Covid: Economic Consequences

Current Debates: Session IV

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Outline

- Update on the vaccines
- Economic effects of the epidemics
- Actual economic results in 2020
- Attitudes to assistance: options

Update on Vaccines

Vaccines: Three Layers of Problems

1. Existence of safe and functioning vaccines (and the public's trust in the vaccines)
2. Availability in sufficient high quantities and within reasonably short timeframes
   - Relevance of the discussion on EMA and e.g. Russian vaccines
3. Logistics: ability to distribute the vaccines and allocate them efficiently

- Stable developed countries: #2 = bottleneck
- Poorer and less competent countries: #3 too!

Chinese Vaccines

- China attempts to rely on "vaccines diplomacy"
- At the same time, some traditional and typical features of similar authoritative hierarchical systems backfire
  - Lack of willingness to share data
- Developed countries are less likely to embrace the Chinese vaccine until reliable information available
  - This however leads to another risk:
    - Propaganda + fringe parties can have negative effects on public opinion and political stability (especially in weaker CEE countries)
- Read the informal recent summary
  - Freymann & Stebbing (2021): China must stop hiding its vaccine dataFile

Economic Effects of the Epidemics
Connectedness and Unpredictability?

Which Sectors? Theoretical Perspective (1)

- Direct lockdown effects
  - Government forbids the operation of the units (employees cannot get to work)
  - Customers are cannot come (mobility restrictions)

- Indirect effects
  - Changes in the structure of demand:
    - "Microphones and webcams instead of formal suits"
  - Effects of uncertainty
    - Consumers: expenditures on non-perishables consumables
    - Producers: investment expenditures
  - Supply-chain related effects
    - Upstream problems: supply of inputs dries out
    - Downstream problems: our clients stopped buying because their clients cannot consume
      - E.g. hotels' demand for cleaning services

Which Sectors? Theoretical Perspective (2)

- International dimension
 - European countries are tightly interconnected:
    - Domestic supply chains
    - International supply (value) chains
    - Consumers' demand
    - Mobility of people: problem with clear implications of the analysis of stricter and softer rules in the medium run

- Time horizon
  - The longer the shock is the more likely are additional indirect effects: sectors which cannot supply or buy because of liquidity problems ("chain debts")
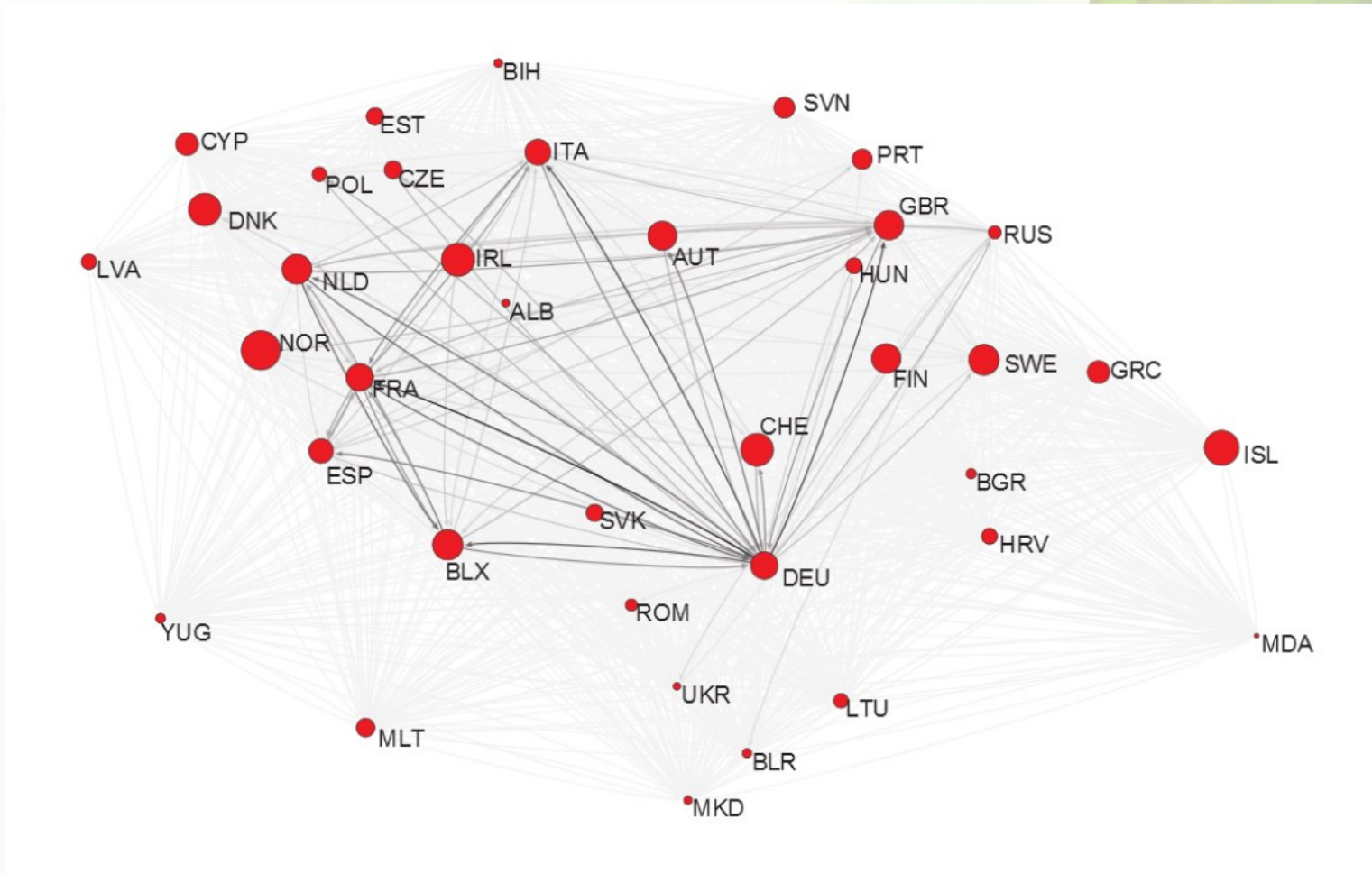
French Production Network
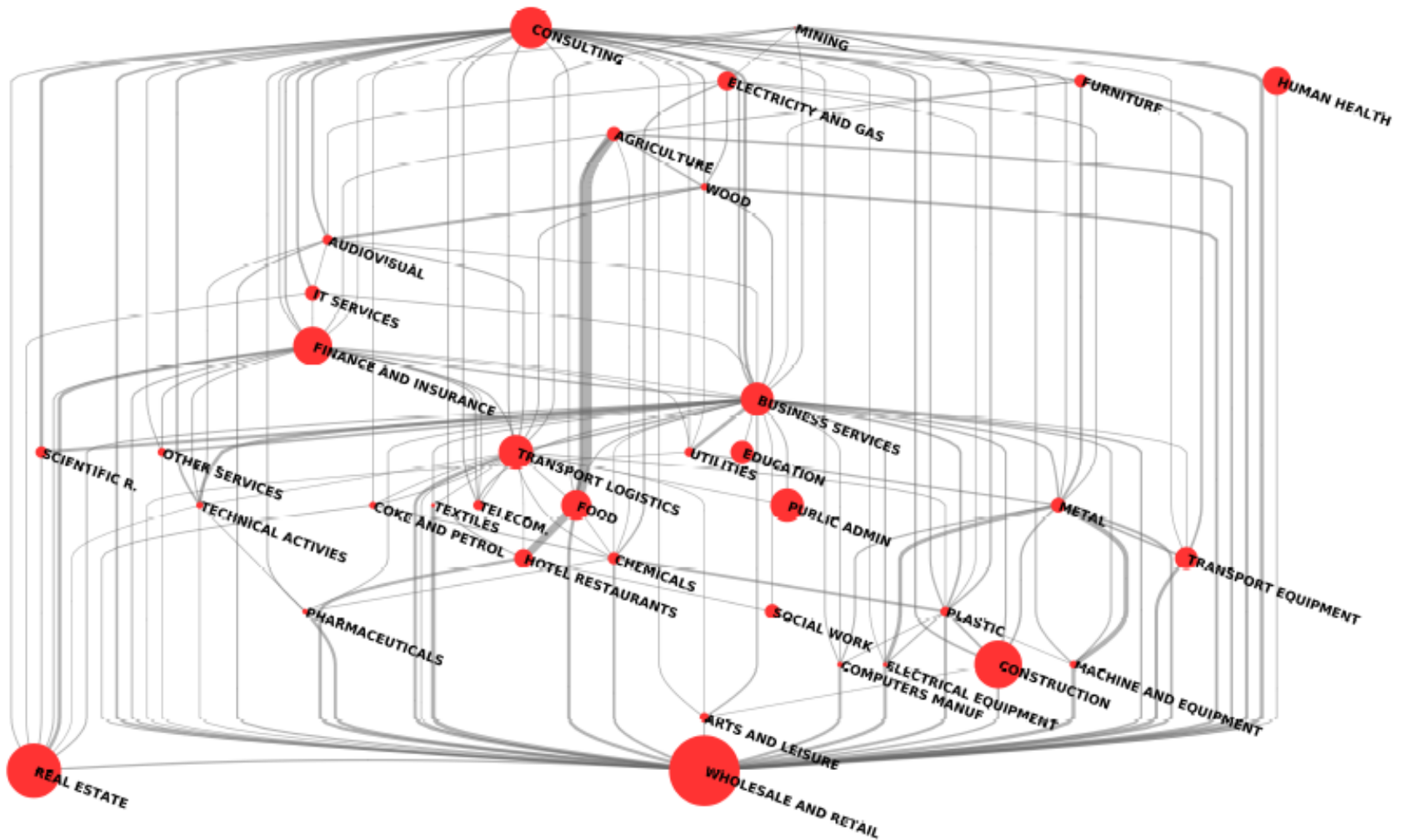
Source: Barrot et al (2020)

Network Analysis of Trade in Europe
Based on BACI 2007 data

Source: De Benedictis et al (2013)

Which Sectors? Empirical Data

- Data on direct exposure to measures
  - Government regulations
  - Interesting new data: mobile phones, automated traffic systems (mass transportation, highways), google mobility, ….
    - Example: Goolsbee & Syverson (2020)

- Data on supply chains and indirect exposure
  - Traditional macro data:
    - Input-output tables: domestic linkages
    - International input-output tables: international linkages
      - OECD ICIO, WIOT
    - New options: firm-level data – see Inoue & Todo (2020)

Faber et al (2020): Lockdown Index

Table 1 Assignment of physical proximity requirements to lockdown index

Question: To what extent does this job require the worker to perform job tasks in close physical proximity to other people?

Answer	Score	Lockdown index (from this to next category's score)
I do not work near other people (beyond 100 ft.)	0	0
I work with others but not closely (e.g., private office)	25	0
Slightly close (e.g., shared office)	50	0.5
Moderately close (at arm's length)	75	1
Very close (near touching)	100	c1

This table lists the scores associated with different answers to the question about physical proximity requirements from O*NET (https://www.onetonline.org), along with our assignment of values for the lockdown index

Example: Sector-Level Results for Switzerland

Fig. 2 Lockdown index by industry

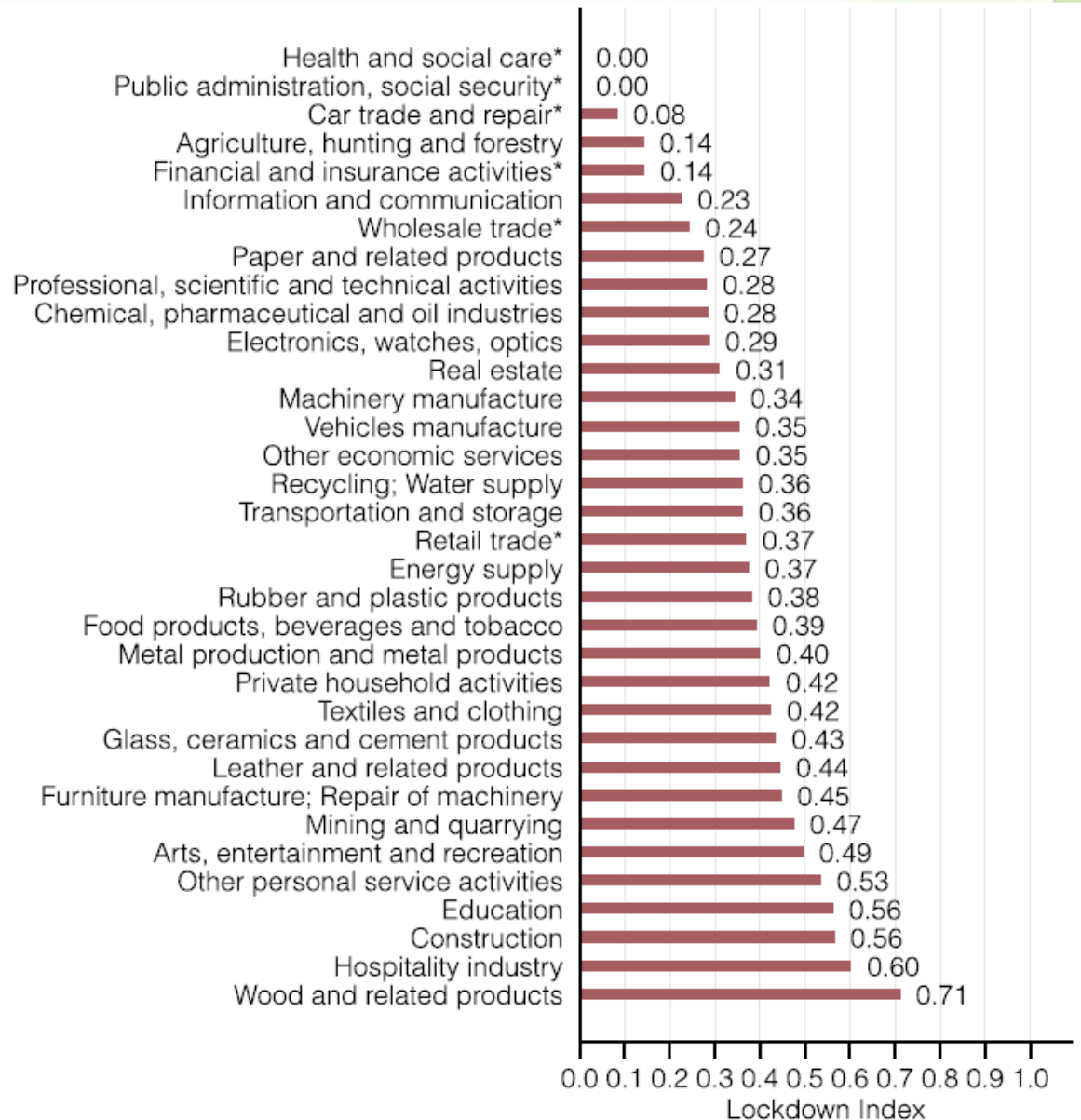| Industry	Lockdown Index
Health and social care*	0.00
Public administration, social security*	0.00
Car trade and repair*	0.08
Agriculture, hunting and forestry	0.14
Financial and insurance activities*	0.14
Information and communication	0.23
Wholesale trade*	0.24
Paper and related products	0.27
Professional, scientific and technical activities	0.28
Chemical, pharmaceutical and oil industries	0.28
Electronics, watches, optics	0.29
Real estate	0.31
Machinery manufacture	0.34
Vehicles manufacture	0.35
Other economic services	0.35
Recycling; Water supply	0.36
Transportation and storage	0.36
Retail trade*	0.37
Energy supply	0.37
Rubber and plastic products	0.38
Food products, beverages and tobacco	0.39
Metal production and metal products	0.40
Private household activities	0.42
Textiles and clothing	0.42
Glass, ceramics and cement products	0.43
Leather and related products	0.44
Furniture manufacture; Repair of machinery	0.45
Mining and quarrying	0.47
Arts, entertainment and recreation	0.49
Other personal service activities	0.53
Education	0.56
Construction	0.56
Hospitality industry	0.60
Wood and related products	0.71

Source: Faber et al (2020)

Examples of Classification (and Data): Home-office Index

- Home-office index
    - Dingel and Neiman (2020)
        - Calculated the shares of workers that can work from home along several characteristics
        - Based on a number of questions from the O*NET database, including (but not limited to) whether an occupation requires daily "work outdoors" or that "operating vehicles, mechanized devices, or equipment" is very important to that occupation's performance.
        - Range: 0 - 1, with 1 denoting that all workers of that group can work from home.

Similar Indexes by Occupation...

Table 2 Lockdown vs. home-office index

ISCO code	Occupation title	Lockdown index	Home-office index	Type
2512	Software developer	0.0	1.0	Both unrestricted
2611	Lawyer	0.0	1.0	Both unrestricted
2631	Economist	0.0	1.0	Both unrestricted
2622	Librarians	0.4	0.5	Both partially restricted
2642	Journalist	0.5	0.5	Both partially restricted
4110	Office clerks	0.4	0.5	Both partially restricted
2250	Veterinarians	1.0	0.0	Both restricted
5132	Bartender	1.0	0.0	Both restricted
7112	Bricklayer	1.0	0.0	Both restricted
2145	Chemical engineer	0.0	0.0	Contradiction*
6130	Farmer	0.0	0.1	Contradiction*
9112	Office and hotels cleaner	0.1	0.0	Contradiction*
2354	Music teacher	1.0	1.0	Contradiction**

*Occupations restricted for the home-office index, but unrestricted for the lockdown index
**Occupations unrestricted for the home-office index, but restricted for the lockdown index

Source: Faber et al (2020)

Supply Chains and Exposures of EU Countries
Backward Participation: EU28 Value Added in Gross Exports

Source: OECD Tiva Data
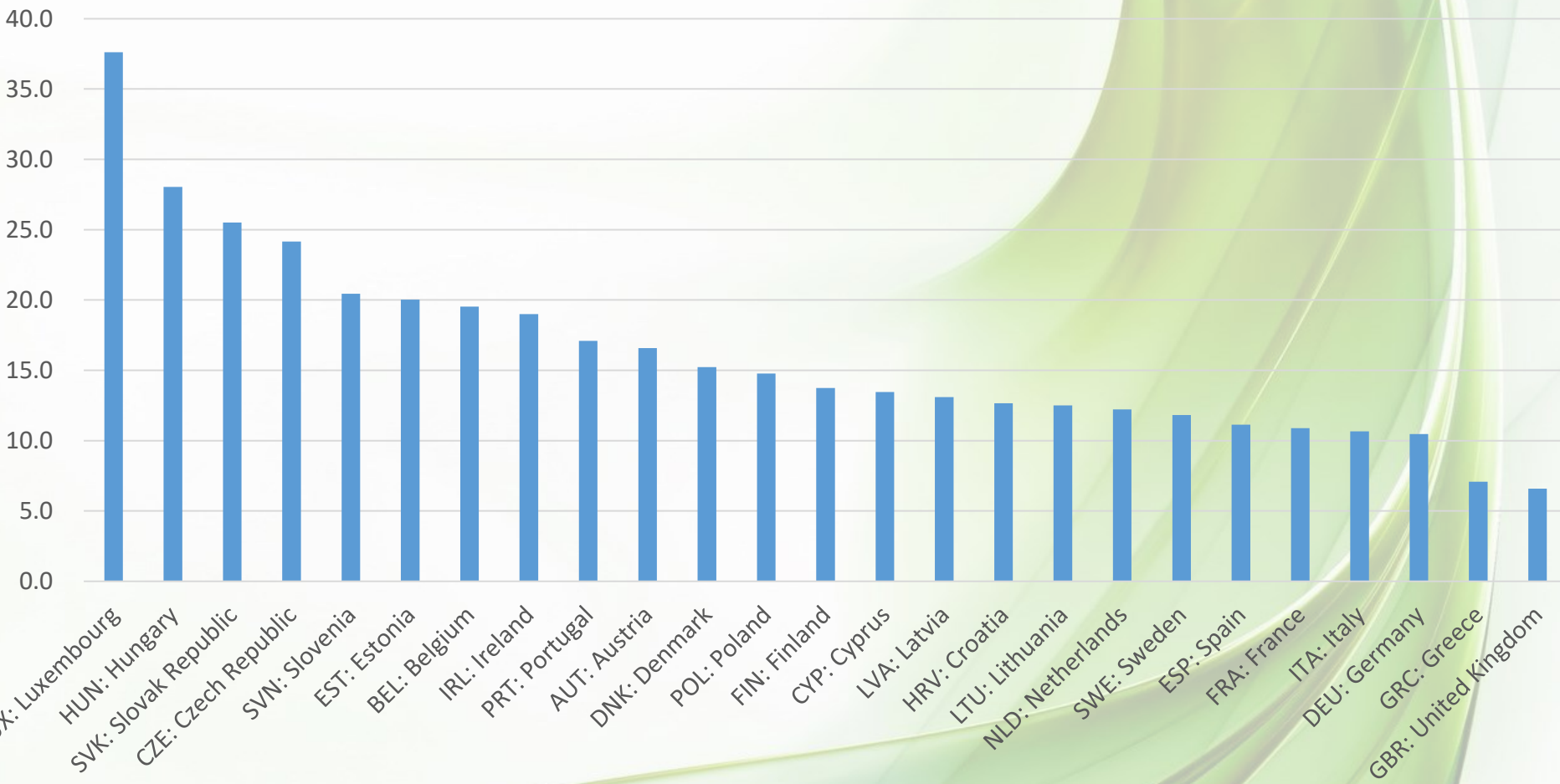
Supply Chains and Exposures of EU Countries
Forward Participation: Domestic value added in foreign exports as a share of gross exports (role of EU28)

Source: OECD Tiva Data
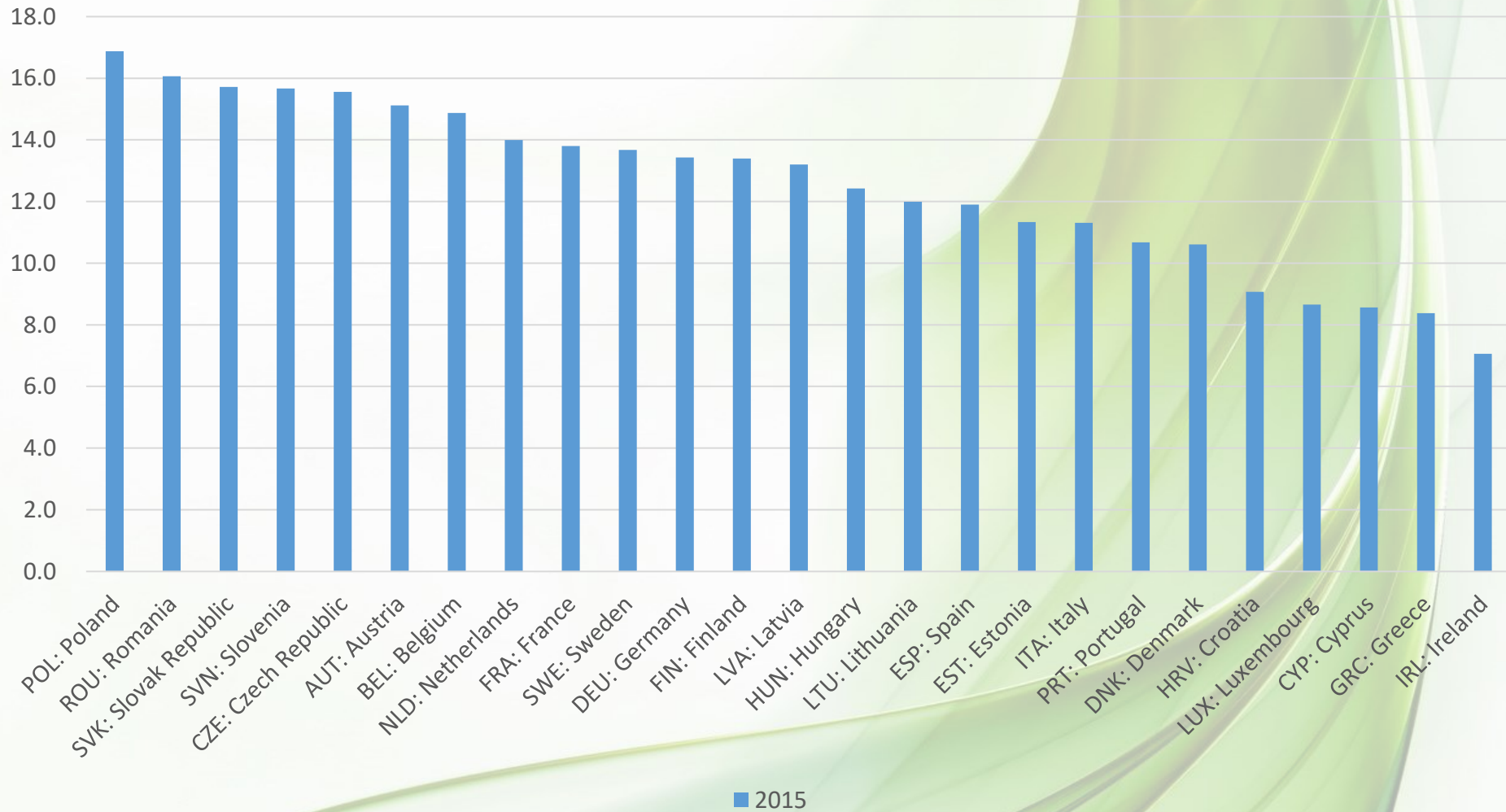
Table 1. The loss of value added because of Tokyo lockdowns. This table shows the results from the simulations assuming the shutdown of all non-essential production activities. These results are based on the average of the simulations. (Unit: trillion yen).

	Direct effect on Tokyo	Indirect effect on other regions in Japan	Total effect (% of GDP)
1 day	0.309	0.252	0.561 (0.106)
1 week	2.17	1.54	3.70 (0.699)
2 weeks	4.33	4.92	9.25 (1.75)
1 month	9.28	18.4	27.6 (5.22)
2 months	18.6	49.5	68.1 (12.8)

Source: Inoue & Todo (2020)

Models with Supply Chain Effects

- Ideal solutions:
  - CGE models
    - Problem: time- and data-consuming
    - Examples:
      - GTAP Analysis on the Potential Economic Impact of COVID-19
      - Barrot et al. (2020): Sectoral effects of social distancing
- Simple solutions:
  - Input-output methods
    - Hypothetical extraction methods
  - IO+
    - Combination with various new sources of data or new techniques

So: It is Easy to Calculate?

- Unfortunately, not really
  - We can guess the structure (assuming ceteris paribus)
  - But we are still likely to be very surprised by actual results
- We often remain in the vague, especially when evaluating smaller regions about quite a few important details:
  - Inventories (JIT or more basic logistics)?
  - Elasticity of substitution!
  - Where do local employees spend their income, which asset prices are they sensitive to, etc.
  - Length of exposure!
    - Possibility of additional liquidity effects
  - Uncertainty related issues
    - Goolsbee & Syverson (2020)
  - Interregional differences in the response: culture, experience, traditions

Actual Economic Data for 2020

Worst and Best Quarterly GDP Results Y-o-Y Change in GDP (%)

	1st quarter		2nd quarter		3rd quarter		4th quarter (Greece not included)	
	Country	Y-o-y change	Country	Y-o-y change	Country	Y-o-y change	Country	Y-o-y change
Max decline	Italy	-5.8	Spain	-21.6	Greece	-11.7	Spain	-9.1
Min decline	Ireland	4.1	Ireland	-2.7	Ireland	8.9	Luxembourg	1.4

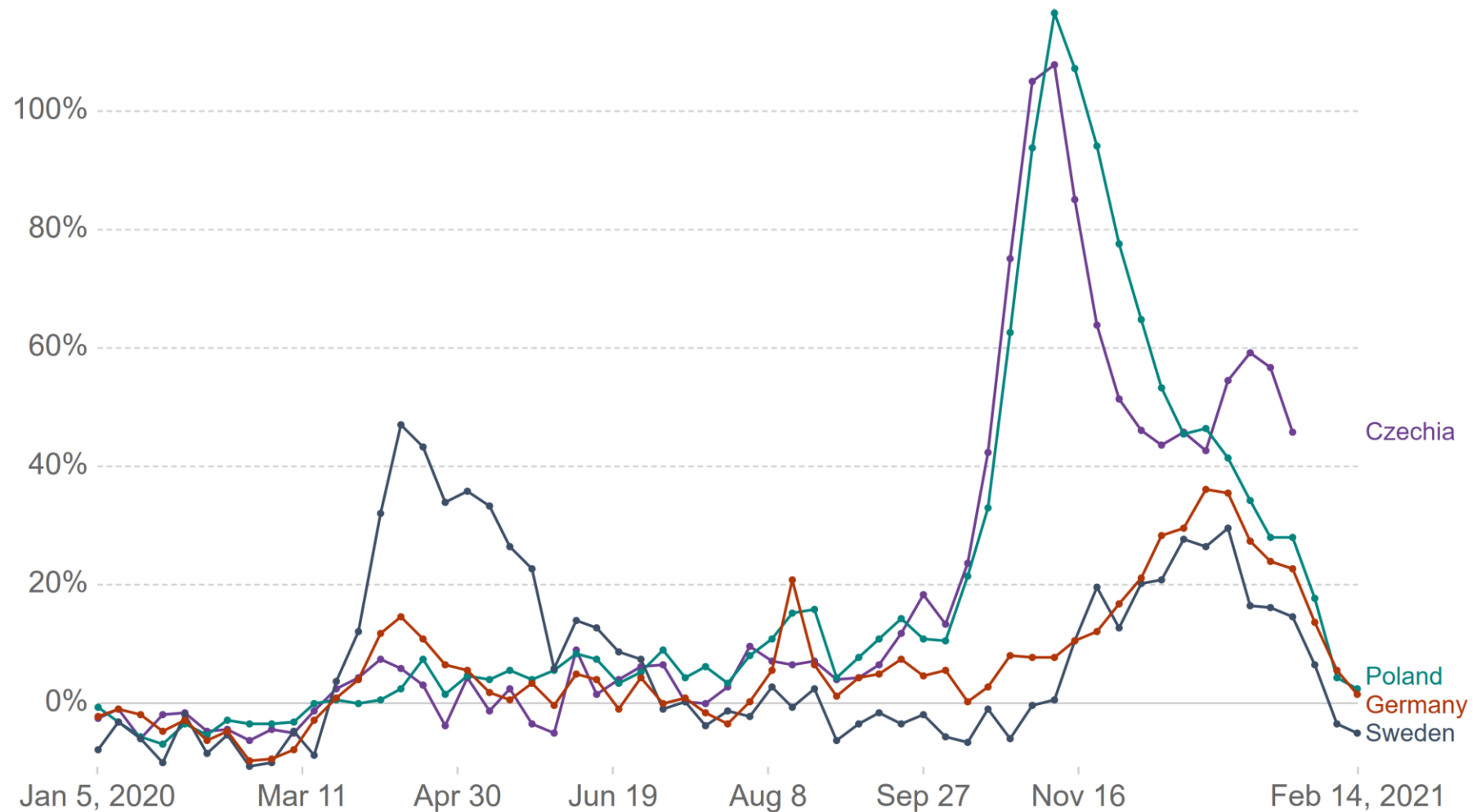Source of data: Eurostat

Quarterly GDPs: Selected Countries
Volumes, Y-o-Y Change
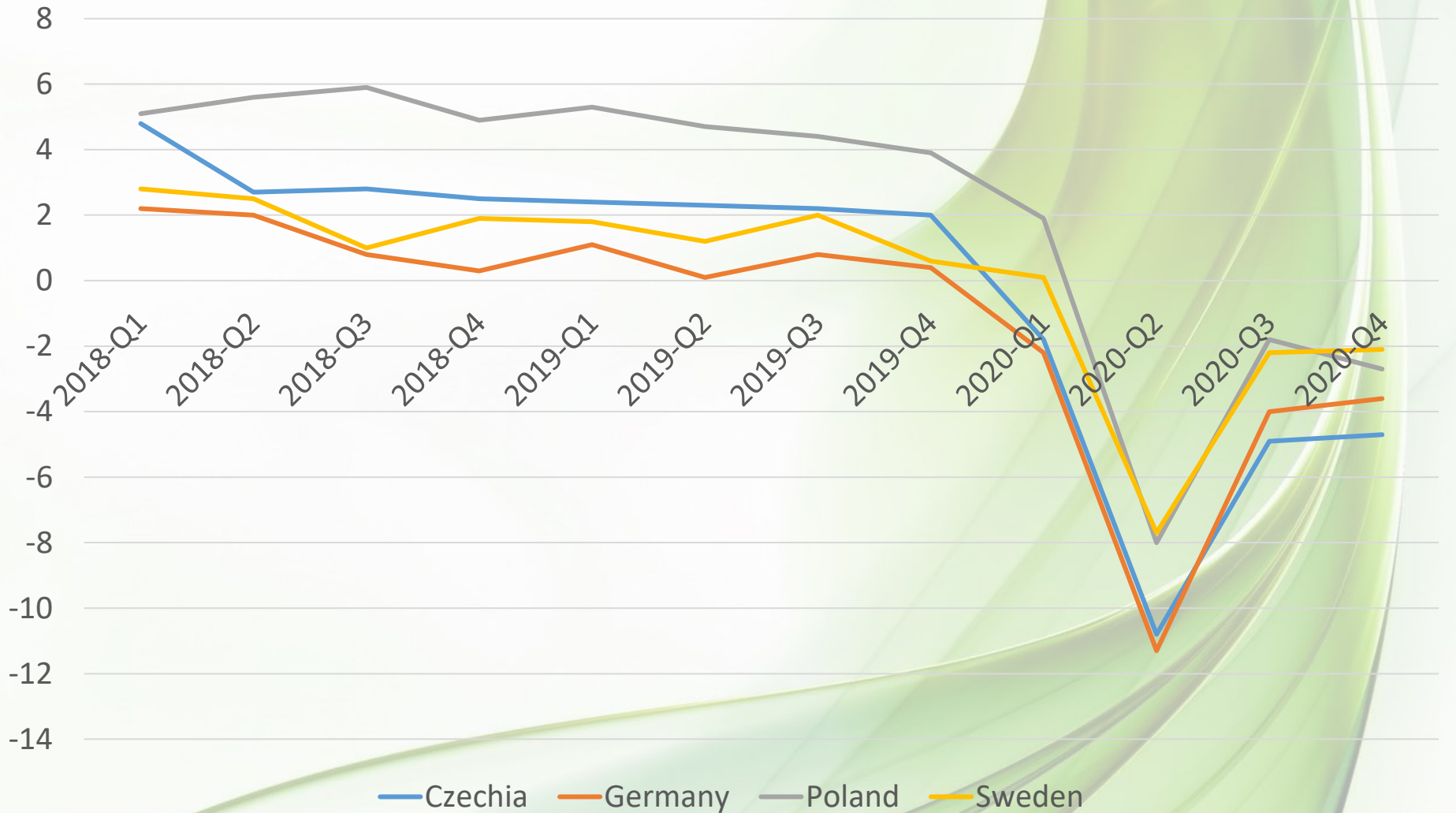
Source of data: Eurostat

Excess mortality during COVID-19: Deaths from all causes compared to previous years, all ages

Shown is how the number of weekly or monthly deaths in 2020–2021 differs as a percentage from the average number of deaths in the same period over the years 2015–2019. This metric is called the P-score. The reported number of deaths might not count all deaths that occurred due to incomplete coverage and delays in death reporting.

Czechia
Poland
Germany
Sweden

100%
80%
60%
40%
20%
0%

Jan 5, 2020   Mar 11   Apr 30   Jun 19   Aug 8   Sep 27   Nov 16   Feb 14, 2021

Source: Human Mortality Database (2021), World Mortality Dataset (2021)

OurWorldInData.org/coronavirus • CC BY

Economic Assistance

Two Levels

- Governments: financing of assistance
  - Need for additional spending
  - Solution:
    - Suspend debt limits (debt brakes)
    - Issue new bonds attractive for buyers
    - Access to EU funds
- But whom to help?
  - Basic objectives
    - We need to preserve social stability
    - Ideally also avoid losses of human capital (skills): reduce the risk of longer recessions and long run unemploymnent
    - Problem: **the resulting shock has a structural component**
    - Two possible approaches:
      - Help all current companies and entrepreneurs, prevent layoffs
      - Provide generous support to households

Optimum Solution?

- We probably will not know until a few years after the crisis
- There are some signs that we may not be targeting the assistance optimally (and in some cases we are providing it perhaps excessively)
  - Anecdoctic evidence about fraud
  - Fairly high growth of deposits
  - Development in the Czech real estate market

EU Level or National Level?

- Advantages of national level
  - Clearer competences
    - Ability to use force
  - Flexibility
  - Targeting
- Disadvantages of national level
  - Many European countries are small: smaller chances for redistribution of the burden
    - But might be alleviated by additional EU assistance
    - It might be very efficient to share logistics capacities and redistribute the burden at the EU level
  - Lack of coordination which might devalue serious efforts of neighbouring countries
    - Negative externalities of incompetent governments

Tentative Conclusions?

- Predictions of effects on individual regions are tricky

- The larger a country/region, the better ability to weather shocks to subregions

- Externalities are present!
  - Individual EU countries are going to depend on the solutions preferred by their neighbours

- This is disputable but: **quality of governance, predictability and coordination matters more than the precise design of measures?**

References

- Barrot et al. (2020): Sectoral effects of social distancing
- De Benedictis et al (2013): Network Analysis of World Trade using the BACI-CEPII dataset
- Freymann & Stebbing (2021): China must stop hiding its vaccine data
- Inoue & Todo (2020): The propagation of economic impacts through supply chains: The case of a megacity lockdown to prevent the spread of COVID- 19
- Faber et al (2021): A lockdown index to assess the economic impact of the coronavirus
- Goolsbee & Syverson (2021): Fear, lockdown, and diversion: Comparing drivers of pandemic economic decline 2020
- GTAP Analysis on the Potential Economic Impact of COVID-19