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COVID-19: 'LOCKDOWN' AND INSTITUTIONS

Massimiliano Ferraresi, European Commission, Joint Research Centre

Christos Kotsogiannis, University of Exeter Business School

Leonzio Rizzo, Università di Ferrara & IEB

Riccardo Secomandi, Università di Ferrara

JEL Classification: E71, H12, I12, I18

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COVID-19: 'Lockdown' and Institutions[1]

Massimiliano Ferraresi[2], Christos Kotsogiannis[3], Leonzio Rizzo[4] and Riccardo Secomandi[5]

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Abstract

To control the infection rate of COVID-19 countries have introduced lockdown measures with the sole purpose to restrict movement of the population. But the impact of those measures has been markedly different. Using data for over 60 countries and employing a difference-in-differences design (and a set of robustness checks) this paper identifies the role of institutions and peoples' perception of the severity of the spread of COVID-19 in explaining the differential impact of the lockdown measures on movement. The results show that countries with a high level of quality of institutions are less responsive to the implementation of lockdown measures when the perception of the severity of the spread of the virus is low. The implication of this is that when it comes to unexpected shocks, such as the pandemic COVID-19, that require decisive actions and limitation in the movement of individuals as a means of controlling the spread of the shock (and the virus), high quality institutions react rather sluggishly.

Keywords: Covid-19, lockdown measures, stringency index, mobility, quality of institutions

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[2] European Commission, Joint Research Centre (JRC), Ispra, Via E.Fermi 2749, TP 361 Italy and University of Ferrara.

[3] Department of Economics, University of Exeter Business School, Streatham Court, Rennes Drive, Exeter EX4 4PU, England, UK and Tax Administration Research Centre (TARC). CESifo, Germany.

[4] University of Ferrara, Via Voltapaletto 11, 44122 Ferrara, Italy and Institut d'Economia Barcelona (IEB).

[5] University of Ferrara, Via Voltapaletto 11, 44122 Ferrara, Italy.

1. Introduction

The COVID-19 pandemic, which began in December 2019 in the city of Wuhan in China, continues to spread around the world. At the time of the first draft of this paper, and according to the latest data from the World Health Organization (20th May 2020), more than 4.7 million of COVID-19 infected cases have been reported, including more than 318.000 deaths,[6] and pandemic has had a devastating impact on the health, social fabric of society, and the economy of countries across the globe. This 'invisible enemy' has disrupted economies and society on the scale never witnessed before. Many countries have taken extraordinary fiscal and monetary policy measures, announcing a plethora of unprecedented stimulus packages to smooth out consumers' income and stimulate demand and limit the human and economic impact of COVID-19. Nearly all countries to date have reported COVID-19 infected cases, but they have also followed different trajectories, as both their exposure to the virus, response to the pandemic, and level of preparedness have differed.

To control the reproduction rate, and tame it below one, countries have announced measures which restrict the movement of individuals (referred to, colloquially, as 'lockdown', a term which will be also be adopted throughout the paper) and impose social distancing. Interestingly, these measures have varied significantly in intensity, with some countries announcing *stringent* measures very early in the pandemic cycle, whereas others taking a less restrictive approach. Greece and Belarus, for example, took early action, while Sweden tried to minimize social and economic disruption cultivating wider immunity (a strategy that the UK followed initially). The Czech Republic on the other hand imposed a locked down well before its first recorded casualty. A snapshot of the available data reveals that out of 60 countries for which data exist, 8% of countries reacted before the first case of COVID-19 in the country, 35% of countries with a 10 days delay, 39% of countries with a delay between 10 and 40 days whereas 18% of countries with a delay higher than 40 days. Though the picture is somewhat more complicated, as countries closer to pandemic 'hotspots' have reacted a lot quicker than those further away, what emerges is that no matter how the data are sliced, countries' response to the pandemic has been asymmetric.

Interestingly, the lockdown measures have also been the subject of some controversy amongst political, legal/law commentators[7] and also the public. In the UK, for example, the restrictions that underpin the COVID-19 lockdown measures have been recently challenged as being unlawful and disproportionate, breaching freedoms protected by the European Convention of Human Rights, Keene (2020).[8] In New Zealand, the government's decision to

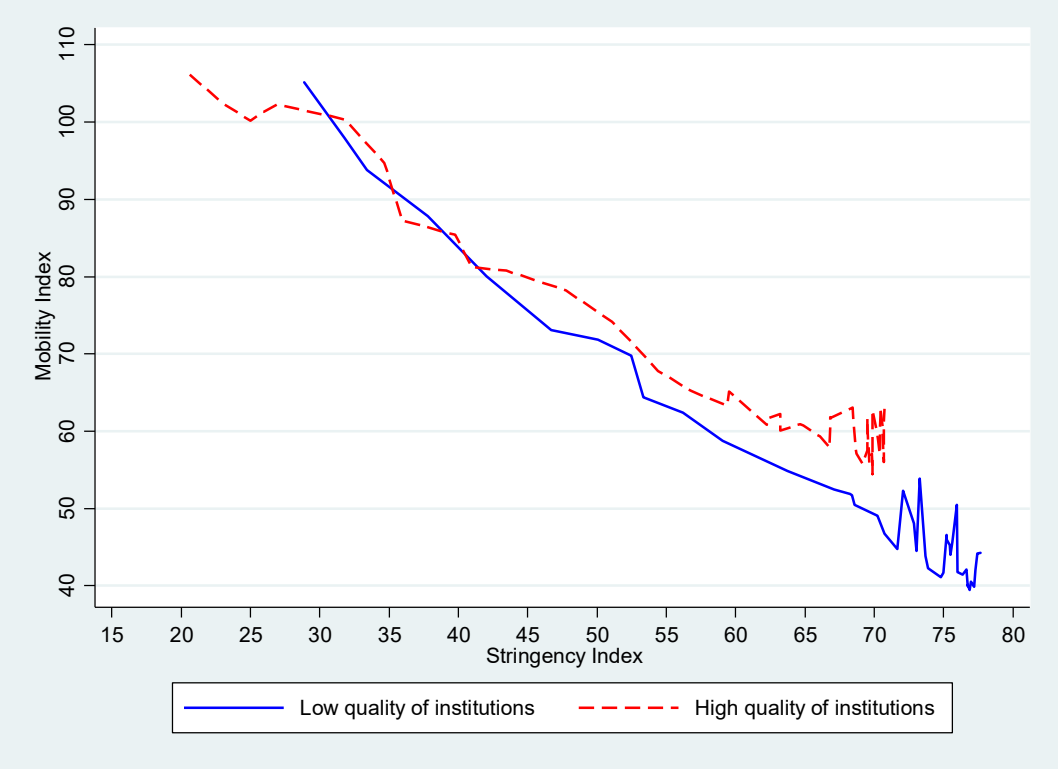
[6] Daily coronavirus disease (COVID-19) reports are available on the World Health Organization's webpage. See https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports. The actual number of infected cases is likely to be significantly higher as asymptomatic carriers of the infection are not detected.

[7] Through the Health Protection (Coronavirus) (England) Regulations 2020. Governments have published legal provisions which accompany the restrictions of movement of individuals.

[8] They have also been the subject of crowdfunding to support legal action (Independent, May 21, 2020, 'Coronovirus: Business tycoon worth £200m launches legal action against government over 'unlawful' lockdown measures).

impose a month-long lockdown to stem the spread of coronavirus has also been challenged in court. At the same time there have been numerous demonstrations in many countries in Europe[9], US[10] and elsewhere, against the lockdown—though, it has to be said, sometimes it is unclear whether they are driven by impatience, a genuine perception that the lockdown measures are disproportionate to the pandemic threat, or simply they are a protest against the State who is believed to act as a Hobbesian Leviathan.[11] Figure 1 below plots the relationship between a measure of movement (conveniently called 'mobility index') and a measure of the extent of the lockdown ('stringency index') drawn for different values of a variable 'fundamental rights' which is a measure of the quality of institutions, reflecting the fundamental rights and freedoms individuals enjoy with a country.[12] High values of the mobility index capture high degree of movement of population within a country, whereas high values of the stringency index indicates a more severe lockdown in a country. What this plot shows, perhaps paradoxically, is that for given lockdown measures, countries with low fundamental rights achieve lower population movement (lower mobility).

Figure 1: Mobility index, stringency of lockdown measures, and the quality of institutions.



[9] See 'German police crack down on anti-lockdown protesters', FT, May 17, 2020 (J. Miller).
[10] See 'US anti-lockdown protests: 'If you are paranoid about getting sick, just don't go out', FT, April 22, 2020 (D. Crow).
[11] Behind this skepticism lies also the fact that in most countries the measures have not scrutinized and debated in parliaments. But the exactly opposite view has also been voiced, arguing that governments have been complacent and inadequate to deal with an issue of that scale. See 'Complacency and panic are defining Boris Johnson's strategy', FT, May 18, 2020 (R. Shrimsley).
[12] The demand on mobility has been collapsed by days after the tenth case of COVID-19 in each country.

This then raises the issue of the role of institutions in the effectiveness of lockdown measures. This is the issue this paper explores. Institutions are of course too genetic of a term, but here the term is defined to broadly capture the view of the citizens regarding the government's ability to evaluate the facts and take appropriate action against the threat of the pandemic but also the extent to which the government respects the fundamental rights and freedoms of citizens. More specifically, the objective of this paper is to seek answers to two questions. Firstly, did lockdown measures impact the movement of individuals during the pandemic, and, secondly, if they did, did institutions amplify or mitigate the impact? It is shown that with respect to the first question the answer is straightforward and very robust: lockdowns, as expected, negatively impact on the movement of individuals. Interestingly, however, with respect to the second question things are less clear cut (and possible at first counterintuitive). It is shown that, in general, if institutions are not very strong a lockdown measure is very effective in restricting movement, but if they are strong the impact of the lockdown is mitigated. One possibility for this outcome is that in strong institutions the lockdown is seen as an infringement of fundamental rights and freedoms of citizens (as Figure 1 illustrates). Understanding the role of institutions is important as the global community seeks ways to combat the pandemic.

The literature has begun to investigate the determinants of social distancing, identifying variables such as expectations for the duration of self-isolation and belief and trust in science (Briscese *et al.*, 2020), differences in risk perceptions (Allcott *et al.*, 2020), political affiliation (Allcott *et al.*, 2020 and Painter and Qiu, 2020), social responsibility and social trust (Oosterhoff and Palmer, 2020). Related to this paper are the contributions by Bargain and Aminjonov (2020) and Brodeur *et al.* (2020) who look at trust in policymakers' ability to handle the crisis. The focus here is, however, much broader looking at institutional quality capturing also the extent to which government respects the fundamental rights and freedoms.

The analysis implements a difference-in-differences (DiD) research design by focusing on the consequences of the stringency measures on the mobility level of the population. In particular, we use daily observations of both the stringency index during the period from 13th January 2020 to 13th April 2020, and mobility data across 60 countries for which these data are available. To estimate the impact, we exploit the staggered time in the implementation of stringency measures adopted by countries, while controlling for country and daily fixed effects. Following this approach, it is shown that increasing 1 percentage point the level of stringency decreases mobility by 0.6 percentage points with respect to the 13th January. These results survive a set of robustness tests, including the traditional event-study à la Autor (2003) and time falsification. Moreover, and in support of Figure 1, we find that countries with a high level of quality of institutions are less responsive to the implementation of lockdown measures. But this is the case only when the perception of the severity of the pandemic is low, a point that we clarify further below.

The remainder of the article is organized as follows: Section 2 contains the empirical framework; Section 3 presents the data and Sections 4 and 5 discuss the results and perform robustness tests, respectively. Section 6 shows the results of the heterogeneity analysis. Finally, Section 7 summarises and concludes.

2. Empirical strategy

The baseline empirical model of this study builds on a fairly sizeable literature that uses the DiD method to investigate the net impact of a policy or a program on given outcomes. The standard case for applying DiD is when an exogenous shock such as in the present context a pandemic (treatment) affects only a group of units (treated) and there is another group (control) that are similar in all respects but are not affected by the intervention. Both groups are observed over a period of time across the event. It is then natural to measure the effect by comparing changes in the mean outcome of the treated cases with changes in the mean outcome of the untreated controls. This approach can, under some conditions (presence of a common trend between treated and control units—which is discuss further below—and absence of other confounding polices/interventions over the same period that might impact the outcome variable), identify the causal effect of the event on the outcome of interest.

As noted in the introductory section, while all countries have adopted lockdown measures due to the COVID-19 outbreak, they differ in the time of the adoption of those measures. This implies that for each day there exist countries where stringency measures have been adopted (treated group) and countries that have not adopted any measure yet (control group). This allows us to compare the change in the mobility index in the treatment group before and after the adoption to the change in outcomes in the control group. By comparing changes, we control for observed and unobserved time-invariant country characteristics that might be correlated with the lockdown decision. The change in the control group is an estimate of the true counterfactual that is, an estimate of the treatment group if there had been no lockdown restrictions.

The difference-in-difference (DiD) model estimated in this study is given by

$$mobility_{cd} = \alpha + \gamma stringency_{cd} + f_c + f_d + u_{cd} \qquad (1)$$

where $mobility_{cd}$ is the mobility index for the country c in day d; $stringency_{cd}$ is the stringency measure index in country c and day d, ranging from 0—when lockdown measures have not been adopted yet—to 100, with 100 denoting the maximum level of lockdown; f_c are country fixed effects that control for unobserved heterogeneity between countries due, for example, different levels of technology that affect the mobility indicator, national differences in the contagion level, health-care systems (such as availability of testing and Intensive Care Unit capacity), as well as population density and the age profile of the population; f_d are daily fixed effects that capture shocks common to every country, such as the information available on the pandemic situation to all citizens around the world; and u_{cd} is the error term, clustered at the country level. In some specifications, we control also for country-by-month fixed effects. In this model, γ is the DiD estimate of the (average) effect of the lockdown on mobility.

3. Description of the data

3.1 Movement of individuals (mobility)

To measure, with an inevitable approximation, the daily movement during the spread of COVID-19 we use the *Mobility Trends Report* provided by Apple.[13] This is made available for 60 countries and records the changes in the volumes of routing requests on Apple Maps compared to a baseline volume on January 13th, 2020.[14] We use the changes in these movement requests in our main specification.

3.2 Stringency index

During the same period of the COVID-19 outbreak, the governments around the world adopted many and very different measures. To take into account the heterogeneity of the governments' response we make use of the *Government Response Stringency Index* (*Stringency Index*) developed by Hale *et al*., (2020). The *Stringency Index* is a composite indicator (consisting of a series of standardized indicators, S1-S7, described below) on specific governments' intervention. In particular, since the 1st January 2020, Hale *et al*. (2020) collected daily information on: i) closings of schools and universities (S1), ii) closings of workplaces (S2), iii) cancelling public events (S3), iv) closing of public transport (S4), v) presence of public information campaigns (S5), vi) restrictions on internal movement (S6), and vii) restrictions on international travel (S7), for 149 different countries. It is worth noting that the sub-indicator S5 takes on the value of one if a COVID-19 public information campaign is put in place, and 0 otherwise; while for the other six policy response measures, a value of 1 is assigned if the closing is recommended, a value of 2 if the measure is mandatory, and 0 otherwise. For each sub-indicator a value of one is added if the policy is applied throughout the entire country and not only on a particular region/area. It follows that this creates a score between 0 and 2 for the sub-indicator S5, and from 0 to 3 for the other six sub-indicators. Then, each of these values are rescaled by their maximum value to create a score between 0 and 100, with a missing value contributing 0. These seven scores are then averaged to get the composite one: the *Stringency Index*.

3.3 Quality of institutions

To account for the different institutional characteristics between countries, four different indicators from the World Justice Project (2020) are used: *Government Powers; Open Government; Civic Participation* and *Fundamental Rights*. In particular, *Government Powers* captures the law setting limitation on the exercise of power by the executive arm of the government. *Open Government* measures whether the basic laws and information on legal rights are publicly available. *Civic Participation* captures protection of the freedoms of opinion and expression. Finally, *Fundamental Rights* accounts for protection and

[13] For details see: https://www.apple.com/covid19/mobility
[14] The list of the countries are reported in Table A2 in the Online Appendix.

guaranteed freedom and the equal treatment of individuals as well as absence of discrimination. All indicators range from 0 to 100.

The summary statistics for all of the variables used in the analysis are reported in Table A1 of the Online Appendix.

4. Results

Table 1 reports the results based on the different specifications of Equation (1). The baseline specification, which includes country and time fixed effects, is reported in Column (1). Column (2) introduces country-by-month fixed effects, which control for unobserved drivers of mobility not necessarily related to the stringency index. Finally, Column (3) includes estimates where stringency index observations are weighted according to the COVID-19 confirmed cases per 100,000 inhabitants.

All specifications in Table 1 show a negative and statistically significant coefficient of the exposure to stringency on movement.[15] The point estimates range from –0.627 to –0.474. This implies that, the increase of one percentage point of stringency measures is associated with a reduction in movement of between 0.48 and 0.66 percentage points.

Table 1: Stringency and mobility.

	(1) Mobility Index	(2) Mobility Index	(3) Mobility Index
Stringency Index	-0.627*** (0.091)	-0.660*** (0.097)	-0.474*** (0.105)
Observations	5,520	5,520	3,291
R-squared	0.840	0.903	0.940
Country fixed effects	Yes	Yes	Yes
Day fixed effects	Yes	Yes	Yes
Country-by-month fixed effects	No	Yes	Yes

Note: Standard errors (in parentheses) are clustered at country level. *** Significant at the 1% level; ** significant at the 5% level; * significant at the 10% level.

5. Robustness test

Could the results presented in Section 3 be driven by the research design which could bias the baseline estimates? This section addresses this by performing an event study analysis followed by a falsification test.

5.1 Event study

[15] The main specification use *Walking* as the movement restriction measure. We have also used as mobility restriction measure the changes of driving requests (*Driving*) and the changes of public transport requests (*Transit*). Also Google (Google LLC, 2020), has made publicly available the reports that illustrate how visits and length of stay at different places has evolved compared to February 29th, 2020, the date of the start of the survey. In particular, using as an additional mobility index the mobility trends for places like restaurants, cafes, shopping centers, theme parks, museums, libraries, and movie theaters (*Retail and recreation*) the results (available upon request) do not change.

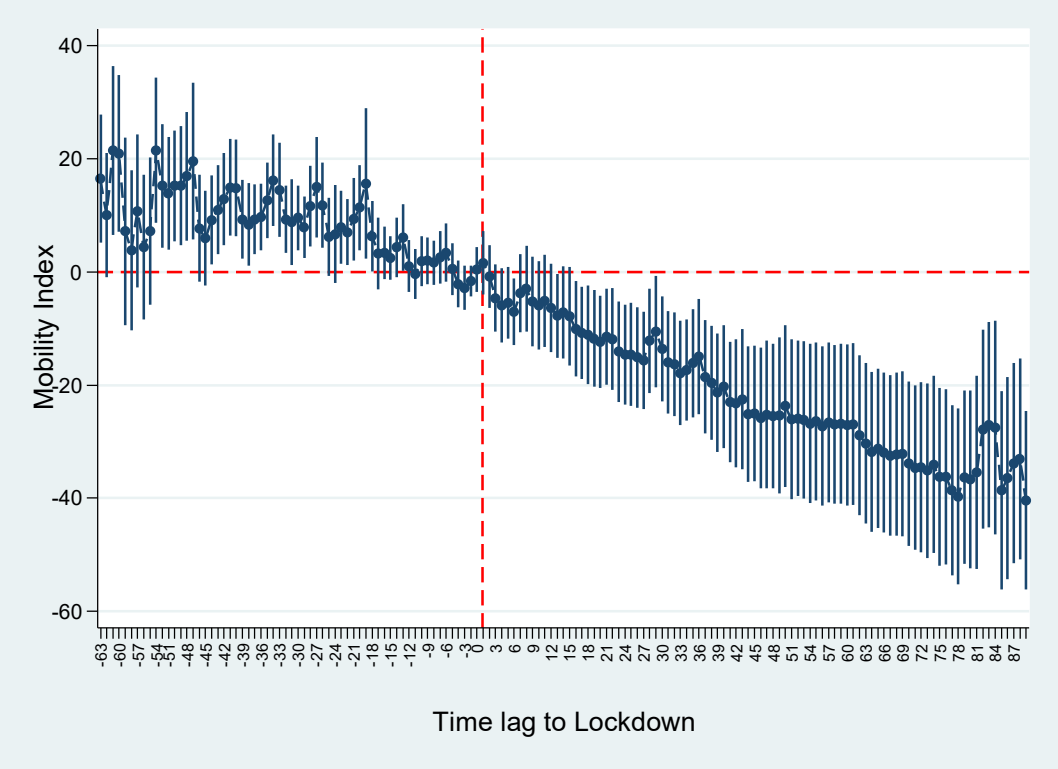
The key identifying assumption for DiD estimates is that the change in movement in the control countries is an unbiased estimate of the counterfactual. While we cannot directly test this assumption, we can test whether the secular time trends in the control and treatment countries were the same in the pre-intervention periods. If the secular trends are the same in the pre-intervention periods, then it is likely that they would have been the same in the post-intervention period if the treated countries had not adopted any lockdown measures. An event-study analysis can shed some light on the validity of the research design. Following Autor (2003), we build up a dummy variable which takes the value of 1 on the first day of the lockdown, and zero otherwise. Hence, starting from this variable, we create its leads (one for each day prior the day of the lockdown) and lags dummy variables (one for each day after the lockdown measure was introduced). If the trends in mobility measure in adopting versus non-adopting countries are the same, then the leads should not be statistically significant, i.e. the DiD coefficient is not significantly different in the pre-treatment period. An attractive feature of this test is that the lags are informative and can show whether the effect changes over time. More specifically, the following specification is estimated

$$mobility_{cd} = \alpha + \sum_{\pi=-63}^{-2} \beta_\pi stringency_{c(d+\pi)} + \sum_{\tau=0}^{89} \beta_\tau stringency_{c(d+\tau)} + f_c + f_d + u_{cd} \qquad (2)$$

This specification allows for the testing of the presence of parallel trends in the pre-treatment period, namely, whether the coefficients associated with the lead (β_π, with π going from -63 to -2) are not statistically different from zero. As already anticipated, this approach is convenient to understand whether the treatment effect fades, increases, or stays constant over time, depending on the estimated coefficients of the lags (β_τ, with τ going from 0 to 89).

The omitted day is the day before the lockdown, which (given the staggered time of the adoption) differs by countries. For example, in Italy the first day of lockdown started on the 23th January, and in Greece it was on the 25th of February. Accordingly, since the time-spam of the analysis is from the 13th January to the 13th of April, for Italy it is possible to compute its pre-treatment period only for 10 days (namely from January 13th to 22th), while its post-treatment period ranges from the 24th of January to the 13th of April (and so for 82 days). On the contrary, for Greece, it is possible to compute its pre-treatment period for 43 days (from the 13th January to the 25th of February), while the post-treatment period can be computed for 48 days (from of February 26 to April 13).

Figure 2: Mobility index and time lag to lockdown.



The estimates, together with their 90% confidence intervals, are plotted in Figure 2.[16] According to the point estimates, in the pre-treatment period there is no difference in the movement until around the 20th day before the adoption of the lockdown, thus either coefficients are not statistically significant, or when they are, they turn out to be positive. However, it is important to note that after a certain period the sample over which is possible to identify reliable and robust effects is too small (for example, if one considers this before 25 days the effect is identified only for 24 countries (out of 60)).

Turning now to the lag coefficients, it emerges that the lockdown measures contribute to a reduction in mobility, but it takes some days for the effects to materialise. In fact, the coefficient associated with the lags turns out to be negative and statistically significant at the 5% after 16 days since the first day of the lockdown. It is also interesting to observe that replicating this event study separately for countries with high and low quality of the institutions it emerges that the effect of the lockdown is immediately effective for the latter group, while for the former it seems that the lockdown did not play any role in reducing mobility.

5.2 Placebo test

A common way to conduct a placebo test in the context of DiD analysis is to focus on the span prior to the shock that is, to simulate what would have happened to the movement restriction if a fake day since the first day of the lockdown were used. Specifically, we replicate the main analysis by assuming that the lockdown outbreak occurred 7, 14, 21, or 28

[16] Full estimates are shown in Table A3 of the Online Appendix.

days earlier than the first day, which implies building four fake stringency indexes. The idea here is that if the coefficient associated to the fake stringency index is negative and significant, it will suggest that before the true day of the start of the lockdown, the movement restriction was already taking place, thus casting doubt on the validity of the previous results.

Reassuringly, the effect of the placebo exercise does not lead to any effect on movement as the γ coefficient turns out to be indistinguishable from zero in the specification that controls for national and daily fixed effects (Table 2, Columns. 1, 2, 3, and 4).

Table 2: Stringency index and mobility—placebo analysis.

	(1) Mobility Index	(2) Mobility Index	(3) Mobility Index	(4) Mobility Index
Stringency Index (7 days earlier)	-0.097			
	(0.070)			
Stringency Index (14 days earlier)		-0.036		
		(0.064)		
Stringency Index (21 days earlier)			0.054	
			(0.067)	
Stringency Index (28 days earlier)				0.091
				(0.068)
Observations	1,614	1,614	1,614	1,614
R-squared	0.667	0.666	0.666	0.667
Country fixed effects	Yes	Yes	Yes	Yes
Day fixed effects	Yes	Yes	Yes	Yes
Country-by-month fixed effects	No	No	No	No

Note: Standard errors (in parentheses) are clustered at country level. *** significant at the 1% level; ** significant at the 5% level; * significant at the 10% level.

6. Heterogeneity

We test whether the results are driven by the characteristics of the institutions along several dimensions. To begin with, we built 4 dummy variables that are equal to 1 if the indexes *Government Powers*, *Open Government*, *Civic participation* and *Fundamental Rights* are above the 75th percentile, so identifying countries with high level of quality of institutions. Arguably, the response of the population in a country could be a function of the severity of the pandemic in that country relative to the number of cases identified in the world. To control for this we split the sample in those countries having a high perception of the severity of the pandemic ($COVID-19\ cases\ per\ capita_{cd} > World\ cases\ per\ capita_{d}$) and those having a low perception ($COVID-19\ cases\ per\ capita_{cd} < World\ cases\ per\ capita_{d}$). To investigate whether there has been a heterogeneous response according to the quality of institutions, we interact our dummy indicators with the stringency measures. The estimated model is a generalised version of Equation (1), taking the following form:

$$mobility_{cd} = \alpha + (stringency_{cd} \times (\gamma + \lambda \times quality\ institutions_{c}) + f_c + f_d + u_{cd} \quad (3)$$

We estimate Equation (3) separately on the sample of countries with high perception and low perception and we present the results of this analysis in Table 3. Following the estimates in Columns (5) through (8), it turns out that when the level of perception is high the adoption of stringency measures leads to a reduction in the mobility of around 0.53 percentage points, but there is no difference in relation to the quality of institutions, as the coefficient of the interaction term, given by λ, is not statistically significant for any of the used indicators. On the contrary, when the perception is low, the quality of institutions plays a role in shaping the responsiveness to the lockdown. In particular, while the coefficient of stringency is negative and statistically significant at 1%, its interaction with the quality of institutions dummy variable is positive and significant at 10% level. What this suggests is that countries with high quality of institution are less responsive to the lockdown.

One way to interpret this is that in a country characterised by high level of quality of institutions—taken to be here the capacity of setting limits to the power of the executive (*Government Powers*), or when the basic laws and information on legal rights are publicly available (*Open Government*), or when legal rights are publicly available (*Civic Participation*), or the protection of freedom is high or the freedom of opinion and expression is effectively guaranteed (*Fundamental Rights*)—the implementation of announced measures that restrict mobility is perceived as an infringement of fundamental rights and freedoms of citizens. This leads to a lower decrease in mobility as compared to countries where the previous characteristics are less pronounced. The estimates show that the magnitude of this difference is quite significant: a one percentage point increase in the stringency of the measures has in impact on the reduction of mobility which is half the impact of countries where the quality of institutions is lower. For example, for high level of perception, an increase of the Stringency Index from 60 to 70 has the same impact on the mobility (-13%) in Germany (high quality of institutions) and Italy (low quality of institutions).[17] While, when the perception is low, an increase for the Stringency Index from 0 to 10 has a lower impact on mobility in Germany (-3%) respect to Greece (low quality institutions) (-9%).

[17] The variation of the mobility index is calculated as the average 5 days before and 5 days after the variation of the Stringency Index.

Table 3: Stringency and mobility, perception and quality of institutions.

	Low Perception				High Perception			
Dependent variable: mobility	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Stringency Index	-0.446***	-0.446***	-0.446***	-0.446***	-0.530***	-0.520***	-0.537***	-0.530***
	(0.094)	(0.094)	(0.094)	(0.094)	(0.106)	(0.101)	(0.107)	(0.106)
Stringency Index * High government powers	0.241*				0.111			
	(0.134)				(0.074)			
Stringency Index *High open government		0.235*				0.103		
		(0.131)				(0.074)		
Stringency Index *High civic participation			0.242*				0.122	
			(0.132)				(0.073)	
Stringency Index *High fundamental rights				0.241*				0.111
				(0.134)				(0.074)
Observations	3,648	3,648	3,648	3,648	1,871	1,871	1,871	1,871
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Day fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.842	0.843	0.843	0,842	0.842	0.843	0.843	0,842

7. Summary and concluding remarks

This paper has empirically shown that implementing lockdown measures has a significant and robust impact on the movement of people required to control the spread of the virus. In particular, a 1 percentage point increase in the stringency measure decreases mobility by 0.6 percentage points (with respect to the 13th of January). Interestingly, it has also been shown that the movement responsiveness to lockdown stringency measures depends on the quality of institutions (broadly defined) and peoples' perception of the severity of the spread of COVID-19—with, in particular, high level of quality of institutions being less responsive to the implementation of lockdown measures when the perception of the spread of the virus is low. The implication of all this is that, while typically institution quality is important for economic growth, when it comes to unexpected shocks, such as COVID-19, that require decisive actions and limitation in the movement of individuals as a means of controlling the spread of the shock (and the virus) these institutions fare less well.

The analysis does not of course claim that weak institutions are a good thing, but rather it attempts to identify a mechanism that might explain why some countries have been more effective in restricting the movement of the population following a lockdown than others. It seems, however, that while strong institutions contribute significantly to the economic growth (as shown in the voluminous literature summarised, for example, in Acemoglu (2010)) when it comes to global shocks, such as COVID-19, they react rather sluggishly.

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Online Appendix

Table A1 - Summary Statistics

Variable	(1) Obs.	(2) Mean	(3) Std. Deviation	(4) Min.	(5) Max.
Civic Participation	4,692	0.644	0.171	0.160	0.942
Government powers	4,692	0.651	0.170	0.265	0.944
Fundamental rights	4,692	0.667	0.157	0.277	0.917
Open Government	4,692	0.642	0.147	0.223	0.886
Stringency Index	5,520	35.01	35.40	0	100
Mobility Index	5,520	85.59	40.12	5.820	362.5

Table A2 - Countries in the sample and quality institutions groups.

Country	High government powers	High open government	High civic Participation	High fundamental rights
Canada	1	1	1	1
Denmark	1	1	1	1
Finland	1	1	1	1
Germany	1	1	1	1
Iceland	1	1	1	1
Ireland	1	1	1	1
Israel	1	1	1	1
Luxembourg	1	1	1	1
Macao	1	1	1	1
Netherlands	1	1	1	1
New Zealand	1	1	1	1
Norway	1	1	1	1
Saudi Arabia	1	1	1	1
Slovak Republic	1	1	1	1
Sweden	1	1	1	1
Switzerland	1	1	1	1
Taiwan	1	1	1	1
United Kingdom	1	1	1	1
Estonia	1	1	1	1
Australia	1	1	0	1
Austria	1	0	1	1
Belgium	1	0	1	1
United States	0	1	1	0
France	0	1	0	0
Hong Kong	0	0	0	0
Singapore	0	0	0	0
Albania	0	0	0	0
Argentina	0	0	0	0
Brazil	0	0	0	0
Bulgaria	0	0	0	0
Chile	0	0	0	0
Colombia	0	0	0	0
Croatia	0	0	0	0
Czech Republic	0	0	0	0
Egypt	0	0	0	0
Greece	0	0	0	0
Hungary	0	0	0	0
India	0	0	0	0

Country	High government powers	High open government	High civic Participation	High fundamental rights
Indonesia	0	0	0	0
Italy	0	0	0	0
Japan	0	0	0	0
Malaysia	0	0	0	0
Mexico	0	0	0	0
Morocco	0	0	0	0
Philippines	0	0	0	0
Poland	0	0	0	0
Portugal	0	0	0	0
Romania	0	0	0	0
Russia	0	0	0	0
Serbia	0	0	0	0
Slovenia	0	0	0	0
South Africa	0	0	0	0
South Korea	0	0	0	0
Spain	0	0	0	0
Thailand	0	0	0	0
Turkey	0	0	0	0
Ukraine	0	0	0	0
United Arab Emirates	0	0	0	0
Uruguay	0	0	0	0