文献导读（二）：疫情政策指数研究

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北京时间：2020年6月6日上午8点半–9点

U.S. Time: 8:30-9:00 PM, Jun 6, 2020 (Eastern Time)

Topic

1. Background
2. Research data
3. Methodology
4. Results
5. Summary and discussion

Oxford COVID-19 Government Response tracker (OxCGRT)

Background

- Policies regarding to the COVID-19 emergency differed from each country. In order to better compare and understand the robustness of governmental policies across countries, the Blavatnik School of Government at University of Oxford has developed a "stringency index". This tool aims to track and compare policy responses around the world, rigorously and consistently.

- The OxCGRT includes closure and containment (C1-C8), economic response (E1-E4) and Public health/health system (H1-H5) 17 indicators so far.

Stringent index

- Closures and Containment: C1-school closing, C2-workplace closing, C3-cancel public events, C4 -restrictions on gathering size, C5-close public transport, C6- “shelter-in-place” and home confinement orders, C7- restrictions on internal movement, C8-restrictions on international travel
- Economic response: E1-income support, E2-debt/contract relief for households, E3-fiscal measures, E4-giving international support
- Public health/health system: H1-public information campaign, H2-testing policy, H3-contact tracing, H4-emergency investment in healthcare, H5-investment in Covid-19 vaccines

Research data

- Data source: https://data.humdata.org/dataset/oxford-covid-19-government-response-tracker; https://github.com/OxCGRT/covid-policy-tracker
- Data is collected from publicly available sources such as news articles and government press releases and briefings. These are identified via internet searches by a team of several dozen Oxford University students and staff.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	CountryNam	CountryCode	Date	C1_School cl	C1_Flag	C1_Notes	C2_Workplac	C2_Flag	C2_Notes	C3_Cancel pi	C3_Flag	C3_Notes	C4_Restrictic	C4_Flag	C4_Notes	C5_Close pul	C5_Flag	C5_Notes	C6_Stay at h
2	Aruba	ABW	20200101	0			0			0			0			0			0
3	Aruba	ABW	20200102	0			0			0			0			0			0
4	Aruba	ABW	20200103	0			0			0			0			0			0
5	Aruba	ABW	20200104	0			0			0			0			0			0
6	Aruba	ABW	20200105	0			0			0			0			0			0
7	Aruba	ABW	20200106	0			0			0			0			0			0
143	Afghanistan	AFG	20200101	0		https://en.ur	0		Form Januar	0			0			0		Prior to Marc	0
144	Afghanistan	AFG	20200102	0			0			0			0			0			0
145	Afghanistan	AFG	20200103	0			0			0			0			0			0
146	Afghanistan	AFG	20200104	0			0			0			0			0			0
147	Afghanistan	AFG	20200105	0			0			0			0			0			0
148	Afghanistan	AFG	20200106	0			0			0			0			0			0
149	Afghanistan	AFG	20200107	0			0			0			0			0			0
150	Afghanistan	AFG	20200108	0			0			0			0			0			0

Research data

- Ordinal
  - On a way of simple scale of severity/intensity.
  - Flag variable-If a policy applies only to a sub-region or a specific sector, it would be set as “targeted”, which the value equals to 0; If it applies throughout a country, it would be set as “general” with a value of 1.
- Numeric
  - These indicators measure a specific number in USD value.

Detailed description of indicators

- C1: 0-No measures 1-recommend closing 2- Require closing (only some levels or categories) 3-Require closing all levels; No data-blank
- C2: 0-No 1-recommend closing (or work from home) 2-require closing (or work from home) for some sectors or categories of workers 3-require closing (or work from home) all-but essential workplaces; No data-blank
- C3: 0-No 1-Recommend cancelling 2-Require cancelling; No data-blank
- C4: 0-No 1-Restrictions on very large gatherings (the limit is above 1000 people) 2-Restrictions on gatherings between 100-1000 people 3-Restrictions on gatherings between 10-100 people 4-Restrictions on gatherings of less than 10 people; No data-blank
- C5: 0-No 1-Recommend closing (or significantly reduce volume/route/means of transport available) 2-Require closing (or prohibit most citizens from using it)
- C6: 0-No 1-recommend not leaving house 2-require not leaving house with exceptions for daily exercise, grocery shopping, and 'essential' trips 3-Require not leaving house with minimal exceptions; No data-blank

Detailed description of indicators

- C7: 0-No 1-Recommend closing (or significantly reduce volume/route/means of transport) 2-Require closing (or prohibit most people from using it)
- C8: 0-No 1-Screening 2-Quarantine arrivals from high-risk regions 3-Ban on high-risk regions 4-Total border closure; No data-blank
- H1: 0-No 1 - public officials urging caution about COVID-19 - coordinated public information campaign; No data-blank
- H2: 0-No testing policy 1-Only those who both (a) have symptoms AND (b) meet specific criteria 2-testing of anyone showing COVID-19 symptoms 3-open public testing; No data
- H3: 0-No contact tracing 1-Limited contact tracing-not done for all cases 2-Comprehensive contact tracing -done for all cases; No data
- H4: Record monetary value in USD of new short-term spending on health -If none, enter 0; No data – blank
- H5: Record monetary value announced if additional to previously announced spending -If none, enter 0; No data-blank
- E3: Record monetary value USD of fiscal stimuli, including spending or tax cuts NOT included in H4, If none, enter 0; No data-blank

Methodology

- Composite measures-combine indicators into a general index
  - Simply aggregate the indicators
  - Principal Component Analysis
  - Principal Factor Analysis
- The composite score could be described in following groups
  - Overall government response index: 13 (C1-C8; E1-E2;H1-H3)
  - Stringency index: 11 (C1-C8; H1-H3)
  - Containment and health index: 9 (C1-C8; H1)
  - Economic support index: 2 (E1-E2)

Methodology

- Ex: The stringency index is calculated using only the policy indicators C1-C8 and H1. The value of the index on any given day is the average of nine sub-indices, rescale each indicator between 0-100, and take mean.$I = \frac{1}{k}\sum_{j=1}^{K} Ij$

- If an indicator have a flag variable, and if the value of it equals to 0, it would be treated as a half-step between ordinal values.

Indicator	Nj	Have flag variable?
C1	3 (0,1,2,3)	Yes
C2	3 (0,1,2,3)	Yes
C3	2 (0,1,2)	Yes
C4	4 (0,1,2,3,4)	Yes
C5	2 (0,1,2)	Yes
C6	3 (0,1,2,3)	Yes
C7	2 (0,1,2)	Yes
C8	4 (0,1,2,3,4)	No
H1	2 (0,1,2)	Yes

Methods

$$I_{j,t} = 100\frac{v_{j,t} - 0.5(F_j - f_{j,t})}{N_j}$$

Indicator	$v_{j,t}$	$f_{j,t}$	N_j	F_j	$I_{j,t}$
C1	2	1	3	yes=1	66.67
C2	no data	no data	3	yes=1	0.00
C3	2	0	2	yes=1	75.00
C4	2	0	4	yes=1	37.50
C5	0	null	2	yes=1	0.00
C6	1	0	3	yes=1	16.67
C7	1	1	2	yes=1	50.00
C8	3	N/A	4	no=0	75.00
E1	2	0	2	yes=1	75.00
E2	2	N/A	2	no=0	100.00
H1	2	0	2	yes=1	75.00
H2	3	N/A	3	no=0	100.00
H3	2	N/A	2	no=0	100.00

Results

Figure 3: Reported COVID-19 deaths and government response index, selected countries

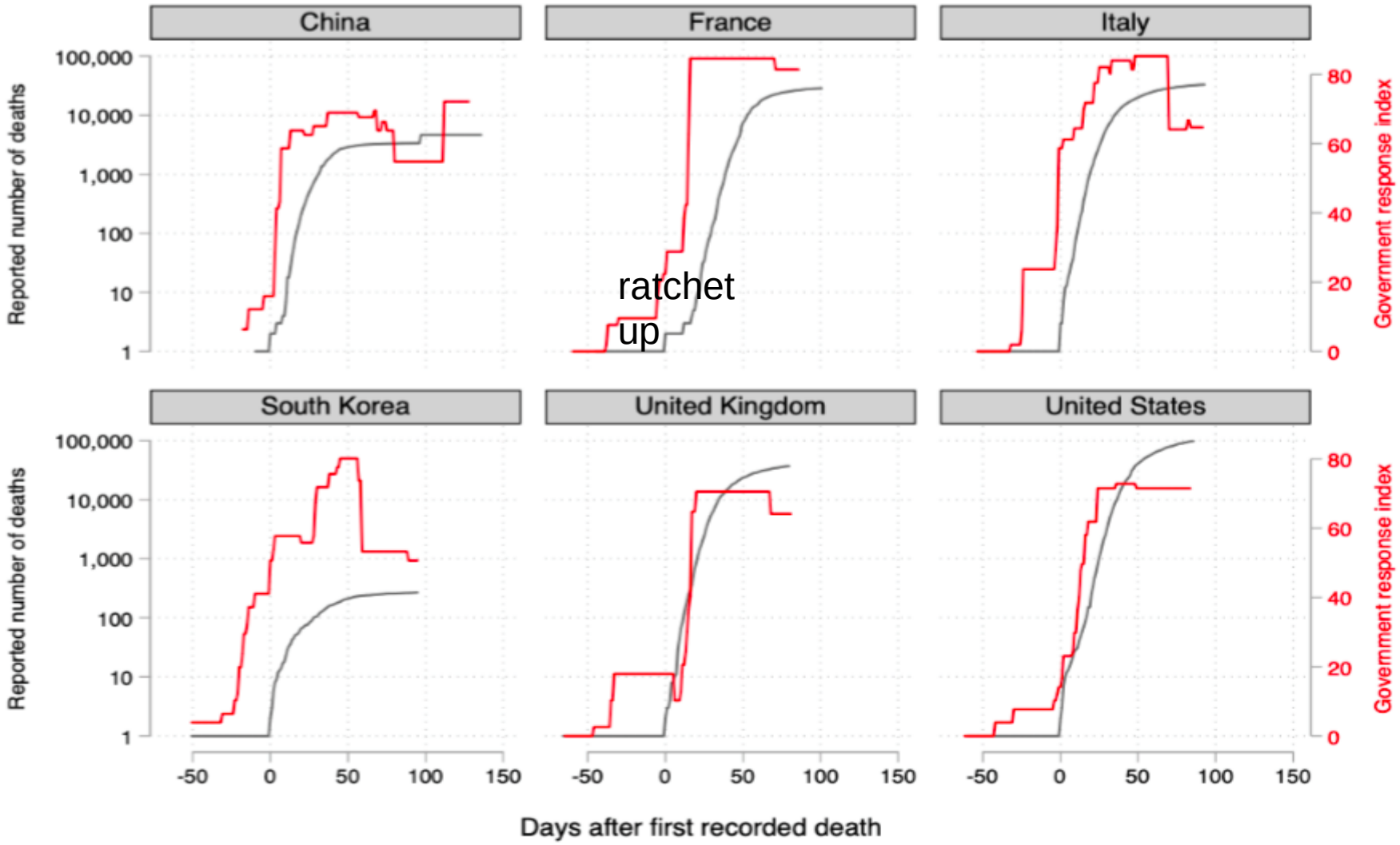
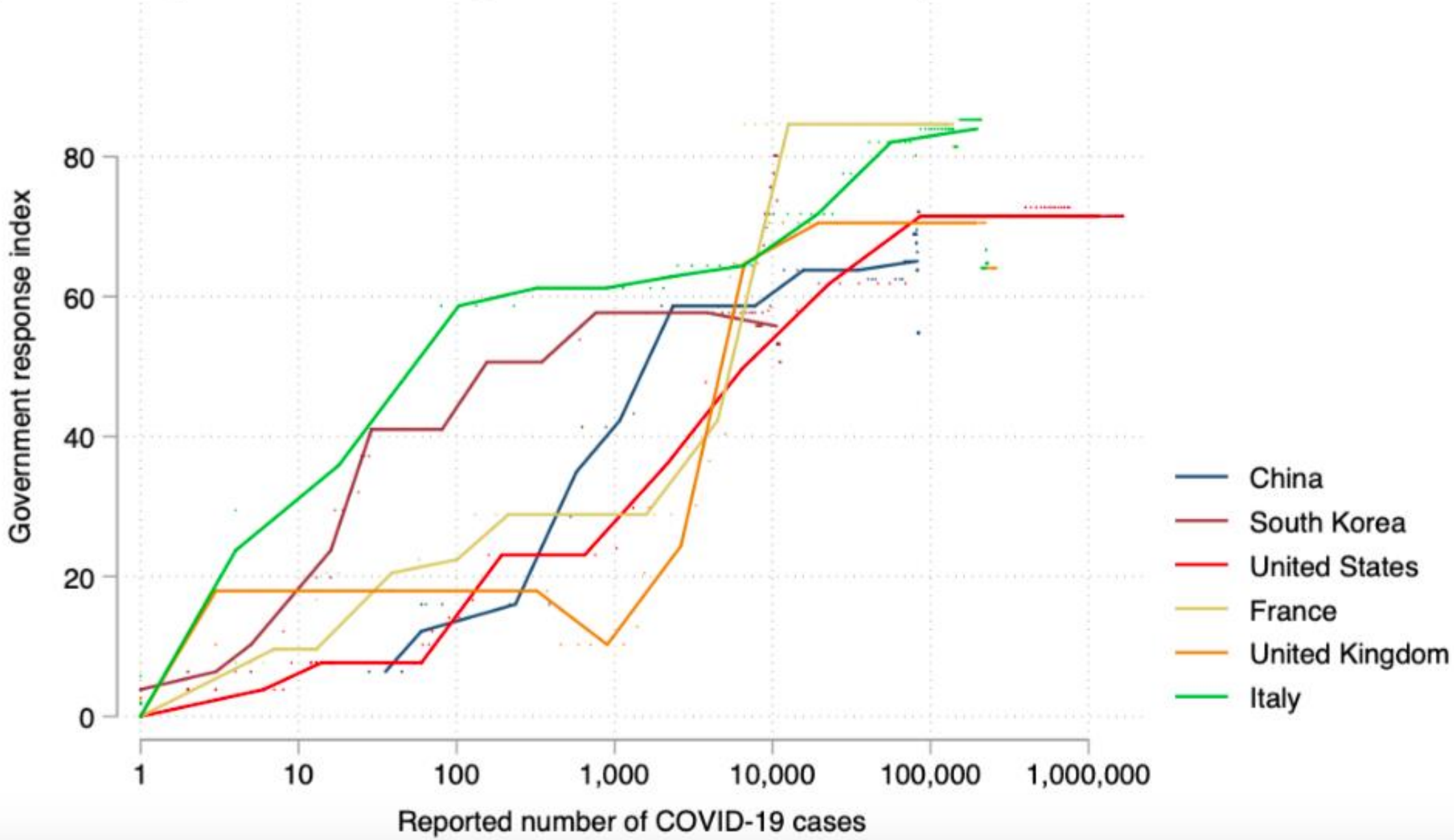
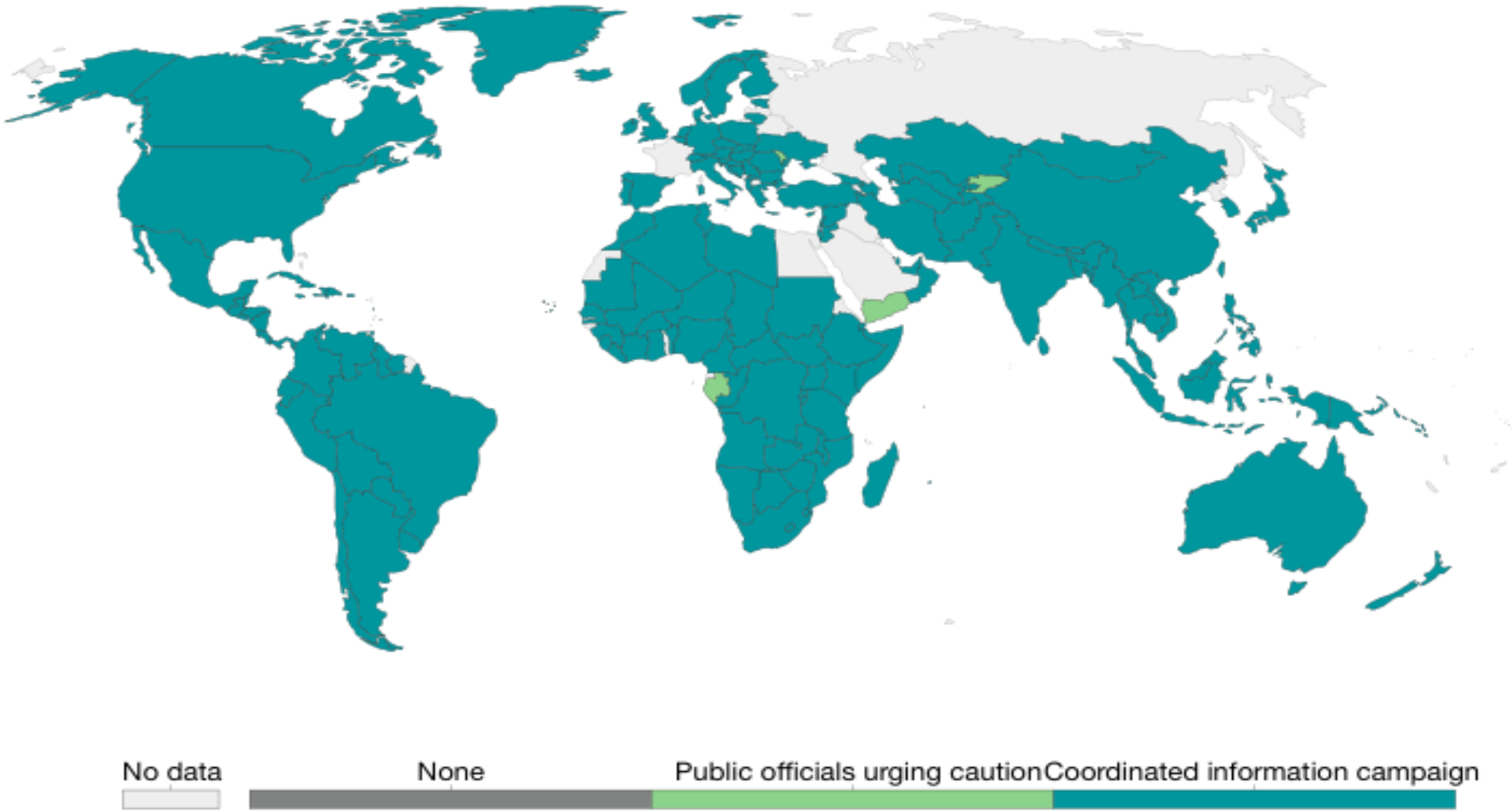


Figure 5. Response-Risk change for selected countries



Public information campaigns on the COVID-19 pandemic, Jun 5, 2020

Our World in Data



Source: Hale, Webster, Petherick, Phillips, and Kira (2020). Oxford COVID-19 Government Response Tracker – Last Updated 5th June.
ourworlddindata.org/coronavirus • CC BY

Summary and Discussion

- The index could be able to reflect the effects of measures taken in response to COVID-19 along with time.
- The index allows to compare the stringency of polies across different countries and provides a reference for other countries on the treatment of COVID-19.
- The index also contains an economic aspect (like income support and debt belief)
- Whether the 17 indicators are proper to reflect the stringency of polies is still under discussing.
- Higher score ≠ The effectiveness of a government's response

Reference

Oxford COVID-19 Government Response Tracker. https://www.bsg.ox.ac.uk/research/research-projects/oxford-covid-19-government-response-tracker Hale, Thomas and Samuel Webster (2020).

Oxford COVID-19 Government Response Tracker. What's changes? https://www.bsg.ox.ac.uk/sites/default/files/OxCGRT.%20What%27s%20changed%2024%20April%202020.pdf

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Financial post. This index helps compare countries' differing COVID-19 policies. https://business.financialpost.com/opinion/this-index-helps-compare-countries-differing-covid-19-policies

Hale, Thomas, Noam Angrist, Beatriz Kira, Anna Petherick, Toby Phillips, Samuel Webster. Variation in Government Responses to COVID-19. *Blavatnik School of Government Working Paper.* May 25, 2020.