The University of Speyer is supporting Ukraine

Dr. Kai Masser

Content

Prologue: Extension of the Cost-Benefit Analysis (CBA) of Chapter 6 To five more Countries in Eastern Europe, especially Ukraine

Part 6.1 is an expansion of chapter 6. Chapter 6 presented a cost-benefit-analysis of the (Anti-)Corona Measures of 10 European Countries. Chapter 6.1 adds 5 other countries, **Georgia[1], Lithuania, Hungary, Poland and Ukraine**. The intended effect of this expansion of chapter 6 is not least to confirm that Ukraine is a sovereign state. The Stalinist-Russian raid on Ukraine in 2022 shall not give rise to exclude the Country of Ukraine from matching it with other countries.

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[1] Special thanks to Shorena Tsiklauri and Mariam Kavelashvili at The National Statistics Office of Georgia (geostat.ge) for their assistance.

Why these five specific countries?

First of all:

1) Some or most of these countries (Georgia, Lithuania and Poland) are presumedly next candidates for Stalinist military aggression from Russia.

And second:

2) The crucial factor is, that sufficient and reliable data is available. For other countries, like Armenia, for example Our World in Data (OWID) could deliver the data needed; especially the "stringency index"[2]. However, any data from Russia is far from being reliable.[3] Russian aka "Potemkin Villages" is not meant to consolidate empirical research but is part of AGITPROP, invented by Soviet Russia: "Agitation and Propaganda" (the spreading of) strongly political ideas or arguments … "Often "loss-making" and "shabby"")[4]

The procedure is maintained

The results of three countries from the previous analysis are added to the results of the "new" five countries for better classification. The first is the country that performed worst in the previous analysis, Italy. There is also one country that performed very well, Sweden, and one country that performed moderately well, Germany.[5]

As at the beginning of this blog, the analysis is based on averages for the "pre-Corona years" 2016-2019 compared to the Corona years 2020 and 2021.

1. Cost-Benefit Analysis (CBA). Method for evaluating alternative courses of action.[6] The alternative with the greatest difference between benefits (returns) and costs is sought: Do the Corona measures do more harm than good?

A (national) economic analysis of Corona measures tries to determine whether costs exceed benefits, or vice versa. In the case of Corona measures, this means is "doing" (tightening, lockdown) or not doing ("Freedom-Day") the better alternative. Of course, between the extreme positions of "Freedom-Day" and "Zero-Covid" there is a wide spectrum of graded alternative actions. However, if the wrong alternative is chosen, there is a risk of welfare losses from an economic point of view. The Oxford Stringency Index (OSI) clearly defines the different action alternatives. From "0" (no measures at all = "Freedom") to 100 ("Zero-Covid"), the index measures the severity of the measures for each country very precisely.

In the next step of a CBA, the benefits and costs of the alternative actions must be specified and quantified, ideally monetized (e.g. in € or $). Here, the present Corona CBA is oriented to the investment appraisal related to the CBA. A common indicator of profitability is the "return on investment" (ROI) ratio. In simple terms, ROI measures the profitability of a business or investment by the extent to which the capital employed has contributed to increasing the profit of a business or

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[2] See https://github.com/owid/covid-19-data/tree/master/public/data, e.g. the Data for Armenia.
[3] See e.g. https://edition.cnn.com/2022/04/22/europe/moskva-russia-casualties-intl/index.html.
[4] See e.g. https://dictionary.cambridge.org/de/worterbuch/englisch/agitprop.
[5] See https://www.uni-speyer.de/fileadmin/Lehrstuehle/Knorr/6_KNA_Deutschlands_schlechter_Weg_durch_die_Pandemie_und_Karl_Lauterbach.pdf.
[6] See e.g. https://www.investopedia.com/terms/c/cost-benefitanalysis.asp.

investment. ROI is a highly aggregated indicator with a high degree of meaningfulness. This is exactly the kind of indicator that a Corona CBA needs.[7]

2. The cost of lockdown or non-lockdown: more or less "excess mortality"?

The cost of corona measures, because Covid-19 is a viral disease that is occasionally fatal, must be determined based on the deaths that are prevented, but possibly caused, by corona measures.

The following figure shows that in the case of Germany in the 1st wave still 3.1% of the deaths investigated in the course of an autopsy could be attributed to Corona. In the 2nd and 3rd wave ("Delta") it was apparently only approx. 1%:
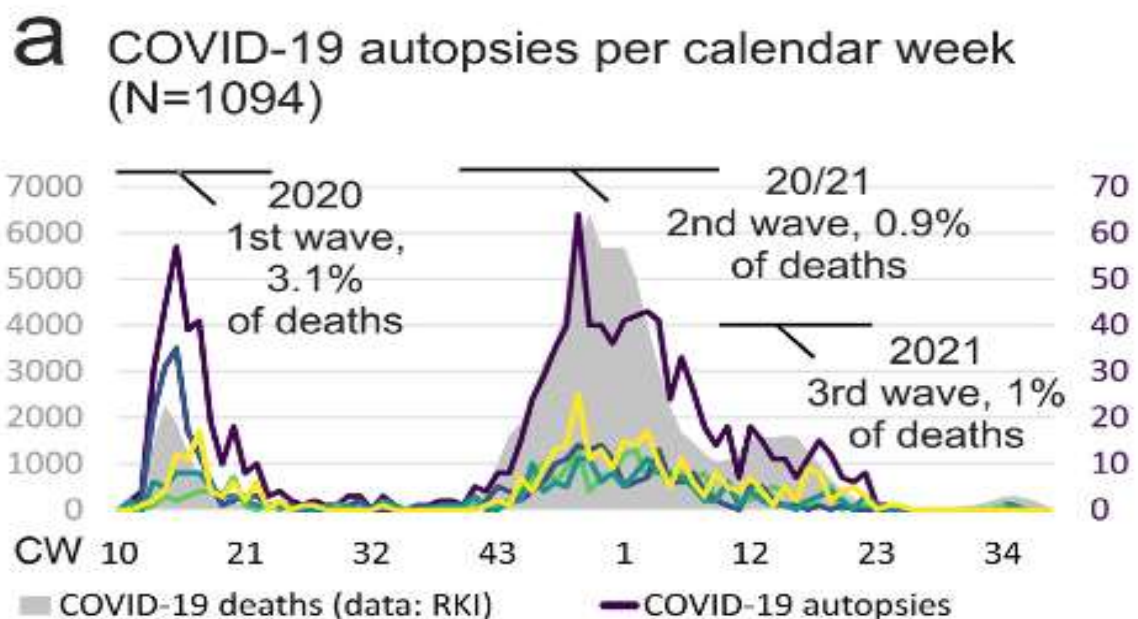

Figure 6.2-1. COVID-19 autopsies per calendar week (N=1094, 1 - 18% of all COVID-19 deaths). COVID-19 autopsies (purple line) (grey area, data: RKI), Source: First report from the German COVID-19 autopsy Registry[8]

Be that as it may. Already in the first part of the blog, the death rate (excess or low mortality compared to previous years) was determined as an "incorruptible criterion".[9] The death (mortality) figures of the official statistics are internationally mostly determined in the same way and are very difficult to manipulate. Hence, a compelling advantage of the mortality figures for the following CBA is that the figures of different countries are comparable. Therefore, in the following, as a measure of the cost of the Corona measures, the increase or decrease in mortality of 15 European countries is carried out.

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[7] See e.g. https://www.investopedia.com/articles/basics/10/guide-to-calculating-roi.asp.

[8] See: https://reader.elsevier.com/reader/sd/pii/S2666776222000230?token=DA3D937D5E0EF3349FDF43CCAE7100 67CE14BEEE654641761D8923AD1416D9B50D2772D76748941B6E67D0889B4B7CD1&originRegion=eu-west-1&originCreation=20220222204014.

[9] See (in German Language): https://www.uni-speyer.de/fileadmin/Lehrstuehle/Knorr/1__Corona_und_UEbersterblichkeit_Tests_und_Inzidenz_Mangelnde_ Nachverfolgung_25_05_21.pdf.

The empirically best way to determine the value of a human life is to hire a contract killer. But that is difficult at a public university. So, we do the second best and survey the relevant scientific literature: The monetization is based on a meta-study of the German Cancer Research Center (DKFZ) in Heidelberg[10], which determined "the economic value of a life year" based on "cost-benefit considerations". According to this, in Europe (2018) a statistical life year is to be valued on average (median) at € 158,448. This value is used in the following CBA as the basis for calculating the costs of the Corona measures.

3. Result of the evaluation of the number of deaths in 2020/21 as an indicator of costs: hard lockdown or not? - "Less is more"

As explained earlier, the determination of the cost of the Corona measures is based on the excess or shortfall mortality of the included countries. As was done at the beginning of this blog, the analysis is based on averages for the "pre-Corona years" 2016-2019 compared to the Corona years 2020 and 2021. This procedure has been used in all parts of the blog so far, ensuring comparability of data and results. What is new, however, is the calculation for quarterly figures, i.e., quarters 1, 2, 3, and 4 for 2020/21. This is necessary because the benefits of Corona measures are determined using the indicator gross domestic product (GDP); and the change in GDP is generally recorded on a quarterly basis.[11]

Using Germany (GER) as an example, the procedure for calculating the costs of the Corona measures will be explained. (Of course, the procedure was identical for all countries considered). First, it was determined how many people on average had died in 2016 and 2019 (Quarterly). The same data were calculated for 2020 and 2021 identically.

The following table shows for Germany how high the costs (in €) were for each additional death in 2020/21 compared with the average for 2016-2019. (In the case of under-mortality in a quarter, the values are positive). Furthermore, to ensure the comparability of the different countries, the values per inhabitant were converted.

Diff. 2016/19	Euro / Mortalities	Per Inhabitant
2020_Q1	422.026.248 €	5,07 €
2020_Q2	-465.272.649 €	-5,59 €
2020_Q3	-339.930.378 €	-4,09 €
2020_Q4	-1.388.479.824 €	-16,69 €
2021_Q1	-312.142.560 €	-3,75 €
2021_Q2	-672.522.633 €	-8,08 €
2021_Q3	-539.535.246 €	-6,48 €
2021_Q4	-1.835.580.468 €	-22,06 €
Total		**-61,68 €**

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[10] Whether or not a medical treatment is added to the catalogue of services covered by a national health care scheme, in many jurisdictions largely depends on the economic assessment of its cost benefit ratio. The so-called "value of a statistical life year" (VSLY) is an important point of reference for this assessment., see https://www.dkfz.de/en/presse/pressemitteilungen/2018/dkfz-pm-18-34-What-is-the-economic-value-of-a-life-year-An-international-comparison.php.

[11] The example of Germany (GER) was used to explain the procedure for calculating the costs of the Corona measures. However in German language, see https://www.uni-speyer.de/fileadmin/Lehrstuehle/Knorr/6_KNA_Deutschlands_schlechter_Weg_durch_die_Pandemie_und_Karl_Lauterbach.pdf, chapter 3, pp. 13f.

Table 6.2-1. Cost of Corona measures 2020/21 for Germany measured by excess mortality compared to 2016-19 average, values in euros / deaths & per inhabitant.

Accordingly, the 129,542.5 additional deaths in 2020/21 will result in costs of about € 62 per Inhabitant for Germany. (Keep in mind: The Number of Inhabitants of Germany is approximately 83,240,000. That is, it is excess mortality was about 0.15%.).

The following tables show the detailed results (Q1 to Q4 2020 & 2021) for all five new + 3 previous countries.[12]

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[12] Sources: Excess Mortality (Eurostat
https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=demo_r_mwk_ts&lang=en], Last updated: 26/01/2022 23:00), Additionally for Ukraine:
http://database.ukrcensus.gov.ua/MULT/Database/Population/databasetree_en.asp, Georgia:
https://www.geostat.ge/en/modules/categories/316/population-and-demography.

Country	SVE	GER	ITA	HUN	LIT	GEO	UKR	POL
2020_Q1	4	5	-12	10	14	6	7	4
2020_Q2	-21	-6	-17	0	-4	8	6	-5
2020_Q3	1	-4	-5	0	-7	2	-7	-9
2020_Q4	-8	-17	-32	-52	-50	-41	-39	-66
2021_Q1	0	-4	-13	-31	-15	0	-17	-32
2021_Q2	2	-8	-12	-24	-15	-12	-30	-33
2021_Q3	-1	-6	-8	-3	-23	-53	-7	-8
2021_Q4	-2	-22	-7	-46	-47	-59	-74	-49
Total	**-25**	**-62**	**-107**	**-146**	**-148**	**-150**	**-161**	**-196**

Table 6.2-2. Cost of Corona measures 2020/21 in terms of excess mortality compared to 2016-19 average (5 + 3 countries), values in € / per inhabitant

What stands out?

- **Countries in Eastern Europe have significantly higher excess mortality rates**
- **It's not only Q4?**

The calculation of the data shall be exemplified by the **example of Ukraine**:

Quarter Ukraine	Mean (Absolute) Ø 2016-2019	Absolute Figures 2020	Absolute Figures 2021	Difference to Ø 2016-2019 2020	Difference to Ø 2016-2019 2021	Difference % (Ø 2016-2019) 2020	Difference % (Ø 2016-2019) 2021
Q1	156234	149064	174050	-7170	17817	95	111
Q2	143838	137946	174991	-5892	31153	96	122
Q3	132031	139677	138814	7647	6784	106	105
Q4	149531	190148	226408	40617	76877	127	151
Total	581633	616835	714263	35202	132630	24	90

Table 6.2-3. Detailed Figures for Ukraine, Deaths, average 2016-2019 and 2020/2021[13]

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[13] Sources: https://www.macrotrends.net/countries/UKR/ukraine/death-rate & http://database.ukrcensus.gov.ua/MULT/Database/Population/databasetree_en.asp.

Obviously, excess mortality increases significantly, especially from Q4 2020. There is high excess mortality throughout 2021, but especially again in Q4 (i.e., at the end of the year).

Year	Quarter	Cost Excess Mortality (€)
2020	Q1	6,8
	Q2	5,6
	Q3	-7,3
	Q4	-38,8
2021	Q1	-17,1
	Q2	-29,9
	Q3	-6,5
	Q4	-73,7
Total		*-160,8*

Table 6.2-4. Detailed Figures for Ukraine, Cost Excess Mortality (€), 2020-2021

A detailed look at the (weekly) development of mortality in the other countries shows how the difference between the Western or Central European and the Eastern European countries can be explained.[14] First Sweden:
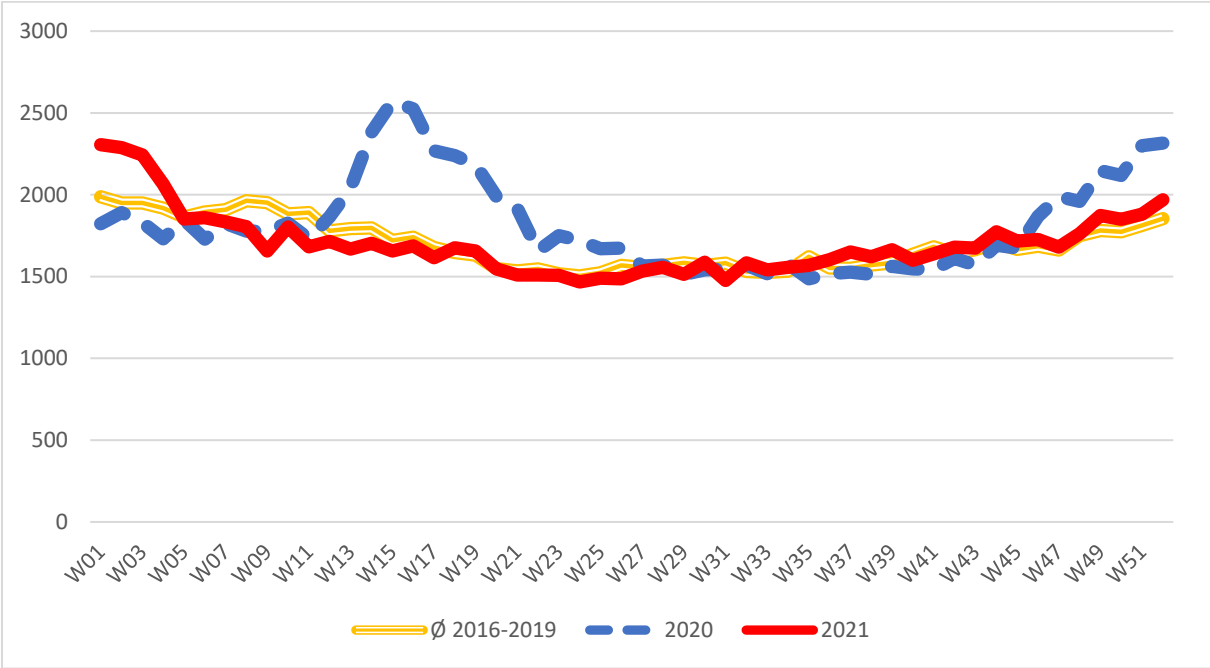

Figure 6.2-2.1: Sweden, Excess Mortality, Average (Ø) 2016-2019, 2020 & 2021, Absolute Figures

In the spring of 2020 (weeks 15-21), Sweden had significantly higher mortality than the 2016-2019 average. In the winter of 2020/2021 (weeks 45 (2020) - 05 (2021), mortality increased slightly again. Thereafter, it is again identical to the average of the years 2016-2019.

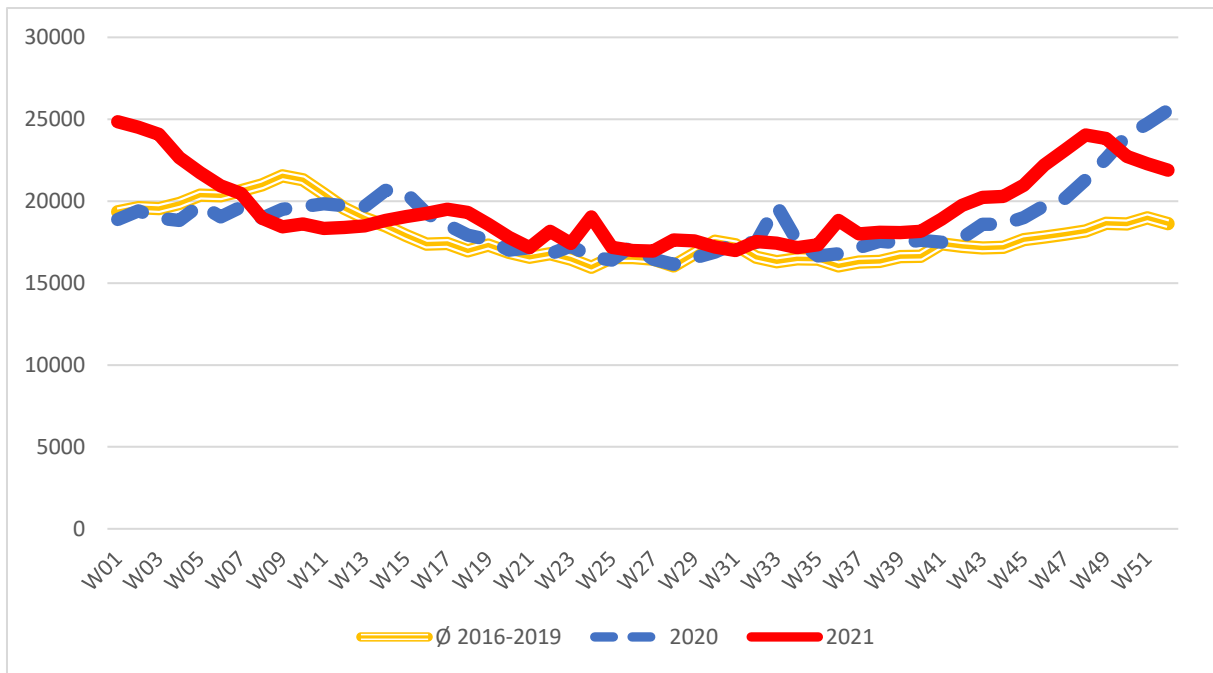And now Germany:

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[14] Data sources as reproduced in footnote 9.

Figure 6.2-2.2: Germany, Excess Mortality, Average (Ø) 2016-2019, 2020 & 2021, Absolute Figures

Excess mortality does not occur until the winter of 2020/2021, but then again, unlike in Sweden, from the autumn of 2021!
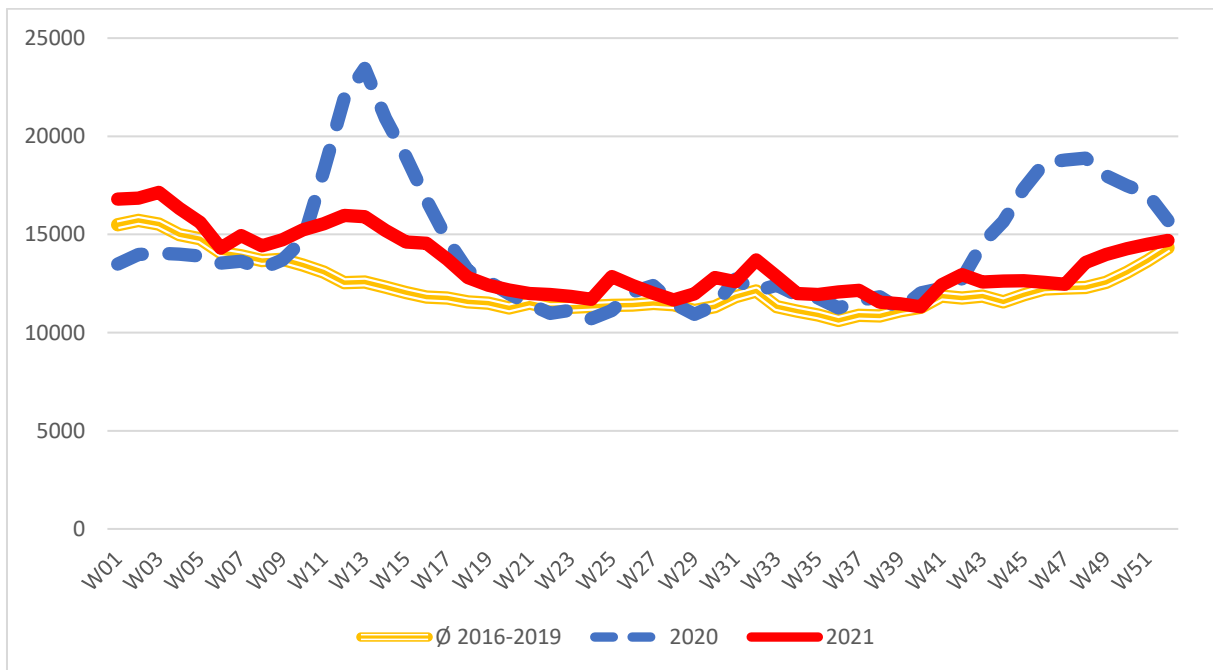

Figure 6.2-2.3: Italy, Excess Mortality, Average (Ø) 2016-2019, 2020 & 2021, Absolute Figures

As in Sweden, a first sharp increase in mortality in the spring of 2020 and again in the fall of the same year. Thereafter, the values are essentially as in the years 2016 to 2019.

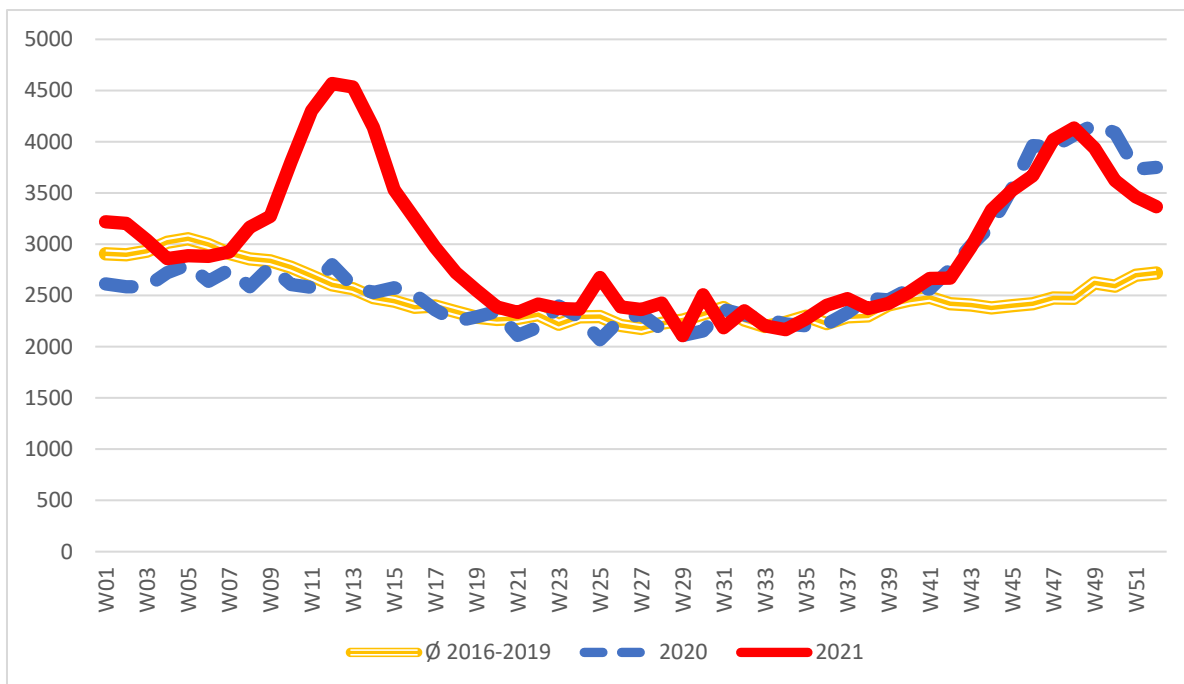The next example, Hungary, shows a very different picture:

Figure 6.2-2.4: Hungary, Excess Mortality, Average (Ø) 2016-2019, 2020 & 2021, Absolute Figures

Mortality does not increase significantly until the beginning of fall 2020, but then again in spring 2021 and again in fall 2021. The increase in mortality starts significantly later than in Sweden and Italy, but does not end, but rather continues unabated in fall 2021. **The never-ending excess mortality may explain why Hungary has a higher overall mortality rate than Sweden, Germany and Italy.**
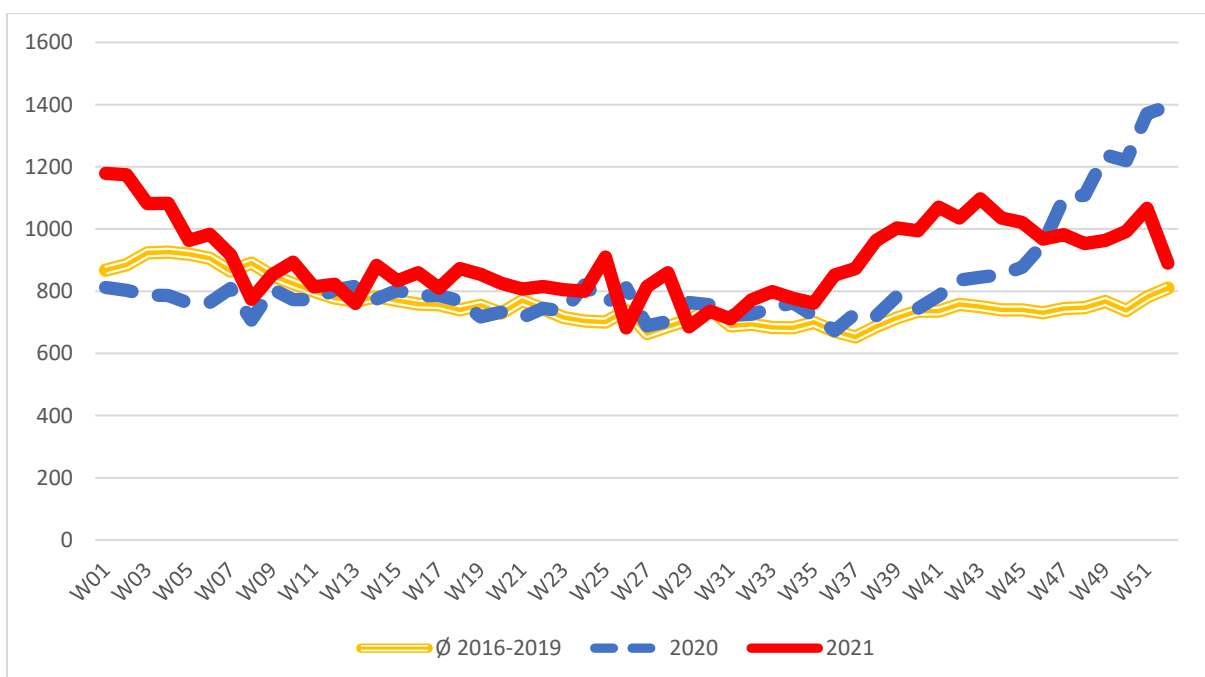

Figure 6.2.2.5: Lithuania, Excess Mortality, Average (Ø) 2016-2019, 2020 & 2021, Absolute Figures

On the other hand, Lithuania seems to have broken the trend. At the end of 2021, mortality is no longer rising at the same high rate as in 2020. (Data for end of 2021 (W51) may be preliminary, i.e., not reliable.)

The results for Georgia are "special":
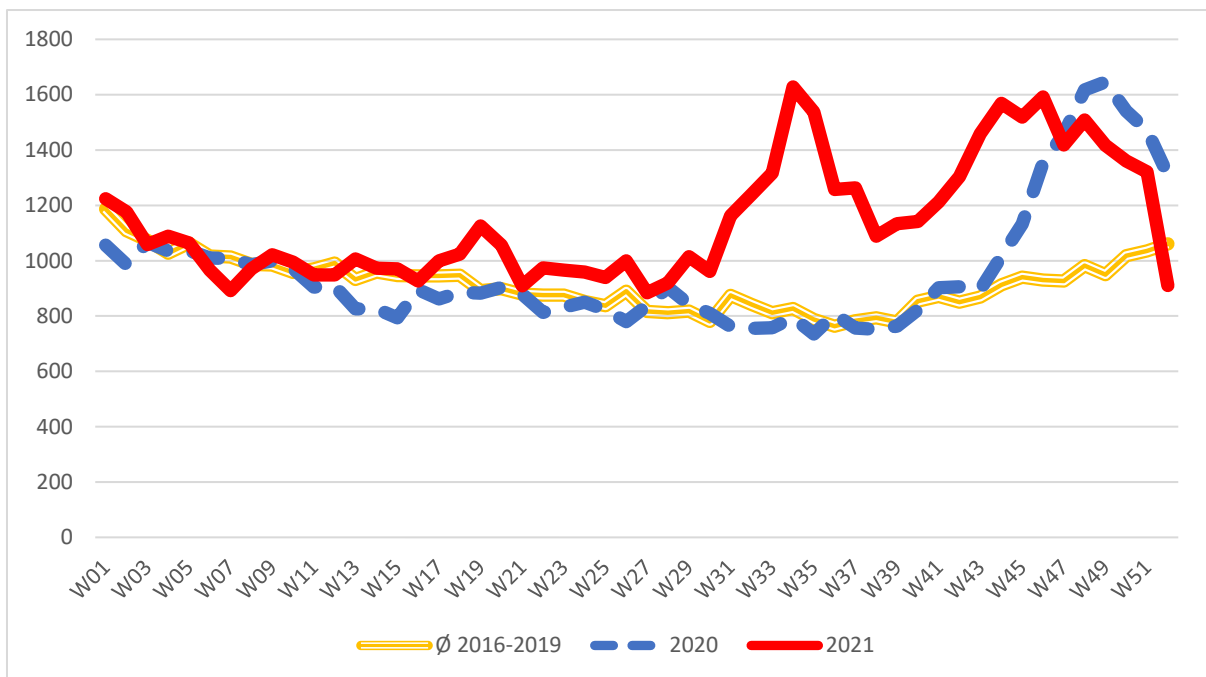
Figure 6.2-2.6: Georgia, Excess Mortality, Average (Ø) 2016-2019, 2020 & 2021, Absolute Figures

The increase in mortality, as in the other countries geographically located in the East, starts late, i.e., in the fall of 2020. That a new wave of excess mortality occurs in the fall of 2021 is not unusual. What is unusual is that there was already a significant increase in deaths in late summer (W31 following).

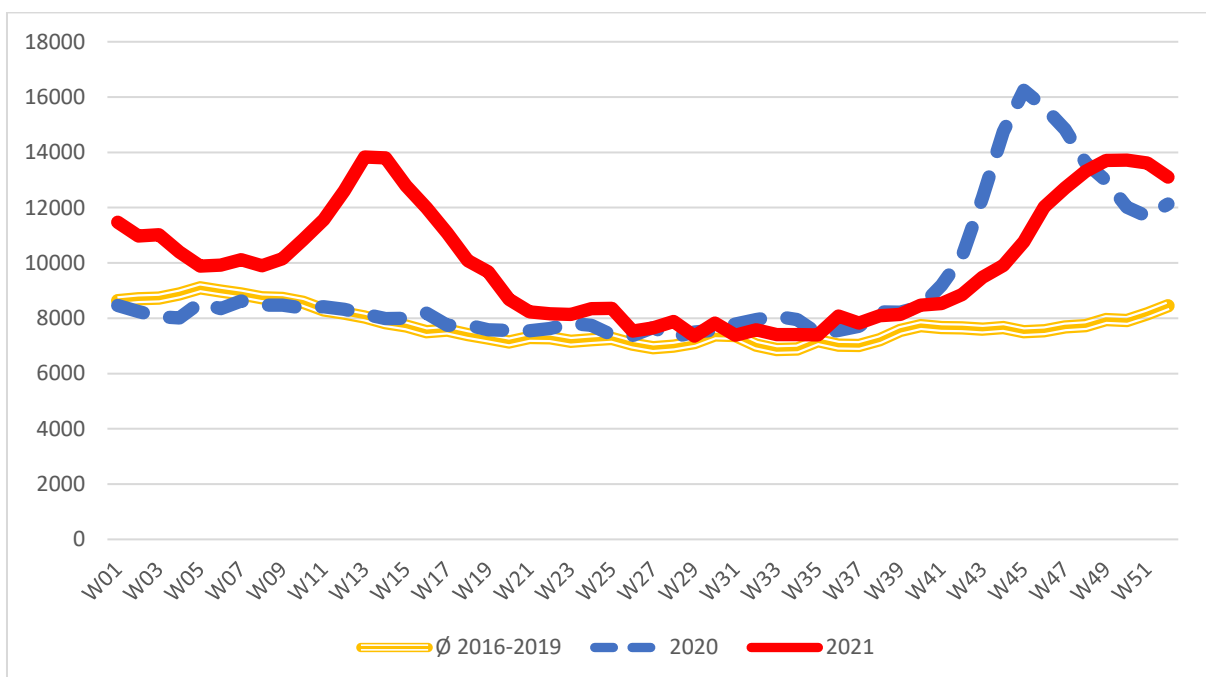Poland shows essentially the same picture as Hungary (see Fig. 2.4):

Figure 6.2-2.7: Poland, Excess Mortality, Average (Ø) 2016-2019, 2020 & 2021, Absolute Figures

Excess mortality increases late (not until late 2020), but then again in spring 2021 and from fall 2021.

Already in the second part of this blog, it was stated that the Corona pandemic in Europe has migrated from west to east.[15] **Given the significantly higher total number of excess deaths in Eastern European countries (see Table 2), important questions naturally arise: 1. Is the "migration" of the Corona pandemic, or excess mortality, due to the "migration" of the "delta" variant of the virus; e.g., by people who went to their home countries in the East on holidays such as Christmas or Easter? 2) But if this is so, why has not been learned from the experience in the Western European countries. But if this is the case, why has no lesson been learned from the experience in Western European countries? The mortality rate in Eastern Europe is significantly higher than in Western Europe, even though the success of the Corona measures was evaluated at least half a year ago.**

4. Evaluation of the Stringency Index (2020/21) as an Indicator of the Hardness of Corona-Measures: Hard Lockdown or Not? - "Right or Wrong Time?"

All in all, the Eastern European countries concerned here show an average degree of harshness in the Corona measures. What is striking is that the Eastern European countries had mostly adopted very tough measures very early, when the Corona case numbers in these countries were mostly still very low, but then reversed the measures very early, even though the pandemic still caused significantly more deaths compared to Western and Central Europe. Could it be that the tough Corona measures and their rollback were introduced at exactly the wrong time?

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[15] See https://www.uni-speyer.de/fileadmin/Lehrstuehle/Knorr/2__Corona_und_UEbersterblichkeit_Vergleich_2020_und_2016_bis_2019_30_Laender.pdf.

Countries	LIT	SWE	POL	HUN	UKR	GEO	GER	ITA
2020_Q1	50	24	19	51	58	57	28	54
2020_Q2	66	63	73	68	80	85	67	77
2020_Q3	28	57	38	50	55	57	55	66
2020_Q4	56	62	63	60	59	69	64	77
2021_Q1	69	69	72	74	59	75	81	77
2021_Q2	47	61	64	59	61	63	73	73
2021_Q3	28	37	40	27	52	38	61	59
2021_Q4	43	24	41	32	57	46	60	72
Total	388	398	411	421	481	489	490	556

Table 2.6-5. Oxford Stringency-Index (OSI)[16], 2020/21

Total 2020-21	LIT	SWE	POL	HUN	UKR	GEO	GER	ITA
OSI	388	398	411	421	481	489	490	556
Excess Mortality	-148	-25	-196	-146	-161	-150	-62	-107

Table 2.6-6. Cost (€ / per inhabitant) & Harshness of Corona Measures 2020/21 for Eight European Countries, Compared by OSI

What stands out?

- **Countries in Eastern Europe have significantly higher excess mortality rates! No matter how tough or not tough the Corona measures were!**
- **A correlation between excess mortality and the hardness of the corona measures is not discernible**

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[16] Oxford Stringency Index (OSI) from "0" (no measures at all ("Freedom") = to 100 ("Zero-Covid").

The following graphs show a detailed overview of the course of the pandemic. They show the number of cases of infection in each country (the left axis of the graph), the number of deaths associated with Corona, and the Oxford Stringency Index (OSI) from the start of the pandemic to spring 2022.

Sweden

Figure 6.2-3.1. Sweden, New Cases (Left Axis), New Deaths and Stringency Index (Right Axis), Development Spring 2020 until Spring 2022

Comment:

- The ratio of deaths attributed to Corona relative to the number of infections is decreasing dramatically
- Reducing the harshness of Corona measures in no way increases fatalities. Rather the opposite ...
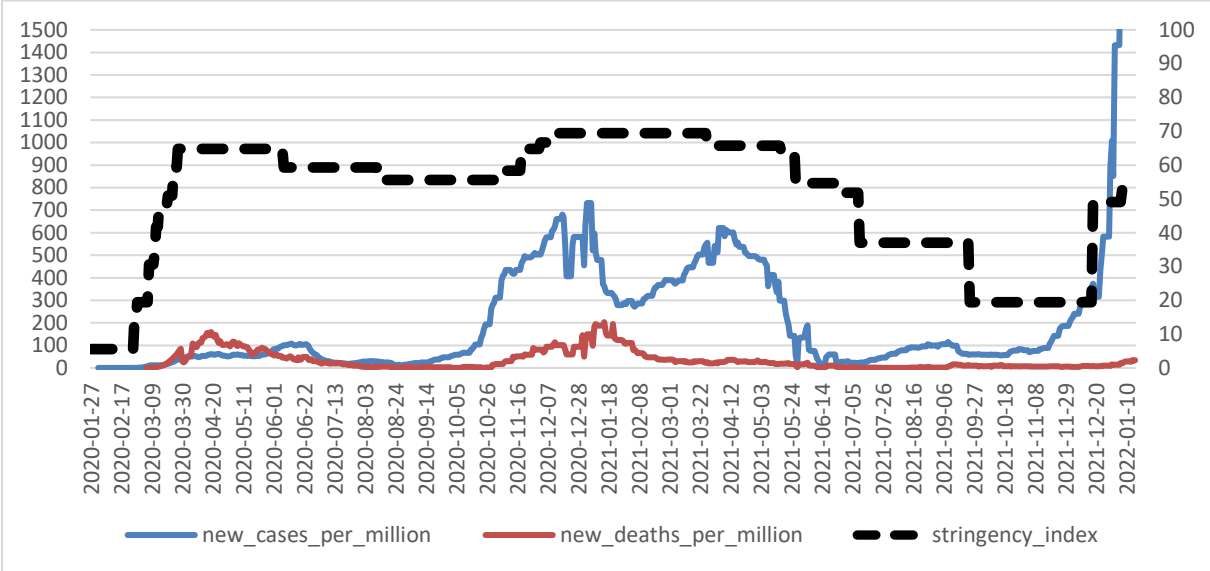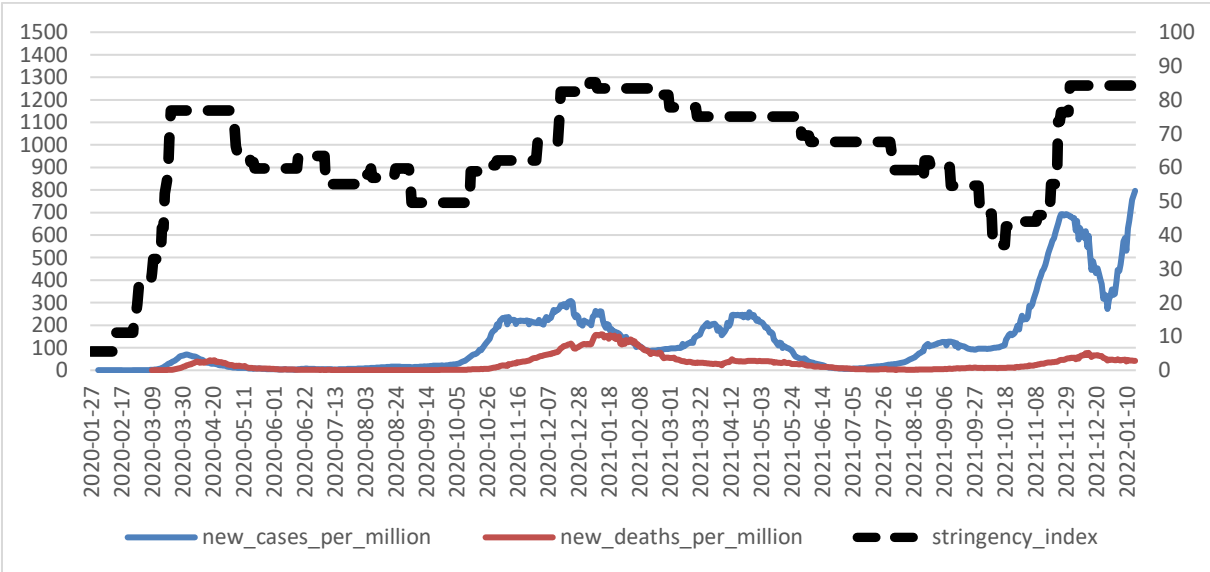
Germany

Figure 6.2-3.2. Germany, New Cases (Left Axis), New Deaths and Stringency Index (Right Axis), Development Spring 2020 until Spring 2022

Comment:

- Relatively hard lockdown with the "success" of low infection numbers.
- However, the number of deaths could not be sustainably reduced compared to Sweden. Especially in winter 2021/22
- Raise the harshness of Corona measures in no way increases fatalities. Rather the opposite …

Italy

Figure 6.2.-3.3. Italy, New Cases (Left Axis), New Deaths and Stringency Index (Right Axis), Development Spring 2020 until Spring 2022

Comment:

- **Interestingly, the course is very similar to Sweden, but on a "higher level", i.e. a harder lockdown and more deaths.**
- And less Infections compared to Sweden …

Hungary

Figure 6.2-3.4: Hungary, New Cases (Left Axis), New Deaths and Stringency Index (Right Axis), Development Spring 2020 until Spring 2022

Comment:

- **Interestingly, the course is very similar to Sweden, but on a "higher level", i.e. a harder lockdown and more deaths.**
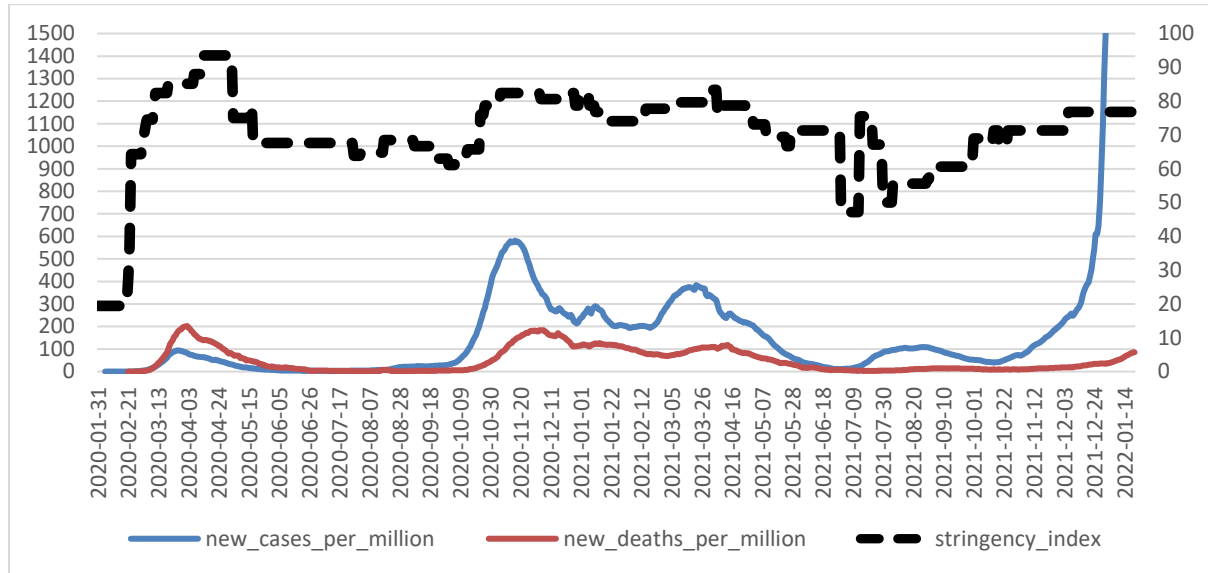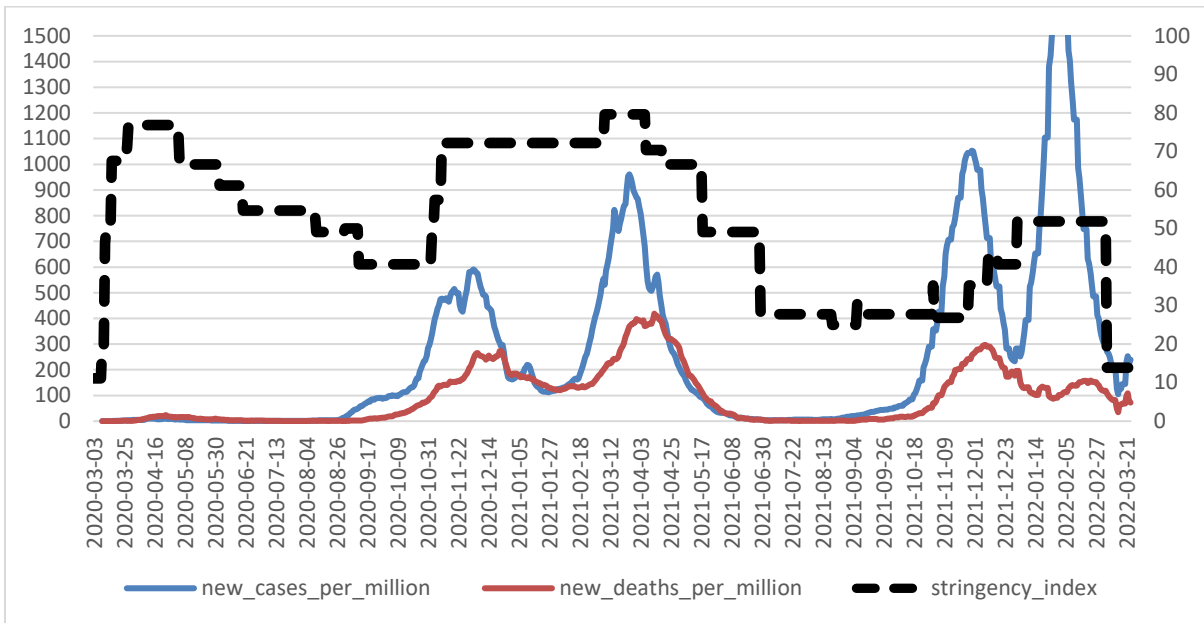- And less Infections compared to Sweden …

Lithuania

Figure 6.2-3.5: Lithuania, New Cases (Left Axis), New Deaths and Stringency Index (Right Axis), Development Spring 2020 until Spring 2022

Comment:

- As in the case of Hungary - and unlike the countries geographically further west - even in the fall-winter of 2021, comparatively many "corona deaths".
- **However, the proportion of deaths is falling relative to the number of infections; and this is despite the fact that the severity of Corona measures has tended to be reduced.**

Georgia

Figure 6.2-3.6: Georgia, New Cases (Left Axis), New Deaths and Stringency Index (Right Axis), Development Spring 2020 until Spring 2022

Comment:

- The number of deaths associated with "Corona" remains high.
- **Like in Lithuania, the proportion of deaths is falling relative to the number of infections; and the severity of Corona measures has tended to be reduced as well.**

Ukraine
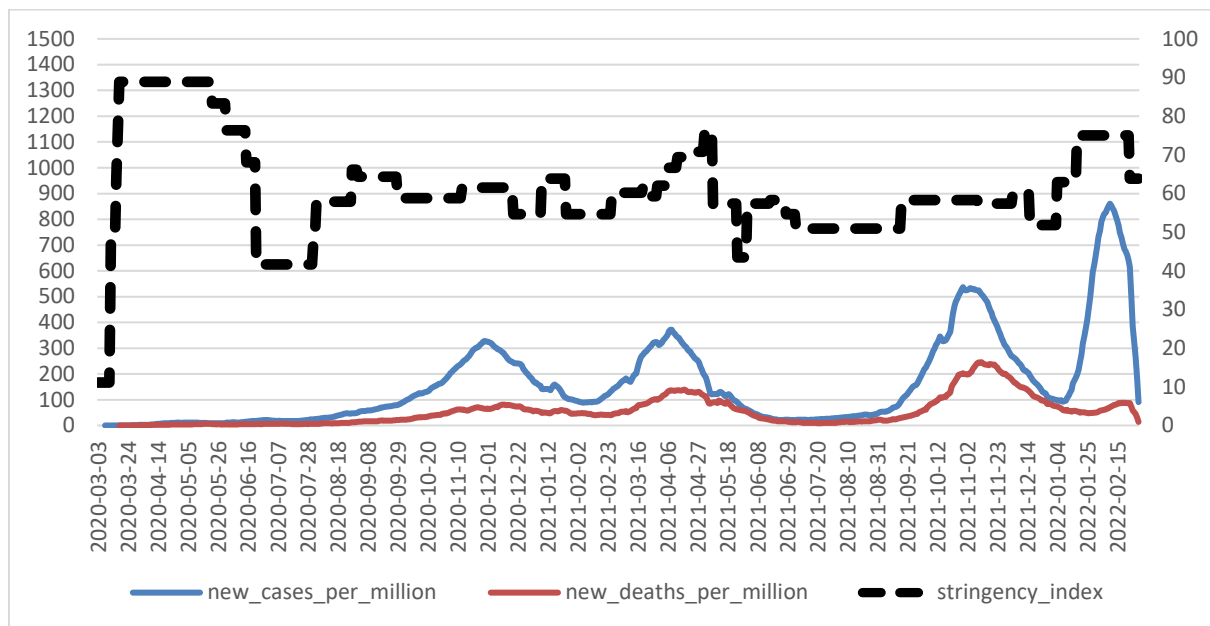
Figure 6.2-3.7: Ukraine, New Cases (Left Axis), New Deaths and Stringency Index (Right Axis), Development Spring 2020 until Spring 2022

Comment:

- The number of deaths associated with "Corona" reaches its peak in Nov. 2021.
- **The severity of Corona measures remains high. This does not appear to have had a positive impact on the increase in either the number of cases or the number of "corona deaths."**
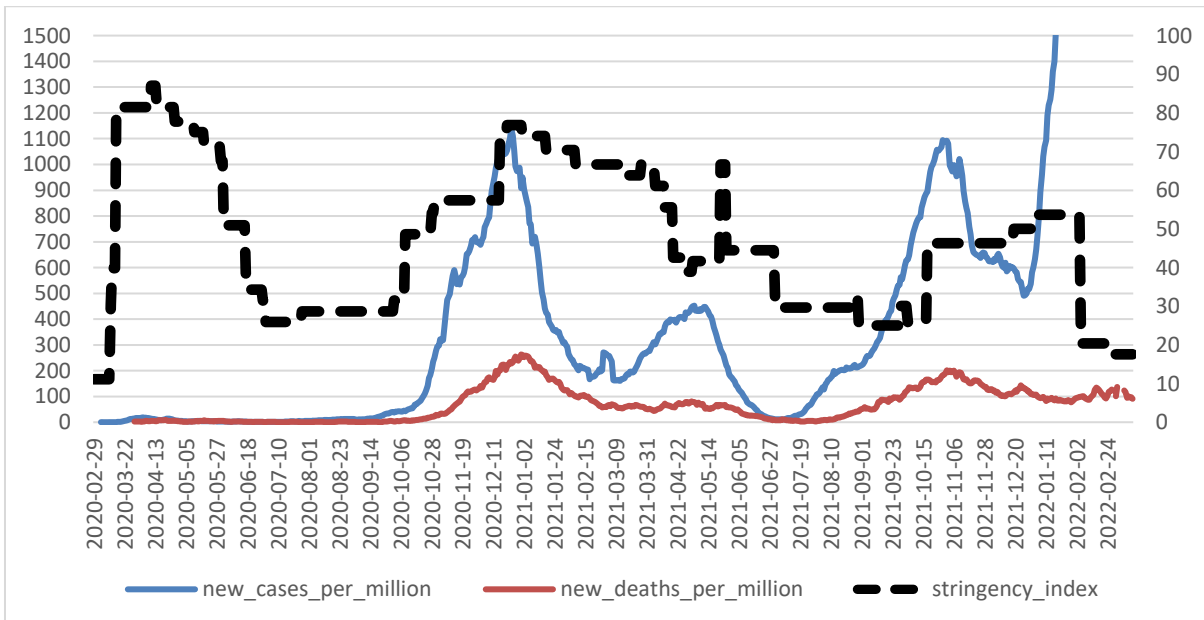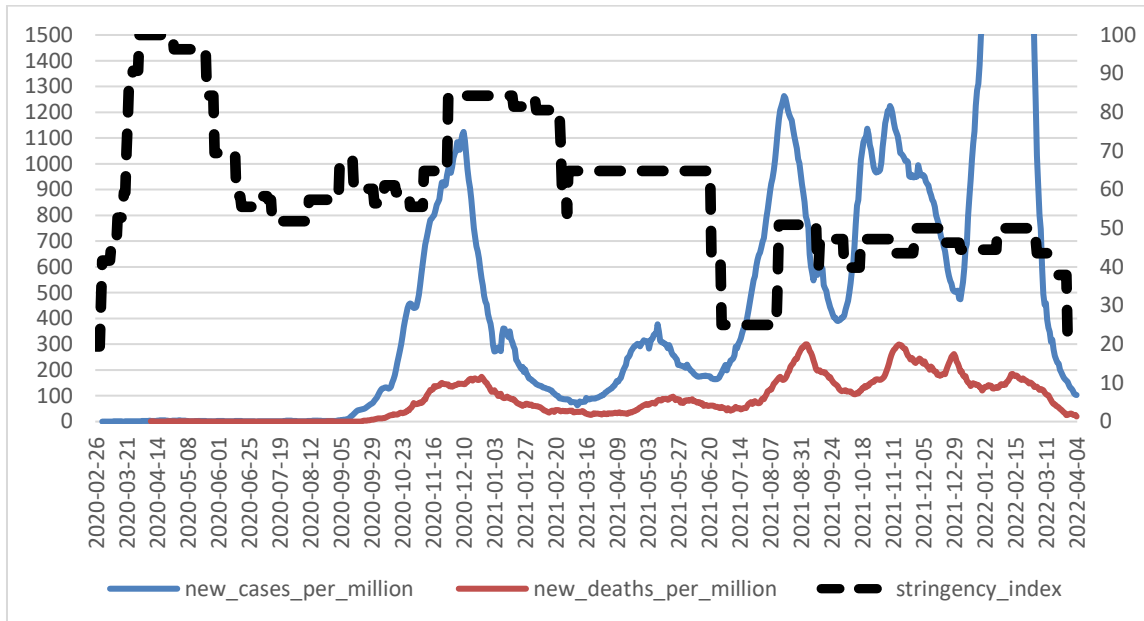
Poland

Figure 6.2-3.8: Poland, New Cases (Left Axis), New Deaths and Stringency Index (Right Axis), Development Spring 2020 until Spring 2022

Comment:

- The number of deaths associated with "Corona" remains high.

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- **Like in Lithuania, the proportion of deaths is falling relative to the number of infections; and the severity of Corona measures has tended to be reduced as well.**
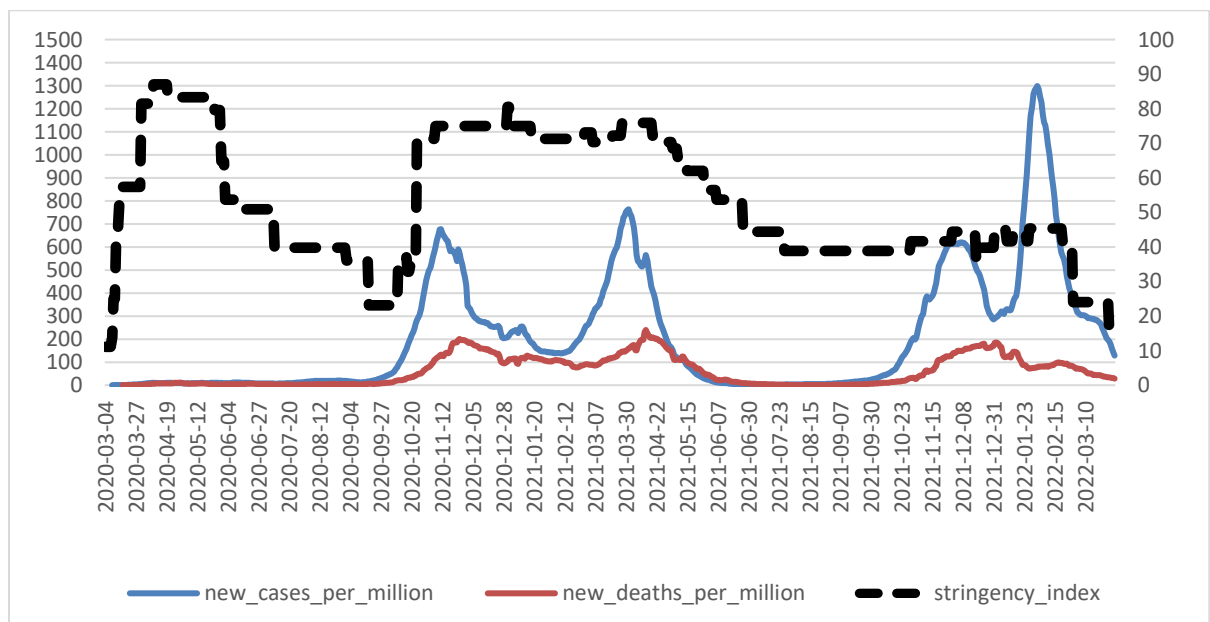
Sum Up of the Findings:

Basically, there is a difference between countries that are geographically located in the West and countries that are located in the East (of Europe):

- The countries that are geographically located in the East tend to have a higher number of "corona deaths". This is mainly due to the fact that mortality is not decreasing - at least until the end of 2021.
- In all countries, the number of persons "allegedly" dying from corona has decreased (significantly) relative to the number of corona infections identified.
- **In any case, there is no evidence that a hard lockdown would have been successful. With the exception of Germany (**This is a joke, maybe**).**

5 The Benefits of Lockdown or Non-Lockdown: Positive or Negative Effect on the Economy?

Like in the case of the economic effects of the Corona measures, a "highly aggregated" indicator is needed that combines and thus balances possible positive and negative (economic) effects. (Like the number of deaths in the area of costs).

"A study by economists at the University of Mannheim has shown that the number of new infections falls by four to eight percent if the number of employees in the home office increases by one percent. But apparently this gain comes at a price: people work at home longer, more inefficiently - and are more psychologically stressed as a result."[17] A study by the consulting firm Price Waterhouse Coopers (PWC) for Great Britain also does not come to a good conclusion: "There, every second employed person worked from home in April last year. If the trend continues and employees do not gradually return to the office, this could tear a hole in the gross domestic product (GDP) of 15.3 billion pounds (about 16.7 billion euros) overall, the home office study concludes." [18] According to the German Federal Statistical Office (Destatis), in the Corona year 2020, veterinarians & veterinary surgeons have achieved a sales increase of 10.6%. However, there are also losers of the lockdowns: travel agencies and tour operators had a 70% drop in sales compared to 2019[19].

As can be seen, economically there are winners and losers of the Corona measures. Therefore, as with the costs, it is also important in the case of the benefits of the measures to find a highly aggregated indicator that combines the "gains and losses". Here, the gross domestic product (GDP) is a suitable indicator:

> "The rate of change in price-adjusted gross domestic product (GDP) serves as a measure of economic growth in national economies. Gross domestic product (GDP) is thus the most

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[17] My Home is My Castle – The Benefits of Working from Home During a Pandemic Crisis, https://fadinger.vwl.uni-mannheim.de/Research_files/WFHCovid19_R1.pdf, and https://www.wiwo.de/erfolg/beruf/supergau-der-ineffizienz-wo-wir-im-homeoffice-unsere-zeit-verschwenden/26794458.html.

[18] https://www.ingenieur.de/technik/wirtschaft/arbeitsmarkt/studie-homeoffice-fuehrt-zu-milliardenschaeden-in-der-wirtschaft/. See as well: https://www.businessinsider.de/wirtschaft/arbeiten-im-homeoffice-steigere-die-produktivitaet-sagen-angestellte-eine-studie-hat-nun-das-gegenteil-herausgefunden-c/.

[19] See. https://www.destatis.de/DE/Themen/Branchen-Unternehmen/Unternehmen/Unternehmensregister/_inhalt.html.

important measure of national accounts and is one of the indicators of the International Monetary Fund (IMF) dissemination standard."[20]

GDP is therefore particularly suitable for comparing the effects of Corona measures in different countries. Of course, the extent to which individual countries are affected by certain measures, e.g. due to their economic dependence on tourism, must be taken into account:
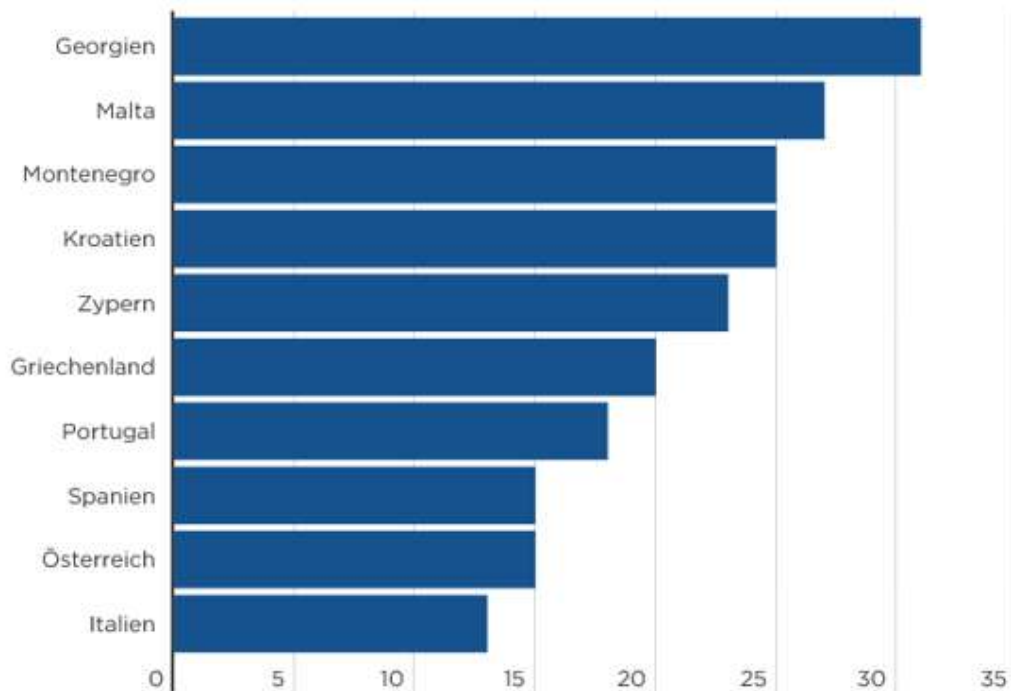

Figure 6.2-4: Share of the tourism and travel industry in the GDP of selected countries, Source: World Bank[21]

The development of GDP compared to previous years (2016-2019) is in any case the method of choice (there is nothing better).

As in the case of the costs of the Corona measures, the determination of the benefits (GDP) is also based on the average values for the "pre-Corona years" 2016-2019 compared to the Corona years 2020 and 2021. Otherwise, the values would not be comparable and could not be used for a CBA. In the case of countries that do not have the euro as their currency, the national currencies (time 2021) had to be converted.[22] The International Monetary Fund (IMF) initially served as the data source of the GDP.[23] At the time of the data research, no data were available for Q4 2021; these were obtained from national sources, partly on the basis of estimates.[24]

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[20] https://www.destatis.de/DE/Themen/Wirtschaft/Volkswirtschaftliche-Gesamtrechnungen-Inlandsprodukt/Methoden/bip.html.

[21] https://www.handelszeitung.ch/konjunktur/die-lander-die-am-meisten-ihren-touristen-hangen.

[22] For instance with the help of GOOGLE, https://www.google.com/search?q=W%C3%A4hrung+Georgien&rlz=1C1CHZN_deDE931DE931&oq=W%C3%A4hrung+Georgien&aqs=chrome..69i57j0i512l3j0i22i30l6.18954j1j4&sourceid=chrome&ie=UTF-8.

[23] International Financial Statistics (IFS), https://data.imf.org/regular.aspx?key=63122827.

[24] For SWE, ITA & GER see
6_KNA_Deutschlands_schlechter_Weg_durch_die_Pandemie_und_Karl_Lauterbach.pdf (uni-speyer.de), Footnote 57, for GEO: https://georgianjournal.ge/society/37748-georgia-posts-106-gdp-growth-in-2021.html,

For Georgia, for example, the following values for GDP in lari (GEL) are obtained:

Quarter	Absolute Figures (Mio. GEL)			Difference (Mio. GEL)	
	Ø 2016-2019	2020	2021	2020	2021
Q1	8.970	11.106	11.489	2.136	2.519
Q2	10.385	10.787	15.516	402	5.131
Q3	11.395	13.402	15.997	2.007	4.602
Q4	11.862	13.971	17.517	2.109	5.655

Tab. 2.6-7.1. GDP Georgia, average 2016-19 and 2020 & 2021 as well as the difference, quarterly figures in Mio. GEL

Converted to the approx. 3.72 million inhabitants, the following values in euros[25] result for the difference average 2016-19 and 2020 & 2021:

Quartal	Mill. EUR / per Inhabitant
2020_Q1	161
2020_Q2	30
2020_Q3	151
2020_Q4	159
2021_Q1	190
2021_Q2	386
2021_Q3	346
2021_Q4	426
Summe	**1,849**

Tab. 2.6-7.2. GDP difference in Georgia, average 2016-19 and 2020 & 2021, quarterly figures in euros per inhabitant

This results in an increase in GDP of € 1,849 per capita in 2020/21. At first glance, this does not sound bad at all. However, compared to Sweden (increase: € 7,129) or Germany (increase: € 3,336), Georgia is not in a good position.

As in the case of the number of deaths (excess mortality), a comparison with the severity of the Corona measures (OSI) shows that the harsher they are, the worse their effect. For the 10 countries considered in Part 6 before, the correlation coefficient) is -0.77. This means that the harsher the Corona measures, the lower the increase in GDP and the higher the decline. If the additional five Eastern European countries are included in the analysis, the correlation is somewhat lower (-0.68), but this is still a high statistical correlation.[26] (If we look at the eight countries covered in this part (6.2) of the blog, we are left with a statistical relationship (correlation) of (-0.77)).

Analogous to the approach taken in the case of costs (excess mortality), the following two tables present the values of the eight countries considered in this chapter, first the GDP development for

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for UKR: https://www.focus-economics.com/countries/ukraine/news/gdp/gdp-grows-at-over-10-year-high-in-q4-despite-tensions-with-russia, for HUN: https://www.focus-economics.com/countries/hungary/news/gdp/gdp-growth-accelerates-in-q4, Poland: https://countryeconomy.com/gdp/poland#:~:text=GDP%20improves%20in%20Poland,196%20countries%20that%20we%20publish and Lithuania: https://www.focus-economics.com/countries/hungary/news/gdp/gdp-growth-accelerates-in-q4.

[25] At the conversion rate of 0.28 GEL = 1 Euro at that time.
[26] "1" or "-1" means a statistic relationship of maximum strength. "0" would mean no correlation at all.

2020/21 compared with 2016-19 average, and then comparing the entire period (2020/21 compared to 2016-19 (difference)) of GDP (gross domestic product) and OSI (Oxford Stringency Index).

Countries	SWE	HUN	GER	POL	LIT	UKR	GEO	ITA
2020_Q1	1025	528	602	273	336	158	161	-223
2020_Q2	-7	158	-511	23	94	104	30	-1053
2020_Q3	623	433	243	166	198	195	151	-149
2020_Q4	727	580	348	858	214	268	159	-189
2021_Q1	1176	640	450	240	372	274	190	-100
2021_Q2	1348	821	561	280	383	326	386	5
2021_Q3	1574	834	969	332	383	447	346	166
2021_Q4	663	867	673	1117	606	482	426	-306
Total	**7129**	**4860**	**3336**	**3288**	**2586**	**2254**	**1849**	**-1849**

Tab. 2.6-8 Benefits of Corona measures 2020/21 for eight countries measured by GDP growth compared to 2016-19 average, values in € / per capita.[27]

Countries	SWE	HUN	GER	POL	LIT	UKR	GEO	ITA
Benefit	7129	4860	3336	3288	2586	2254	1849	-1849
OSI	398	421	490	411	388	481	489	556

Tab. 2.6-9 Benefits of Corona measures 2020/21 for eight countries measured by GDP growth compared to 2016-19 average, values in € / per capita compared with the Oxford Stringency Index (OSI)

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[27] 2021_Q4 preliminary / estimated values for most countries.

What stands out?

The GDP of Spain and Austria, at 15% of the total, is significantly more dependent on tourism than that of Italy (see Fig. 6.2-4). Nevertheless, Italy has the most massive GDP slump (see also the previous part 6); and the toughest lockdown measures. For Germany, too, it looks as if the relatively hard lockdown has led to a much smaller increase in GDP compared to other countries (NED, CH, SVE, DEN). This connection also seems to apply to the countries in Eastern Europe newly considered here. Exceptions, Lithuania, which has a high proportion of people of Russian origin crossing the border regularly, that may rekindle the chain of infection again and again, is the exception to the rule.

A study by the Cologne Institute for Economic Research (IW)[28] arrives at (almost) identical results on the basis of many other economic indicators such as the inflation rate and the unemployment rate: The countries with lower Corona measures have generally come through the "alleged" pandemic of 2020/21 economically better.

Gewinner und Verlierer der Corona-Krise

Ausgewählte OECD-Länder, prozentuale Veränderung während der Corona-Krise, 4. Quartal 2019 bis 4. Quartal 2021*

Ranking**	Land	BIP[1]	Arbeitslosen-rate[2]	Inflation[3]	Haushaltsein-kommen[4]	Investitionen[5]	Schuldenstands-quote[6]	Aktienkurse[7]
1	Dänemark	5,2	−0,7	1,8	2,8	10,8	3,8	60,4
2	Schweden	2,1	1,3	1,8	2,0	9,2	3,2	51,7
3	Südkorea	2,8	−0,5	2,0	2,2	2,3	9,2	41,0
4	Norwegen	3,4	0,8	2,9	4,5	−1,7	−1,0	30,7
5	Niederlande	2,8	0,1	2,9	−1,4	−1,5	4,4	30,1
6	Schweiz	1,4	0,7	0,4	5,6	−2,0	2,0	19,5
7	USA	3,1	0,9	3,9	5,5	3,8	16,7	26,2
8	Polen	3,2	0,4	5,2	6,7	−0,9	11,2	23,5
9	Australien	−0,2	−0,5	2,2	4,7	7,4	15,3	19,3
10	Portugal	−1,4	0,1	1,1	2,3	0,7	14,9	27,2
11	Kanada	−1,4	1,1	2,7	7,5	0,7	23,5	26,6
12	Griechenland	1,2	−3,0	1,1	4,7	19,0	26,1	2,0
13	Frankreich	0,9	−0,6	1,4	2,8	1,9	19,7	17,4
14	Österreich	−1,1	−1,3	2,6	−1,9	−0,7	14,9	19,3
15	Italien	−0,5	−0,6	1,6	−3,5	6,9	21,0	18,4
16	Deutschland	−1,5	0,1	2,4	−0,7	−1,9	10,4	15,8
17	Japan	−0,2	0,4	−0,2	−0,3	−4,8	22,4	19,0
18	Vereinigtes Königreich	−0,4	0,5	2,6	−0,9	−1,8	22,1	−1,3
19	Spanien	−4,0	0,5	2,5	−5,5	−2,3	27,4	−7,3

* Verglichen werden die letzten verfügbaren Daten (3. Quartal oder 4. Quartal 2021).
** Durchschnittlicher Wert aus den sieben Indikatoren in der Tabelle (Arbeitslosenrate, Inflation und Schuldenstandsquote werden im arithmetischen Mittel negativ gewichtet; Veränderung von Arbeitslosenrate und Schuldenstandsquote in Prozentpunkten).
1) Reales BIP; saisonbereinigt: 2) Saisonbereinigt. 3) Annualisierte 2-Jahres-Rate. 4) Reale Haushaltseinkommen; Griechenland nicht kalender- und saisonbereinigt. 5) Saisonbereinigt. 6) In Prozent vom BIP. 7) OECD-MEI-Aktienkurse.
Quelle: OECD; IWF; Weltbank; nationale Statistiken

Fig. 6.2-5: Economic "Winners & Losers" (Countries) of the Pandemic, IW Analysis 27.02.2022

6. Result Cost-Benefit Analysis (CBA): (Hard) Lockdown (Zero-Covid) Is Not a Good Idea in Any Respect

In the crucial step of a CBA, the costs and benefits of all alternatives (in this case, the harshness of the Corona measures measured by the Oxford Stringency Index) are compared. In addition, it must be determined what the investment (here: in lower (excess) mortality is worth measured by the impact over time. That is, the benefit must be discounted with respect to its present value (here, the start of the Corona measures). Since the interest rate of the European Central Bank has been 0% for

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[28] Cf. https://www.iwkoeln.de/studien/thomas-obst-wer-sind-die-gewinner-und-verlierer.html.

a long time, the calculation of the discounting is very simple. The result of a CBA is the net present value (NPV). That is, today's value investment in a prior year. The investment here is the reduction in excess mortality through harder or softer (keyword "herd immunity") measures (compared to pre-pandemic). The economic gain is the evolution of GDP (compared to before the pandemic). The calculation formula is:

$$NPV = \sum_{t=0}^{n} \frac{B_t}{(1+i)^t} - \sum_{t=0}^{n} \frac{C_t}{(1+i)^t}$$

Where B(enefit) = Benefit and C(ost) = cost. I = interest, n = term and t = measure year in which the B/C are incurred.

Fig. 6.2-6: Calculation of Net Present Value

Costs are summed up below over both years (2020 & 2021) as they reflect Corona management or its "success" in terms of low excess mortality of governments over this period as a whole. Benefits are first reported by quarter. There is no need to discount, as in 2020 and 2021 the interest rate was effectively zero.

Länder	ITA	UKR	GEO	LIT	GER	POL	HUN	SVE
OSI	556	481	489	388	490	411	421	398
Total Cost	-106,8 €	-149,8 €	-160,8 €	-148,1 €	-61,7 €	-196,3 €	-145,8 €	24,8 €
Total Benefit	-1.848,7 €	1.848,6 €	2.254,0 €	2.586,0 €	3.335,6 €	3.288,4 €	4.859,9 €	7.129,2 €
NPV=0%	-1.742 €	1.998 €	2.415 €	2.586 €	3.397 €	3.485 €	5.006 €	7.104 €

Tab. 2.6-10: CBA result, values in € per inhabitant, "Net Present Value" (NPV) for current 0% interest rate, table ordered by OSI (harshness of Corona measures)

What stands out?

- **While the monetary impact of excess mortality in 2020/21 compared to 2016-2019 is in the range of approx. € 25,- to -196,- Euro, the impact on GDP (per inhabitant) is about a factor of 100 higher: moving from € 7.104,- to almost € -1.742,-**
- **A high correlation between the Net Present Value and the Hardness of Corona Measures (OSI): The harder the Measures the Worse the Economic Outcome**

- This is not to be misunderstood, please; any measure that saves people or prolongs lives is fundamentally right, but it must of course be seen in relation to the costs; even welfare losses (e.g., decline in GDP) can come with consequences for population health and mortality; especially if Corona measures come at the expense of educational attainment for low-income groups[29]
- Of course, the Corona measures may not have been the only factor in GDP development, e.g. because all countries were affected by the consequences of global supply chain failures or tourism. But the statistical correlation between "hard measures" and a decline or weaker increase in GDP is very strong (Correlation: -0.77)

Epilogue: Corona measures were not very successful, especially hard lockdown

- In the case of the Eastern European countries including Georgia, it is striking (cf. in particular Figures 6.2-3.4 to - 3.8) that very tough Corona measures were adopted very early (spring 2020), although at that time neither a significant number of infections nor deaths had been recorded. After "nothing happened," measures were mostly scaled back significantly. When the pandemic reached Eastern Europe (from winter 2020), the measures were mostly only slightly increased again. Thus, as the statistical data suggest, the hard measures were taken at the wrong time (possibly because it was thought that the pandemic could be kept at bay). As a result, this policy has led to high overall excess mortality in these countries (see, for example, Table 6.2-2.).
  In addition, the harsh lockdown at the beginning of the pandemic may have resulted in few people acquiring immunization from having been infected. This meant that the virus had an "easy game" from winter 2020 onwards.
- **Sweden has by far the best cost-benefit ratio.** As Figure 6.2-3.1. shows, Sweden responded to major outbreaks of infection and relatively high excess mortality in the spring of 2020 and winter of 2020/21 with harsher but still moderate Corona measures compared to other countries. This, possibly also due to a relatively high acquired immunization of the population due to passed through infections, has led to both a significantly lower excess mortality compared to countries with a tougher lockdown, and additionally to a significantly lower impact on the economy (GDP).
- For Germany, it can be observed that although the Corona measures have been adapted to the development of the pandemic. However, the severity of the measures has always been at a high level and has always been based more on the number of infections and not on the number of deaths (see Figure 6.2-3.2.). As a result, there are no good values for excess mortality, and especially not for the impact on economic development.[30]
- **Italy, the country with the toughest corona management has a disastrous record**. Compared to the other Western European countries, Italy has the highest excess mortality.[31] But economic development in particular has suffered significantly more than in all other countries considered (including Eastern Europe). Italy is the only country to show negative GDP development compared with 2016 to 2019. (see, for example, table 2.6-8).

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[29] See e.g. https://www.buergerundstaat.de/4_12/armut.pdf#page=29 and https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Projekte_RKI/KiTaStudie.html.
[30] See https://www.uni-speyer.de/fileadmin/Lehrstuehle/Knorr/6_KNA_Deutschlands_schlechter_Weg_durch_die_Pandemie_und_Karl_Lauterbach.pdf, Table 6-2 & 6-7.
[31] Ibid, Table 6-2.