Predicting how long it will take for most people to get vaccinated against COVID 19

Bing He

Contact: hebingjlu@gmail.com
https://github.com/bing-he/Subnational-COVID-19-vaccination

Motivation:

People worldwide are working to vaccinate a high percentage against COVID-19 as soon as possible to stop the spread of the disease and end the pandemic in the world. This project uses the accumulated COVID 19 vaccination data for most countries in the world. The motivation is to figure out which country and which subnational region quickly helps people get COVID19 vaccinations, how much percent of people have been injected for now, and finally, predict how long it will take for each country or subnational region to have most people vaccinated.

United States

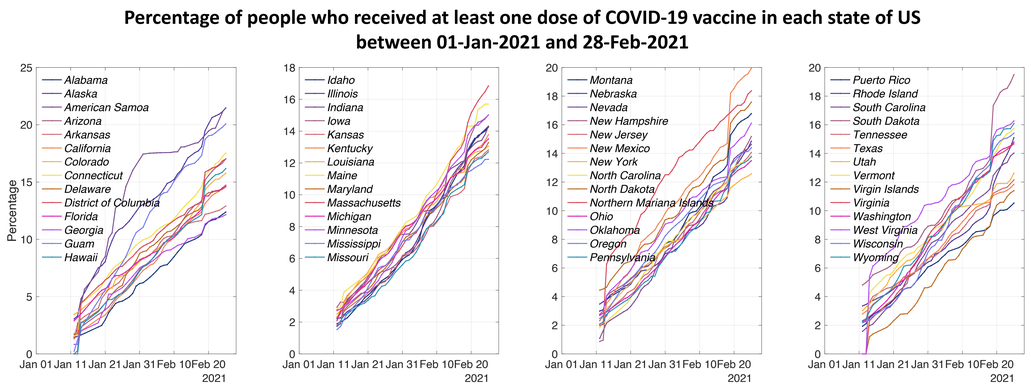


Figure 1. *The vaccination percentage of each state in US (at least one dose). I applied a linear regression to fit the vaccination percentage data and calculated the corresponding slope to represent the vaccination rate.*

Days to reach 70% population vaccination (at least one dose) from 28-Feb-2021

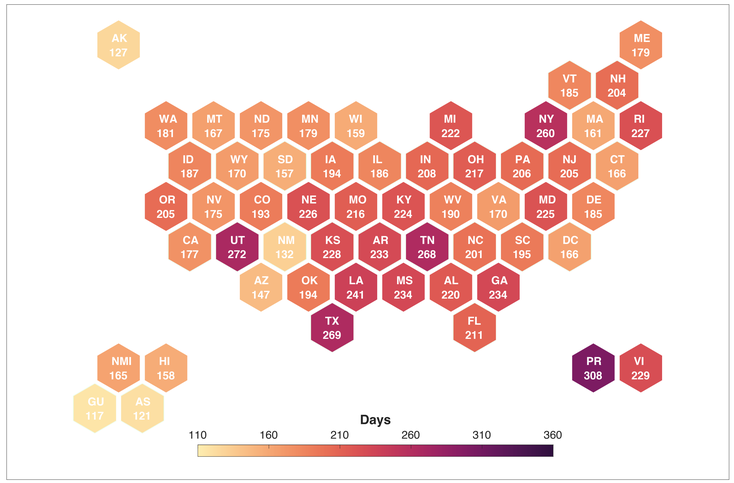


Figure 2. *Based on the calculated vaccination rate (Rate) and vaccination percentage (Per) on 28-Feb-2021, I calculated how many days to reach 70% of people vaccinated for each state.*

$$Days = \frac{70\% - Per\%}{Rate}$$

70% vaccination: average 197 days
80% vaccination: average 233 days
85% vaccination: average 250 days

Countries

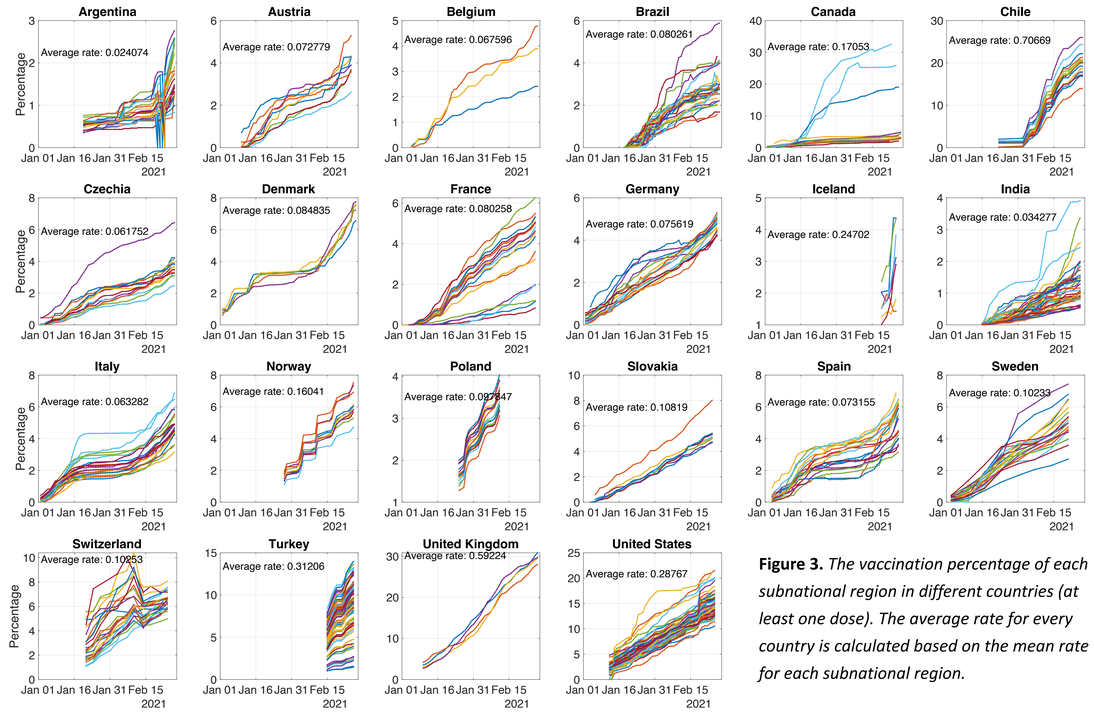
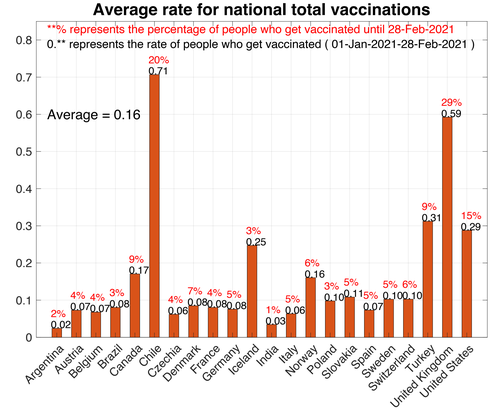
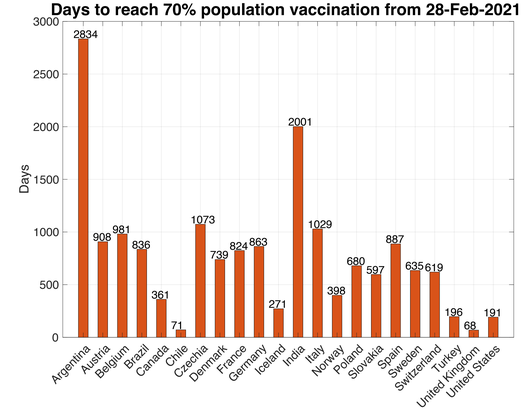


Figure 3. *The vaccination percentage of each subnational region in different countries (at least one dose). The average rate for every country is calculated based on the mean rate for each subnational region.*

Average rate for national total vaccinations



Days to reach 70% population vaccination from 28-Feb-2021



Acknowledgement:
This project is inspired by a wonderful project. https://github.com/sociepy/covid19-vaccination-subnational
I refer the US vaccination data from this website. https://www.npr.org/sections/health-shots/2021/01/28/960901166/how-is-the-covid-19-vaccination-campaign-going-in-your-state
The code is written by MATLAB.