Scientific study on Covid Lockdowns:

Summary Of Study:

COVID Lockdowns Have No Clear Benefit vs Other Voluntary Measures, International Study Shows

A study evaluating COVID-19 responses around the world found that mandatory lockdown orders early in the pandemic may not provide significantly more benefits to slowing the spread of the disease than other voluntary measures, such as social distancing or travel reduction.

The peer reviewed study was published in the *European Journal of Clinical Investigation* on January 5, and analyzed coronavirus case growth in 10 countries in early 2020.

The study compared cases in England, France, Germany, Iran, Italy, Netherlands, Spain and the U.S. – all countries that implemented mandatory lockdown orders and business closures – to South Korea and Sweden, which instituted less severe, voluntary responses. It aimed to analyze the effect that less restrictive or more restrictive measures had on changing individual behavior and curbing the transmission of the virus.

"We do not question the role of all public health interventions, or of coordinated communications about the epidemic, but we fail to find an additional benefit of stay-at-home orders and business closures," the research said.

The researchers used a mathematical model to compare countries that did and did not enact more restrictive lockdown orders, and determined that there was "no clear, significant beneficial effect of [more restrictive measures] on case growth in any country."

The study was conducted by researchers affiliated with Stanford University, and was co-authored by Jay Bhattacharya, a professor of medicine and economics who has been a vocal opponent of coronavirus lockdowns since March.

https://www.newsweek.com/covid-lockdowns-have-no-clear-benefit-vs-other-voluntary-measures-international-study-shows-1561656

<u>The Study:</u>

We isolate the effect of more restrictive NPIs (mrNPIs) by comparing the combined effect size of all NPIs in eight countries that implemented more restrictive policies (England, France, Germany, Iran, Italy, the Netherlands, Spain, and the United States) with the effect size of all NPIs in the two countries that only implemented less restrictive NPIs (lrNPIs). In effect, we follow the general scheme:

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We analyze only these countries because the analysis depends on sub-national data, which was only available for those countries, as explained further below.

The conceptual model underlying this approach is that, prior to meaningful population immunity, individual behavior is the primary driver of reductions in transmission rate, and that any NPI may provide a nudge towards individual behavior change, with response rates that vary between individuals and over time. lrNPIs could have large anti-contagion effects if individual behavioral response is large, in which case additional, more restrictive NPIs may not provide much additional benefit. On the other hand, if lrNPIs provide relatively small nudges to individual behavior, then mrNPIs may result in large behavioral effects at the margin, and large reductions in the growth of new cases. However, because underlying epidemic dynamics are imprecisely characterized and are important for estimating the policy effects, our models test the extent to which mrNPIs had additional effect on reducing transmission by differencing the sum of NPI effects and epidemic dynamics in countries that did not enact mrNPIs from the sum of NPI effects and epidemic dynamics in countries that did.

We estimate the unique effects of mrNPIs on case growth rate during the northern hemispheric **spring of 2020 in England, France, Germany, Iran, Italy, the Netherlands, Spain, and the United States by comparing the effect of NPIs in these countries to those in Sweden and South Korea (separately).**

The data we use builds on an analysis of NPI effects and consists of daily case numbers in subnational administrative regions of each country (e.g. regions in France, provinces in Iran, states in the US, and counties in Sweden), merged with the type and timing of policies in each administrative region.[18,26]

We use data from a COVID-19 policy databank and previous analyses of policy impacts to

determine the timing and location of each NPI.[18,27] Each observation in the data, then, is identified by the subnational administrative region and the date, with data on the number of cases on that date and indicators characterizing the presence of each policy. We include indicators for changes in case definitions or testing technologies to capture abrupt changes in case counts that are not the result of the underlying epidemic (these are mostly single-day indicators), as suggested in a previous analysis.[18]

We define the dependent variable as the daily difference in the natural log of the number of confirmed cases, which approximates the daily growth rate of infections ( ). We then estimate the �� following linear models:

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The model terms are indexed by country ( ), sub-national unit ( ), day ( ), and NPI indicator (. �� �� �� ��) ��0,���� are a series of fixed effects for the subnational unit, and ������ are country-specific day-of-week fixed effects. The parameters of interest are ������, which identify the effect of each policy on the growth rate in cases. The parameters ��������� are the single-day indicators that model changes in case definitions that result in short discontinuities in case counts that are not due to underlying epidemic changes.

We estimate these models separately for each pair of countries (one with mrNPIs, one without), for a total of 16 models. We then add the coefficients of all the policies for the country with mrNPIs (yielding the combined effects of all NPIs in the mrNPI country) and subtract the combined effects of all NPIs in the comparator country without mrNPI. As noted above, the difference isolates the effect of mrNPIs on case growth rates. We estimate robust standard errors throughout, with clustering at the day-of-week level to account for serial correlation.

It is important to note that because the true number of infections is not visible in any country, it is impossible to assess the impact of national policies on transmission of new infections.[28] Instead, We follow other studies evaluating the effects of NPIs that use case numbers, implicitly assuming that their observed dynamics may represent a consistent shadow of the underlying infection dynamics.[18] The code for the data preparation, analysis, and visualization is provided along with the article.

Results

The growth rate in new cases prior to implementation of any NPIs was positive in all study countries (Figure 1). The figure shows that, across all subnational units in all ten countries, the average growth rate prior to NPIs ranged from 0.23 in Spain (23% daily growth; 95CI 0.13 to 0.34) to 0.47 (95CI 0.39 to 0.55) in the Netherlands. The average across all 10 countries was 0.32, and in South Korea and Sweden, the two countries without mrNPIs, the pre-NPI growth rates were 0.25 and 0.33, respectively. The variation of pre-policy growth rates in cases may reflect epidemic intensity, testing coverage (higher growth may be a reflection of expanding testing capacity and of more people wishing to be tested), and pre-policy behavior changes that led to increased or decreased transmission.

Figure 2 and Figure 3 demonstrate the effects of individual NPIs (Figure 2) and all NPIs combined (Figure 3) on daily growth in case counts. While the effects of 3 individual NPIs were positive – that is, contributing paradoxically to case growth – and significant (one in Germany, one in Italy, and one in Spain, out of 51 individual NPIs in all 10 countries), the effects of about half of individual NPIs were negative and significant. The combined effects of all NPIs (Figure 3) were negative and significant in 9 out of 10 countries, where their combined effects ranged from -0.10 (95CI -0.06 to -0.13) in England to -0.33 (95CI -0.09 to -0.57) in South Korea. Spain was the only country where the effect of NPIs was not distinguishable from 0 (-0.02; 95CI -0.12 to

0.07).

Figure 4 shows the effect of mrNPIs in the 8 countries where mrNPIs were implemented, after accounting for the effects of lrNPIs and underlying epidemic dynamics. In none of the 8 countries and in none out of the 16 comparisons (against Sweden or South Korea) were the effects of mrNPIs significantly negative (beneficial). The point estimates were positive (point in the direction of mrNPIs resulting in increased daily growth in cases) in 12 out of 16 comparisons (significantly positive in 3 of the 12, in Spain and in England compared with Sweden). The only country where the point estimates of the effects of mrNPIs were negative in both comparisons was Iran (-0.07 [95CI -0.21 - 0.07] compared with Sweden; -0.02 [95CI -0.28 - 0.25] compared with South Korea). The 95% confidence intervals excluded a 30% reduction in daily growth in all 16 comparisons.

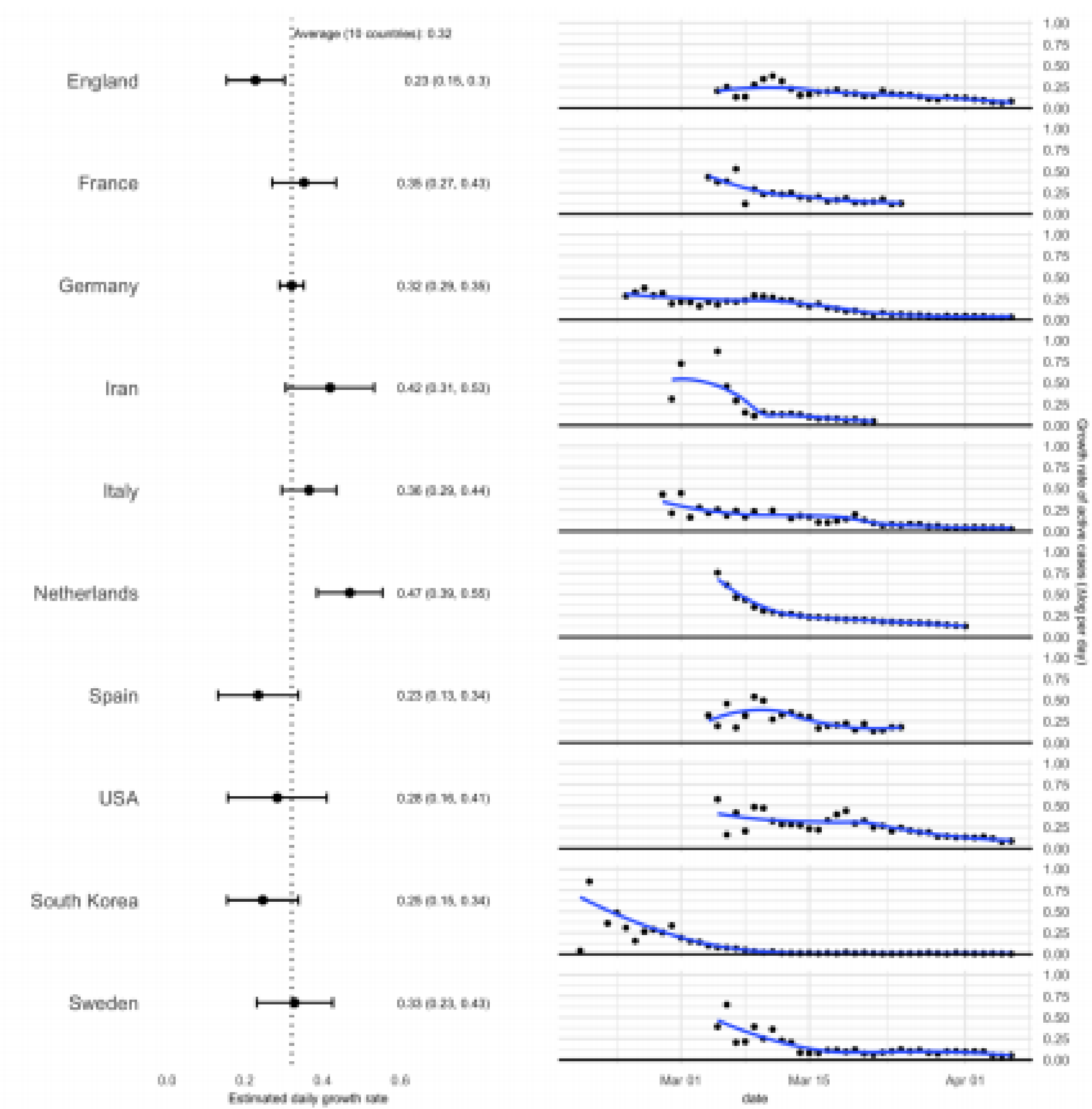


Figure 1: Growth rate in cases for study countries. The black bars demonstrate the average growth rate in cases in each subnational unit (95% CI) prior to any policies implemented. The figures to the right show the daily growth rate in cases for each of the countries and demonstrate the shared decline in case growth across all countries, including the countries that did not implement mrNPIs (South Korea and Sweden).

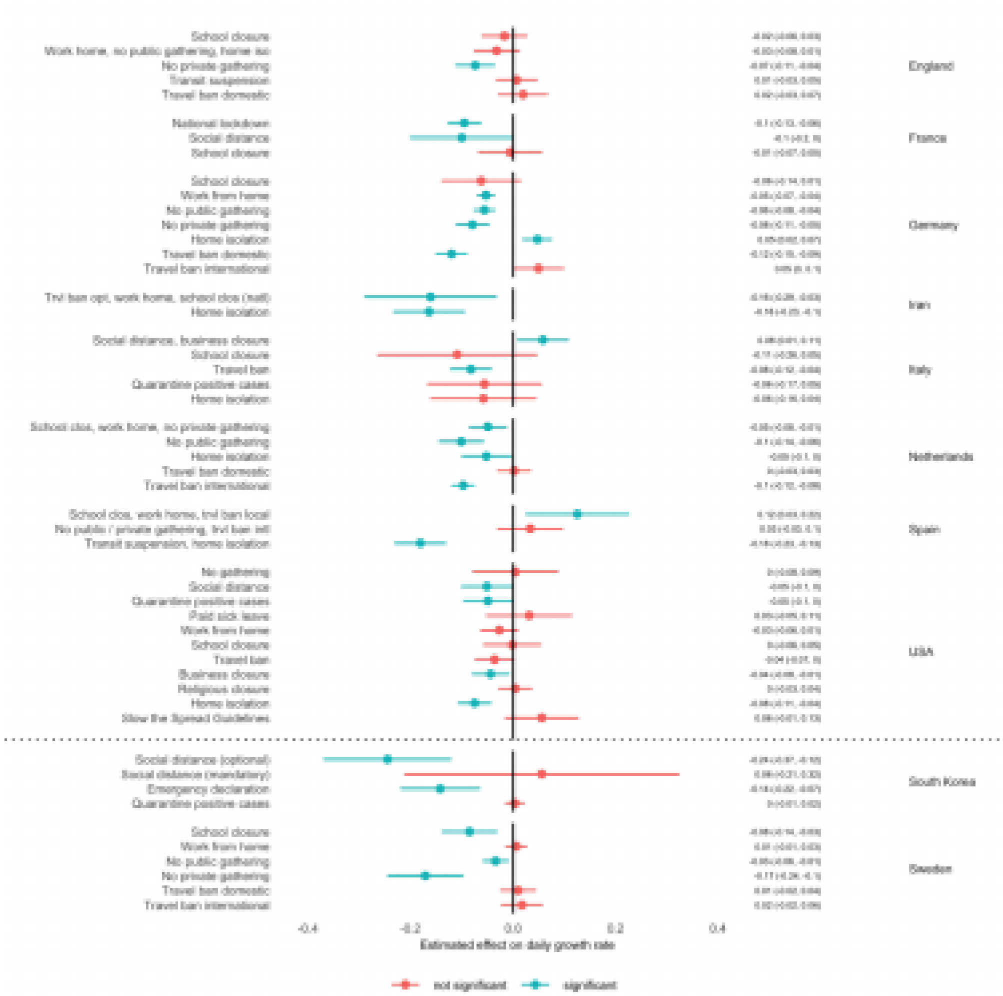


Figure 2: Effects of individual NPIs in all study countries. The variation in the timing and location of NPI implementation allows us to identify the effects of individual NPIs on the daily growth rate of cases. Where multiple NPIs were implemented simultaneously (in the same day) across all subnational units (e.g. school closure, work from home, and no private gatherings in Spain), their overall effect cannot be identified individually and is shown combined.

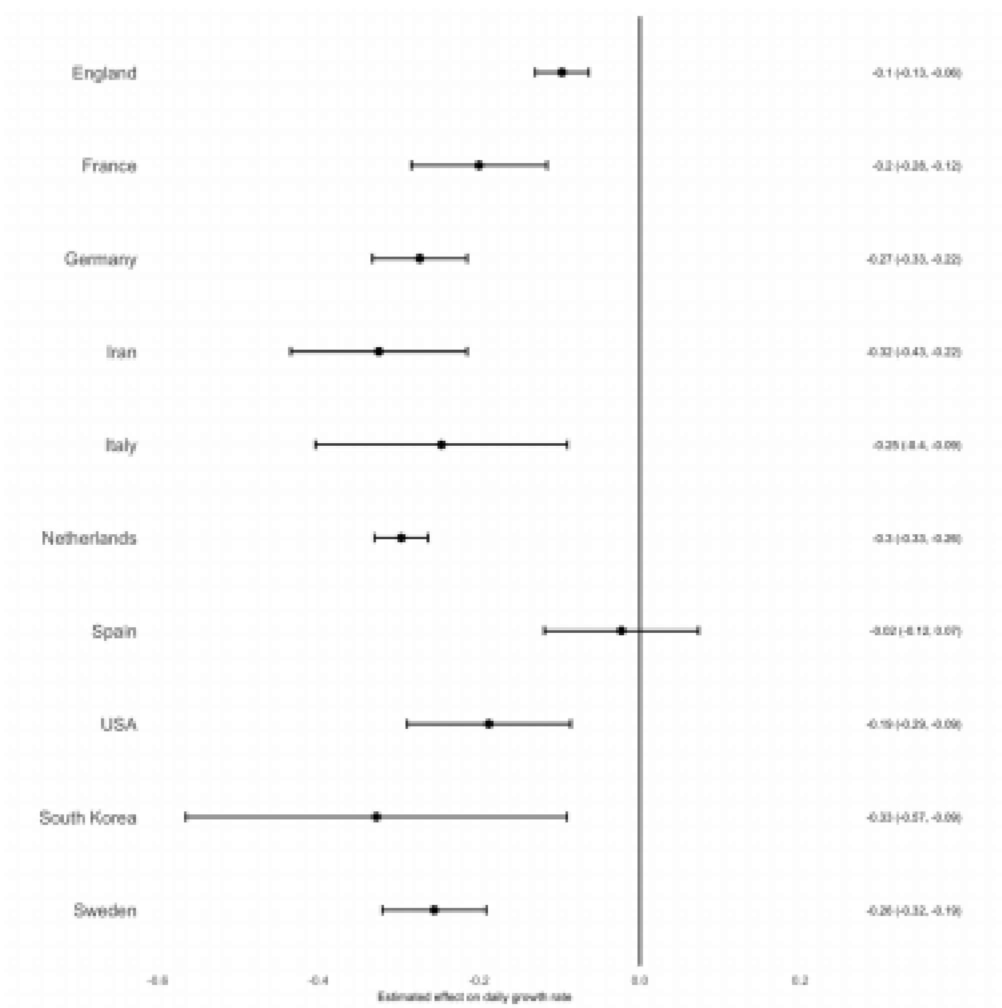


Figure 3: Combined effects of all NPIs in study countries. The point estimate and 95% CI of the

combined effect of NPIs on growth rate in cases, estimated from a combination of individual NPIs. The estimates show significant effects in all countries except Spain, and range from a 33% (9-57%) decline in South Korea to 10% (6%-13%) in England. The point estimate of the effect in Spain is also

negative but small (2%) and not significant.

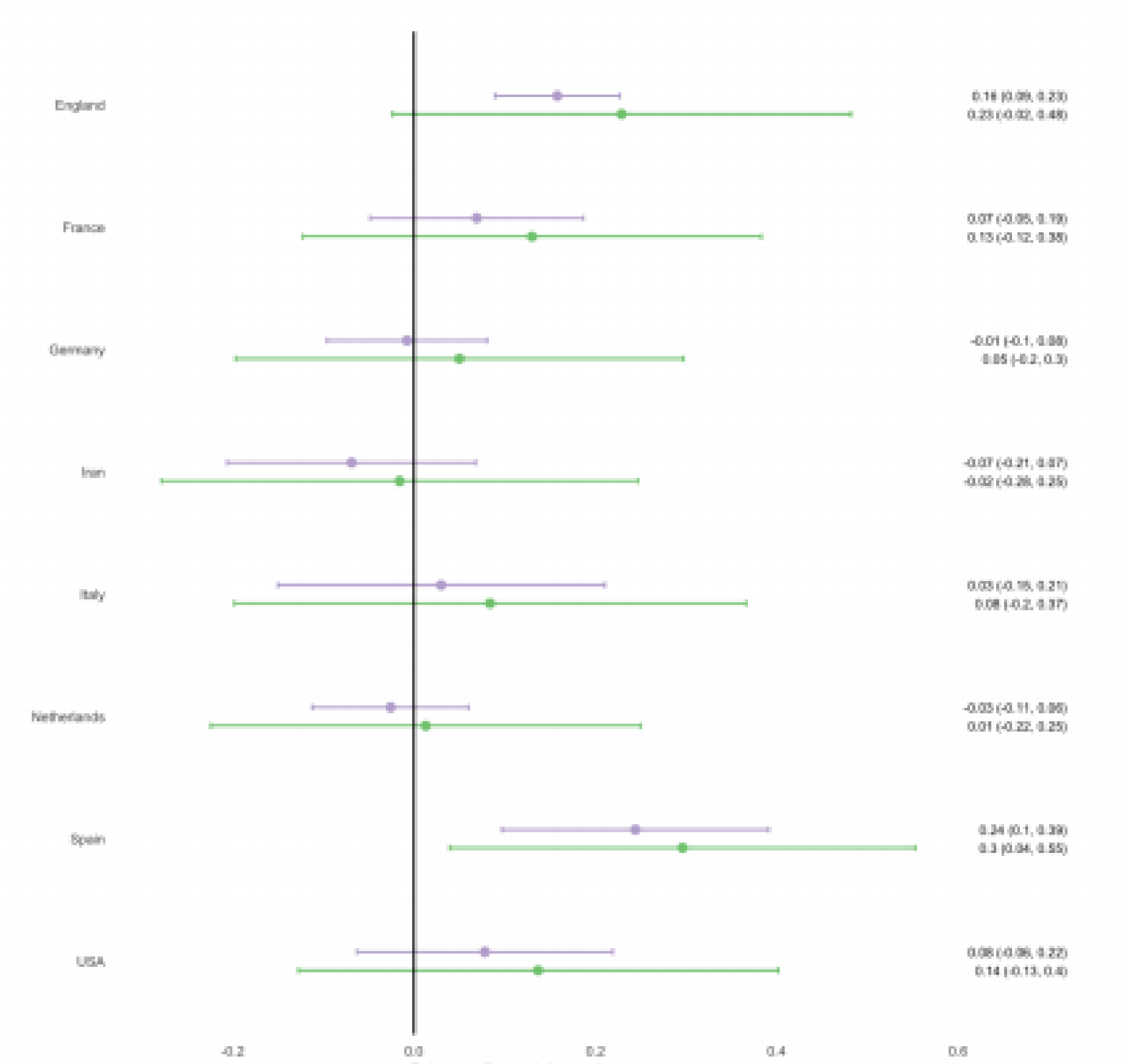
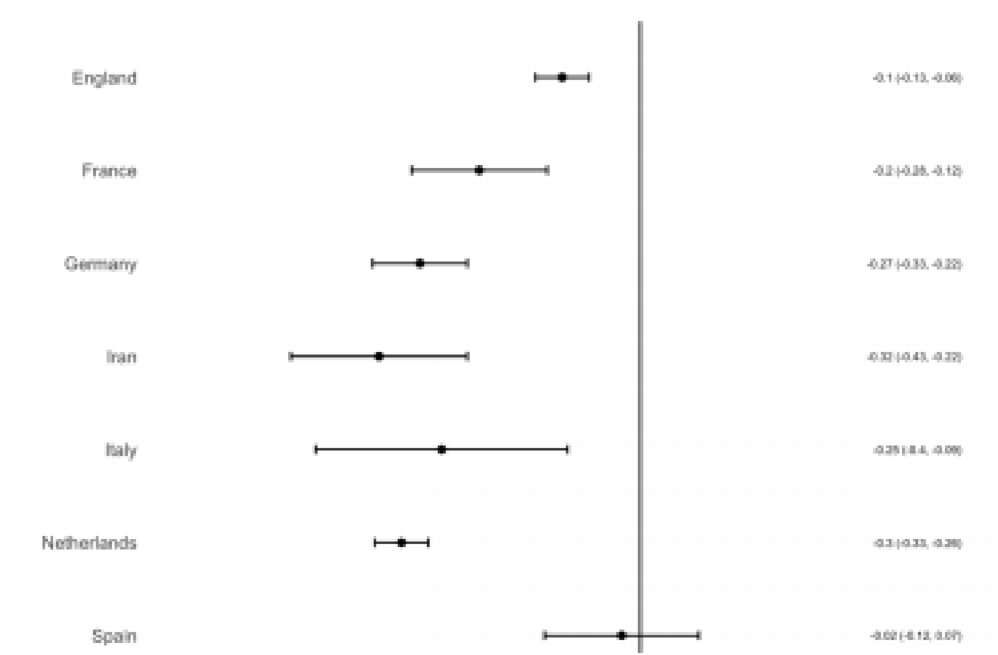


Figure 4: Effect of mrNPIs on daily growth rates after accounting for the effects of lrNPIs in South

Korea and Sweden. Under no comparison is there evidence of reduction in case growth rates from

mrNPIs, in any country. The point estimates are positive (point in the direction of mrNPIs resulting in

increased daily growth in cases) in 12 out of 16 comparisons.



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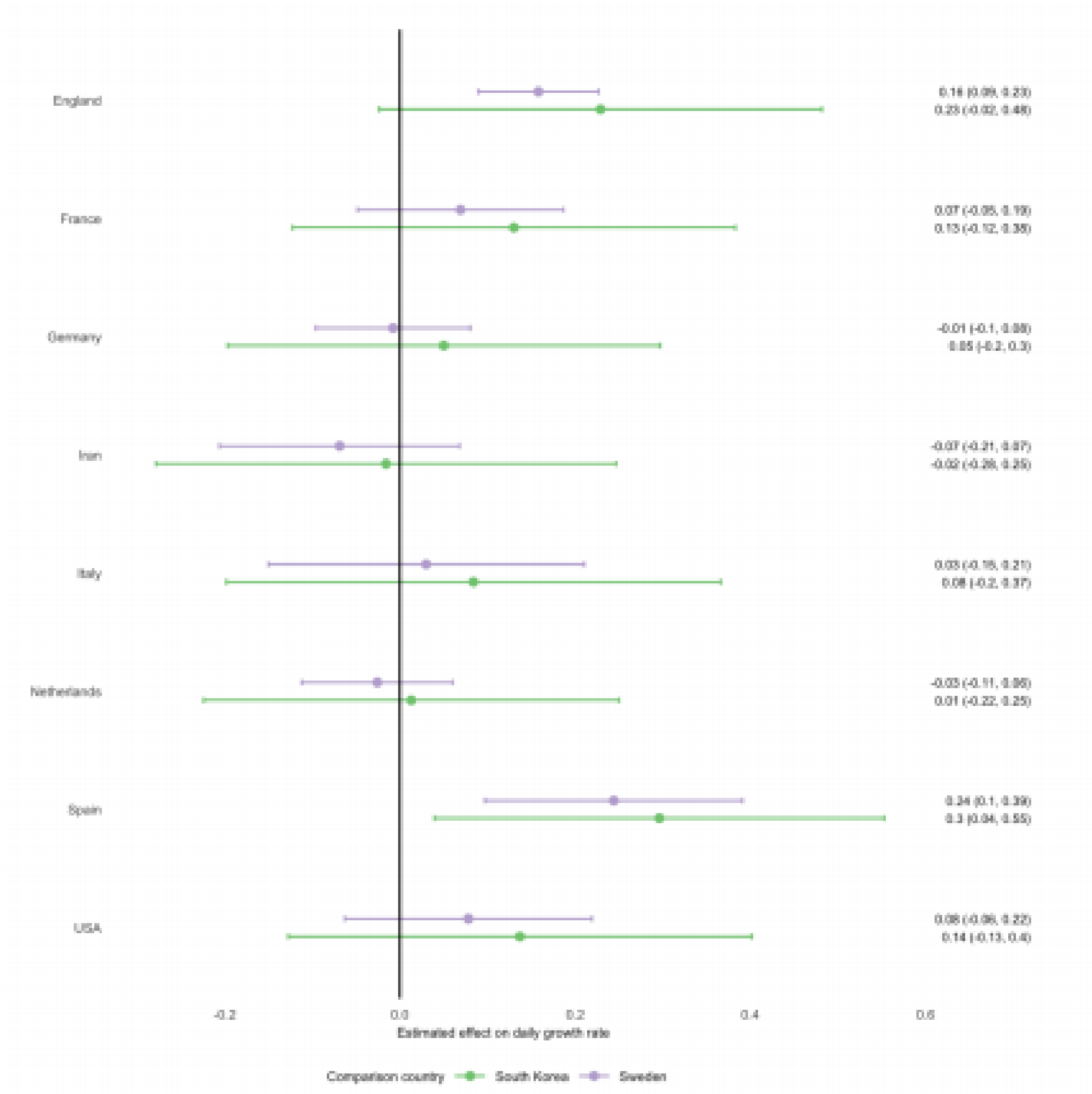

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https://docs.google.com/document/d/1wNh8P8fevAIt8eI_OS_7Iv5jJ_d9qqQyr7d3udSIBKg/edit

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Video's:

Dr. Jay Bhattacharya | The Costs of Covid

https://www.youtube.com/watch?v=AztcQXI9qWc

We Must Question The COVID-19 Status Quo (w/Dr. Jay Bhattacharya)

https://www.youtube.com/watch?v=T_COvdCujaA