China Data Institute

Center for Geographic Analysis
Harvard University

社会地理计算联合研究中心
Geocomputation Center for Social Science

Spatiotemporal Thinking, Computing and Applications
STC

疫情封禁政策响应指数导读

沙德轩，乔治梅森大学，NSF时空创新中心

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Outline

- 数据背景
- 数据来源
- 指标量化方法
  - 全球各国
  - 全美各州
- 数据结构
- 数据下载和空间可视化

数据背景

- 新冠肺炎疫情席卷全球，全球新冠肺炎确诊病例超过549万例，死亡病例超过34/6万例。(截止2020年5月25日)
- 各国政府在应对措施方面或有不同，哪些国家的政府在疫情防控方面政策给力和措施得力？
- “牛津大学新冠疫情政府响应追踪系统”发布(简称OxCGRT)。将各国疫情防控政策加以标准化，从而能够进行跨国比较和跨时追踪。
- NSF时空创新中心借助OxCGRT的标准化量表对全美国50个州、DC特区和海外属地的防控政策数据加以整理和标准化，对比美国各州封禁政策的严厉程度。

数据来源

- 原始数据来源
  - 新闻报道 (news articles)
  - 政府公告 (government press releases and briefings)
  - 公开信息，通过互联网搜索获取 (internet searches)
- 覆盖范围
  - 166个国家和地区 (截止2020年5月23日)
  - 全美：50个州，华盛顿特区，美属维尔京群岛，波多黎各，关岛

指标量化方法(全球)

OxCGRT 的17个量化指标

ID	Name	Type	Targeted/ General?
Containment and closure			
C1	School closing	Ordinal	Gegra
C2	Workplace closing	Ordinal	Gegra
C3	Cancel public events	Ordinal	Gegraphic
C4	Restrictions on gathering size	Ordinal	Gegraphic
C5	Close public transport	Ordinal	Gegraphic
C6	Stay at home requirements	Ordinal	Gegraphic
C7	Restrictions on internal movement	Ordinal	Gegraphic
C8	Restrictions on international travel	Ordinal	No
Economic response			
E1	income support	Ordinal	Sector
E2	debt/contract relief for households	Ordinal	No
E3	fiscal measures		No
E4	giving international support		No
Heatlh systems			
H1	Public information campaign	Ordinal	Gegraphic
H2	testing policy	Ordinal	No
H3	contact tracing	Ordinal	No
H4	emergency investment in healthcare		No
H5	investment in Covid-19 vaccines		No
Miscellanious			
M1	Other responses	Text	No

密切接触和公众聚集的干预措施

政府财政措施

医疗系统政策

- “新冠肺炎政府响应严厉指数”主要对各国封禁的政策变化进行描述。
- 具体通过对C1-C8和H1的记录值进行常数加权进行计算。
- 计算依据每个指标记录的最大值线性缩放到0-100的分数区间，如果记录缺省则使用0.3替代。最终把9个因素求平均值。

Reference: Variation in government responses to COVID-19

BSG-WP-2020-032-v5.0_0.pdf

https://github.com/OxCGRT/covid-policy-tracker/blob/master/documentation/codebook.md

指标量化方法(全美)

Attribute Name	Description	Example
Data	Date	20200301
State Name	Name of the state	Alabama
StateCode	State name abbreviation	AL
S1_School Closure	Ordinary scale records closings of schools and universities	0- No measure 1- Recommend closing 2- Require closing
S1_IsGeneral	Binary scale for geographic scope	0 – Targeted 1 - General
S1_Notes	Website link for the specific policy	https://www.mass.gov/doc/march-16-2020-k-12-school-closing-order
S2_Workplace closing	Ordinary scale records closings of workplaces	0 – No measure 1- Recommend closing 2- Required closing
S2_IsGeneral	Binary scale for geographic scope	0 – Targeted 1 - General
S2_Notes	Website link for the specific policy	
S3_Cancel public events	Ordinary scale records canceling public event	0 – No measure 1- Recommend cancelling 2- Required cancelling
S3_IsGeneral	Binary scale for geographic scope	0 – Targeted 1 - General
S3_Notes	Website link for the specific policy	
S4_Close public transport	Ordinary scale records closings of public transport	0- No measure 1- Recommend closing 2- Required closing
S4_IsGeneral	Binary scale for geographic scope	0 – Targeted 1 - General
S4_Notes	Website link for the specific policy	
S5_Public information campaigns	Ordinary scale records presence of public info campaigns	0- No COVID-19 public information campaign 1- COVID-19 public information campaign
S5_IsGeneral	Binary scale for geographic scope	0 – Targeted 1 - General
S5_Notes	Website link for the specific policy	
S6_Restrictions on internal movement	Ordinary scale records closings restrictions on internal movement	0- No measure 1- Recommend closing 2- Required closing
S6_IsGeneral	Binary scale for geographic scope	0 – Targeted 1 - General
S6_Notes	Website link for the specific policy	
S7_InternationalNational travel controls	Ordinary scale records restrictions on international/national travel	0- No measure 1- Screening 2- Quarantine on high-risk regions 3- Ban on high-risk regions
S7_Notes	Website link for the specific policy	
StringencyIndex	The calculated stringency index according to the policy	14.28571429

数据结构和格式

Data API

By country over time

The endpoints were updated on 28 April 2020. You may want to migrate to Version 2.

This endpoint provides JSON by with country stringency data, confirmed cases and deaths on a day by da
The `stringency_actual` field is the daily calculated data. The `stringency` field is a convenience field fo
to 7 days) if data in unavailable for a given day.

Endpoint

https://covidtrackerapi.bsg.ox.ac.uk/api/stringency/date-range/{YYYY-MM-DD}/{YYYY-MM-DD} (deprecated)

https://covidtrackerapi.bsg.ox.ac.uk/api/v2/stringency/date-range/{YYYY-MM-DD}/{YYYY-MM-DD}

where last two values represent start and end dates

Response

```
{
  scale: Object //Scale for visualisations
    {
      deaths: Object, //Min and max int values in returned data
      confirmed: Object, //Min and max int values in returned data
      stringency: Object, //Min and max int values in returned data
    },
  countries:
    [
      Array of Strings //3 letter country codes in returned data
    ],
  data: {
    YYYY-MM-DD: {  //Key is date in YYYY-MM-DD format
      BRA: {  //3 letter country code
        date_value: YYYY-MM-DD, //Repeat of date in key
        country_code: BRA, //Repeat of country code in key
        confirmed: Integer, //Value of confirmed cases
        deaths: Integer, //Value of deaths
        stringency_actual: Integer, //Calculated value for day. Can be null if no value available
        stringency: Integer, //Display value for day **1.
        stringency_legacy: Integer, //Legacy calculation of stringency used until 28 April 2020,
        stringency_legacy_disp: Integer, //Legacy display value for day (**1) used until 28 April 2020
      }
    }
  }
}

**1 Will be actual value if available. For previous 7 days will take last available value. Otherwise null.
```

CSV of the latest data

```
CountryName,CountryCode,Date,C1_School closing,C1_Flag,C2_Workplace closing,C2_Flag,C3_Cancel public events,C3_Flag,C4_Restrictions on
gatherings,C4_Flag,C5_Close public transport,C5_Flag,C6_Stay at home requirements,C6_Flag,C7_Restrictions on internal
movement,C7_Flag,C8_International travel controls,E1_Income support,E1_Flag,E2_Debt/contract relief,E3_Fiscal measures,E4_International
support,H1_Public information campaigns,H1_Flag,H2_Testing policy,H3_Contact tracing,H4_Emergency investment in healthcare,H5_Investment in
vaccines,M1_Wildcard,ConfirmedCases,ConfirmedDeaths,StringencyIndex,StringencyIndexForDisplay,LegacyStringencyIndex,LegacyStringencyIndexForDisplay
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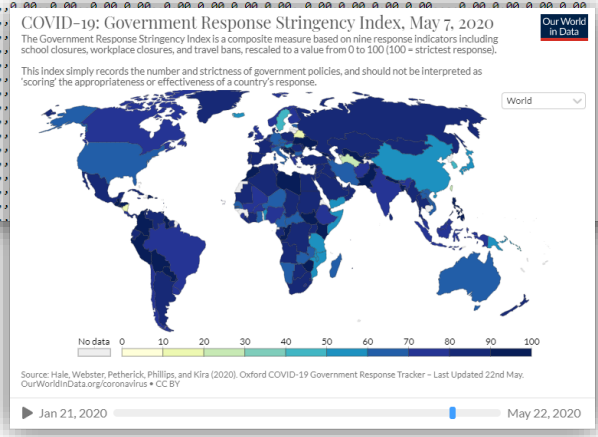
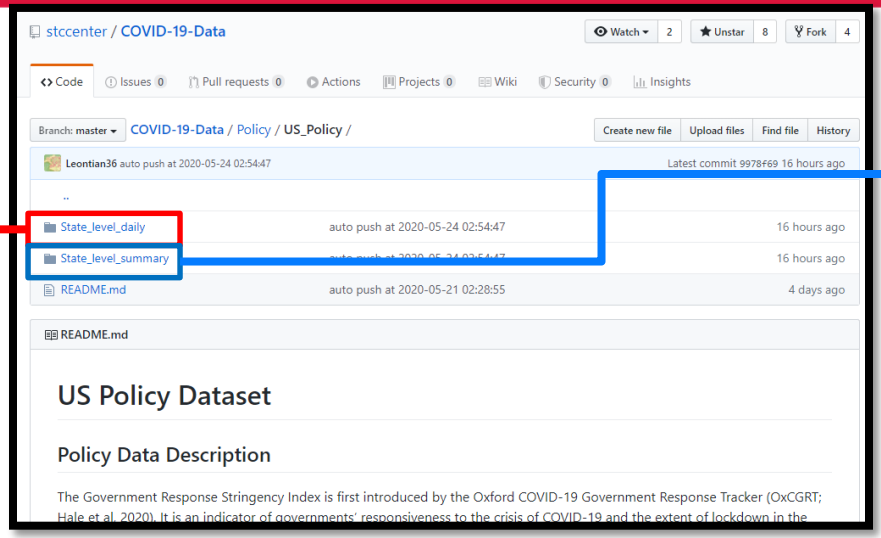
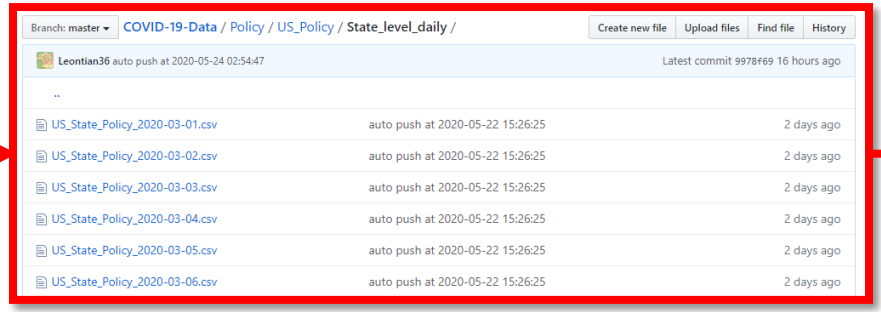
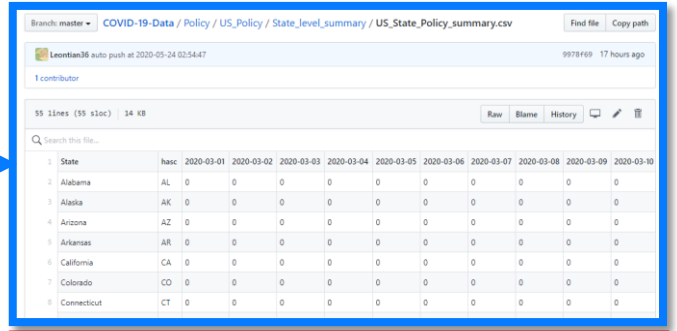
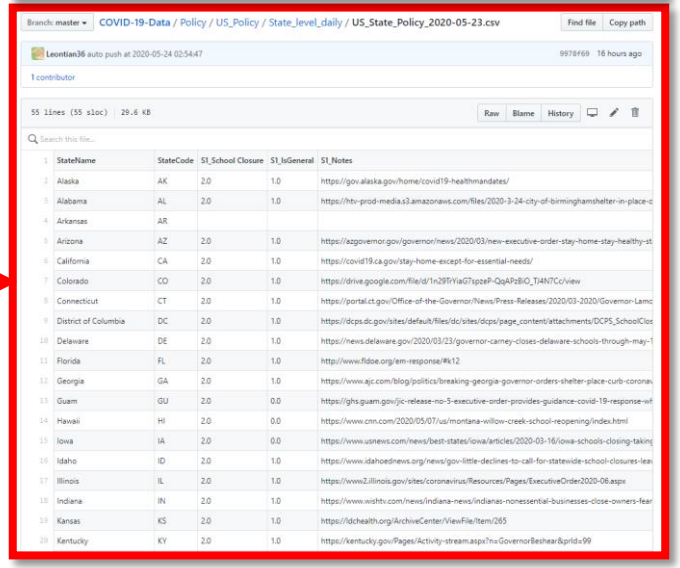


数据结构和格式





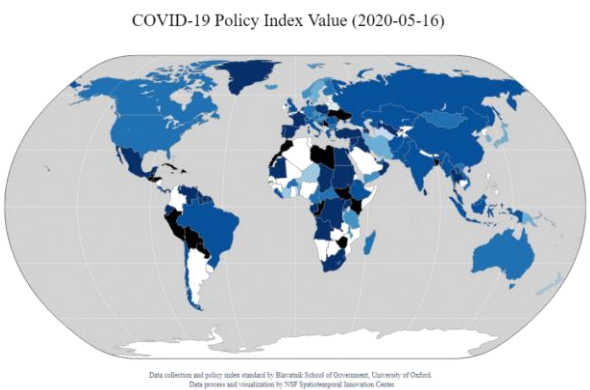




https://github.com/stccenter/COVID-19-Data/tree/master/Policy/US_Policy

数据下载和空间可视化

- 数据下载
  - Coronavirus Government Response Tracker
    https://www.bsg.ox.ac.uk/research/publications/variation-government-responses-covid-19
  - US Policy Dataset (STCenter) https://github.com/stccenter/COVID-19-Data/tree/master/Policy/US_Policy
- 简单空间可视化
  - 全球各国
  - 全美各州



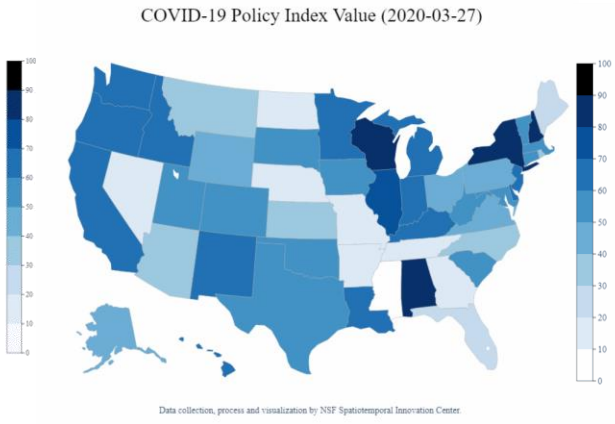


Figure 2: COVID-19 Government Response Stringency Index by country, April 5, 2020

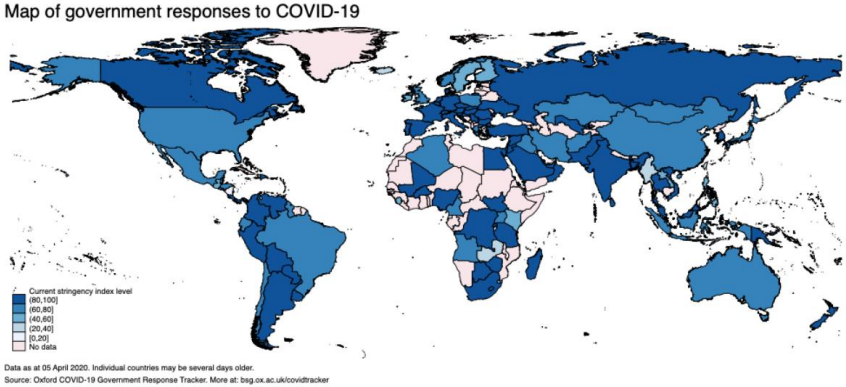


Figure 3: Reported COVID-19 deaths and stringency Index, selected countries

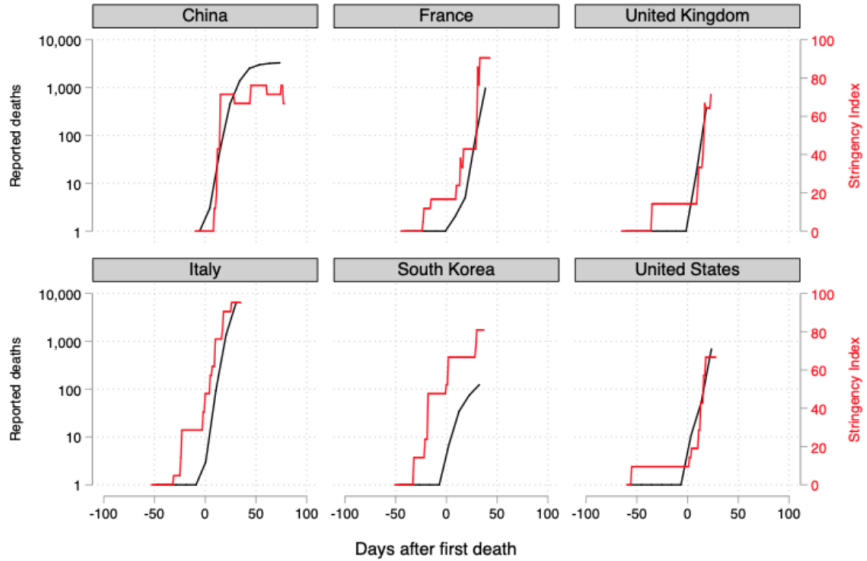
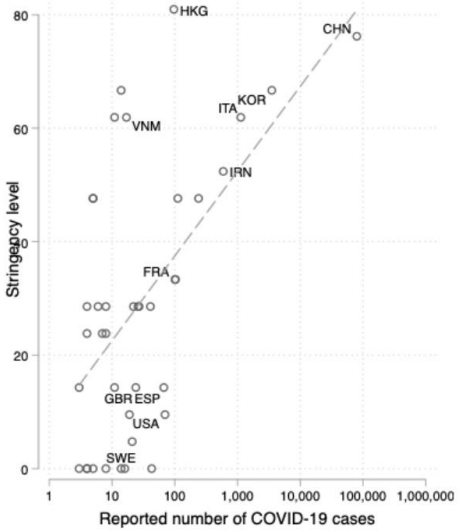
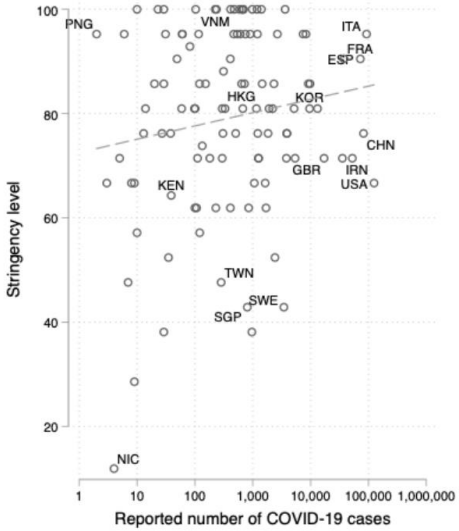


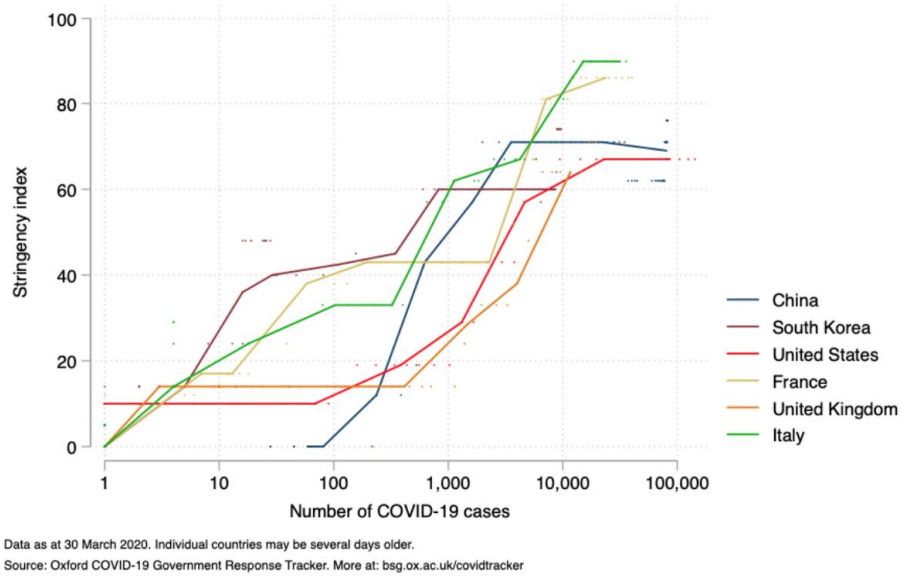
Figure 4: Stringency-Risk Ratio

(a) as at 1 March 2020



(b) as at 5 April 2020





Data as at 30 March 2020. Individual countries may be several days older.

Source: Oxford COVID-19 Government Response Tracker. More at: bsg.ox.ac.uk/covidtracker

导读参考材料

- *Hale, Thomas, Sam Webster, Anna Petherick, Toby Phillips, and Beatriz Kira (2020). Oxford COVID-19 Government Response Tracker, Blavatnik School of Government. Data use policy: Creative Commons Attribution CC BY standard.*
- More COVID-19 data in STCenter https://covid-19.stcenter.net/index.php/data-access/

List of Data are being collected, and will be shared with the community.

Please suggest new data (not on the list but would be useful to your research) by emailing to dsha at gmu dot edu or fill out the form.

Data source	Data type	Data description	Visual Analytics (Demo)	Download Link
Base Data	Base maps	Global basemap with country scale		Global Admin0 basemap (Stcenter)
		Country basemap for province and city scale	Basemap join toturial	Admin1/2 basemap under country folders (Stcenter)
	Census shapefile of USA	TIGER/Line® Shapefiles		TIGER
Virus Data	Virus Data of multiple countries	Daily reports on virus cases by state/province scales	COVID-19 Spreading in the U.S.	Daily report and time-series summary for state/province level (Stcenter)
		Lastest virus cases summary by state/province scales		
	Virus Data of the World	Daily reports on virus cases by country scale	COVID-19 spreading around the world	COVID-19-Data Global (Stcenter)
		Lastest virus cases summary by country scale		
Facility data	Health facility data	Point data of Hospital in USA		U.S. Department of Homeland Security
		Point data of Hospital in China		China Data Lab
Migration data	Migration Data of China	Matrix tables with daily city to city floating population (China)		China Data Lab
Papers	Web of	Collect COVID-19 related papers from the web of science, Google	Publication analysis module	Coming soon

Data collection team

Aditya Lolla
Ahmed Safar
Alejandrina Cripovich
Alfredo Ortega
Andrea Garaiova
Andrea Klaric
Andrew Wood
Anjali Viswamohanan
Anupah Makoond Makoond
Arkar Hein
Babu Ahamed
Barbara Roggeveen
Beatriz Kira
Ben Luria
Blessing Oluwatosin Ajimoti
Caroline Weglinski
Charlotte Rougier
Chloe Mayoux
Clara Pavillet
Connor Lyons
Dane Alivarius
Dario Moreira
Dita Listya
Eleanor Altamura
Emily Cameron-Blake
Fatima Zehra Naqvi
Femi Adebola
Finn Klebe
Francesca Lovell-Read
Francesca Valmorbida McSteen
Gabriel Podesta
Grace Mzumara
Guillermo Miranda
Hakeem Onasanya
Hala Sheikh Al Souk
Helen Taffow
Huma Zile
Ilya Zlotnikov
Pamela Gongora
Paola Del Carpio Ponce
Paola Schietekat Sedas
Patricia Silva Castillo
Pollyana Lima
Priya Lakshmy Tbalasubramaniam
Priyanka Bijlani
Qingling Kong
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