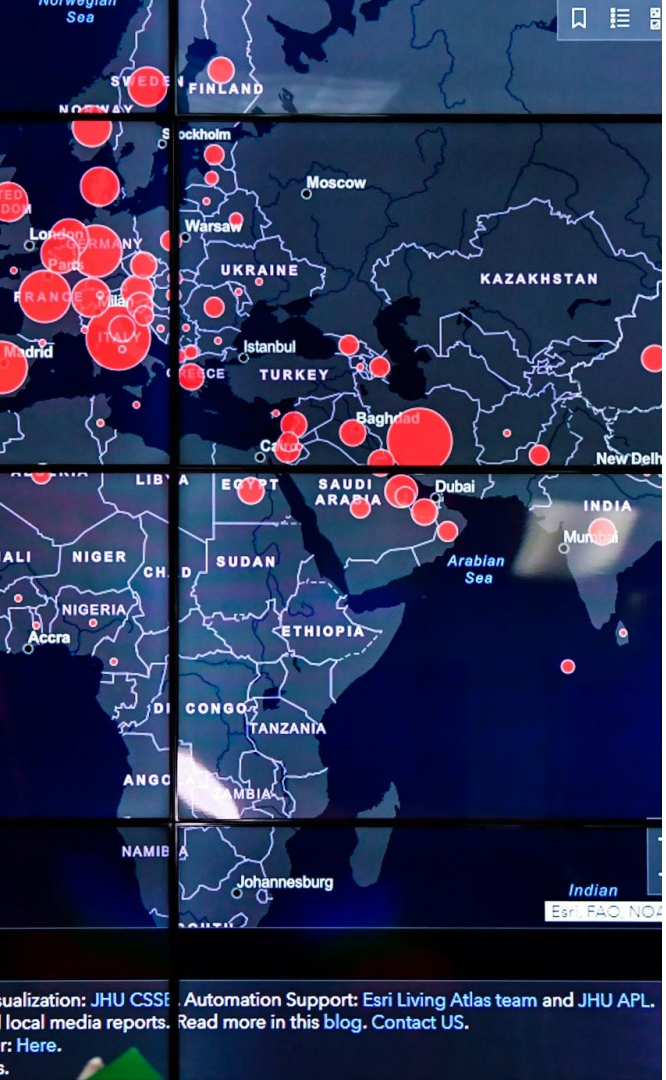

Data to Fight COVID-19 Pandemic and Where to Find Them

Nicolò Gozzi
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Datasets

1. Mobility:

- Google COVID-19 Community Mobility Report
- Apple COVID-19 Mobility Trends
- Facebook Mobility Range Maps

2. Policy and Behaviours:

- COVID-19 Government Response Tracker
- COVID-19 Beliefs, Behaviors & Norms Survey

3. Epidemiological data:

- COVID-19 Data Repository by CSSE at JHU
- Vaccine data

4. Population and socio-demographic:

- Facebook population density maps
- Facebook Relative Wealth Index

5. Information:

- Online News (GDELT, NewsAPI)
- Google searches

Mobility

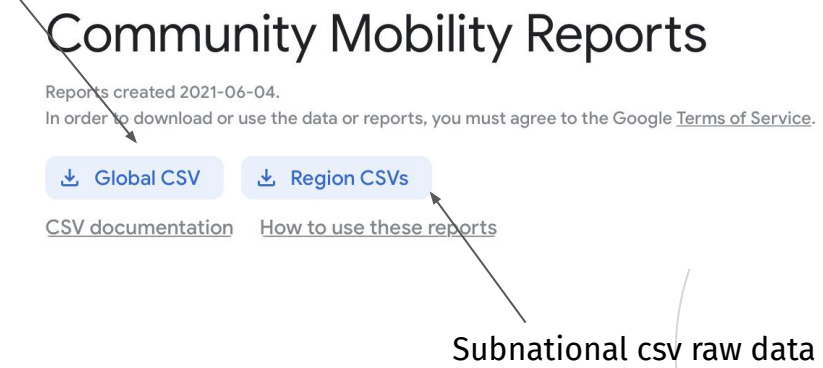
Google COVID-19 Community Mobility Report

Google COVID-19 Community Mobility Reports

Mobility changes w.r.t pre-pandemic baseline to specific Locations:

- Workplaces
- Retail and Recreation
- Parks
- Transit and Stations
- Grocery and Pharmacy
- Residential

National csv raw data

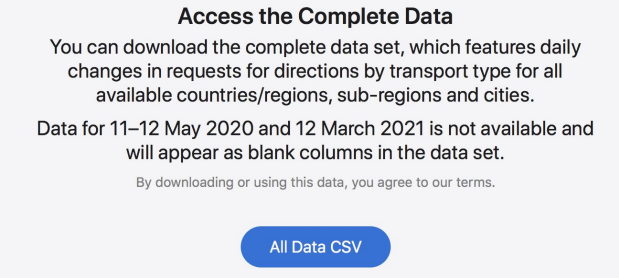


Subnational csv raw data

Apple Mobility Trends

COVID-19 - Mobility Trends Reports - Apple

- Similar to the Google data, but this report reflects changes in requests for directions in Apple Maps.
- It gives information about changes in different types of transport (walking, driving, public transportation)
- You can access the whole dataset available for different countries, regions, cities



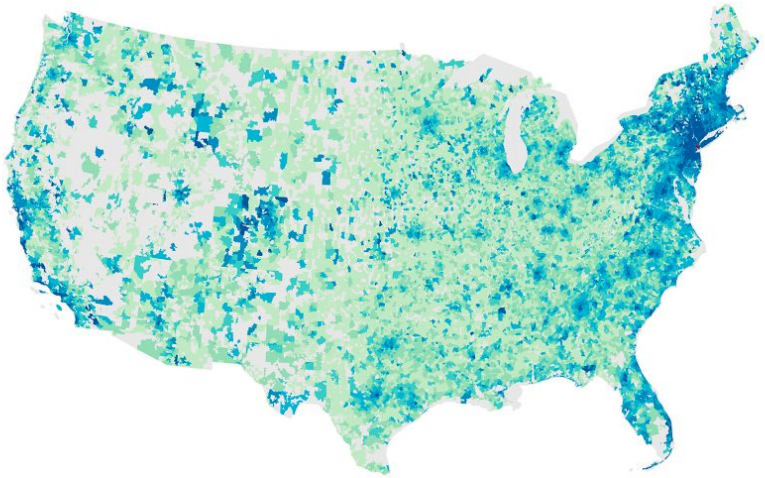
Facebook Mobility Range Maps

Movement Range Maps

This dataset provides two metrics:

- Change in Movement looks at how much people are moving around and compares it with a baseline period
- Stay Put looks at the fraction of the population that appear to stay within a small area during an entire day

You can download data for 153 countries, also at the subnational level.



Policy

COVID-19 Government Response Tracker

OxCGRT/covid-policy-tracker: Systematic dataset of Covid-19 policy, from Oxford University

The Oxford Covid-19 Government Response Tracker (OxCGRT) collects systematic information on which governments have taken which measures, and when, for example:

- Stringency index
- Economic support index
- Containment and health measures (e.g., school closures)

For US and Canada, also subnational data are available

COVID-19 Beliefs, Behaviors & Norms Survey

MIT COVID-19 Survey Aggregate Data & API

- Besides Government responses, we should also care about people response!
- Surveys can help tracking people behaviors and reactions over time
- For the MIT COVID-19 Survey you can access aggregated data using an API

Epidemiological Data

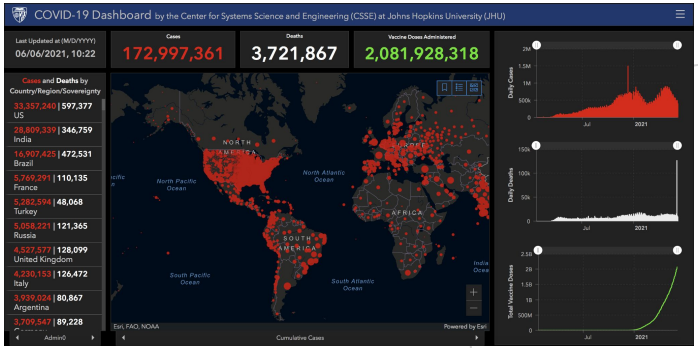
COVID-19 Data Repository by CSSE at Johns Hopkins University

[CSSEGISandData/COVID-19: Novel Coronavirus (COVID-19) Cases, provided by JHU CSSE]

This is the data repository for the 2019 Novel Coronavirus Visual Dashboard operated by the Johns Hopkins University Center for Systems Science and Engineering (JHU CSSE)

- confirmed deaths and cases
- recovered and active cases
- case fatality rate, incidence rate

Both at national and subnational level



Coronavirus (COVID-19) Vaccinations

Datasets on COVID-19 vaccinations:

- Coronavirus (COVID-19) Vaccinations
- COVID-19 Vaccinations in the United States,Jurisdiction | Data | Centers for Disease Control and Prevention
- Data on COVID-19 vaccination in the EU/EEA

UK COVID-19 Data API

Developer's guide | Coronavirus in the UK

The UK Government developed an API to access COVID-19 related data, such as:

- New cases / deaths by borough
- Pillars Testing data
- Hospital Admissions
- Age profile of cases

Population and Sociodemographic Data

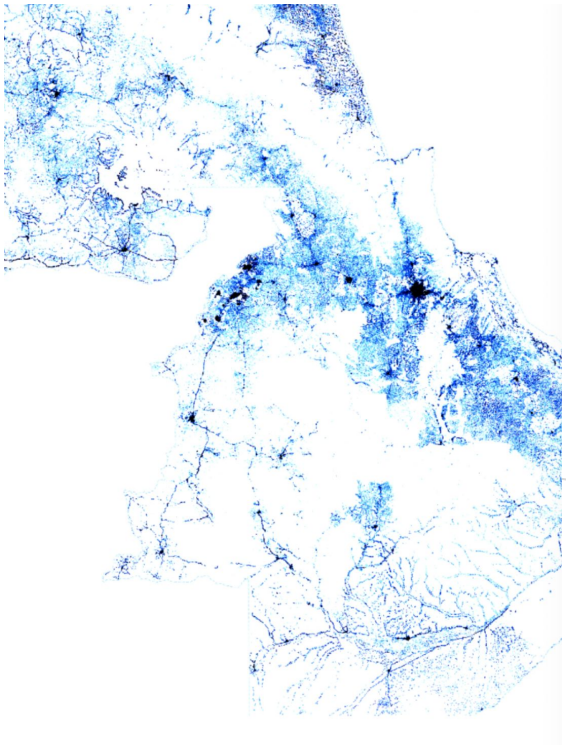
Facebook Population Density Maps

Kenya: High Resolution Population Density Maps

(sample link for Kenya, you can search also for other countries on HDX website)

High resolution population density maps:

- Overall population density
- Age breakdown: Children (ages 0-5), Youth (ages 15-24), Elderly (ages 60+)
- Gender breakdown: Men, Women, Women of reproductive age (ages 15-49)
- Resolution and coverage: 30-meter grid tiles in nearly every country around the world



Facebook Relative Wealth Index

Relative Wealth Index

The Relative Wealth Index predicts the relative standard of living within countries using de-identified connectivity data, satellite imagery and other nontraditional data sources.

- coverage the data is provided for 93 low and middle-income countries
- resolution: 2.4km resolution

Information

NewsAPI

News API – Search News and Blog Articles on the Web

- Get online news from different countries / languages
- Free account required to get API key
- The free version has limitations (only articles that are not older than a month, limited request per day, limit of the results on each request, ...)

The GDELT Project

The GDELT Project

*"the GDELT Project **monitors the world's broadcast, print, and web news** from nearly every corner of every country in over **100 languages** and **identifies** the **people, locations, organizations, themes, sources, emotions, counts, quotes, images and events**."*

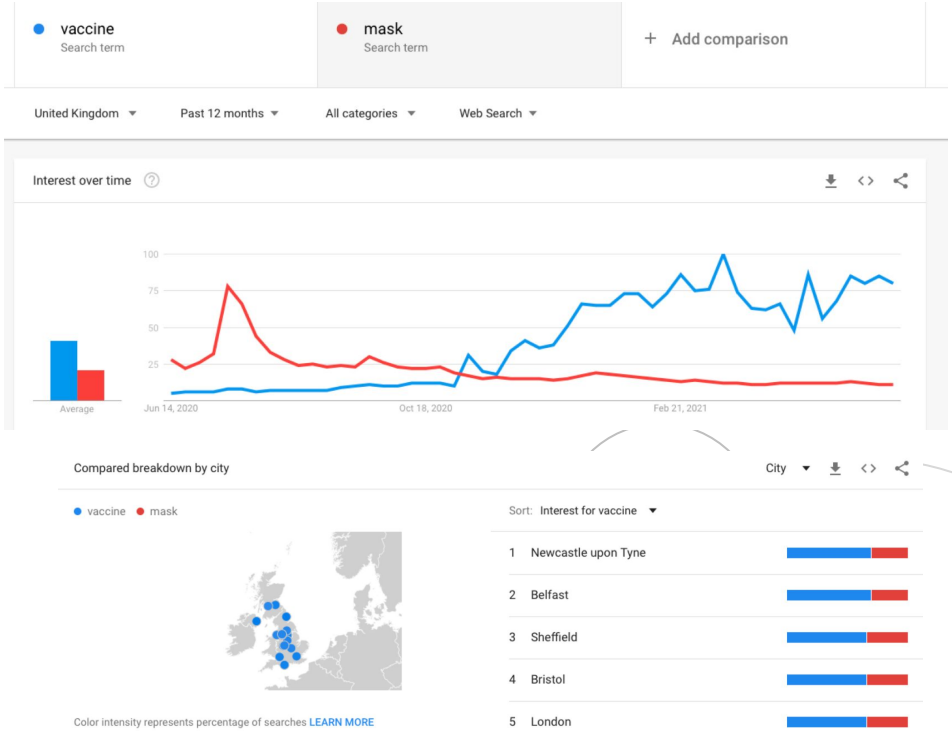
Many ways to access this data:

- Use the BigQuery in Google Cloud Platform (difficult way but more complete data)
- Or downloads single files of specific datasets:
  - A New Dataset For Exploring The Coronavirus Narrative In Global Online News – The GDELT Project
  - A New Dataset For Exploring The Global Multilingual Covid-19 Online News Narrative – The GDELT Project
  - Data: Querying, Analyzing and Downloading

Google Trends

Google Trends

- With Google Trends you can explore the volume of Google searches for given keywords
- You can compare different keywords
- You can compare different places
- You can download from Google Trends or try APIs (pytrends · PyPI)



APIs

What is an API?

API = application programming interface

An API defines interactions between two software applications. More in details, it defines:

- the kinds of calls or requests that can be made
- how to make them
- the data formats that should be used
- the conventions to follow

Here we will refer to **Web API** (i.e., APIs made for the Web, websites)

API Wrappers

We will work with Python:

- in general, specific library exist to send data request to the API (these libraries make our life easier)
- These libraries are called API wrapper
- If such a library do not exist, we can still send a request to the API and get the data, but we have to code a bit more