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Abstract

The extent to which governments' policies for the containment of Covid-19 relied on voluntary compliance or on enforced social and economic restrictions, differs substantially across countries. Why so? The answer to this question is important because economic and psychological costs of an epidemic surge with the severity of restrictions. As the risk of infections increased in recent decades, it is critical to understand what enables a society to contain epidemics with mild restrictions of citizens' freedoms. Our answer is that trust in others and in public institutions allows for less stringent containment policies. We collected data on policy stringency, speed of decline of new contagions and mortality during the first wave of Covid-19 in Europe. After accounting for various confounding factors, we find that governments of more trustful countries introduced less stringent policies, burdening the society with lower economic and psychological costs. This did not come at the expense of public health: holding policy stringency constant, high trust countries report lower mortality, as well as lower number and faster decline of new contagions than others. We conclude that the trade-off between freedom and health during epidemics depends on a country's trust level: the more people trust others and institutions, the more this trade-off fades. Therefore, promoting trust in others and in institutions is a critical challenge for contemporary societies.

Keywords: Covid-19 Social capital Interpersonal trust Institutional trust Policy stringency Containment Freedom Collective action Social distancing Europe

JEL codes: H12 I18 Z13

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1. Introduction

There are two main policy options for the containment of an epidemic. The first is centralized control and enforcement, the second relies on citizens' voluntary cooperation (Harari, 2020). During the first wave of Covid-19, governments' decisions differed considerably in the extent to which they leaned towards one of the two options. Little research effort has been devoted to investigate what drives these international differences, whose importance goes beyond Covid-19. As the risk of infections increased in the XX century (Smith et al., 2014), it is critical to understand what enables a society to contain epidemics with limited sacrifices of people's freedoms. By analyzing 27 European Union member states, we show that trust in others and in major public institutions allows governments to safeguard people' s freedom and health. This relationship has not been tested before.

The paradigm of centralized control is China. The Chinese government reacted to the Covid-19 epidemic by invading the privacy of its citizens, monitoring their smartphones, using hundreds of millions of cameras for facial recognition and body temperature measurement, forcing people to monitor and report their medical conditions, employing drones to enforce shelter-in-place orders. In this way, Chinese authorities quickly managed to control the epidemic by identifying infected individuals, tracking their movements and contacts, and enforcing rules.

The alternative model, adopted in other East Asian countries such as South Korea, Taiwan, and Japan, relies on people's responsibility and civic behavior. In these countries, swab positives complied with shelter-in-place measures and people cooperated in mass testing, tracing and social distancing, for the most part voluntarily. In just one day, on April 9, 2020, nearly half a million South Koreans were tested for coronavirus, a level of participation that would be impossible to impose on a recalcitrant citizenry.[4] These countries avoided extreme personal mobility restrictions and closure of airports. This strategy has also been a success, with low mortality and economic costs. European countries too implemented a wide range of containment strategies. For instance, during the first wave of the epidemics many Southern European countries introduced stringent lock-down compared to Northern Europe, which, on the contrary, adopted milder policies.

[4]KCDC, Updates on COVID-19 in Republic of Korea 5 April 2020.

No country exclusively relied on enforcement or voluntary cooperation. Actually, governments adopted a mix of the two extremes. However, what matters is on which side of the two extremes this mix hangs, because this heavily affects the psychological and economic costs of an epidemic. Such costs increase with the severity and duration of the containment policy. The estimated global economic cost of the pandemic is astonishing: between $8 and $16tn (Dobson et al., 2020). As for mental health, it is well documented that post-traumatic stress, depression, anxiety, insomnia, confusion, anger and stress soared during lockdown and quarantine (Rajkumar, 2020; Dong & Bouey, 2020; Rossi et al., 2020; Kim & Jung, 2020; Fiorillo et al., 2020). From this point of view, centralized control exerts a heavier toll on society because it relies on long and severe restrictions of economic and social activity.

What is it that makes governments lean towards centralized surveillance or citizen involvement? Frey et al. (2020) document that autocracies imposed more stringent measures than democracies. The influence of the nature of the political system is apparent in East-Asia, where democracies had a different approach from autocratic China. But what about Europe, where governments are all democratically elected? What is the root of the differences that we observe in European containment policies?

We provide evidence that European governments of countries with higher pre-existing trust in others and in public institutions adopted less stringent policies than others. The likely reason is that trust between people and in institutions is critical for solving large-scale collective problems such as epidemics, without resorting to severe limitations of citizens' mobility. In high-trust contexts, the countermeasures can count on small daily behaviors whose effectiveness relies on widespread compliance based on cooperation. A large literature shows that in a society, the level of interpersonal trust is a fundamental indicator of the ability of its members to cooperate (Putnam, 2000; Fukuyama, 1995). Adherence to containment behaviors yields a classical social dilemma (Ostrom, 1991): it is costly for the individual, while the single individuals' contribution to the collective goal is negligible. Trust overcomes exactly such problem by increasing the willingness to cooperate. Experimental evidence suggests that the belief that most others will cooperate encourages conditional cooperators to do the same Fischbacher et al. (2001); Shinada & Yamagishi (2007). Governments of countries with low levels of trust in others may have little confidence in the cooperative capacity of their citizens, which would lead them to prefer enforcement to voluntary compliance. As for trust in institutions, it is an important determi-

nant of citizens' compliance with public health policies (Chuang et al., 2015; Rönnerstrand, 2014). In countries where trust in institutions is low, governments could expect low citizens' compliance. This would favor centralized control.

Europe is an ideal case for testing our hypothesis. Political, economic, and socio-cultural differences can affect governments' choice in ways it is difficult to control for. Testing the relationship between trust and policy stringency requires a set of reasonably homogeneous countries, with substantial differences in their levels of trust. Europe offers exactly these features.

Our findings that countries where trust is high adopted less stringent policies is robust to various specifications of our measure of trust. Moreover, it is independent from the average income and income inequality of a country, the preparedness of its healthcare system to face the emergency, the severity of the epidemic outbreak, as well as the frequency of social contacts, and the health conditions of its population. Laxer restrictions of citizens' freedoms in high trust countries did not come at the expense of public health. These countries experienced faster decline of new contagions, and a lower number of new positive cases around the peak. We also did not find a statistically significant association with mortality at the peak. Summarizing, our results suggest that countries with pre-existing high levels of trust introduced less stringent policies, while protecting the health of their citizens.

The paper is organized as follows. Section 2 clarifies the contribution of our paper to the literature. Section 3 and 4 present, respectively, the data and the method used to address our research question. Section 5 illustrates our results, and section 6 discusses and summarizes our findings.

2. Background

More than thirty years after Margaret Thatcher' s "there is no such thing as society", another conservative British PM, Boris Johnson, epitomized the profound reassessment of the importance of collective action triggered by Covid-19: "One thing I think the coronavirus crisis has already proved is that there really is such a thing as society". Other European PMs agree. Angela Merkel emphasized that "taking action collectively as a society is key", while Emmanuel Macron claimed: "I am appealing to your sense of responsibility and solidarity." Giuseppe Conte stated: "The responsible behavior of each one of us will be fundamentally important". The Covid-19

narrative acknowledges the role of social capital for successful containment of the pandemic (Bowles & Carlin, 2020), a role which is supported by growing evidence.

Governments' awareness of the importance of social capital for policy outcomes may affect their choice. In high social capital countries, governments may expect widespread voluntary compliance, thus opting for non-stringent measures. However, this relationship has not been explored so far. Frey et al. (2020) focus on some political factors underlying the ability of a society to contain epidemics with mild restrictions on freedoms. They analyze 111 countries and find that autocratic regimes imposed more stringent lockdowns relative to democratically accountable governments. Moreover, democracies were approximately 20% more effective in reducing geographic mobility, holding constant the policy stringency.

Data on mobility has received considerable attention in the literature on Covid-19, as changes in mobility at the onset of the epidemic are considered a good proxy of compliance to social distancing. Most research emphasizes the role played by pre-existing levels of social capital in reducing mobility right after the Covid-19 outbreak. High political trust has been found to be associated with large reduction in non-essential mobility across European regions (Bargain & Aminjonov, 2020). Another study shows that during the early phase of Covid-19, voluntary social distancing was high for individuals with high sense of civic duty. This holds across U.S. counties and individuals, and European regions (Barrios et al., 2020). Borgonovi & Andrieu (2020) show that mobility reduced faster and more dramatically in US counties with a high index of participation to religious, volunteering and community activities. Mobility dropped more sharply in Italian provinces with high social capital, as measured by an index including blood donations, trust in others, and newspaper readership (Durante et al., 2020). Similarly, Bartscher et al. (2020) find that high electoral turnout predicts faster decline in mobility across Italian areas. Interestingly, Schmeltz (2020) documents that a substantial share of the German population would cooperate more to containment behaviors under voluntary than under enforced implementation. This result suggests that appeals to voluntary participation may encounter less opposition than coercive interventions. Some evidence concerns also the influence of partisan differences on mobility. Pro-Trump counties in the 2016 U.S. presidential election exhibited 14% less physical distancing between March and May 2020 than pro-Clinton counties, resulting in higher COVID-19 infection and fatality growth rates (Gollwitzer et al., 2020).

As for the other two outcome variables considered in this study, the dynamics of contagions and mortality, few papers analyze their relationship with social capital and, specifically, with trust. Bartscher et al. (2020) document lower excess mortality in Italian areas with higher electoral turnout and a slower increase in Covid-19 cases in the areas of seven European countries where electoral turnout was high. Additionally, in U.S. counties and states, an increase in an index of social capital correlates with lower Covid-19 infection rate and mobility (Varshney & Socher, 2020).

The evidence from the Covid-19 crisis is consistent with previous findings on the role of social capital in preventing and controlling epidemics such as SARS, Ebola, and Zika outbreaks, as well as the various strains of HN influenzas. Social capital was associated with the intention to receive vaccination, to wash hands more frequently, and to wear a face mask during an influenza pandemic in Taiwan (Chuang et al., 2015). Similarly, in Sweden and the U.S., social capital correlates with the intention to receive the vaccination against the H1N1 pandemic in 2009 (Rönnerstrand, 2014). Low social capital, on the other hand, can explain low compliance with control interventions during the Ebola Outbreak (Blair et al., 2017; Vinck et al., 2019).

However, not all components of social capital may provide a positive contribution to contain infection outbreaks. The epidemiological literature suggests that the frequency of face-to-face contacts can enhance the spread of infections (Béraud et al., 2015; Fumanelli et al., 2012; Leung et al., 2017; Mossong et al., 2008; Zhang et al., 2019). High levels of intergenerational interaction provided by extended families have been indicated as a possible cause for the severity of the pandemic in East Asia. Normally protective factors for older people' s health, such as family ties, turned into a risk factor in the context of an epidemic with a marked age-related fatality profile (Chen et al., 2020; Jordan et al., 2020; Li et al., 2020; Zhou et al., 2020). Analyzing 63 countries, Di Gialleonardo et al. (2020) find that the number of infections and deaths was higher in countries where family ties are more important. However, this effect may be limited in time. The number of COVID-19 cases was initially higher in high social-capital areas, but it decreased more quickly. This result holds for 7 European countries (Bartscher et al., 2020) and Japan (Fraser & Aldrich, 2020).

3. Data

Outcome variables Our main dependent variable (*Government response stringency*) is the government's policy stringency measured at the time of the peak in new contagions[5]. We use the Government Response Stringency Index available at Our World in Data[6]. Time-series on response stringency are available for many countries since the beginning of 2020. Stringency is measured on a 0 to 100 scale, where 100 represents the strictest measures. The Oxford COVID-19 Government Response Tracker[7] collects indicators about policies concerning school closures, workplace closures, public events, restrictions on gatherings, public transport, public information campaigns, stay at home measures, internal movements restrictions, international travel controls, testing policy and contact tracing. The stringency index is a composite measure which adds the nine ordinally scaled indicators, and it is rescaled to vary from 0 to 100.

Less stringent policies introduced by countries with high levels of trust may come at the cost of reduced effectiveness in the epidemic control. To account for this possibility, we use three alternative dependent variables: *new deaths at the time of the peak (per one million)*, *new positive cases at the time of the peak (per one million)*, and the *rate of decrease of new contagions*. The source for Covid-19 data is the Coronavirus Resource Center of the John Hopkins University[8]. The rate of decrease of new contagions is computed and made available by the Hume Foundation[9].

Trust Social capital can be regarded as the set of social norms, values, and understandings that allow a society to cooperate to achieve common goals (Putnam, 2000). Two key components of social capital are trust in others and in institutions, sometimes indicated as horizontal and vertical social capital, respectively (Scrivens & Smith, 2013). Many internationally comparable surveys include questions about respondents' trust in others and in institutions. This is why our main independent variable is *Index of confidence*, an

[5]When we refer to a variable measured at the time of the peak, we mean the average value of the variable measured over a period of seven days centered on the peak.

[6]`https://ourworldindata.org/grapher/covid-stringency-index?tab=table`.

[7]Please, refer to Hale et al. (2020) for more details.

[8]`https://coronavirus.jhu.edu/map.html`.

[9]`https://www.fondazionehume.it/societa/litalia-e-gli-altri-bollettino-hume-sul-covid-19-4`.

index of confidence in others and institutions. Six measures of confidence in institutions and trust in others inform the index. Figures are extracted from the last wave of the European Quality of Life Survey (EQLS)[10].

The wording of the question on interpersonal trust is "would you say most people can be trusted or that you can't be too careful in dealing with people?". Answers range on a scale from one ("you can't be too careful") to ten ("most people can be trusted"). The wording of the questions about confidence in institutions is "Please tell me how much you personally trust each of the following institutions. Please tell me on a scale of one to ten, where one means that you do not trust at all, and ten means that you trust completely". The list of institutions includes: government, parliament, local authorities, police, the press and judicial system.

The index of confidence in others and institutions is computed after applying a Principal Component Analysis (PCA) to the trust and confidence variables included in the last wave of the European Quality of Life Survey (for more details about the PCA, see Appendix C). These variables are originally encoded on a scale from one to ten at individual level. We dichotomized each variable by assigning value one to respondents who chose a score of seven or higher, and zero otherwise. Assigning a threshold of seven allows us to compute the share of people reporting high trust in others and in confidence in institutions. Subsequently, we computed the national shares using sampling weights.

To check the sensitivity of our results to our choice of the variables included in the index, we allow for the following alternative specifications of the index of confidence:

- $confidence_1$: the PCA is applied only to trust in others, in the goverment and in parliament;
- $confidence_2$: the PCA is applied only to trust in the goverment and in parliament;

[10]EQLS surveys are conducted in pan-European countries every four years by randomly selecting a sample of adult population per country and are administered face-to-face. Data have been collected since 2003 in four waves (2003, 2007, 2012, 2016), however for the purposes of this paper, we utilize information from the most recent wave. Information about the EQLS and the data are available at `https://www.eurofound.europa.eu/surveys/european-quality-of-life-surveys/european-quality-of-life-survey-2016`.

- *trustinothers*: we use only the share of people trusting others.

Controls To account for factors that can confound the relationship between the index of confidence and our dependent variables, we include the following set of control variables: the *logarithm of GDP per capita (constant 2010 US$)* and the *Gini index*. GDP proxies for the amount of economic and healthcare resources that a country can mobilize. Greater resources allow countries to do better testing, contact tracing and rules enforcement, thus affecting the outcome of containment policies. The Gini index of income accounts for the fact that high income inequality seems to create population groups that are particularly vulnerable to Covid-19. An example is the disproportionate risk of mortality among low-income groups and ethnic minorities in the U.S. and U.K., two highly unequal countries (Aldridge et al., 2020; Kirby, 2020; Finch & Hernández Finch, 2020). These data are extracted from the World Development Indicators (WDI)[11]. Most governments motivated restrictions with the need to avoid the collapse of the healthcare system, in particular of intensive care units. To account for this, we control for the *number of beds in intensive care units (per 100.000 people)* (Rhodes et al., 2012). We also control for the *average number of deaths during the week preceding the lockdown (per one million)* to account for the different degree of emergency that countries faced. The stringency of governmental restrictions may increase with the size of the most vulnerable population groups, as the profile of Covid-19 mortality is disproportionately related to age and chronic diseases. Moreover, elderly people with chronic diseases have higher risk of contagion because they often live grouped in nursing homes, which proved to be fertile terrain for the spread of Covid-19. Therefore, we included a control for the expected number of life years affected by a chronic disease. This variable is computed by subtracting the average number of healthy life years[12] from the average life expectancy by country (sourced from World Development Indicators).

We include a control for the share of people who meet others less often than once a month (*share of people that rarely meet others*). As the

[11] `https://databank.worldbank.org/source/world-development-indicators`.

[12] Data are sourced from Eurostat. The exact measure is healthy life years in absolute value at birth, for individuals who do not have disabilities, and data for each included country is available at `https://ec.europa.eu/eurostat/statistics-explained/index.php/Healthy_life_years_statistics`.

frequency of face-to-face contacts is supposed to enhance the spread of infections, Covid-19 may affect more the countries where people meet others more frequently than elsewhere. This control variable is computed by country using data from the last wave of the EQLS (2016). The original variable ranges on a scale from one (meeting others face-to-face nearly every day) to five (never meet others). We assigned value one to respondents who declared to meet others less often than three times a month, and zero otherwise. We then computed the country-level shares of people who rarely meet others by applying sampling weights.

Schmeltz (2020) shows that those who were brought up under the coercive regime of East Germany would support enforced measures more than those who grew up in democratic West Germany. This suggests that the experience of state coercion may be a source of cross-country differences in the way people respond to policies in Europe. This in turn, could affect governments' policy choice. All Eastern Europe until 1989 and Spain, Portugal and Greece until the late 1970s, were governed by dictatorships for many decades. Therefore, we include among our controls a dichotomous variable identifying young democracies. In a different specification this variable includes only former socialist governments, excluding Spain, Portugal and Greece that were ruled by far right dictatorships.

4. Methods

The models we estimate use a sample of 27 member states of European Union for the governments' response stringency, for the number of new deaths and positive cases due to Covid-19, whereas the sample size decreases to 19 in the case of the speed of decline of new contagions. Table B.4 in Appendix B details the list of countries available for each variable. Table A.3 in Appendix A details the list of variables used in present study.

To test the hypothesis that countries with more trust in others and in institutions adopted less stringent policies, we use Ordinary Least Squares with robust standard errors. Indeed, the results of the Breusch-Pagan test (Breusch & Pagan, 1979) for homoskedasticity indicate to reject the null hypothesis in all our specifications. Formally, we estimate the following equation:

$$GovtResponse_c = \alpha + \beta_1 \cdot Confidence_c + \beta_2 \cdot X_c + \varepsilon_c \quad (1)$$

where the subscript c stands for countries - our unit of analysis, *GovtRe-*

sponse is the policy response stringency index as measured in each country; *Confidence* is the index of confidence in others and in institutions; X is the vector of control variables mentioned in Section 3 that allows us to account for possible confounding factors that may affect goverments' policy decisions. Finally, ε is the error term.

To check whether less stringent policies adopted in high trust contexts are more or less effective to prevent mortality and limit the spread of the infection, we regress the index of confidence, and its alternative specifications, on three measures of the effectiveness of countermeasures to the pandemics: the speed of decline of new contagions, the number of new positive cases and the number of new deaths due to Covid-19. In all cases we estimate the same linear model, as follows:

$$Y_c = \alpha + \gamma_1 \cdot Confidence_c + \gamma_2 \cdot Z_c + \epsilon_c \tag{2}$$

where Y is the dependent variable (alternatively, the speed of decline of new contagions, and the mortality rate); the subscript c stands for countries; *Confidence* is the index of confidence in others and in institutions; Z is a vector of control variables that includes the logarithm of GDP per capita, the Gini index, the expected number of life years free from chronic diseases, the government response stringency one week before the peak of new infections, a dichotomous variable identifying countries with young democracies, and ϵ is the error term. We control for the government response stringency because it can limit new contagions and deaths independently from the degree of confidence in others and in institutions.

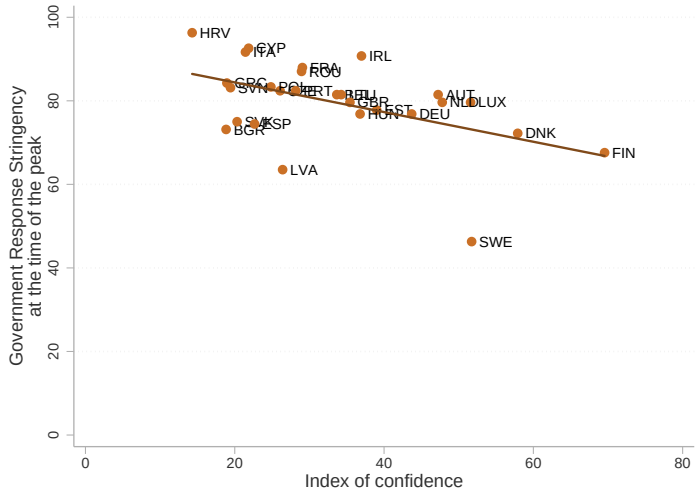
To test the robustness of our findings, we run various specifications of equations 1 and 2 in which we alternatively remove the dummy for young democracies, include a dummy for Eastern European countries, account for people's frequency of social contacts, and try various specifications of the index of confidence.

5. Results

During the first wave of Covid-19, high trust countries (in 2016) introduced, on average, less stringent policies than others (see Figure 1). The correlation coefficient between the two variables is -0.51 (significant at 1%). This result holds after controlling for GDP per capita, income inequality, mortality before the lockdown, the number of beds available in intensive care units,

the expected number of life years with chronic disease, and a dummy for countries with young democracies (see Table 1).

Figure 1: Countries where trust in others and institutions is high adopted less stringent policies.



This result is rather robust to changes in the list of control variables. For instance, the control for the share of people that rarely meet others, is not statistically significant and its inclusion does not change the relationship between trust and policy stringency (Model 2). Also, our result does not depend on the inclusion of a dummy for countries with young democracies or for Eastern European countries (Models 3 and 4), although Model 1 (which controls for young democracies) performs better in terms of explained variance ($R^2 = 49.6\%$).

One may argue that the policy stringency of a country does not depend on its GDP per capita (not statistically significant in Model 1), but on its public debt/GDP ratio. In other words, countries' expenditure to contain the epidemics may be constrained by their financial exposure relative to GDP, rather than by GDP. Model 5 shows that our result does not change if we control for the public debt/GDP ratio: its coefficient is statically insignificant, while the magnitude and significance of the index of confidence remains negative and significant.

The last three columns of Table 1 show the sensitiveness of our result to different specifications of the index of confidence. In Model 6 we include an

index based on trust in others, in the goverment and in the parliament; in Model 7 we consider an index based only on trust in goverment and in the parliament; in Model 8 we use only the share of people who declare to trust others. In short, the higher the trust in a country, the less stringent are the adopted policies: the coefficients of the alternative specifications of the index of confidence are somewhat smaller than the one from Model 1, but they retain their sign and significance.

Table 1: Association between the index of confidence and goverment response stringency after controls. Results are robust to various specifications of the index of confidence and to the inclusion of a varied list of control variables.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Index of confidence	-0.618***	-0.551***	-0.559**	-0.558**	-0.548**			
	(-3.88)	(-4.00)	(-3.52)	(-3.50)	(-2.93)			
GDP per capita in 2018 (constant 2010 US dollars, log)	0.632	-0.435	5.876	4.012		1.178	0.867	0.577
	(0.14)	(-0.09)	(1.39)	(0.56)		(0.27)	(0.19)	(0.12)
Gini index	0.336	-0.0709	0.328	0.206	0.222	0.177	0.109	0.387
	(0.73)	(-0.12)	(0.73)	(0.35)	(0.42)	(0.45)	(0.28)	(0.82)
Total deaths before the lockdown (x 1 million)	-0.955	-0.621	0.137	-0.00218	-0.908	-0.787	-0.239	-1.329
	(-0.53)	(-0.43)	(0.10)	(-0.00)	(-0.48)	(-0.47)	(-0.16)	(-0.63)
Total number of ICU beds (x 100,000)	0.263	0.419	0.377	0.403	0.326	0.157	0.367	-0.143
	(1.13)	(1.29)	(1.58)	(1.37)	(1.01)	(0.67)	(1.60)	(-0.47)
Average number of life years with chronic disease	0.750	0.652	0.657	0.662	0.696	0.558	0.538	0.598
	(1.23)	(1.17)	(1.10)	(1.08)	(1.20)	(1.01)	(1.00)	(0.93)
Young democracies	-9.674*	-8.296			-8.566	-9.526*	-7.456	-10.94*
	(-1.80)	(-1.38)			(-1.41)	(-1.88)	(-1.47)	(-1.83)
Share of people who meet rarely		-0.422						
		(-1.21)						
Eastern European countries				-2.579				
				(-0.40)				
public debt as a share of GDP (2019)					0.0362			
					(0.75)			
Index of confidence$_1$						-0.606***		
						(-3.99)		
Index of confidence$_2$							-0.604***	
							(-4.14)	
Trust in others								-0.464**
								(-3.08)
Constant	71.85	99.95*	10.46	34.30	76.96**	71.63*	71.77	73.67
	(1.71)	(1.94)	(0.25)	(0.43)	(3.50)	(1.78)	(1.62)	(1.72)
Observations	27	27	27	27	27	27	27	27
R^2	0.496	0.550	0.452	0.455	0.507	0.516	0.533	0.397

t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$

The evidence that governments of high-trust countries introduced less

stringent policies to face Covid-19 does not imply that these countries were more effective in facing the epidemic. Milder policies may have translated into more contagions and deaths. To account for this possibility, we consider three additional outcome variables: the speed of decline of contagions, and the number of new deaths and new positive cases. Results are available in Table 2.

Table 2: Association between the index of confidence and three meaures of efficacy in facing the epidemic: speed of decline of new contagion and the number of new deaths and new contagions at the peak.

	Speed of decline				New deaths				New cases			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12
Index of confidence	-0.320**				-0.203*				-1.061*			
	(-2.61)				(-1.74)				(-1.85)			
GDP per capita in 2018 (constant 2010 US dollars, log)	0.300	1.512	1.642	0.537	2.794	4.247	4.174	3.540	126.2***	127.0***	124.4***	130.0***
	(0.05)	(0.26)	(0.32)	(0.07)	(0.61)	(0.98)	(0.99)	(0.78)	(4.09)	(4.07)	(3.91)	(4.42)
Gini index	0.0436	-0.0177	0.0113	0.0496	-0.0626	-0.128	-0.144	-0.0505	6.765**	6.433**	6.630**	6.400**
	(0.18)	(-0.06)	(0.04)	(0.17)	(-0.16)	(-0.29)	(-0.35)	(-0.11)	(3.12)	(2.90)	(2.79)	(3.17)
Government response stringency one week before the peak	-0.0110	0.000982	-0.00621	0.0279	-0.0638				-0.545	-0.552	-0.518	-0.553
	(-0.19)	(0.02)	(-0.11)	(0.46)	(-1.02)				(-1.34)	(-1.35)	(-1.29)	(-1.39)
Expected number of life years with chronic disease	-0.0413	-0.124	-0.169	-0.0473	-0.263	-0.335	-0.339	-0.328	-0.694	-1.045	-1.042	-1.025
	(-0.19)	(-0.49)	(-0.65)	(-0.19)	(-1.29)	(-1.62)	(-1.59)	(-1.68)	(-0.55)	(-0.90)	(-0.87)	(-0.83)
Eastern European countries	-4.428	-3.537	-2.942	-3.259	-5.823	-3.624	-3.800	-2.930	38.84	38.97	41.67	39.04
	(-1.04)	(-0.81)	(-0.72)	(-0.63)	(-0.88)	(-0.60)	(-0.67)	(-0.46)	(1.13)	(1.12)	(1.16)	(1.19)
Index of confidence$_1$		-0.295**				-0.163				-1.039*		
		(-2.56)				(-1.53)				(-1.86)		
Index of confidence$_2$			-0.293**				-0.192*				-0.818	
			(-2.91)				(-1.88)				(-1.28)	
Trust in others				-0.197				-0.0633				-0.987**
				(-1.36)				(-0.69)				(-2.42)
Constant	3.680	-9.177	-11.57	-5.293	-5.821	-22.99	-21.28	-21.03	-1410.0**	-1408.3**	-1397.9**	-1434.8***
	(0.06)	(-0.14)	(-0.21)	(-0.06)	(-0.10)	(-0.42)	(-0.41)	(-0.36)	(-3.65)	(-3.59)	(-3.42)	(-4.01)
Observations	19	19	19	19	27	27	27	27	27	27	27	27
R^2	0.466	0.461	0.488	0.305	0.332	0.294	0.325	0.238	0.789	0.790	0.780	0.797

t statistics in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$

The coefficients of the index of confidence are negative and statistically significant for all three variables: ceteris paribus, higher trust correlates with faster decline of new contagions after the peak (Model 1), less new deaths (Model 5), and less new positive cases (model 9). These relationships are sensitive to different specifications of the index of confidence (see rows 7 to 9): the coefficients have the expected (negative) sign, but they are not always statistically significant. This is mainly the case of trust in others (row 9). Summarizing, our results suggest that countries where trust is high faced the epidemics with less freedom limitations, faster, and with less fatalities. This conclusion is robust to the inclusion of various control variables, and various specifications of the index of confidence.

6. Conclusion

During the first wave of Covid-19, the extent to which governments' containment policies relied on voluntary compliance or on restrictions of social and economic activity, showed substantial international variability. What explains such cross-country differences? This is a critical question because economic and psychological costs of an epidemic surge with the severity of restrictions. In the light of the increased risk of epidemics characterizing recent decades, it is crucial to understand what allows a country to contain infections while imposing mild restrictions on its population. To date, the available evidence is limited, suggesting only that autocracies introduced more stringent lockdowns than democracies (Frey et al., 2020).

Governments' emphasis on the importance of social capital for the outcomes of containment policies suggests a possible role of social capital in shaping their policy choice. In high social capital countries, governments may anticipate wide voluntary compliance, thus leaning towards non-stringent measures. The opposite can happen in countries with low social capital. However, the relationship between social capital and policy choice remained unexplored so far.

We provide the first quantitative evidence that pre-existing levels of trust in others and in institutions are negatively related to governments' policy stringency in response to Covid-19 in 27 European Union member States. This did not happen at the expense of public health: holding policy stringency constant, high trust countries report lower mortality, as well as lower number and faster decline of new contagions than others.

Our results are robust to several specifications of our measure of trust in others and institutions, and to a number of control variables. We accounted for countries' gross domestic product (per capita), their income inequality, as well as a measure of the size of their population burdened with chronic diseases. Additionally, we accounted for countries' health infrastructure and the severity of the epidemics. Our findings are also independent of the frequency of face-to-face interactions. Such frequency is a source of trust (Soroka et al., 2003), but also an amplifier of infections. Thus, it is possible that countries with preexisting high levels of trust are also characterized by high frequency of face-to-face meetings and, therefore, fast spread of the infection. However, this does not seem to be the case: the coefficient of our measure of trust retains its sign, significance and magnitude when we control for the frequency of social gatherings which, on the contrary, does not attract a statistically sig-

nificant coefficient. Moreover, our results do not change if we control for the public debt/GDP ratio of a country, rather than its gross domestic product.

The fact that the coefficients of most of our controls are non-significant should not suggest their lack of relation with the dependent variable. Coefficients have the expected signs and their non-significance may depend on the low numerosity of our sample. For instance, it is difficult to think that the availability of beds in intensive care units did not play a role, given the emphasis of all governments on the need to avoid the collapse of the health-care system. However, the robustness of our results suggests that the social context affects government' s strategies more than the other factors we control for. In summary, our results suggest that the answer to the question whether epidemics impose a trade-off between freedom and health depends on the level of trust prevalent in a country: the more people trust others and institutions, the more the trade-off fades.

Appendix A. Descriptive statistics

Table A.3: Descriptive statistics

variable	mean	sd	min	max	obs
Government response stringency at the time of the peak	79.59	9.967	46.30	96.30	27
Index of confidence	33.59	13.76	14.29	69.54	27
Confidence in the government	24.98	12.77	8.487	56.34	27
Confidence in the parliament	24.33	15.50	7.270	61.29	27
Confidence in local authorities	40.58	13.90	11.67	66.59	27
Confidence in police	52.32	16.64	22.52	91.10	27
Confidence in the press	26.10	10.29	10.43	61.24	27
Confidence in juridical system	34.45	19.33	10.87	79.61	27
Trust in others	32.37	17.61	9.101	78.62	27
Rate of decrease of new contagions	-6.826	5.336	-22.50	-2.200	19
new deaths at the time of the peak (per one million)	4.242	6.384	0	27.12	27
new cases at the time of the peak (per one million)	62.62	61.67	8.868	265.0	27
Government response stringency one week before the peak	32.12	20.71	0	70.84	27
Total deaths before the lockdown (per one million)	0.821	1.368	0	4.891	27
Total number of ICU beds (per 100,000)	11.90	6.368	4.200	29.20	27
GDP per capita in 2018 (constant 2010 US dollars, log),	10.33	0.617	9.065	11.61	27
Gini index	31.85	3.621	25.40	37.40	27
Expected number of life years with chronic disease	18.59	4.378	9.163	25.88	27
Share of people that rarely meets others	17.55	6.736	7.616	28.77	27

Appendix B. List of countries

Table B.4: The list of countries available for the analysis varies depending on the dependent variable

Austria	Belgium	Bulgaria*	Croatia*
Cyprus*	Czech Republic	Denmark	Estonia
Finland	France	Germany	Greece
Hungary	Ireland*	Italy	Luxembourg
Netherlands	Portugal	Romania*	Slovakia*
Slovenia	Spain	Sweden	United Kingdom

* Data on speed of decline of new contagions is not available.

Appendix C. Principal Components Analysis

The PCA explains the variance covariance structure of the variables via linear combinations among them, and its objectives are generally data reduction and interpretation. Table C.5 reports the eigenvalues, who add up to the sum of the variances of the variables in the analysis, i.e. the total variance of the variables. The eigenvectors table (C.6) shows that each component has a similar factor loading, around 0.38, there is no unexplained variance and Rho = 1.00 (not reported). This indicates that all seven components of trust and confidence load similarly in the composition of the confidence index. We then utilize the Cronbach's alpha statistic to build the confidence index out of the seven components we have seen having the same weight. The statistics computes the interim covariances of all variables, which we find equal to 184.563, and the scale reliability coefficient which is 0.9546. Then the Cronbach's alpha generates a summative scale from the utilized components which have in fact almost the same factor loadings and contribute roughly equal information to the score.

Table C.5: Principal components/correlation

	Eigenvalue	Difference	Proportion	Cumulative
Trust in others	5.57306	4.96316	0.7962	0.7962
Trust in local authorities	.609897	.249217	0.0871	0.8833
Trust in Government	.36068	.0948031	0.0515	0.9348
Trust in police	.265877	.128519	0.0380	0.9728
Trust in press	.137358	.103424	0.0196	0.9924
Trust in judicial system	.0339336	.0147361	0.0048	0.9973
Trust in Parliament	.0191975	.	0.0027	1.0000

Table C.6: Principal components (eigenvectors)

	Comp1	Comp2	Comp3	Comp4	Comp5	Comp6	Comp7	Unexplained
Trust in others	.3762374	-.1222118	.6160532	-.4124211	.3319554	.2885711	.3169058	0
Trust in local authorities	.3797146	-.0663725	-.5787159	.2189593	.6554693	.1781435	.084742	0
Trust in Government	.3960443	.1598452	-.3471788	-.1493004	-.6223762	.3822085	.3759512	0
Trust in police	.3665981	-.4053516	.2954157	.6380707	-.2303055	.2385113	-.3113888	0
Trust in press	.3073862	.8286617	.2522926	.3341093	.0697803	-.1966197	.004938	0
Trust in judicial system	.4049941	-.3145648	-.0356096	-.016018	-.1133136	-.7983909	.2919522	0
Trust in Parliament	.405599	.0718846	-.1133279	-.4905662	-.0454275	-.0770278	-.754206	0

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