



Peter A.G. van Bergeijk

# Scenario's for a post-corona but still .... pre-pandemic world

---





such investments have been largely based on estimates of the losses in national incomes that might occur as the result of a major epidemic or pandemic. Recently, we extended the estimate to include the valuation of the lives lost as a result of pandemic-related increases in mortality. This produced markedly higher estimates of the full value of loss that might occur as the result of a future pandemic. We parametrized an exceedance probability function for a global influenza pandemic and estimated that the expected number of influenza-pandemic-related deaths is about 720,000 per year. We calculated that the expected annual losses from pandemic risk to be about 500 billion United States dollars – or 0.6% of global income – per year. This estimate falls within – but towards the lower end of – the Intergovernmental Panel on Climate Change’s estimates of the value of the losses from global warming, which range from 0.2% to 2% of global income. The estimated percentage of annual national income represented by the expected value of losses varied by country income group: 0.3% in high-income countries to 1.6% in lower-middle-income countries. Most of the losses from influenza pandemic events.



Abstracts in العربية, 中文, Français, Русский and Español at the end of each article.

### Introduction

Few doubt that major epidemics and pandemics will strike again and few would argue that the world is adequately prepared. Since the 2013–2016 Ebola virus disease outbreak in western Africa, the United States National Academy of Medicine<sup>1</sup> and several other groups<sup>2–4</sup> have pointed to gaps, and the need for greater investment, in preparation against epidemics and pandemics, of Ebola virus disease and other infectious diseases. Attempts to justify greater investment have mostly been based on estimates of the industrial and macroeconomic losses attributable to influenza pandemics.<sup>5–11</sup> We have recently extended the loss assessment to include a valuation of the lives lost as a result of the increases in mortality resulting from influenza-pandemic risk.<sup>12</sup> The inclusion of such a valuation increased the estimated loss attributable to modelled pandemics at the global level. Studies on

small changes in mortality probabilities, from empirical studies of how individually value changes in mortality risk.<sup>13–16</sup> This approach has already been employed extensively in environmental economics<sup>13,14</sup> and has also been used in global health, by *The Lancet* Commission on Investing in Health.<sup>15,16</sup>

### Past literature

#### Economic losses from influenza

We searched Google Scholar and PubMed\* for studies on the economic losses from influenza. Almost all of the previous studies examined economic losses in terms of income and ignored the value of, and the loss associated with, mortality risk. The World Bank, for example, generated estimates of global income losses under different influenza pandemic

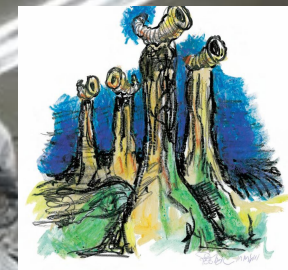
Few doubt that major epidemics and pandemics will strike again, and few would argue that the world is adequately prepared – Fan, Jamison, Summers 2018

in assessments of investments in pandemic preparedness and mitigation, we neglect this dimension of loss, we will underestimate the value of such investments, relative to alternative uses of public finances.

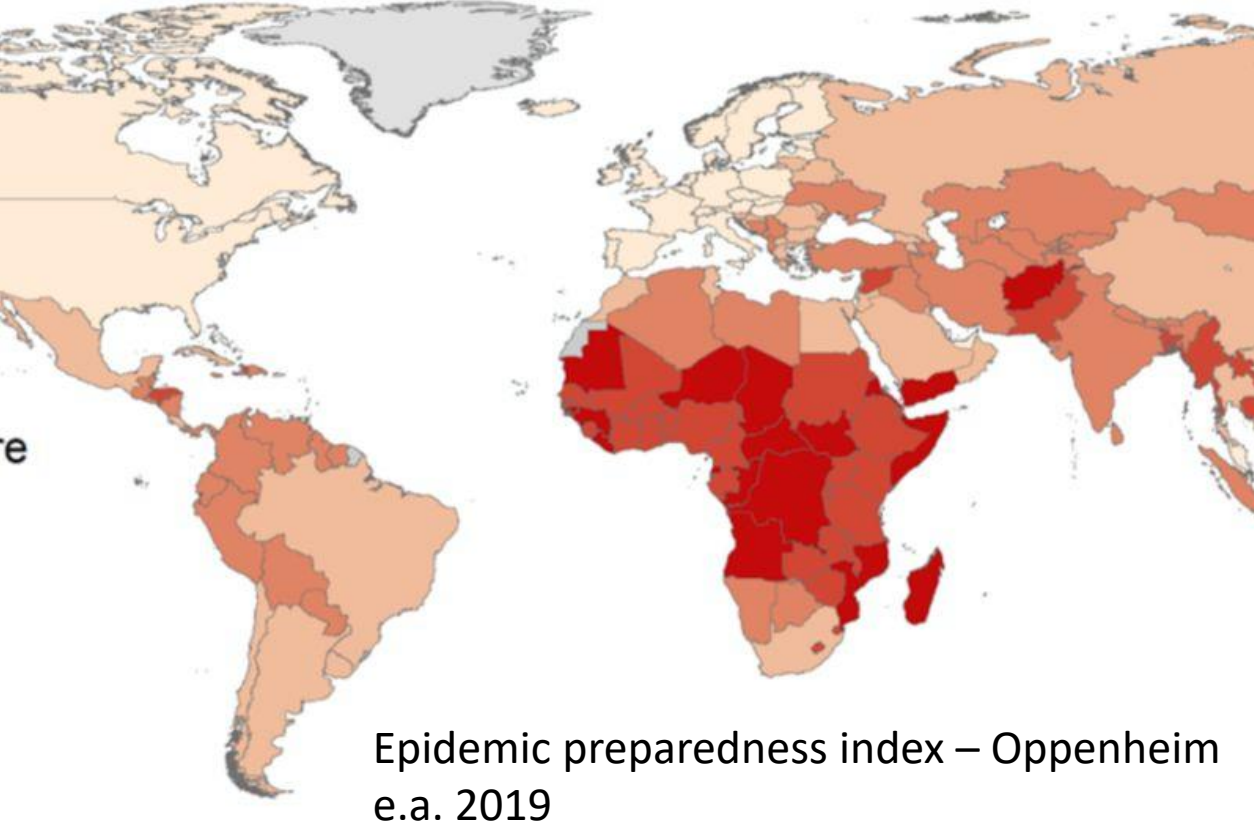
e.g. medical and hospitalizations costs, and indirect costs, e.g. lost earnings due to illness and productivity costs. There are examples of such studies based in the Americas,<sup>4,7,10–12</sup> Asia<sup>6,13</sup> and Europe.<sup>20,21</sup> Other models have added an estimated value

A pandemic scenario had been raised as a possibility in previous economic policy discussions, but none of us had a meaningful sense of what it would look like on the ground and what it would mean for the economy – Gopinath, 2020

# “Few doubt that major epidemics and pandemics will strike again”

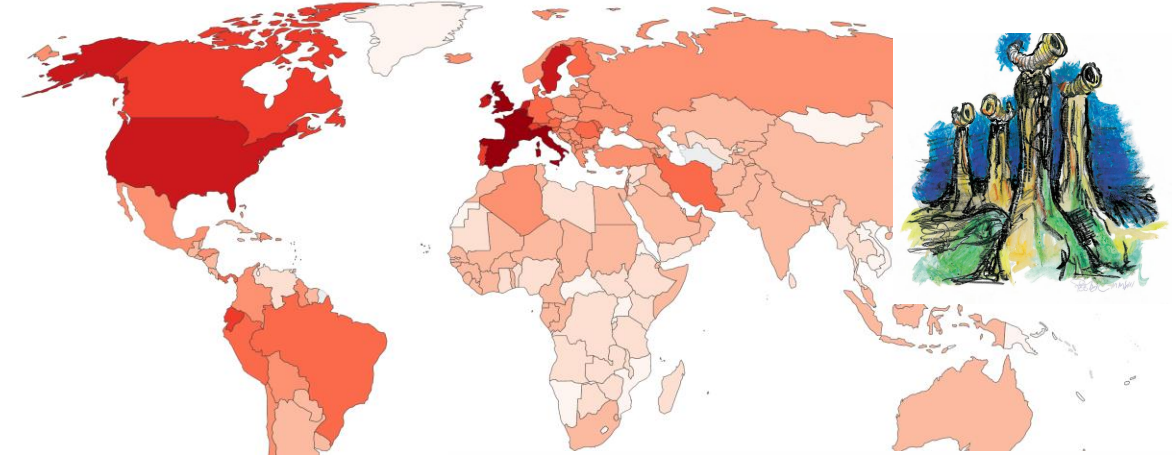


Number of pandemics	Influenza	Other	Total
18 <sup>th</sup> century	4	1	5
19 <sup>th</sup> century	2	7	7
20 <sup>th</sup> century	4	2	6
21 <sup>th</sup> century*	2	1	3
Total	12	11	23
Average per century	3.8	3.4	7.2



## Total confirmed COVID-19 deaths per million people, May 19, 2020

Limited testing and challenges in the attribution of the cause of death means that the number of confirmed deaths may not be an accurate count of the true total number of deaths from COVID-19.



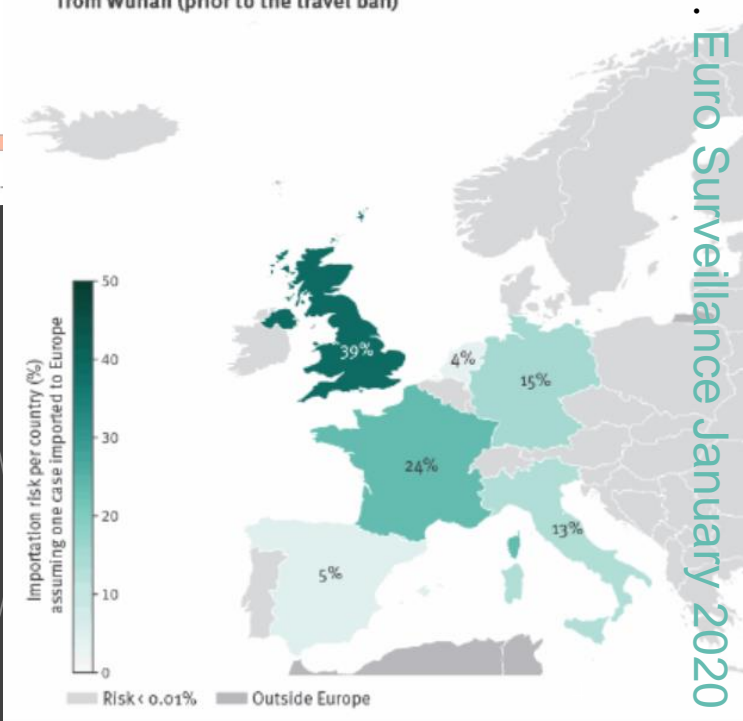
A. Risk of importation per country, assuming one case imported to Europe from Wuhan (prior to the travel ban)

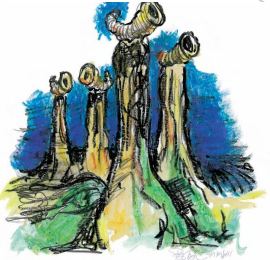


Source: European CDC – Situation Update Worldwide

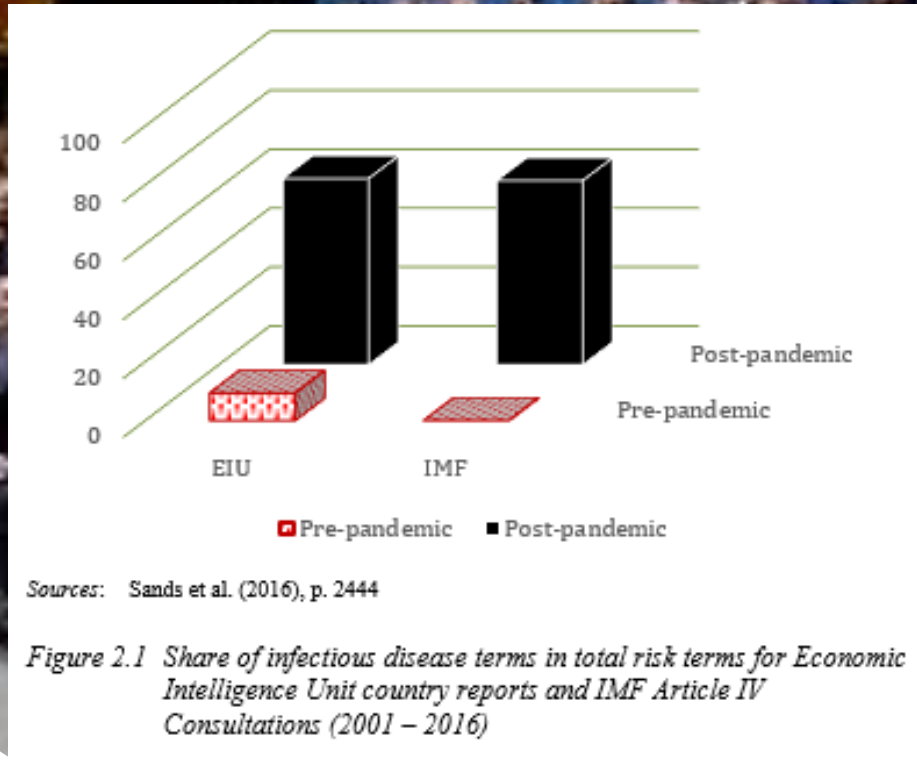
“and few would argue that the world is adequately prepared”

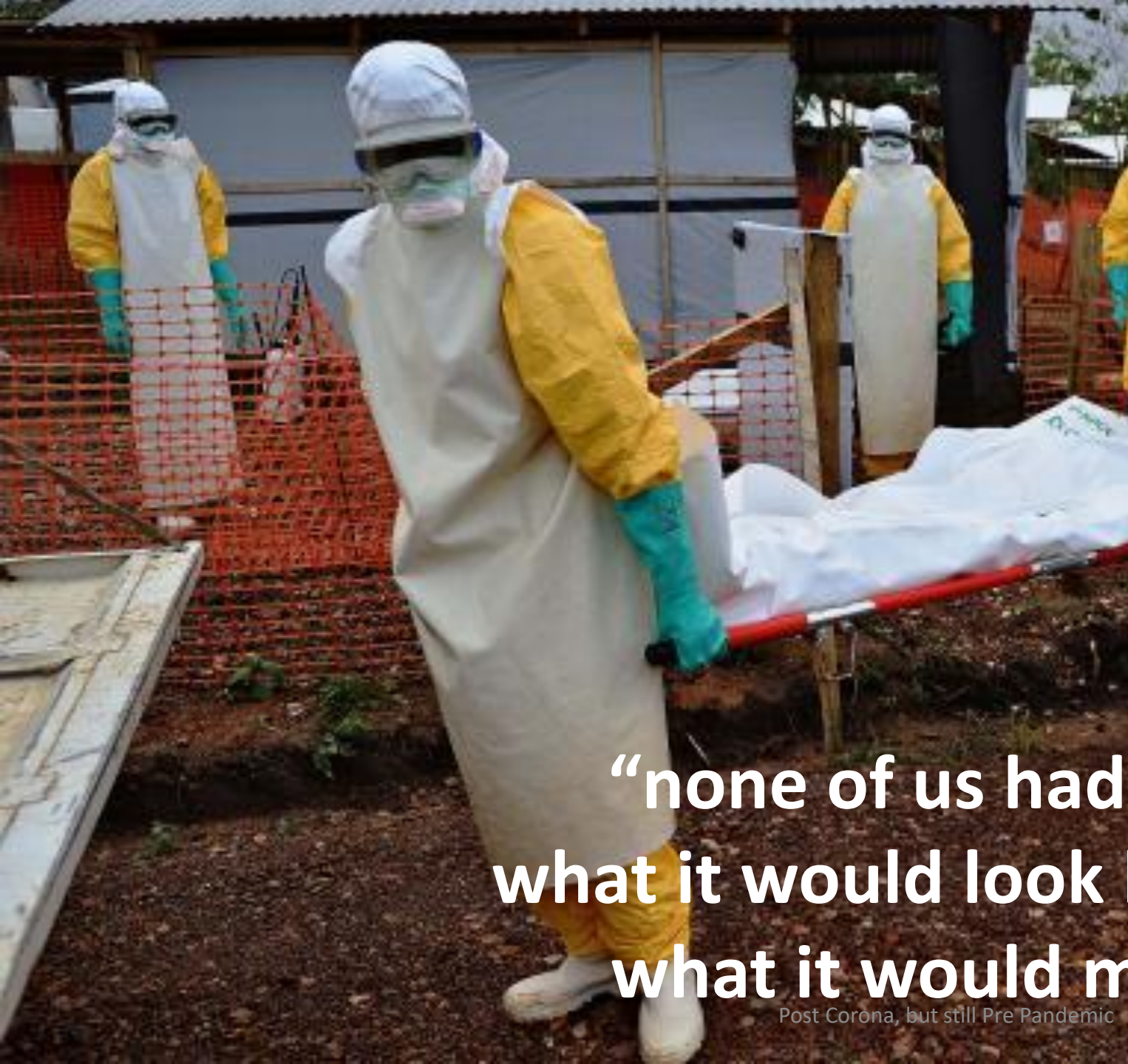
Post Corona, but still Pre-Pandemic



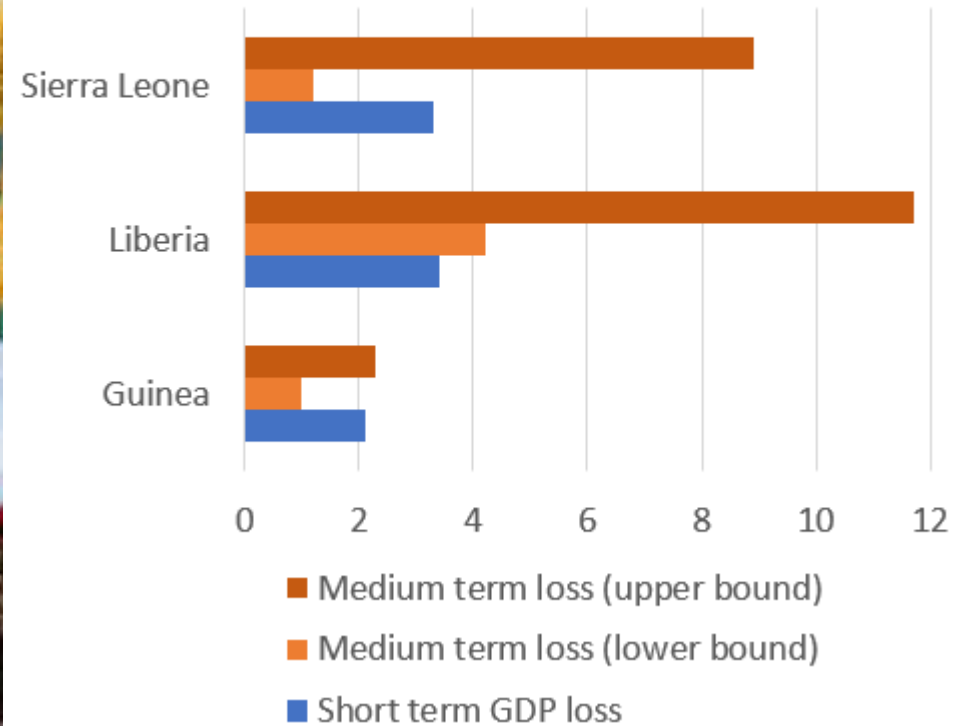


“A pandemic scenario had been raised as a possibility in previous economic policy discussions”





## Macro-economic impact of Ebola (GDP reduction, percentage points)



“none of us had a meaningful sense of what it would look like on the ground and what it would mean for the economy”

# Pandemic Economics

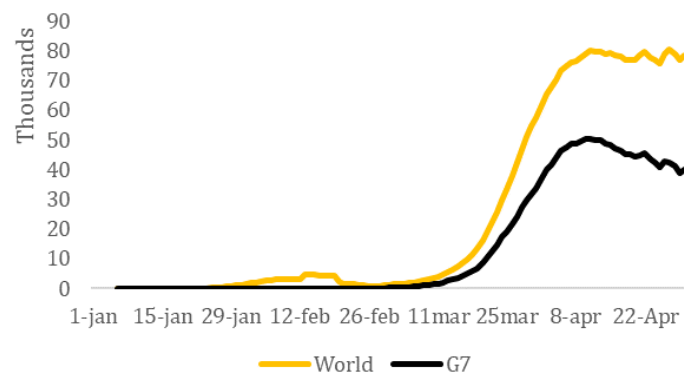
---

- **Tour d'horizon**
- **Settings rather than scenarios**
- **Five settings**
- **Discussion**

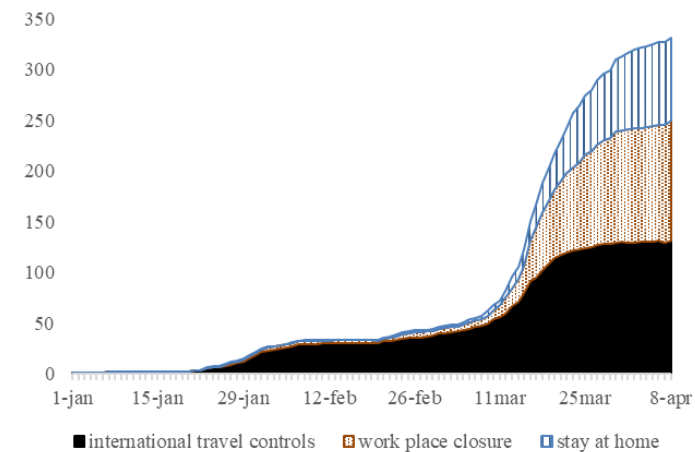
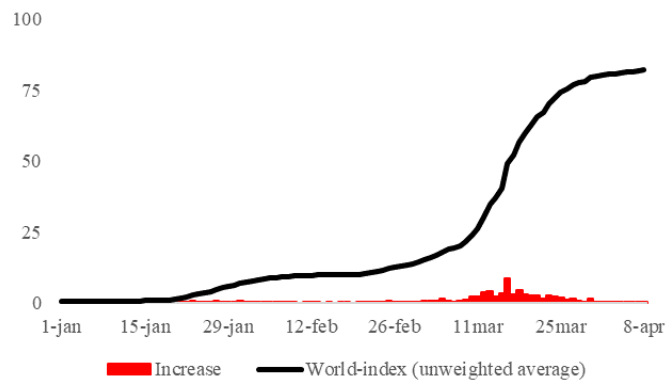




New confirmed cases



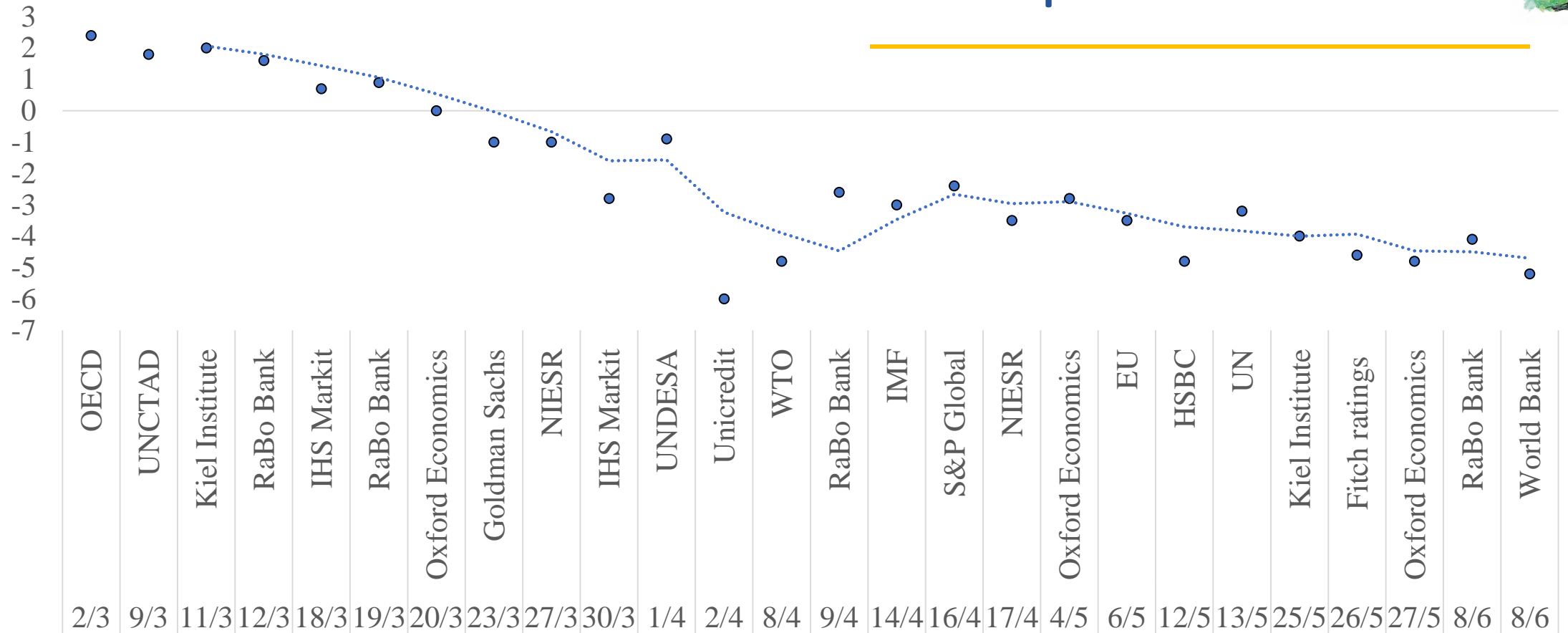
Global stringency index

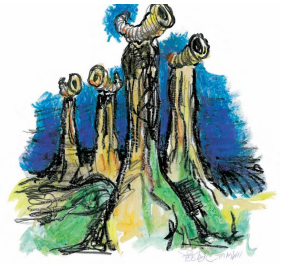


## Tour d'horizon: New cases, NPI stringency and the most important economic measures

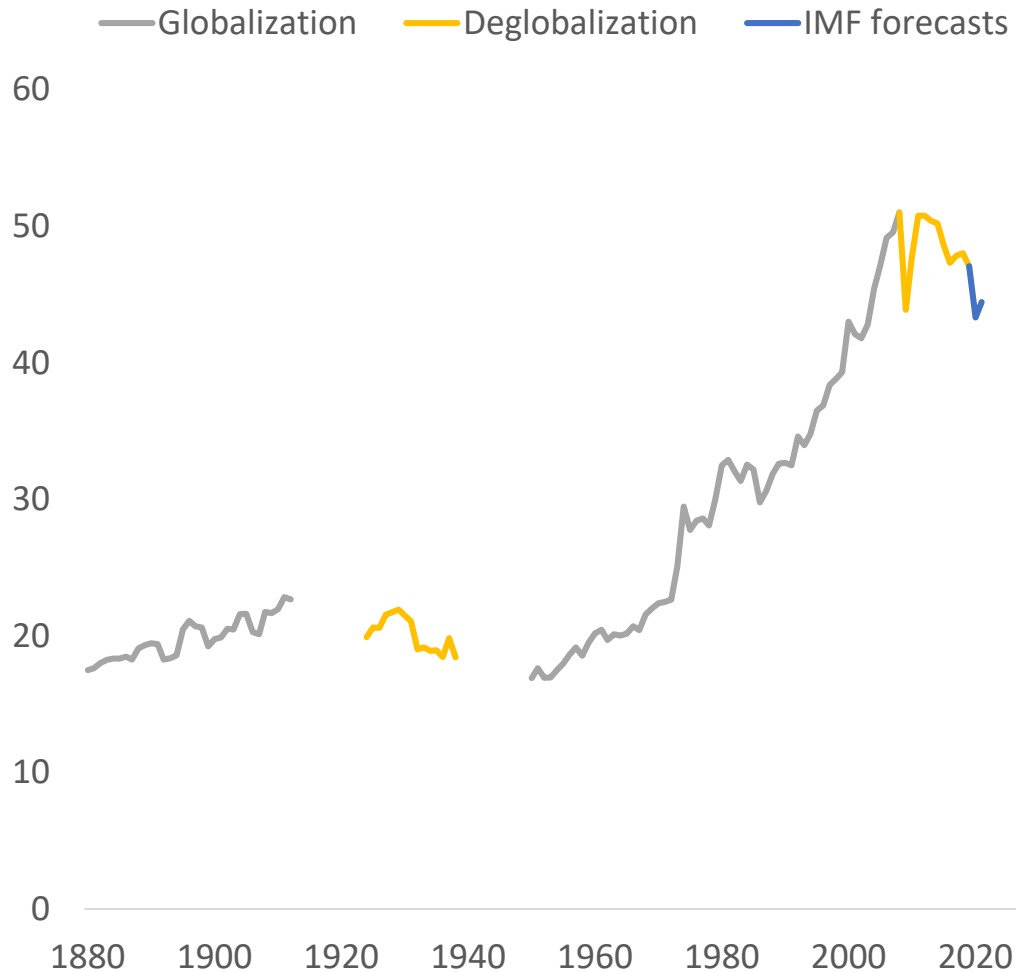


# Tour d'horizon: Forecasts for global GDP growth in 2020 in percent





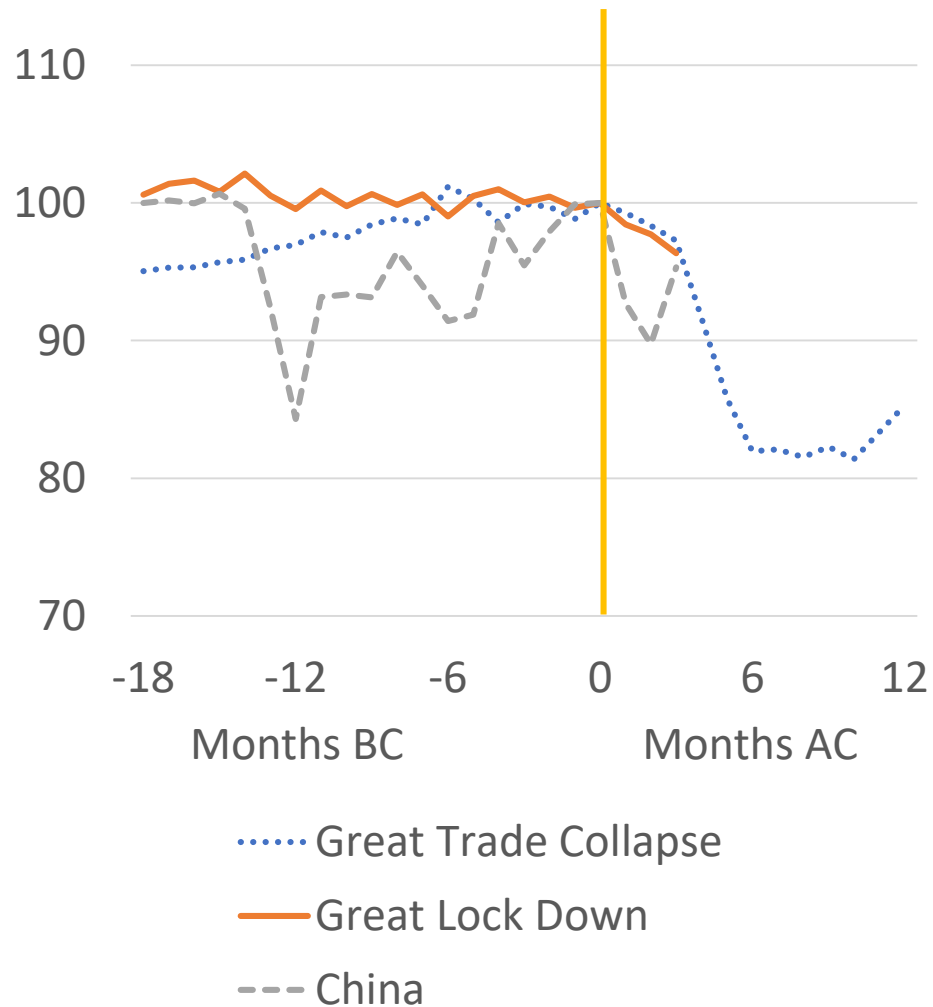
## Openness of the world economy (trade in % of GPP)



## Tour d'horizon: international economics

- IMF predicts a reduction of the world trade volume for this year by 11% in its April 2020 World Economic Outlook
- World Trade Organization that has an *optimistic* COVID 19 scenario that assumes a decrease of world trade by 13%
- The WTO's pessimistic scenario is a 32% free fall.

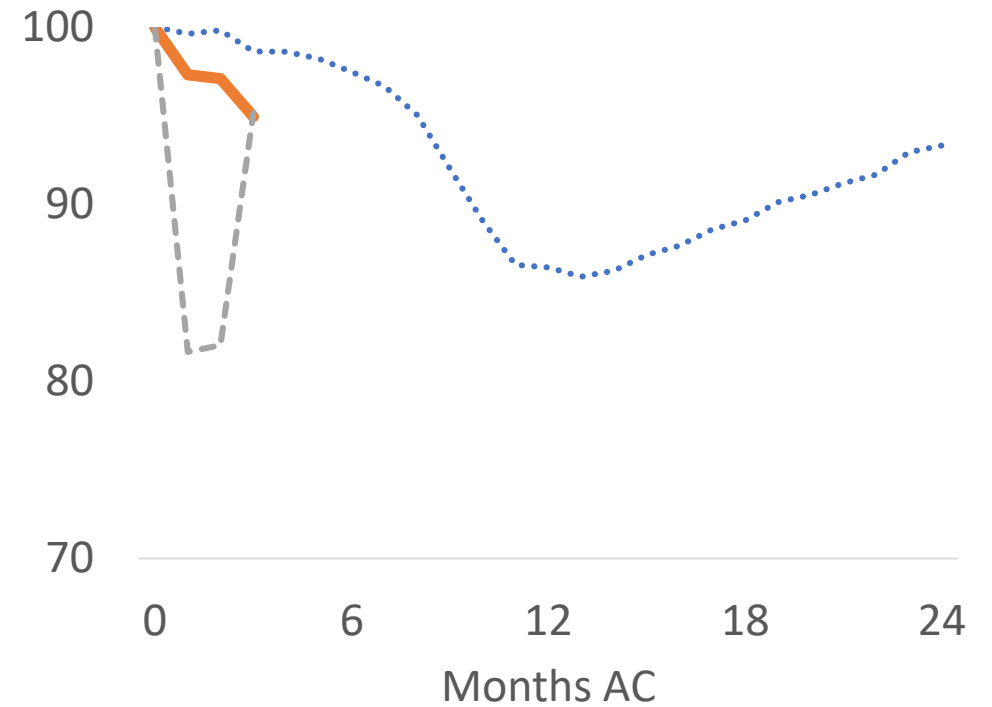
## CPB World Trade Monitor



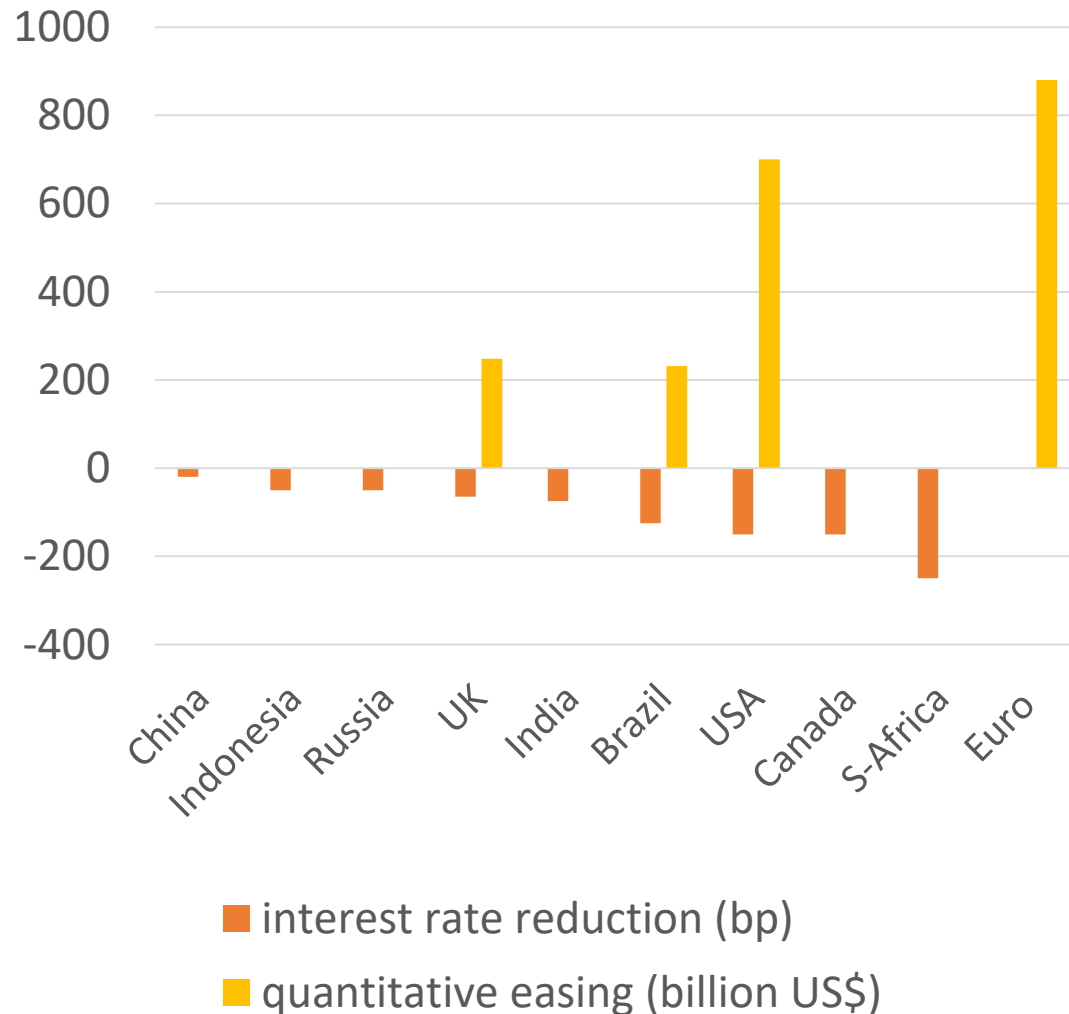
## Tour d'horizon: actual data



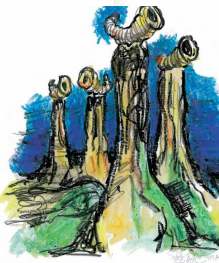
## CPB World Industrial production



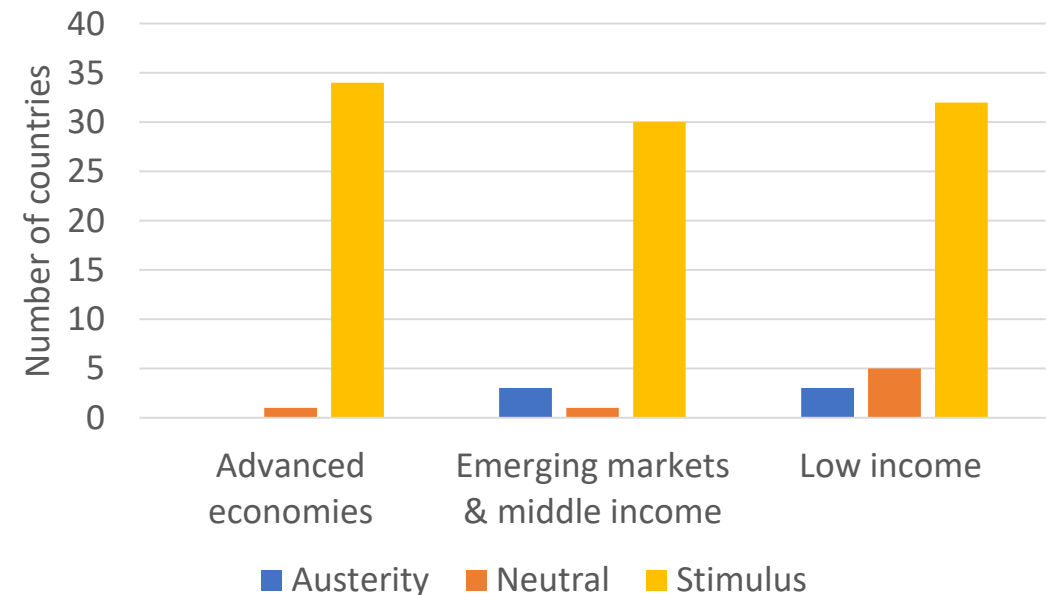
## The Monetary Policy Bazooka: G7 & BRIICS



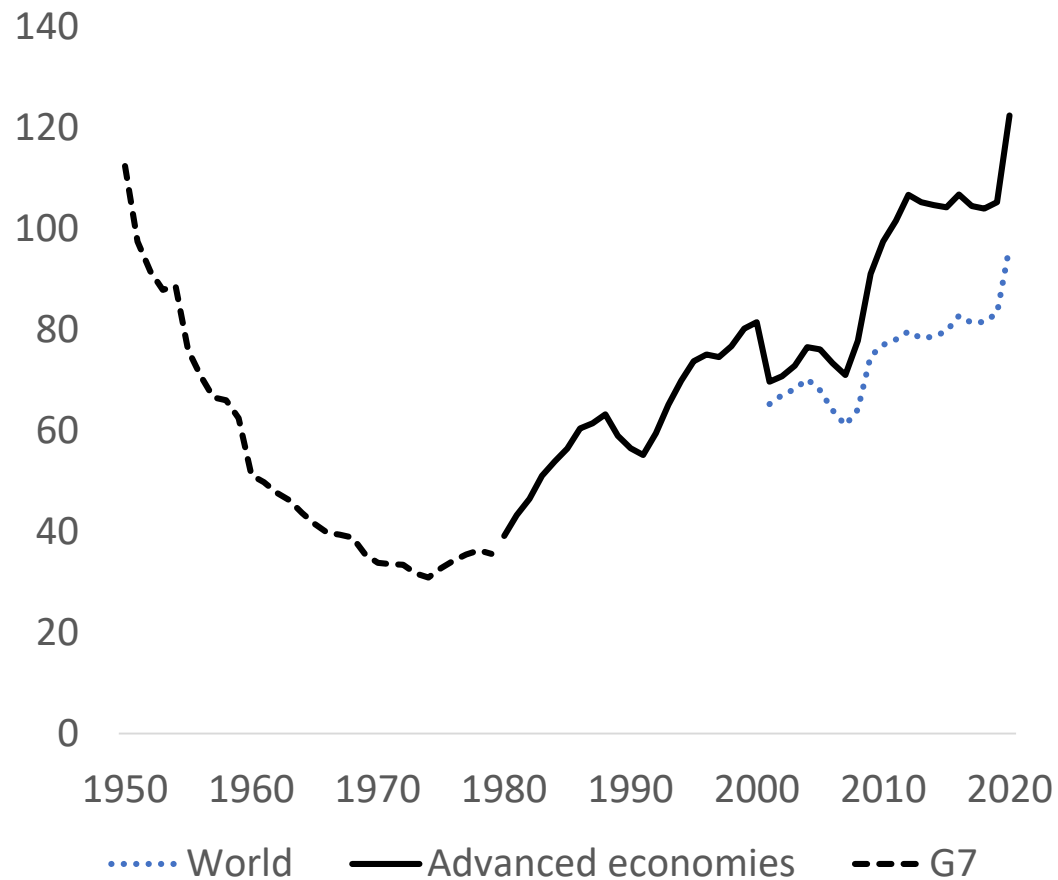
## Tour d' Horizon: The pandemic virus spread even faster



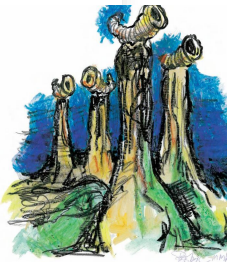
### Fiscal Policy: Uncoordinated, but synchronized



## Gross public debt in per cent of GDP

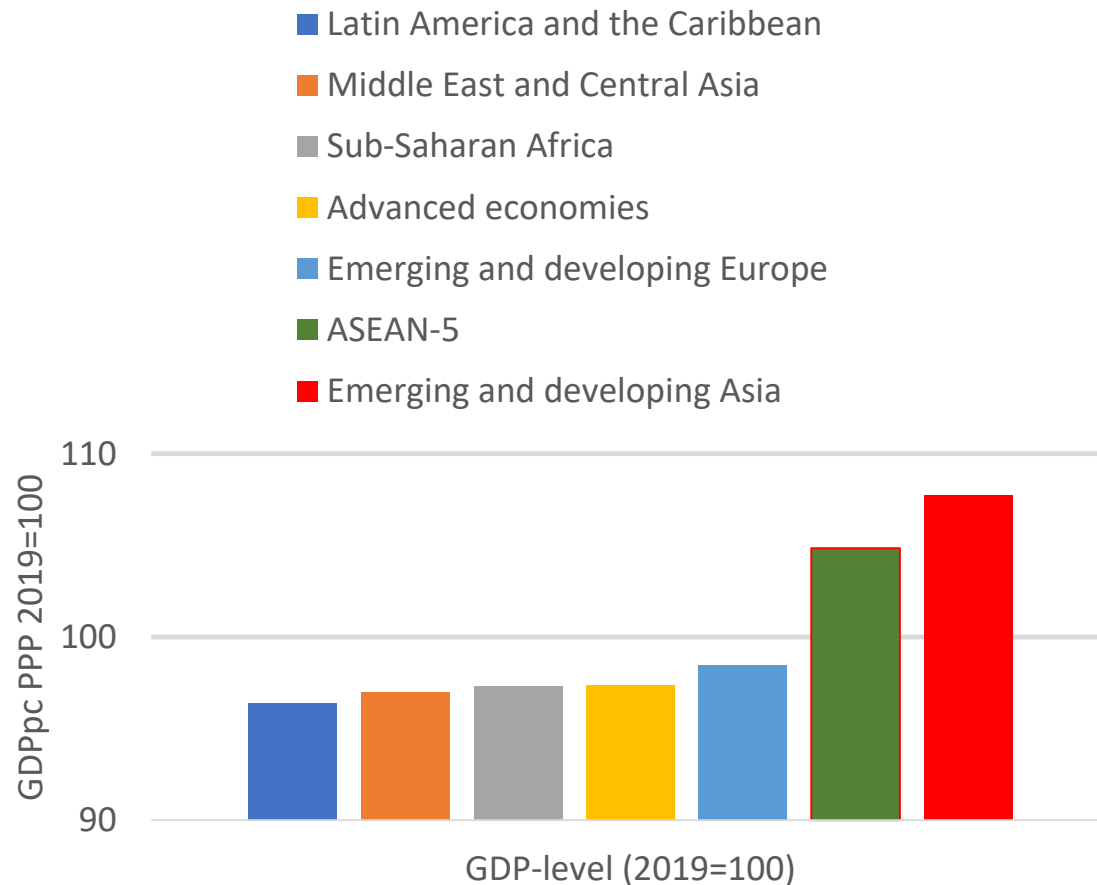


## Tour d' Horizon: The pandemic virus spread even faster



- Above the line measures G20 3.5% of GDP (Great Recession: 2.1%)
- Back at the post second world war debt burden

## April 2020 IMF forecast GDP level end of 2021



## Pandonomics may be more harmful than the corona virus

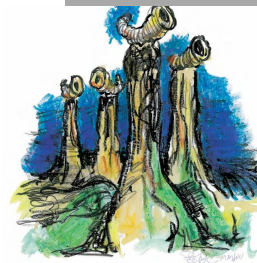


- Attainment of most SDGs has become more difficult (with possible exception of SDG 13)
- The health costs of the reaction in the Global North will be severe in the Global South

# Settings rather than scenarios

- To deal with uncertain development  $\{X,Y,Z\}$  a scenario asks what if  $X$  happens; what if  $Y$  happens, What if  $Z$  happens?
- I want to investigate a certain event  $P$ , namely that a pandemic occurs with certainty, but with unknown timing and intensity/mortality
- I want to investigate impacts in each setting  $S$ , so  $P|S_1, P|S_2, \dots, P|S_n$





### Setting

- Orientation
- Philosophy
- Globalization
- Governance

### Building blocks

- Colligation
- Empirical observations
- Theory

### SVOR

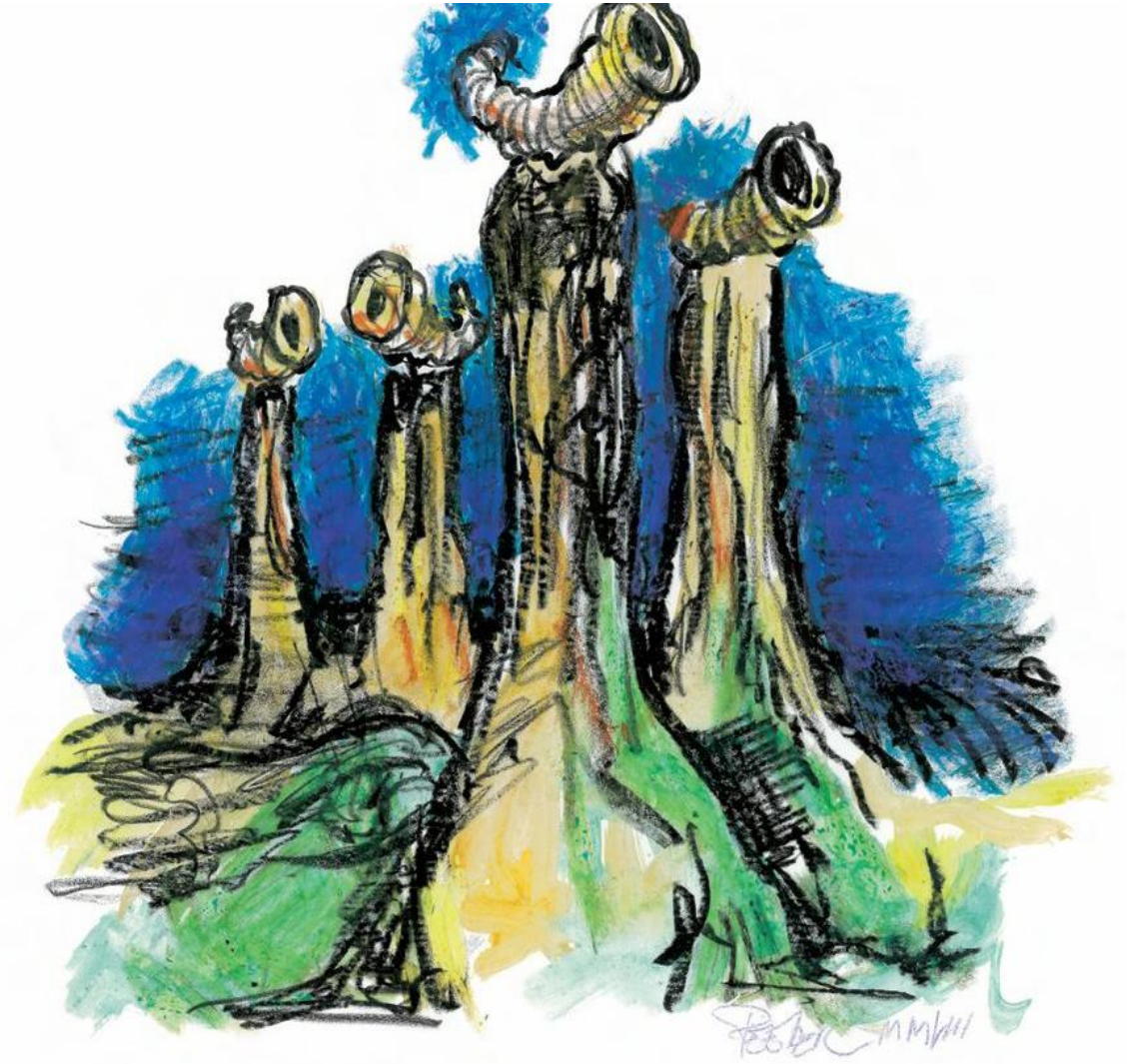
- Strengths
- Vulnerabilities
- Opportunities
- Risks



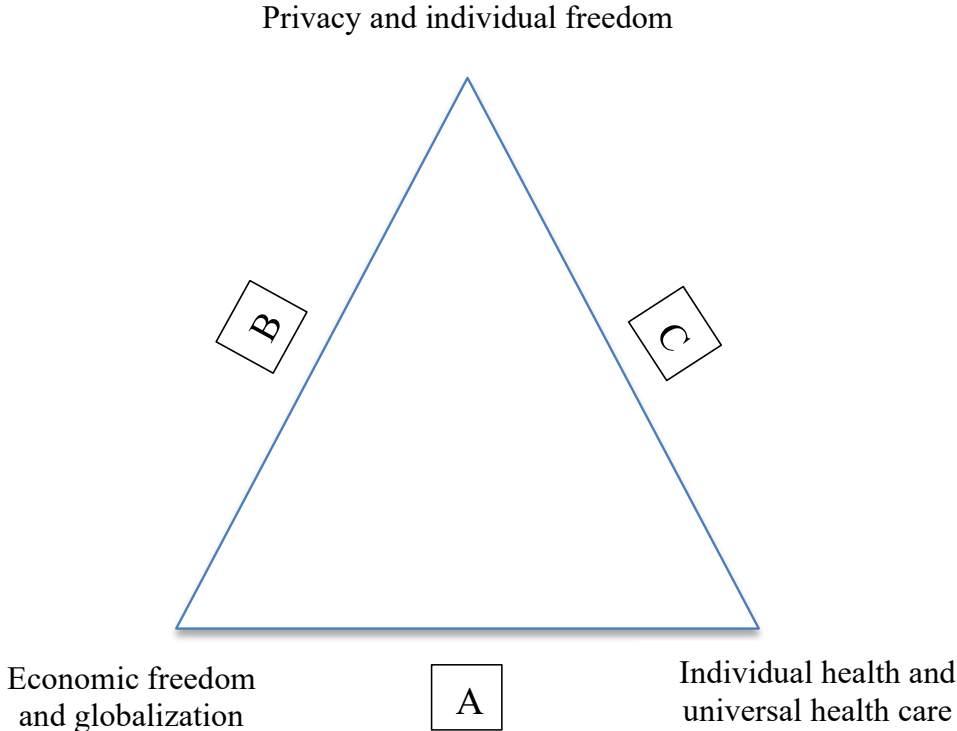
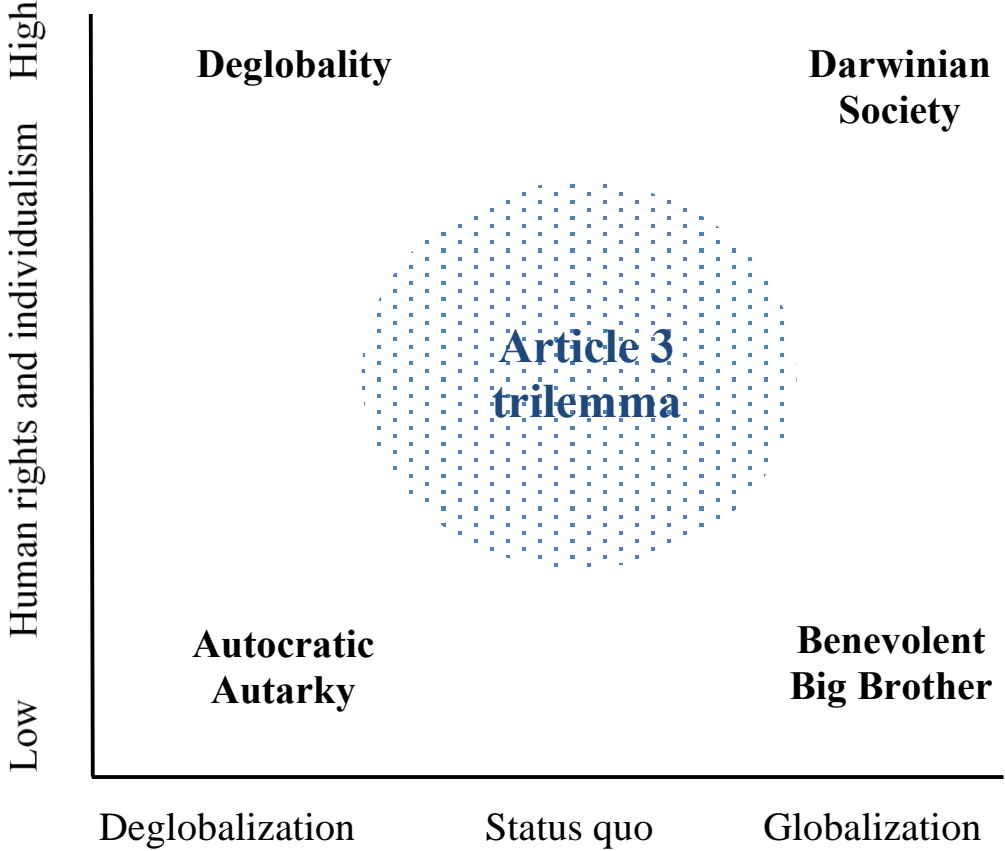
# The Five Settings

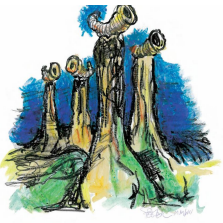
---

- Darwinian society
- Deglobality
- Autocratic autarky
- Benevolent Big Brother
- The trilemma society



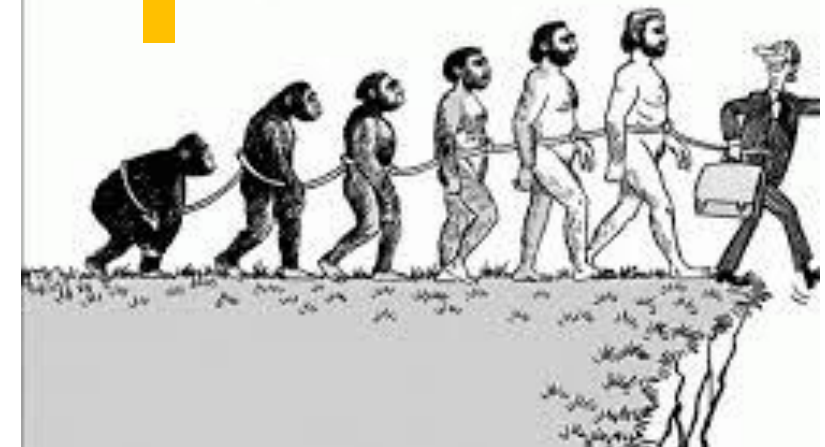
# Five Settings for the Next Pandemic

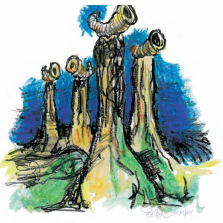




# Setting 1 Darwinian Society

	Plusses	Minuses
Internal	<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>• No vaccine requirement</li> <li>• Strong incentives for individual pandemic preparedness</li> <li>• No need for exit strategy</li> </ul>	<p><b>Vulnerabilities</b></p> <ul style="list-style-type: none"> <li>• Reduction of labour supply</li> <li>• Inequality in terms of access to private health care</li> <li>• Contamination of the health care system</li> <li>• Managing excess mortality</li> <li>• Continued support in the face of rising deaths</li> </ul>
External	<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• No need for international coordination</li> </ul>	<p><b>Risks</b></p> <ul style="list-style-type: none"> <li>• Not applicable to high mortality diseases</li> <li>• Insufficient protection of essential workers</li> </ul>

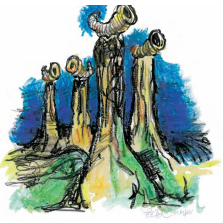




# Setting 2 Deglobality

	Plusses	Minuses
Internal	<p><b>Strengths</b></p> <ul style="list-style-type: none"><li>• Lower speed of transmission from abroad.</li><li>• Availability of tested border procedures</li></ul>	<p><b>Vulnerabilities</b></p> <ul style="list-style-type: none"><li>• Loss of economic efficiency reducing the capacity to finance health care.</li><li>• False sense of security may reduce preparedness</li></ul>
External	<p><b>Opportunities</b></p> <ul style="list-style-type: none"><li>• Reduction of the epidemiological footprint</li><li>• Spread of the pandemic over a longer time period globally</li></ul>	<p><b>Risks</b></p> <ul style="list-style-type: none"><li>• Detection of pandemic</li><li>• Less incentives for international cooperation</li><li>• No or difficult access to international supplies</li></ul>



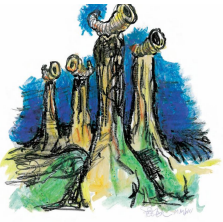


# Setting 3

## Autarkic autocracy

	Plusses	Minuses
Internal	<b>Strengths</b> <ul style="list-style-type: none"><li>• Quick and sharp health care policies that can be enforced offer the possibility to eradicate the disease</li></ul>	<b>Vulnerabilities</b> <ul style="list-style-type: none"><li>• Lack of transparency may delay response</li><li>• Lacking support</li><li>• False sense of security may reduce preparedness</li><li>• Health care access may be limited to the elite</li></ul>
External	<b>Opportunities</b> <ul style="list-style-type: none"><li>• Limitation of spread of diseases (also in pre-pandemic period)</li></ul>	<b>Risks</b> <ul style="list-style-type: none"><li>• Isolation makes it difficult to tap into new medical knowledge</li><li>• No or difficult access to international supplies</li></ul>

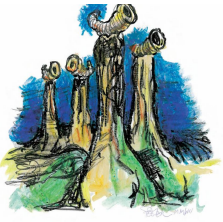




# Setting 4 Benevolent Big Brother

	Plusses	Minuses
Internal	<p><b>Strengths</b></p> <ul style="list-style-type: none"><li>• A strong ‘trace, test, treat’ approach with short reporting time and actions</li><li>• Monitoring and enforcement of self-isolation</li><li>• Crowd management</li><li>• Reduction of the speed by which the disease spreads</li><li>• Potential for full elimination</li></ul>	<p><b>Vulnerabilities</b></p> <ul style="list-style-type: none"><li>• Avoidance and evasion</li><li>• Lack of support in segments of the population</li><li>• Bias towards smart phone owners excludes marginalized groups</li><li>• Surveillance creep</li></ul>
External	<p><b>Opportunities</b></p> <ul style="list-style-type: none"><li>• Less need for international cooperation</li><li>• Facilitates quarantine of international travellers</li></ul>	<p><b>Risks</b></p> <ul style="list-style-type: none"><li>• Cyber crime (attacks and hacking of private information)</li><li>• Risk of developing towards deglobality</li></ul>

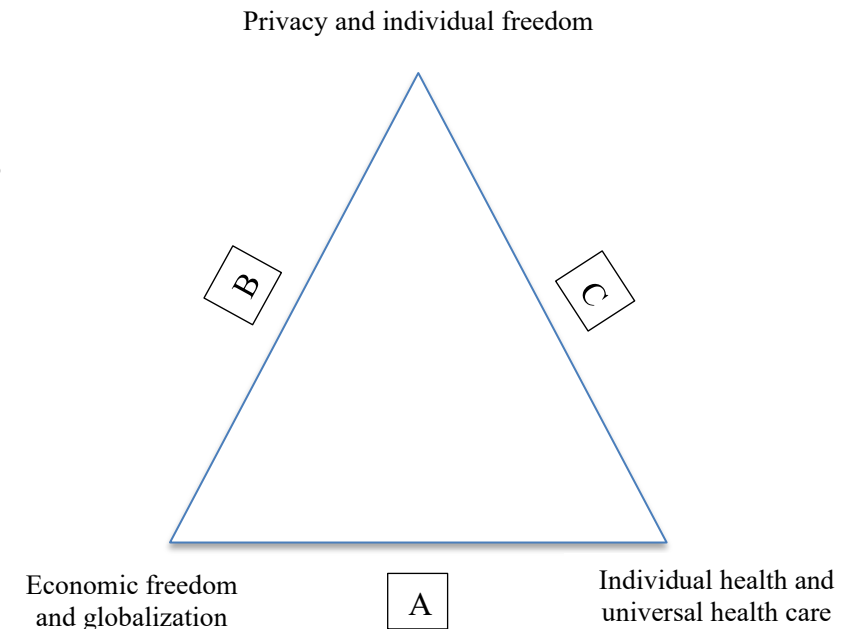




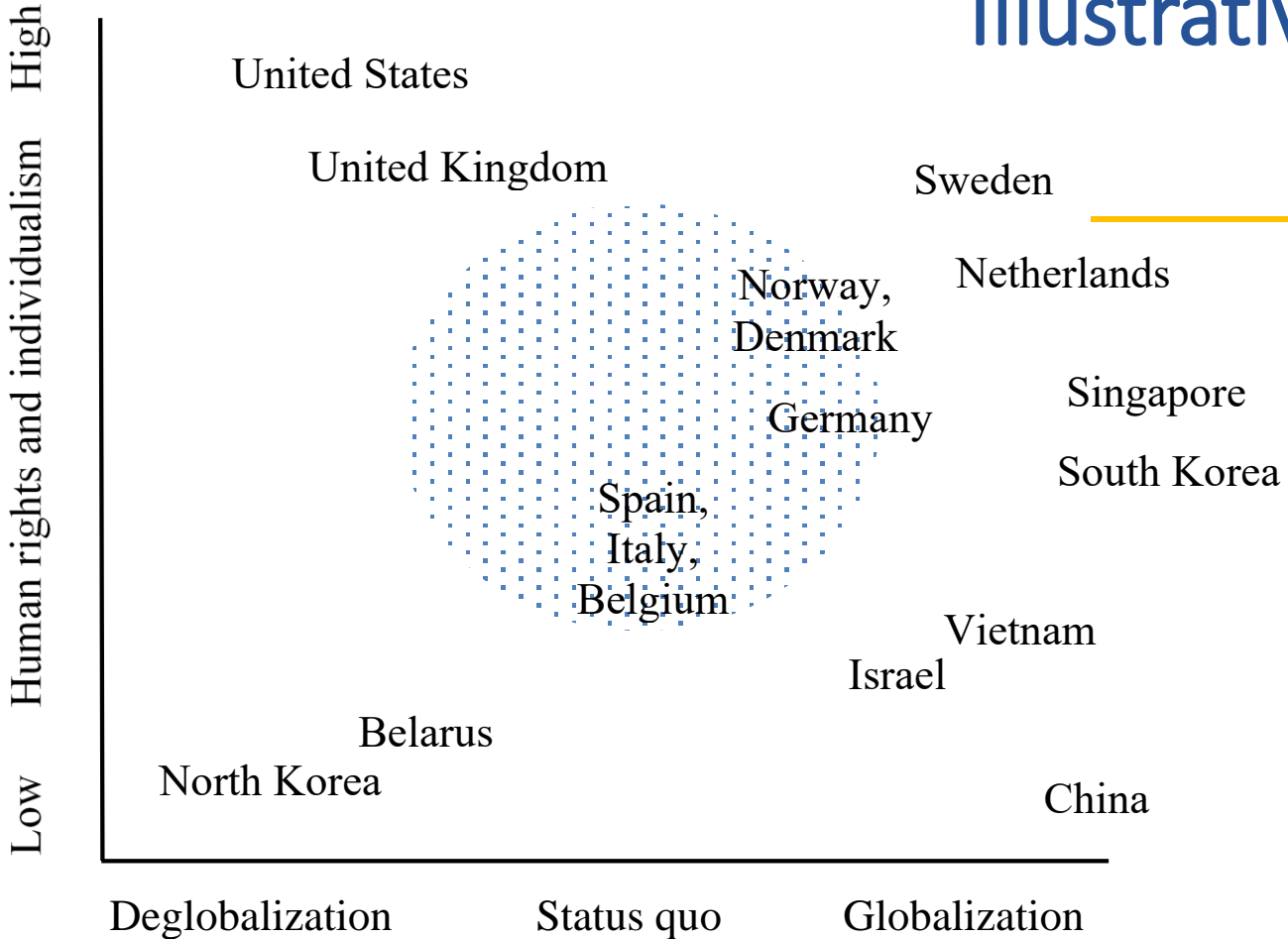
# Setting 5

## Article 3 Trilemma

	Plusses	Minuses
Internal	<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>• Consensus and coherence</li> <li>• Broader support for the health policy strategy</li> </ul>	<p><b>Vulnerabilities</b></p> <ul style="list-style-type: none"> <li>• Costly</li> <li>• Overburdened and stretched decision-making</li> <li>• Complicated communication</li> <li>• Opposition and lobbying shifts policy possibly against the silent majority</li> </ul>
External	<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Avoid to some extent the pitfalls of the corner settings</li> </ul>	<p><b>Risks</b></p> <ul style="list-style-type: none"> <li>• The lack of a clear and stable strategy</li> <li>• The necessary international policy coordination may be too difficult to achieve</li> </ul>



# Illustrative allocation

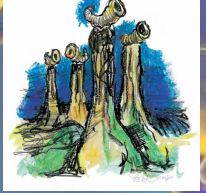




## Four preliminary conclusions

---

- 1. We are learning from our mistakes – and we made a lot of mistakes**
- 2. Corona started in China, but the crisis is amplified**
- 3. It is unavoidable that we rethink the organization of society and risk acceptance**
- 4. We need to prepare for the next pandemic**





Don't be  
annoyed; just  
be amazed...

---

