Not everything is as it seems

Hi we are team Toxic Masculinity and for our analysis, we wanted to identify why some countries did worse than others in this Covid-19 pandemic. Could it be for political stability, corruption levels or sheer bad luck?

To find out, first we had to identify who the bad performers were.

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We used deaths as our primary measure for performance as deaths are a more robust metric to use, as unlike cases which may go unregistered for various reasons, all deaths will be registered. Although, we recognize the measure is not without its flaws; not all countries share the same method for recording deaths caused or in the presence of Covid-19.

It is not enough to look at raw deaths alone as it is reasonable to expect that larger populations register larger deaths simply because there are **more people about** to catch the virus. As we see in these charts here, larger death counts are attributed to larger sized populations.

So if we can’t look at death counts how do we know which countries are handling the pandemic well?

A common measure is to look at deaths *per* population. It could be suggested that a country with a high death per population rate is not managing their outbreak well.

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However normalizing the data in this way can be misleading. When normalizing by size of population, small countries such as Belgium and Andorra are more sensitive to this metric than larger countries as they need only a small increase in raw deaths to make a huge impact on their death/population metric. Their **high deaths per population,** could be likely an effect of their **small** population rather than their approaches to pandemic management.

But is it fair to compare small countries to large countries?

The challenges faced and strategies employed will also be very different between small and large countries. It may be easier to enforce travel restrictions and internal movement on a small central country with the use of a central force, rather than in a large country where there may be dependencies on federated forces such as states and counties.

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On this map of the world, we have applied a colour scale to represent covid deaths per population, dark green is where the death rates are lowest to dark red where it is highest. From this view, we see there are clusters of areas where countries appear to perform similarly.

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# Examples

It is difficult to take a simple ranking of these measures at face-value, and so we chose to compare deaths in countries of similar sizes, and to their land neighbours, to have a greater understanding of their performance relative to countries **just like them.** We also combined information about **lockdown events** by country and over time to see how different approaches impact the comparison.

Here are 3 good examples why things don’t appear to be what they seem…

# Example 1: Andorra

Andorra is the second smallest populated country in our global dataset. It has a population of 77 thousand, but with 53 registered covid-19 deaths it has the 7th highest death per population worldwide.

Compared to 3 other countries of similar populations between 71k and 97k, Dominica and Seychelles present 0 deaths whereas Antigua and Barbuda presented only 3.

When we look at Andorra on a map, it is engulfed by its neighbours, Spain and France, both which have high case and death rates and are 5th and 18th in position for worst deaths per population. We do not see a great deviation in Andorra’s deaths per population from its neighbours, and the similarity of Andorra’s death rate to its neighbours and it’s relative size and geographical position suggest that Andorra’s poor rating may be completely influenced by its neighbours rather than by any governance it could contain itself.

But land neighbours aren’t everything, for example in Sweden.

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# Example 2: Sweden

We chose to look at Sweden because of its unconventional approach to lockdown, or rather the lack of any lockdown. Given every other country’s response to enacting restrictions all around the same time in March, regardless the rate or even presence of covid-19 deaths in their own countries at that time, choosing to continue without any restrictions almost appears to be self-inflicted harm.

When we look at Sweden and its two land neighbours of Norway and Finland, that does appear to be true. In this instance, we do not see the effect of neighbouring countries like we did with Andorra.

But when we consider Sweden’s events compared to countries of a similar size all between 10 and 11 million people, it is evident Sweden did not enforce as many restrictions or with as much intensity as the other countries did. Sweden made mere cautionary recommendations and only enforced restrictions on international travel and gatherings of over 100 people.

Also unlike with other countries, Sweden did not modify its restrictions at any point beyond the outbreak, except to lift any previous advice. Yet despite this seemingly loose approach, Sweden’s death rate per population is only 14th worldwide, rising early in the pandemic but levelling out in the summer. Countries with stricter restrictions have had higher death rates.

Whereas with the Dominican and Czech Republics we start to see an increase of deaths at the start of the autumn, likely triggered by lifting restrictions, indicated by the yellow and greens, after enforcing them early in the outbreak, as seen in red.

If the Dominican and Czech Republic increases in deaths are indeed a reaction to the change in events, then only time can tell now if other countries will surpass Sweden’s death rate as other countries continue to lift restrictions while Sweden has no change to enact.

# Example 3: Yemen

Another country we have chosen to highlight is Yemen, unlike Andorra and Sweden, Yemen actually had a low death per population rate. However, when we consider Yemen’s case fatality rate, that is deaths by number of cases, Yemen is top globally, and nearly triples the next highest rate of 11% for Italy. On the surface, it would seem that if you had caught Covid-19 in Yemen, you were significantly more likely to die from it there than anywhere else in the world, so we wanted to look at this more detail.

Yemen has been in political crisis since 2014, the lack of stability, infrastructure and resources needed to manage a viral outbreak may be severely lacking given the country’s current humanitarian crisis and may go some way to explain the high death per cases, although we would expect the death per population to match similarly.

Yet when we compare Yemen to its neighbours Saudi Arabia and Oman, Yemen actually has the lowest deaths per population. What is strikingly odd, is that its number of cases recorded is noticeably lower than its neighbours. If we use the same neighbouring effect as seen with Andorra, we would expect Yemen to share a similar rate of deaths per population, and certainly more cases than the smaller sized Oman, not less. And so we suggest that Yemen’s cases may actually be underreported, likely as a consequence of the logistical limitations faced by a country in war.

# Summary

At the start of this presentation, we question why things don’t always appear to be what they seem?

And it’s because data alone does not tell the whole story, and our roles as data analysts in this information age is to use data to help uncover the hidden contexts in any story.

Thank you for listening.