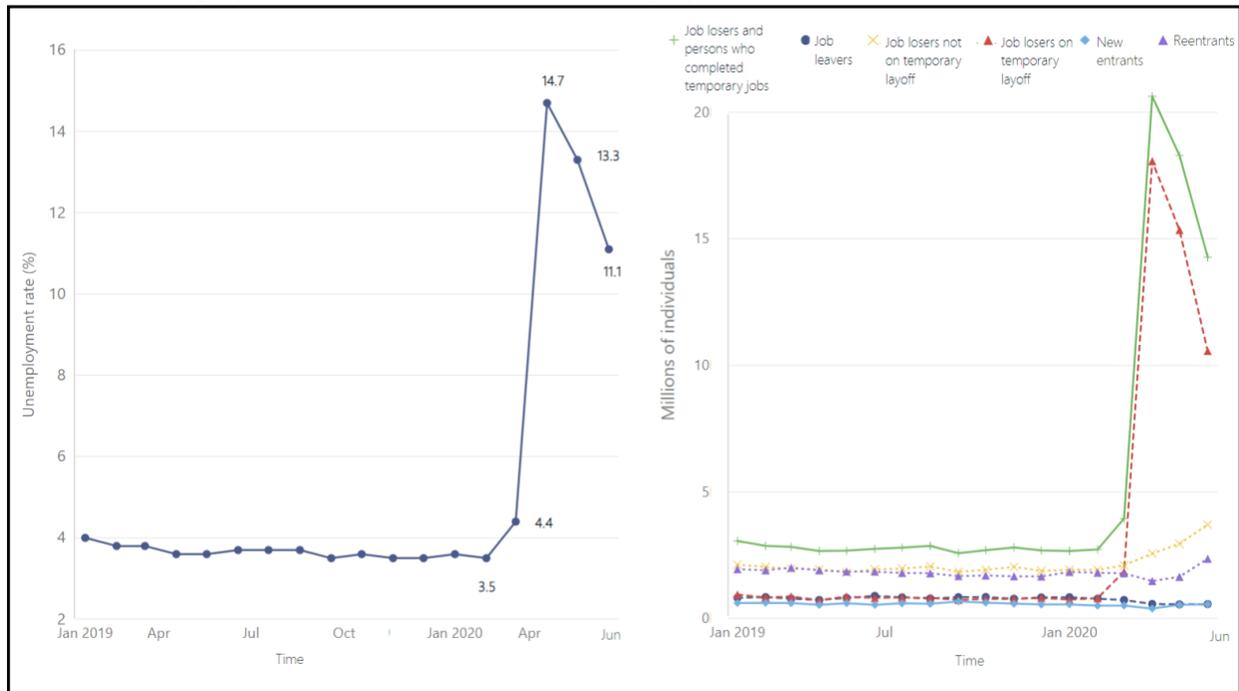
In addition to their labor conditions of disadvantage, low-SES immigrants in the United States—most of them originally from Latin America and Asia—are more likely to reside in more ethnically homogenous neighborhoods and be less fluent in English. We assert that both residential segregation and limited English proficiency increase the risks of COVID-19 infection in communities of low-SES immigrants. It is thus critical to understand the mechanisms through which living in co-ethnic neighborhoods isolate residents from basic health services and increase the likelihood of living in overcrowded dwellings. This is because limited or null proficiency in the English language can narrow low-SES immigrants' access to information regarding mitigation measures. Limited English proficiency may also curtail the effectiveness of contact-and-tracing efforts if the teams in charge are unable to speak the language spoken in these communities.

Aggressive immigration enforcement measures, the fear of being stopped and asked for their immigration status or proper documentation, logistical difficulties to find and secure housing, and policies requiring housing-eligible documentation comprise distributional forces that place low-SES immigrants in highly segregated areas, making them live in highly co-ethnic enclaves (12). Social stigma aligned with targeted neighborhood policing makes immigrants distrustful of government officials, isolate them from searching healthcare services when needed and reluctant to manifest their health status if infected.

The detrimental biopsychosocial effects of residential segregation are well studied. Residential segregation is highly correlated with living in highly polluted areas, including deteriorated built environments with scarce access to public services. Aside from dealing with overcrowding conditions at home, segregated neighborhoods offer little infrastructure for walking and exercising. These communities are targeted by the tobacco and alcohol industries, and suffer from high crime rates. For example, according to the Public Policy Institute of California, California—home to about 27 percent of all unauthorized immigrants in the country—has overcrowding rates among Hispanic households (18.4 percent) that are considerably higher than those of white households (2.4 percent). The environmental circumstances of segregated neighborhoods make social distancing measures very challenging, if not impossible, for members of these poor and racially/ethnically-concentrated communities and, therefore, puts them at higher risk of getting infected, even when staying at home (26).

Among low-SES immigrants, limited English proficiency acts as an isolating factor, especially among those with neither health insurance nor access to healthcare services. In the U.S., about 7.7 million immigrants are uninsured before the pandemic—i.e., 27-percent share of all the uninsured population. From those 7.7 million, 2.6 million low-income immigrants were not eligible for public insurance under Medicaid—i.e., the U.S.’s public health insurance program—due to their immigration status (27). Further, considering that the U.S. healthcare system heavily relies on employer-sponsored health insurance, as unemployment increased sharply in April 2020 from 4.4 to 14.7 percent (Figure 1), it is expected that insurance coverage shrunk dramatically, especially among those with higher job instability like the poor, racial and ethnic minorities, and low-SES immigrants. Figure 1 also shows that the great majority of jobs lost due to the pandemic are temporary jobs, the types of jobs that most vulnerable populations

**Figure 1. Unemployment rate and reasons for unemployment in the U.S.**



Source: U.S. Bureau of Labor Statistics.

hold, including low-SES immigrants and racial and ethnic minorities.

As the pandemic intensifies, the stronger effects have been detected in economic activities that rely on larger shares of immigrant and racial/ethnic minority labor and that, during the reopening of the economy, have shown to be more unlikely to allow physical distancing. Such sectors include leisure and entertaining (e.g., casinos and amusement parks), travel arrangements and transportation, mining, employment services, restaurants and bars, personal services (e.g., dentists, daycare providers, barbers), other retail (e.g., department stores and car dealers), and manufacturing (e.g., aircraft and cars) (28, 29). The detrimental economic outcomes in these industries have translated either into a dramatic loss of income and increasing poverty or into a higher risk exposure to infection among vulnerable communities (28, 30).

Policymakers and these communities face a pounding dilemma: While re-opening these industries has positive effects in the economy, the observance of mitigation measures to control

the spread of COVID-19—e.g., wearing face masks, keeping physical distance, and applying occupancy limits—is difficult, yet crucial to sustain the economic recovery and prevent future shutdowns and other suppression measures. Limited physical distancing and crowded workplaces in these industries are a constant threat of infection in a context in which COVID-19 new infections continue escalating in most states nationwide.

Low English proficiency of immigrants is not only an obstacle to labor market participation but also a burden to navigate the U.S. healthcare system. For instance, lower shares of immigrants who are not proficient in English have access to the Internet compared to English-dominant communities and the U.S.-born (31). Lack of English proficiency thwarts immigrants' access to healthcare online resources such as telemedicine and other remaining channels, including telephonic visits that involve interpreters and translators. Under these circumstances, immigrants are having an increasing shortage of necessary one-on-one remote experiences and visual cues, which result in cumbersome and unsatisfactory healthcare experiences (32). Low proficiency in English can also be an obstacle for state authorities when implementing contact-and-tracing efforts to contain the outbreak in communities with dense low-SES immigrant presence (33). Low English proficiency also limits immigrants' access to new information or educational efforts released by governmental agencies, usually distributed via e-mail, text messaging, or mail—most of the time, at least initially, printed only in English.

### **The COVID-19 pandemic and the U.S. political context**

The United States is experiencing levels of political polarization greater than any since the American Civil War. Such extreme divergence has not only perpetuated rampant inequality but also weakened the U.S. welfare system, its institutions, and the sociopolitical mechanisms to protect vulnerable populations. During the pandemic, radical policy differences between

politicians of the two traditional political parties in the U.S.—i.e., the Republican and Democratic parties—and branches of government controlled by each party, have come to light. Republicans show a strong preference for a full and fast reopening of the economy while Democrats advocate for a more gradual agenda in closer coordination with public health authorities. As the current federal Senate and the presidency are controlled by Republicans and the federal House of Representatives by Democrats, the political struggle to control the policy agenda has translated into a lack of federal-level coordinated leadership in managing the pandemic response.

Historically, there has been federal-state collaborations in the distribution of funds and resources as well as on the execution and regulation of the largest healthcare programs and their intersections—e.g., Medicaid, the Affordable Care Act, the Children’s Health Insurance Program, and some provisions of Medicare. Although the U.S. Constitution confers to the states the primary responsibility of healthcare and public health of their constituents, including the imposition of quarantines and economic lockdowns (34, 35), the infectious nature of the novel SARS-CoV-2 required a centralized strategy to contain the infection. Such leadership would have helped prevent the scarcity of personal protective and medical equipment and increases in prices, promote a timelier response to test and trace cases nationwide, an effective approach to data collection and dissemination, and mitigation efforts more responsive to the inequalities socially ingrained in social class, race and ethnicity. The victims with the largest burden of such process have been minority communities across the social fabric and all sectors of the economy.

Immigrants have been particularly targeted by the current administration, such that the disadvantages carried by their immigration status are now interacting with the pandemic. Perhaps the most harmful initiative implemented against immigrants under the Trump Administration has

been the zero-tolerance immigrant family separation policy. Under this policy, thousands of immigrant children have been separated from their parents and held in detention centers since 2017, even if the separation policy was officially put to a halt in June 2018 (36). Aside from the irreparable psychosocial damage imposed to immigrant children and their families, these detention centers have become incubators for the virus as authorities have been unable to grant the necessary conditions for inmates to comply with the Centers for Disease Control and Prevention (CDC) COVID-19 Pandemic Response Requirements (37, 38). In spite of recent judge orders to release all detained children due to COVID-19 without enforcing family separations, 346 children still remain in detention centers (39).

Situations like the ones just described are happening within a broader political and legal environment. For instance, the U.S. federal government issued three acts of Congress as its main plan of action to counteract the health and economic effects of the pandemic. First, the Coronavirus Preparedness and Supplemental Appropriations Act was signed into law in March 8<sup>th</sup> and allocated US\$8,300 million to domestic and international response in research, disaster loans, and telehealth services (40). Second, the Families First Coronavirus Response Act (FFCRA) became law on March 18<sup>th</sup>, providing US\$11,700 million to fund public health programs, testing, and unemployment benefits (41). But the largest stimulus package was approved in the Coronavirus Aid, Relief, and Economic Security (CARES) Act, signed into law on March 27<sup>th</sup> to distribute US\$2,200,000 millions (~11 percent of the U.S.'s GDP) as an effort to provide economic relief from impact of the pandemic.

The CARES Act included provisions for public health programs, testing, and unemployment benefits. It also mandated some employers to provide paid sick leave, tax credits, and free COVID-19 testing to their employees, and expanded food assistance and unemployment

benefits, and increased Medicaid funding (42). Overall, of the total funds assigned to the CARES Act: (a) 40 percent was allocated to corporations and small businesses, (b) 25 percent to individuals in the form of direct cash and unemployment benefits, (c) 15 percent to state and local governments, (d) 7 percent to public health, and (e) 3 percent to the safety net, education, and others (43).

The CARES Act excluded unauthorized immigrants (44). Problems of racial and ethnic inequalities have emerged, especially regarding how these funds are allocated. For example, as the program relies on banking intermediation, businesses owned by Black and Hispanic individuals, historically rejected from receiving financial support from the financial system, have faced similar discrimination under the CARES Act (45). Indian tribes as well as their businesses and governments were allocated U\$8,000 million (46)—i.e., 0.4 percent of the total CARES Act funds in spite Native Americans represent 2.1 percent of the U.S. population. As of July 2020, the administration had allocated almost 80 percent of the CARES Act funds.

### **The politicization of the COVID-19 pandemic**

Researchers have pointed out the increasing politicization of health and healthcare systems and how such politicization has penetrated many aspects of U.S. institutions, including the scientific community (47-49). In the United States, the politicization of health—and now the politicization of the pandemic—has been fueled by political ideological polarization. Today, the Democratic and the Republican Party are at their maximum level of ideological polarization (50, 51). The Republican Party now holds the most extreme social conservatism since its foundation in 1855. This extreme polarization has generated gridlock in federal, state, and local governments, especially in the legislative branch. Bills are considered or not, pass or fail strictly along party lines. Thus, political polarization correlates with government *inaction*, and political

inaction maintains the status quo, including the increasing levels of socioeconomic inequality that distribute the detrimental effects of the pandemic—i.e., unemployment, poverty, and resulting morbidity and fatalities that derive from pre-existing chronic conditions—among socially-differentiated communities.

The COVID-19 pandemic has revealed not only the political polarization that exists among politicians but also how such political elite polarization shapes social behavior among partisan constituencies. For instance, Republican individuals have been shown to follow less social distancing measures and their behavior has become increasingly radicalized by protesting against social distancing measures like business closures, stay-at-home orders, and the use of masks in public spaces (52, 53). Republican individuals have also become increasingly distrustful of or misinformed about science in general (e.g., scientific consensus on human-induced global warming and climate change) and, accordingly, of pandemic management strategies promoted by the scientific community (54, 55). Not surprisingly, much of the Republicans' social behavior with regard to the pandemic has been supported by President Trump's administration (53), who initially undermined the veracity and danger of the pandemic.

The concatenation of political elites' polarization and partisan social behavior has enabled President Trump's administration to work to weaken and seek the repeal of the Affordable Care Act (ACA)—the single most important piece of health legislation in recent U.S. history that allowed more than 20 million people to get health insurance—in the midst of the pandemic (56). The ACA was enacted in 2014 during President Barack Obama's administration as a comprehensive health care reform. The ACA expanded Medicaid, allowing all adults with incomes under 138 percent of the federal poverty threshold to receive public health insurance irrespective of their health pre-existing conditions. The ACA also increased the affordability of

private health insurance by providing subsidies to citizens with incomes between 100-400 percent of the federal poverty threshold. The ACA also supports the development of strategies and mechanisms to decrease healthcare costs. More than 20 million people have gained access to health insurance through the ACA. By weakening the ACA, the Trump administration threatens to increase the level of vulnerability of already-vulnerable communities.

While the ACA is also identified by progressive politicians as one of the largest redistributive policies in recent U.S. history, conservative politicians see the ACA as a way of taxing productive areas of the economy to redistribute those resources to sectors of higher risk. In other words, for Republican politicians, the ACA represents an institutionalized way to legally tax the wealthy to subsidize the poor (57). In this line of reasoning, the Trump administration signed—in the midst of an upturn of the economy—the Tax Cuts and Jobs Act of 2017 (TCJA), reducing corporate taxes from 35 to 21 percent. Given the connections between income inequality and mortality in the population—with illness and mortality increasing as income inequality increases—researchers have estimated that the increase in income inequality derived from the TCJA alone could produce about 30,000 additional annual deaths in the U.S. (58).

The polarization of the political elites is not limited to the federal sphere, percolating its influence through the U.S. federal system to the 50 states. This division in party lines has left a visible footprint on the suppression and mitigation measures<sup>2</sup> states have adopted to respond to the pandemic and the heterogenous outcomes in the aftermath of opening the economy since May. President Trump commissioned a high-level COVID-19 Task Force to coordinate the response under the assumption that the risk of infection was still low (60). In daily appearances

<sup>2</sup> State suppression measures include ‘stay-at-home’ orders, curfews to the entire population, and bans of public gathering of more than 10 individuals. Mitigation measures include isolation, social-distancing, hygiene, the use of a face mask, and mobility and travel restrictions (59).

well through July, the President consistently undermined the mitigation message prioritizing a fast reopening of the economy, insisting that wearing a mask and practicing social distancing were optional measures, and advocating without evidence for the use of hydroxychloroquine—a malaria treatment the World Health Organization (WHO) and the Federal Drug Administration (FDA) discarded as a potential treatment for COVID-19 (61).

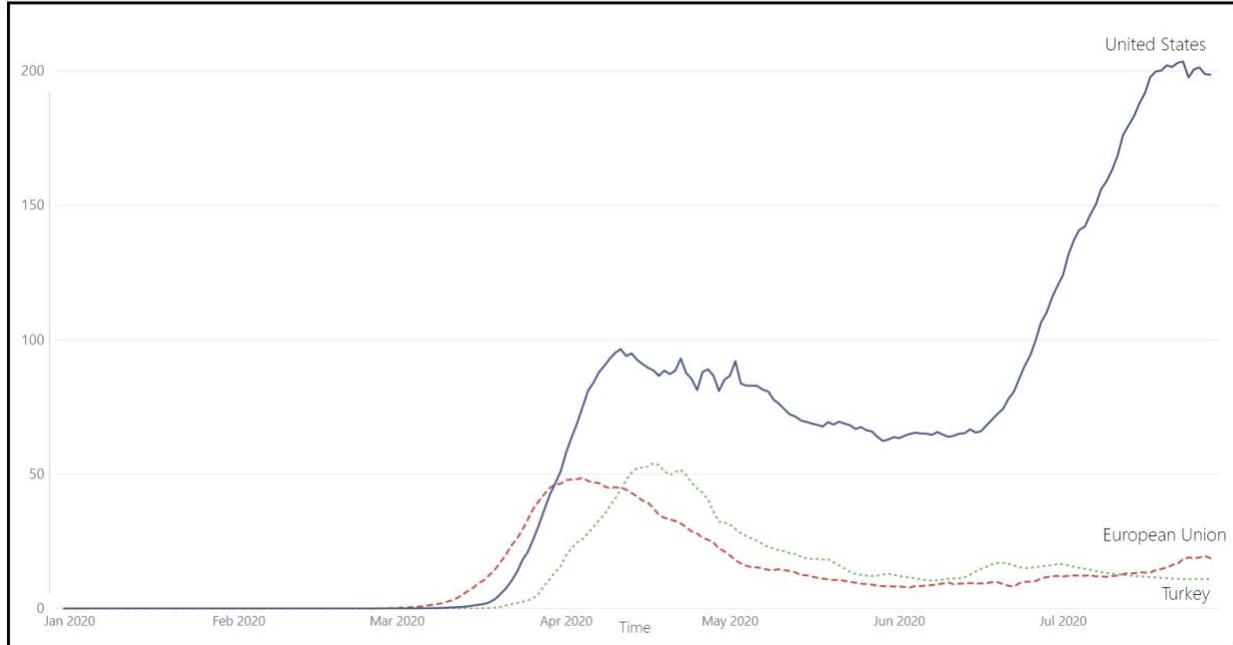
Taking a laissez-faire approach to the pandemic coordination strategy, the White House decided to test the states' ability to obtain necessary basic medical equipment and testing kits on their own, generating competition for supplies among them and even with the Federal Emergency Management Agency (FEMA). Prices of medical equipment climbed, and shortages prevented state hospitals from providing key assistance to patients (62). Criticisms from several governors—Democrats and Republicans—roused attacks from the President, further dividing the political spectrum over the pandemic response and how it affects various aspects of public economy dynamics.

This situation led governors to address the pandemic with their own institutional resources, generating a heterogeneous response that allowed some regions to control the spread of the virus more adequately than others. Most states led by Democrat governors mandated stay-at-home orders and the use of face masks in public earlier in March. Some Republican-led states never imposed shelter-in-place measures, and most of those that did waited until April to enact such orders (63). At this writing, less than half of Republican-led states require residents to wear masks in public (64). In contrast, more Democrat-led state governments have kept bars closed and have imposed capacity restrictions to restaurants and non-essential businesses than Republican-led ones (65). Since June, lifting the shelter-in-place orders and reopening businesses has increased the number of cases in almost all states. Some states in the Midwest region of the

U.S., and particularly in the South and Southwest regions, have been facing record high peaks in new cases. With a few exceptions, the states with the current largest amounts of cases per capita are led by Republican governors (65).

The polarized political climate reveals an exceptional character of the pandemic in the U.S. Figure 2 illustrates the international COVID-19 cases disadvantage of the U.S. that emerged from its lack of federal coordination. Although the European Union and countries like Turkey had similar increasing infection rates at the beginning of the pandemic, the U.S. peaked at about twice their rates. After the peak, the pace of decline was much slower for the U.S., then stagnating for more than a month when some states (but not others) started to reopen their economies. Approximately by June 1<sup>st</sup>, the effect of the full reopening of the economy started to manifest with a subsequent dramatic increase of the infection rate. In June 1<sup>st</sup>, the 7-day infection rate average of the U.S. was about 63 COVID-19 cases per one million residents; by July 14<sup>th</sup> it was about 183 cases per one million residents—i.e., it tripled in 45 days. The infection rates for Turkey and the European Union (EU) in June 1<sup>st</sup> were 12 and 10 cases per one million residents, respectively, and remained stable by July 14<sup>th</sup>. By July 14<sup>th</sup>, the United States passed from 5-to-6 times the infection rates of Turkey and the EU in June 1<sup>st</sup>, respectively, to an astonishing 15-to-19 times their infection rates (66). The United States, the wealthiest nation in the world with almost 25 percent of global wealth and about 4 percent of the world's population, is now responsible for about 25 percent of all global COVID-19 deaths and cases. Domestically, the health effects of the pandemic have entrenched themselves into pre-existing social inequalities that have more detrimental effects on racial, ethnic, and immigrant minorities.

**Figure 2. Seven-day average of daily new COVID-19 cases per million people in the U.S., the European Union, and Turkey**



Source: Our World in Data.

## Data and methods

To illustrate how demographic factors interact with aspects of social vulnerability, and more specifically how immigrant concentration and segregation interact to facilitate the transmission of SARS-CoV-2, we collected county-level COVID-19 cases data from the Johns Hopkins University Coronavirus Resource Center and USFacts—a reputable non-profit organization that collects U.S. government data. We also collected other sociodemographic and health data from the Robert Wood Johnson Foundation—the largest US philanthropic organization dedicated to the study of health—and other sources (Table 1). Our study period approximates the days when all U.S. states had reopened their economies—i.e., between June 1<sup>st</sup> and July 14<sup>th</sup>, 2020 (the latest available data at the moment of analysis). This period, covering the recent reopening of the economy, serves as a natural scenario in which new infections can more notably be detected across vulnerable communities. Our analysis includes those counties that had

**Table 1: Data sources and variable definitions**

<b>Variable</b>	<b>Description</b>	<b>Year</b>
COVID-19 Cases	These are confirmed cases by testing, including presumptive positive cases. Sources: John Hopkins University Coronavirus Resource Center and USAFacts.	2020 (June 1st and July 14th)
COVID-19 Infection Rate	The fraction of the county population that has acquired COVID-19 (county number of COVID-19 cases divided by the county population). Source for population: Census Population Estimates.	2020 (June 1st and July 14th)
Residential segregation (Black/white)	A segregation index ranging from 0 (complete integration) to 100 (complete segregation). The index represents the percentage of either Black or white residents that would have to move to different geographic areas in order to produce a distribution that matches that of the larger area. Source: Robert Wood Johnson Foundation; American Community Survey, 5-year estimates.	2014 - 2018
Residential segregation (non-white/white)	A segregation index ranging from 0 (complete integration) to 100 (complete segregation). The index represents the percentage of either non-white or white residents that would have to move to different geographic areas in order to produce a distribution that matches that of the larger area. Source: Robert Wood Johnson Foundation; American Community Survey, 5-year estimates.	2014 – 2018
Rural	Fraction of the county population that lives in rural areas. Source: Census Population Estimates.	2010
Children in Poverty	Fraction of the population under age 18 living in poverty. Source: Robert Wood Johnson Foundation.	2018
High School graduation	Fraction of the ninth-grade cohort that graduates from high school in four years. Source: Robert Wood Johnson Foundation.	2016-2017
Below 18 years of age	Fraction of the population below 18 years of age. Source: Census Population Estimates.	2018
Not proficient in English	Fraction of the population not proficient in English. Source: Source: Robert Wood Johnson Foundation; American Community Survey, 5-year estimates.	2014-2018
Poor or Fair Health	Fraction of adults in a county who consider themselves to be in poor or fair health. Source: Robert Wood Johnson Foundation.	2017

reported at least one death by June 1<sup>st</sup>, 2020. After data processing, our analytic sample includes 1,972 counties (out of 3,142, or 63 percent of the total number of counties in the U.S.), accounting for a population of 307 million people (out of 333 million, or 92 percent of the total U.S. population).

Although we implement a linear regression approach, our empirical analysis is descriptive in nature. We aim to illustrate how higher concentration of immigrants across counties interact with non-white/white residential segregation, thus capturing quintessential

sociodemographic conditions that facilitate the transmission of the virus. Accordingly, we hypothesize that U.S. counties—i.e., state political and administrative subdivisions with local government authority in charge of distributing public goods and services—with higher concentrations of immigrants and higher segregation will show a higher increasing number of COVID-19 cases per 10,000 residents after June 1<sup>st</sup>.

Our dependent variable is the natural logarithm of the difference between the number of county-level COVID-19 cases per 10,000 residents in June 1<sup>st</sup> and in July 14<sup>th</sup>. The two independent variables of interest are the concentration of immigrant population (measured as the percent of the population that is not proficient in English) and residential non-white/white segregation (a customary variable used to represent structural, institutional, and individual racism and xenophobia). For simplicity of interpretation, we structured immigrant concentration into quartiles. For instance, counties at the bottom or 1<sup>st</sup> quartile are those located at the 25<sup>th</sup> or lower percentile of the non-speaking English population distribution; those at the top or 4<sup>th</sup> quartile are those located at the 75<sup>th</sup> percentile or above. Likewise, we coded our segregation variable into “low” (under the median of the non-white/white segregation distribution) and “high” (above the median). Our results are consistent across different coding alternatives of our variables. To avoid biased estimates, we also controlled for some key confounders.

To ensure that our non-white/white segregation estimates are more closely related to vulnerable communities like immigrants and not due to historical segregation against Black people, we controlled for Black/white residential segregation. To ensure that our estimates are not driven by socioeconomic differences across counties, we controlled for education (high school graduation rate) and poverty (fraction of children living in poverty). Given large differences between urban and rural areas in the U.S., we controlled for the fraction of the county

population that lives in rural areas. We also considered the manifested differences in transmission and detection of COVID-19 by age—accounting for the different age patterns among immigrants vs. non-immigrants and segregated vs. non-segregated communities, as well—for which we controlled for the fraction of the county population under the age of 18 years. To diminish biases possibly arising from underlying differences in the health of the population (i.e., the possibility that counties with residents manifesting poorer health are more susceptible of acquiring and manifesting severe COVID-19), we controlled for the fraction of the county population reporting poor or fair health status. Finally, given that infection rates and how they interact with sociodemographic factors may vary depending on the starting level of infections, we also controlled for the number of COVID-19 cases detected by June 1<sup>st</sup>. Table 2 reports descriptive statistics of our variables.

**Table 2. Summary statistics of analytic sample (n=1972)**

	Mean	Std. Dev	min	max
Cases in June 1	780	3,264	1	78,495
Cases in July 14	1,252	4,664	2	107,667
Infect. Rate (per 10,000), June	40	68	.08	1219
Infect. Rate (per 10,000), July	66	83	1.44	1308
Infection Rate Difference	26	33	0	452
Immigrants*	2.0	2.8	0	27
Non-white/white Segregation**	32	12	.04	89.7
Black/white Segregation**	46	17	.26	90.4
Rural	.47	.28	0	1
Child Poverty	.23	.09	.03	.66
High School Graduation Rate	86	.08	.30	1
Pop. Under 18 years	.22	.03	.07	.36
Pop. Poor/fair Health Status	.18	.04	.08	.36

\* Measured as the fraction of county population that does not speak English.

\*\* The segregation index ranges from 0 (complete integration) to 100 (complete segregation).

Our linear regression model is of the following form:

$$\ln(D_c) = \alpha + \sum_{q=1}^4 \beta_q I_{qc} + \vartheta S_c + \sum_{q=1}^4 \gamma_q (I_q * S)_c + \sum_n \delta_n X_c + \varepsilon_c$$

where  $\ln(D_c)$  is the natural logarithm of the infection rate difference between June 1<sup>st</sup> and July 14<sup>th</sup> in county  $c$ . The term  $\sum_{q=1}^4 \beta_q I_{qc}$  represents the four immigrant concentration quartiles  $I_{qc}$  in county  $c$  and their respective coefficients  $\beta_q$ .  $S_c$  stands for non-white/white residential segregation in county  $c$ . The expression  $\sum_{q=1}^4 \gamma_q (I_q * S)_c$  represents the four interaction terms (one per quartile  $q$ ) by segregation level with their respective coefficients  $\gamma_q$ . The term  $\sum_n \delta_n X_c$  represents a vector of  $n$  controls  $X_c$  (described above) with their respective coefficients  $\delta_n$ .  $\varepsilon_c$  is the error term of the regression. The standard errors of the coefficients are estimated using robust statistics, which accounts for heteroskedasticity. Table 3 summarizes our main coefficient estimates. We present a visual representation of our results in Figure 3.

**Table 3. Main linear regression parameter estimates**

Variables	Coeff. (SE)
Immigration Concentration (Q2)	.047 (.096)
Immigration Concentration (Q3)	.196* (.110)
Immigration Concentration (Q3)	.457*** (.097)
Segregation	-.060 (.110)
Q2 X Segregation	.191 (.133)
Q3 X Segregation	.506*** (.142)
Q4 Segregation	.483*** (.129)
Observations	1,972
R-squared	.302

Note: Robust standard errors in parentheses. For simplicity, control variable coefficients are excluded. Q1 of immigrant concentration is the category of reference. Statistical significance code: \*\*\*  $p < .01$ , \*\*  $p < .05$ , \*  $p < .1$ .

## Results

There was a total of 951,479 new COVID-19 cases in the U.S. during our study period. Of these cases, our analyses included 930,607 cases (98 percent). In our analytic sample, the

observed average county increased from 780 in June 1<sup>st</sup> to 1,252 cases in July 14<sup>th</sup>. The observed county average infection rate in June 1<sup>st</sup> was 40 cases per 10,000 residents, which increased to 66 cases per 10,000 residents—i.e., a 65 percent increase in just 45 days.

Looking at the net county average increase in COVID-19 cases during our study period by immigrant concentration quartiles, quartile 1 (Q1) went from 89 cases in June 1<sup>st</sup> to 140 cases in July 14<sup>th</sup>, Q2 from 177 to 291, Q3 from 387 to 664, and Q4 from 2,051 to 3,245, respectively. These striking increases in COVID-19 cases are translated into increases in the infection rates of 21 (Q1), 19 (Q2), 25 (Q3), and 37 (Q4) additional cases per 10,000 residents, respectively. These results highlight how concentrated vulnerability of immigrant communities is translated into high-level transmission of COVID-19.

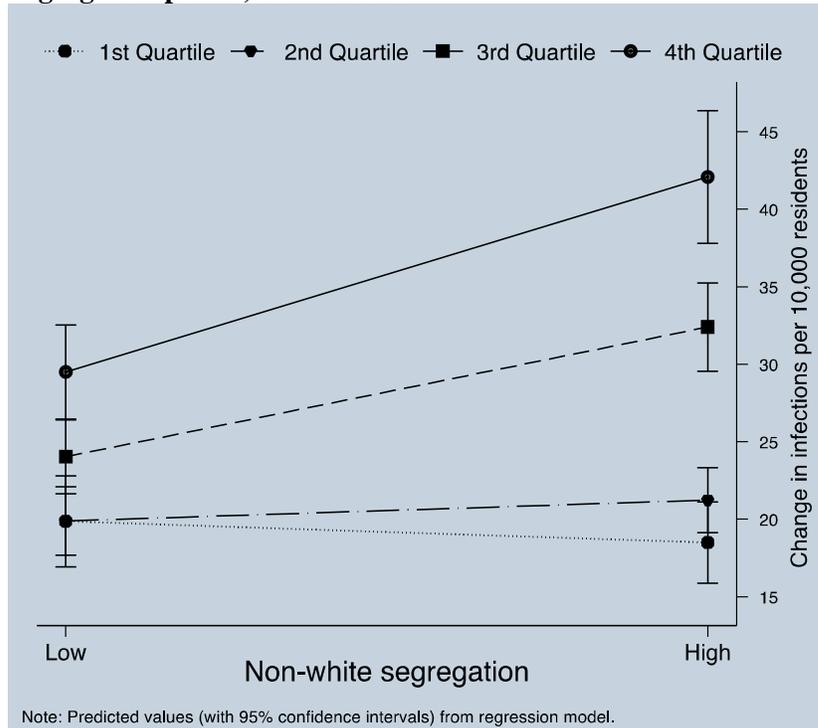
A similar pattern emerges when comparing counties according to non-white/white segregation levels. Low-segregation counties increased COVID-19 cases from an average of 253 cases in June 1<sup>st</sup> to 520 cases in July 14<sup>th</sup>, whereas high-segregation counties increased from an average of 1,219 to 1,862 cases. Their corresponding average infection rates increased from 36 to 63 cases per 10,000 residents in low-segregated counties, and from 43 to 69 in high-segregation ones. To disentangle possible health and sociodemographic differences between counties, Figure 3 summarizes the predicted values from our regression model. The Y-axis is the predicted change in infection rates per 10,000 residents (between June 1<sup>st</sup> and July 14<sup>th</sup>) whereas the X-axis represents the two levels of segregation, low and high. Each point estimate represents each of the eight possible scenarios between low-and high-segregation and the four quartiles of immigrant concentration. Results show that, after controlling for health and sociodemographic factors, there are very little differences in the infection rates change between low- and high-segregation counties with low immigrant concentration (1<sup>st</sup> and 2<sup>nd</sup> quartiles).

A different pattern emerges among counties at the top 3<sup>rd</sup> and 4<sup>th</sup> quartiles of immigrant concentration. Among counties where levels of segregation are low, there are small differences in the infection rate changes across counties even if their immigrant concentration varies. Conversely, there are notable increases in the infection rates of counties with high immigrant concentration and high segregation. Increases in the infection rate for 3<sup>rd</sup> quartile counties are about 1.5 times the increases of those at the bottom quartiles; increases for counties with the highest immigrant concentration (Q4) are twice as high as those at the bottom quartiles. Our estimates displayed in Figure 3 show that going from low- to high-segregation counties, the changes in infection rates for Q1 and Q2, respectively, were small, from a rate of 20 to 19 and from 21 to 24 additional cases per 10,000 residents. In contrast, infection rates changed from 24 to 38 and from 31 to 48 additional cases per 10,000 residents for Q3 and Q4, respectively. Changes in the infection rates are not statistically differentiable for low-segregation counties across levels of immigrant concentration. Conversely, differences between Q1 and Q2 vs. Q3 and Q4 are large and statistically differentiable among high-segregation counties ( $p < .05$ ).

### **Policy Implications and Conclusions**

Our findings highlight the need for policies and interventions targeting the conditions that increase the vulnerability of disadvantaged communities during the COVID-19 pandemic, especially immigrants and segregated populations. Social factors like residential segregation that have historically put immigrants and other communities at high risk of morbidity, disability, and death, also show to be powerful determinants of COVID-19 transmission. Pre-existing social inequalities are being translated into health inequalities that, in turn, bring harmful effects to the overall population and aggravate the intensity of the pandemic. Given that our

**Figure 3. Change in infections by immigrant concentration and segregation per 10,000 residents**



Detected increases in infection rates happened during the period in which states reopened the economy, our findings also bring to light that economic policy is health policy, and vice versa.

The Trump administration has exacerbated conditions that put vulnerable communities at higher infection risk. These actions include fueling social unrest, weakening public health institutions, unequally distributing the resources of the CARES Act in favor of large corporations, and slandering the evidence-based strategies needed to contain the spread of COVID-19. The administration has undermined the seriousness of the pandemic from the start, calling it a “hoax” of the opposition party, and undermined institutions—like the Centers for Disease Control and Prevention (CDC)—responsible for protecting the population (67). Against the recommendations of scientists and public health experts from the White House Task Force, President Trump openly either opposed or showed ambiguity about wearing a face mask or

maintaining prudent physical distance. President Trump also sent unidentifiable federal agents to agitate social justice protests in Portland, Oregon, and is interested in expanding operations in other major U.S. cities. His administration has used all of these as raw materials for political campaigning in election year. Both constituencies—Democratic and Republican—are now being mobilized by instrument of political polarization. Under such circumstances, SARS-CoV-2 is not the only underlying cause of the pandemic crisis in the U.S.: Politics is, as well.

This politics-driven chaotic situation arose precisely when politics could have been an effective catalyst to ameliorate the detrimental effects of the pandemic. The government could have consistently promoted mitigation measures and listened to what protestors had to say about reducing police brutality against Black people, Hispanics, and Native Americans. The government could have also waited until COVID-19 infections and deaths decreased to manageable levels to then put in place a testing-and-tracing strategy (just as many European and Asian nations have successfully done) instead of precipitating states into opening their economies too soon.

Many other policies and government interventions can still be implemented to ameliorate the racial/ethnic manifested disparities during the pandemic and improve social justice. For instance, it has been reported that between 15 and 20 percent of people with COVID-19 get hospitalized; however, since the U.S. does not have a universal healthcare system, the median cost of a person with a symptomatic infection requiring hospitalization is about US\$18,600 (68). These costs are making infected people avoid healthcare services during the pandemic, especially racial/ethnic minorities and immigrants, since they tend to have much higher uninsured rates. To prevent this from happening, the U.S. government should put in place a

temporary pandemic-specific universal healthcare coverage system such that, whatever the healthcare costs of a COVID-19 infection, they are covered via Medicaid.

Smart testing can also be implemented. Given shortage of testing kits in the U.S., testing should prioritize vulnerable communities—i.e., the communities showing higher infection and mortality risks. The government can also implement universal norms for and access to personal protective equipment (PPE) for all healthcare personnel (e.g., for every single individual working in a hospital). This policy could be extended to industry sectors where a higher fraction of racial and ethnic minorities and immigrants perform low-wage work, which includes work labeled by the government as “essential jobs”. This policy can be further expanded to increase access to work benefits and protections, where a higher fraction of racial/ethnic minorities and immigrants do not have decent living wages, vacations and sick leave, health insurance, and ample workspaces to decrease contagion. This should also include the possibility of expanding remote work as much as possible and increasing Internet accessibility for workers at all levels of the labor hierarchy. A natural extension of these measures to ameliorate contagion based on social vulnerability is developing a universal daycare system. Universal daycare would allow poor and minority parents (especially mothers and mothers who live in the household without a spousal partner) to continue working during the pandemic.

Several avenues of local policy to dismantle the mechanisms that contribute to and perpetuate racial and ethnic segregation should include strategies to engage community members and involve them in the design, implementation, assessment and guardianship of these initiatives. For instance, cities can increase access to and distribution of healthy foods as well as control healthy food prices in highly segregated areas and poor neighborhoods. Local authorities should enhance living spaces through the improvement of safety, the construction of spaces for walking,

exercising, and gathering with adequate physical distancing (e.g., through the development of parks, or making public school infrastructure accessible to the surrounding communities). States and localities should also expand and provide living spaces for the homeless, including the development of channels for food supply and other basic living needs like clothing and healthcare services.

At the federal level, at least two aspects call for immediate attention to help ameliorate the conditions of segregation that increase the risk of infection among racial, ethnic and immigrant minorities. The Department of Health and Human Services (HHS) should guarantee access to the CDC, hospitals, state authorities, and researchers to the COVID-19 data that, since July 10<sup>th</sup>, started being collected by a private firm under federal contract (67). These changes to data reporting were implemented in the midst of a sharp public health crisis, generating confusion among public health actors and limiting the ability of state and local authorities to respond. Transparent data collection efforts should continue engaging public health authorities to report race and ethnicity for all cases, deaths, and hospitalizations to gain further understanding of the pandemic and inform the design of reliable policies to counteract racial and ethnic segregation along with its harmful consequences. In addition, federal Homeland Security must stop the separation of immigrant families and the confinement of children in detention centers.

The current detrimental effects of the COVID-19 pandemic in the U.S. could have been prevented. The COVID-19 pandemic is not only bringing to light enormous social and racial/ethnic inequalities. It has also brought to light the deleterious health effects of bad politics and revealed a serious lack of leverage that the scientific community and institutions have at the political level, in particular over the political institutions and actors in the current administration that make the ultimate policy decisions that shape the social determinants of health (3, 4, 69). As

the world moves forward one way or another, and as societies eventually learn how to coexist with the virus, the underlying social, economic, racial and ethnic, and gender inequalities that the pandemic and the responses to it have revealed, will continue if no purposeful and firm policies are implemented to address them.

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