Covid-19: Stalking

Orestis Kopsacheilis[1] & Lionel Roger[2]

[1] School of Economics, University of Nottingham
[2] ODI

Abstract

TBD

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1 Data description

Following a long process of collecting and compiling data, we are now in a position to claim that we basically have (or can easily obtain) every available information related to Covid-19 at a country level (and often in a more disaggregate level too).

We can summarise the data we are currently focusing on in four layers (always referring at the country level unless specified otherwise).

1. Movement according to the Google reports.
2. Policy updates on a daily basis.
3. Summary statistics on Covid-19 deaths, total cases, tests, etc.
4. Economic indexes, demographics and behavioural measures

2 Motivation

After a period of approximately 10 weeks of strict social distancing measures, several countries have started lifting such restrictions gradually.

- France: 11/05/2020
- Germany: Munich reopens Biergartens from 18/05/2020
- US: plan to reopen businesses over coming weeks
- Greece: traffic bans were revoked
- UK: ...

Given the medical consensus, this will most likely result to another spike in total cases in the near future, raising the death-count from Covid-19. It is not clear what the long-term strategy for dealing with Corona is. In fact, certain strategies, would only really work, if they were not explicitly communicated. Therefore, part of the motivation for this report is to hypothesize what some possible strategies might be and track data in order to track which of these hypotheses is more likely implemented.

3 Hypothesized policies: conceptual specification.

3.1 The "accordeon-policy"

In a nutshell, this policy entails a pattern of "imposing - lifting - re-imposing - ..." restrictions. This implies a constant flow of cases in the hospitals - up to the capacity of each country's health-care system (flattening the curve). The goal of this policy is to:

3.1.1 Goals.

1. maintain a somewhat functional economy
2. reduce social/ behavioural fatigue
3. gradually achieve herd immunity.

A nice summary of how this plan would look like in practice and under which circumstances it would work here.

All three goals can be discussed and debated.

3.1.2 Assumptions.

1. Goal 1. relies on the assumption that the benefits of this partial re-opening the economy outweight outweigh the costs. (Orestis: *We briefly discussed about this point. I tend to agree that assumption a., is probably not too wild but do maintain some hesitations. You seemed more confident it holds.*) There must be several macro-economics-y papers providing models and assessments on the long-run implications of keeping the economy close vs. semi-open etc. (Orestis: *I don't think we should be focussing on analysing this aspect.*)

2. Behavioural fatigue is eased by not having to withstand one prolongued period of isolation.

Even if we assume that relaxing measures and re-introducing them does not increase the total amount people would need to spend under social isolation (SI), this assumption is dubbious. Not aware of any research (but perhaps worth doing a quick background check)

but to the extend that the cost of SI is concave, i.e. early days of isolation feel worse than later days, then pushing people repeatedly on that early part of the curve has an adverse effect. It can be made worse. Just as you get used to the new lifestyle, you now go back to the previous one and then back again. Transition is more tiring.

3. people's adherence to SI measures remains constant across iterations. Again, this is not necessarily the case. It could very well be that people adhere less and less (behavioural fatigue might be one of the reasons, especially if it is true that the transition from social life to SI is the hardest part).

4. Herd-immunity is realistic. This is a point that is better reserved for medical doctors.

3.1.3 Empirical identification. Overall, the corona-net data-base is key here. If the 'accordeon policy' holds true, we should observe an oscilating pattern when plotting the policy restriction index over time. Currently, according to Figure 1, this oscilation happens very lightly on an increasing severity trend. According to this hypothesis, we should expect this trend to flatten and the oscilation to intensify.

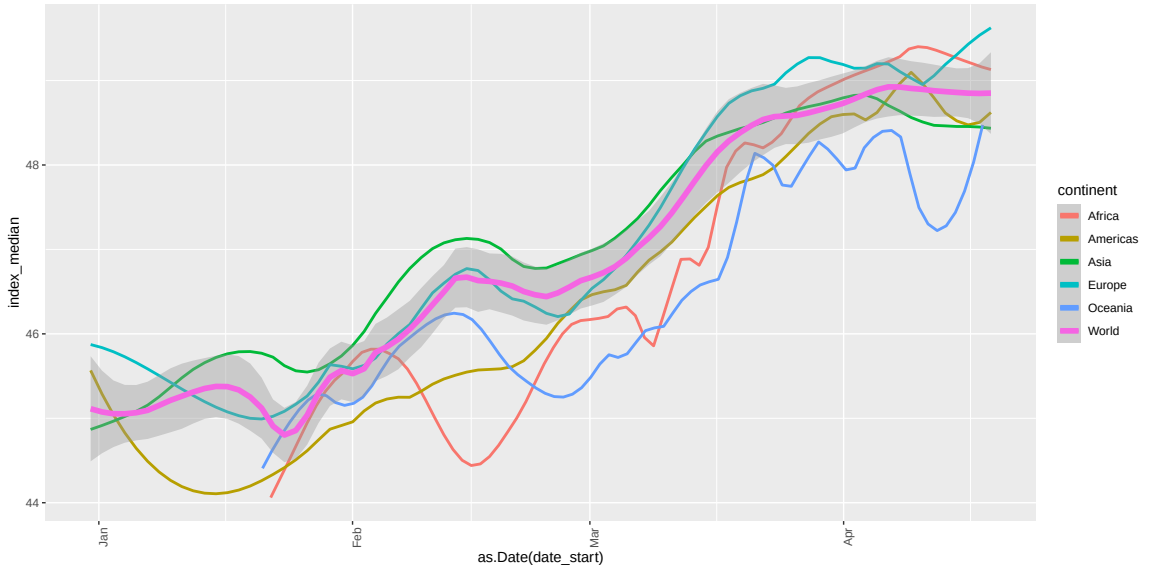

Figure 1. Activity Index by Country

What about using data to assess the assumptions on which the success of the accordeon relies on? I think that among the 3 assumptions, our focus is best emphasized on the second and third ones. A challenging aspect of this is that the two assumptions are partially overlapping. Behavioural fatigue (assumption 2) can be the key contributor for reduced adherence over later waves of restrictions.

For the behavioural fatigue assumption we can measure public's attitudes at different times: early on after the first SI measures, later on, right after the second wave of SI (has not yet come). This ongoing survey might be a good source for tracking this.

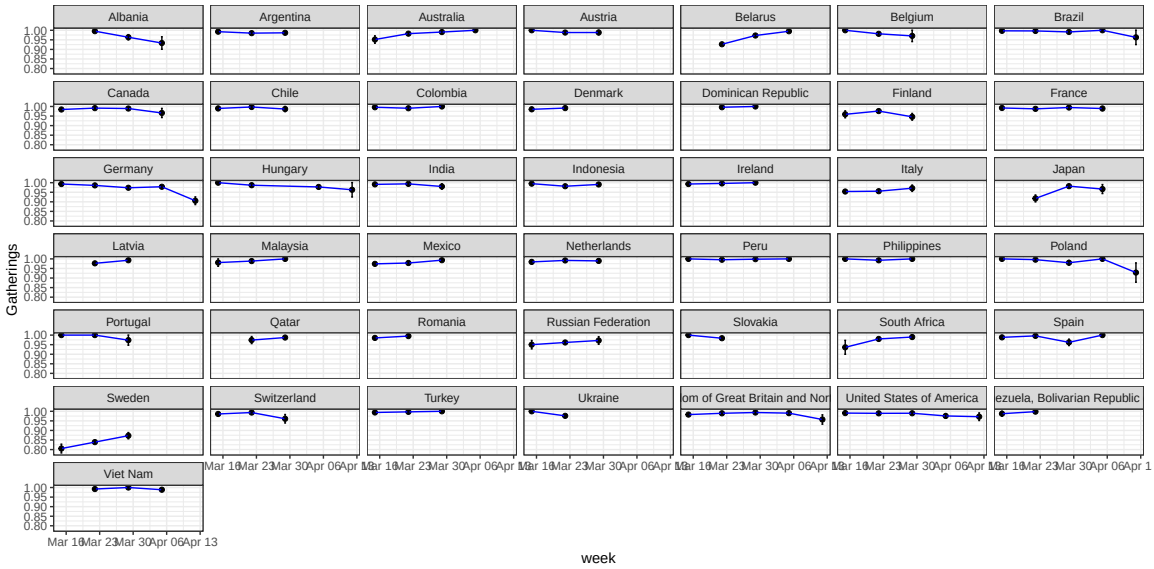

Figure 2. Cancel social gatherings?

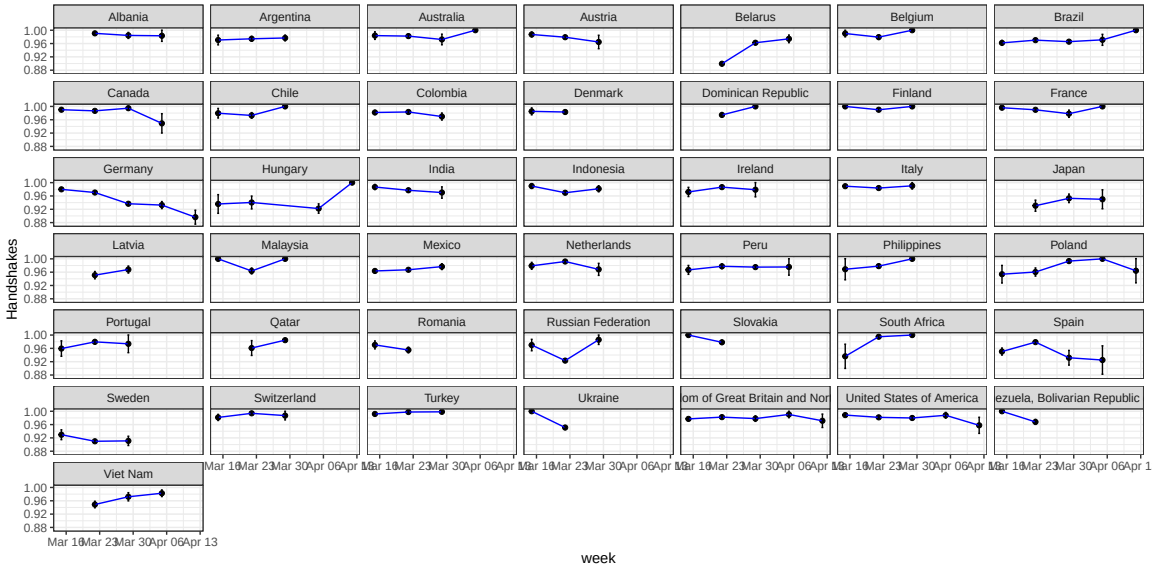

Figure 3. Shake hands?

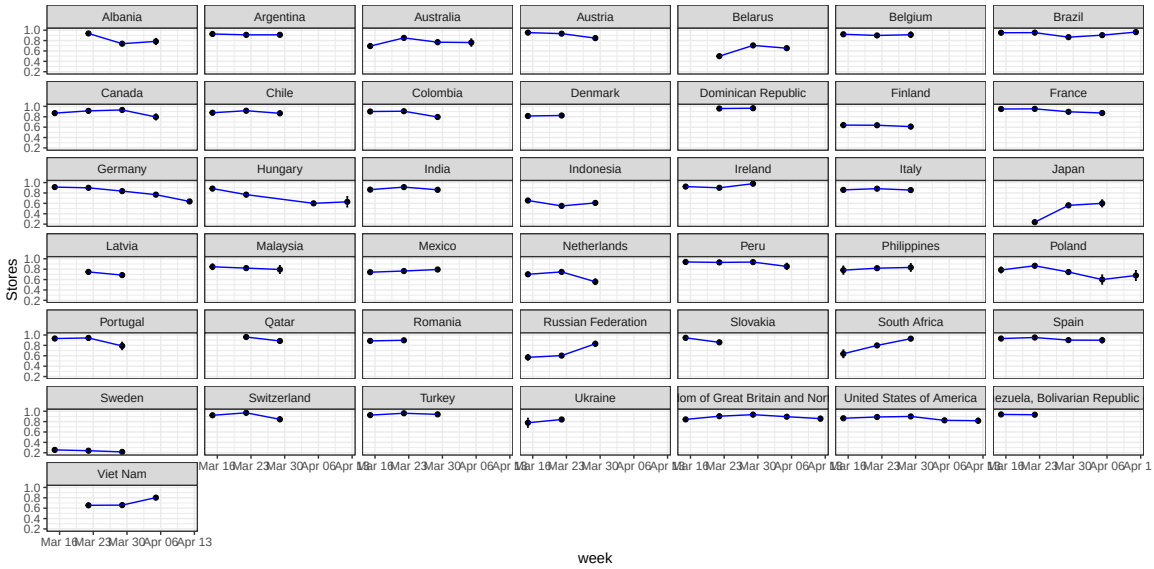

Figure 4. Close stores?

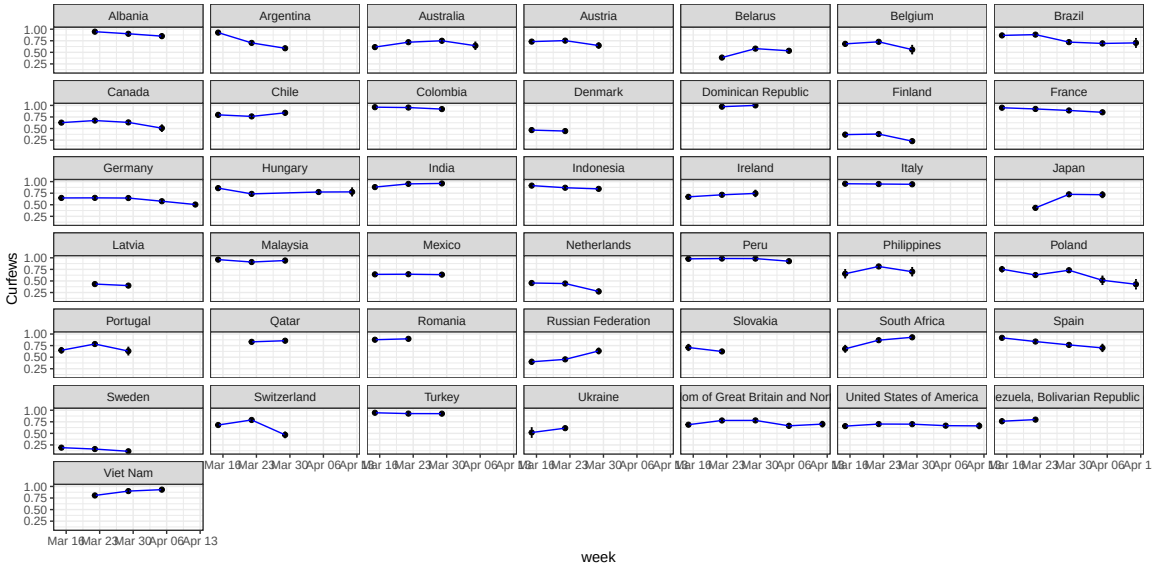

Figure 5. Curfew

For the level of adherence the obvious choice would be to measure change in Google's movement right after the 2nd wave SI. One interesting idea to investigate relates to measuring the **speed of increase in movement following relaxation of social distancing measures**.

- Is it symmetric to the speed of adhering to social distancing directives (but with different sign)?
- What can we infer by the disparity between the adherence to social isolation measures and re-opening the economy directives?

3.2 U-turn

The course-correction. We realised that initial reactions were excessive. The virus is not as deadly. Or, perhaps, we realise that the current policy mixture might be worse in the long run. Measures are lifted without the intention to be re-implemented. Whoever dies, dies.

3.3 Crushing the curve

No-one dare leave his/her house until... the end. Not sure what the end is in this case. It cannot be herd-immunity so it probably means, until a vaccine is developped, or a very efficient medication.

4 Strategic planning: who's doing it?

Didn't have time to develop this. Very briefly:

- Not all countries follow a deliberate plan. Some countries lead and others follow. Perhaps we can spot the leaders and the followers by a lag in similar response patterns.
- Even the more deliberate strategic plans have likely reserved some space for improvising. After all, this is a novel situation and we learn as we go along.

5 Action points

- Discuss these points
- Complete the strategic overview
- Populate this report with appropriate figures
- Update figures over time
- write up a first report with projections given assumptions (and our tests) for each policy.
- Maybe following putting togethr a small report, we can start circulating it to other groups (like the corona-net folks). We can get their feedback, network and even explore potential of collaborations.
- write a second report assessing how accurate our predictions/ projections were