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ANALYZING THE ECONOMIC OUTPUT AND HUMAN LOSS PATTERNS ACROSS THE EU AND NEIGHBORING STATES DURING THE PANDEMIC

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Abstract
The article looks into Eurostat's economic output and mortality statistics covering the EU 27 member states and six neighboring countries during 2020 and the first quarter of 2021. The study identifies, across a policy mosaic, the dominant reaction to the SARS-CoV-2 pandemic along with occasional deviations from it. Nearly all deviations occurred within a long geographic zone, while the four most populous EU member states, along with six other EU member-states, did not (or were not able to) shift from the low output-high mortality situation for nearly a year. The econometric analysis reveals country-specific effects. In most counties these effects varied from one quarter to the next. However, in some countries these were consistently associated with higher output and lower mortality. Thus, there may be health and economic policy lessons to be learned from the approaches employed in such cases.

JEL Classification: C20, I15, I30
Keywords: GDP, Number of deaths, Covid-19 Pandemic, Spatial Patterns, Europe

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1. Introduction

The article provides a brief overview of how 33 European states performed in terms of economic output and human losses (mortality) during the SARS-CoV-2 pandemic from the first quarter of 2020 (2020^{Q1}) to the first quarter of 2021 (2021^{Q1}); it also analyzes the patterns and engages in comparisons to help identify useful policy lessons. To this end the article uses data compiled by the EU's statistical office, Eurostat, concerning the 27 EU member states and six neighboring states: data running from one year prior to 2020^{Q1} –when the novel virus reached Europe– to 2021^{Q1} –the last quarter for which data are available at the time of writing. The six neighboring states are Iceland, Norway, Switzerland, Albania, Serbia, and a former EU member, namely, the United Kingdom of Great Britain & Northern Ireland.

Measuring welfare and comparing policy choices in terms of economic output and mortality is well grounded in relevant literature (Sen, 1998; Peltzman, 2009; Balmford *et al*. 2020). In the pages that follow output and mortality are examined together with an eye to identify variations in performance over time and across space. The two elements are proxied by the quarterly GDP figures in terms of 2015 prices, and by the total number of weekly deaths. The latter captures not only confirmed SARS-CoV-2 deaths, i.e., deaths directly attributed to the novel virus, but also deaths not correctly diagnosed or reported, as well as deaths from other causes that may be attributed to the health crisis conditions (e.g., worse access to care, etc.) vis-a-vis what would be expected prior to the pandemic (Karanikolos and McKee, 2020; Amoretti and Lalumera, 2021; Lau *et al*. 2021.). These weekly figures are converted to quarterly figures, so as to match the GDP time-series, and then both sets of quarterly figures are reformulated into indices. The indexation formula employed is the following:

$$x = \frac{\text{Real GDP figure (or the number of deaths) observed or estimated in a certain quarter}}{\text{The respespective figure observed or estimated in the same quarter in 2019}} \cdot \quad (1)$$

The procedure removes seasonality from both time-series sets and draws attention to the *excessive number of deaths* attributed to the pandemic by rendering the number of deaths comparable to the respective (pre-pandemic) figures of 2019[1].

The article is organized as follows: Section 2 reshapes the quarterly indices to quarterly scores running from zero to one, so as to identify the best performers in both higher output and lower mortality in each quarter. Section 3 shifts attention from best performers to the performance of each and every state –including likely policy shifts– by discussing the evolution and spatial patterns of the two indices from one quarter to the next. Section 3 econometrically analyses the two indices

1. Understandably, due to increased hand hygiene, the wearing of masks, and the imposition of school and business closures, as well as gathering, traveling or other restrictions (e.g., ECDC, 2020), a reduction in deaths from other causes (e.g., from other respiratory diseases, from fewer road accidents during lockdowns, etc.) is expected.

during 2020^{Q2}, 2020^{Q4} and 2021^{Q1} in terms of factors measured by Eurostat and the numbers of confirmed SARS-CoV-2 deaths listed by the World Health Organization (WHO). The latter are available only for the said quarters. Next, Section 5 discusses the findings, and Section 6 provides the conclusions.

2. Some initial calculations and comparisons

Quarterly GDP estimates are available for all countries under consideration except for the United Kingdom in 2020^{Q4}-2021^{Q}, and Albania in 2021^{Q1}. The number of deaths is available in all other cases, but $2019^{Q1\text{-}Q3}$ in the Republic of Ireland, and the last two weeks of March 2021 in Iceland. As a result, the Irish death index values for $2020^{Q1\text{-}Q3}$ and 2021^{Q1} are not calculated, and Iceland's figures of weeks 12 and 13 are filled in via linear projection based on the figures of weeks 10 and 11. Therefore, (33 – 3=) 30 counties are left for which the GDP and mortality indices may be calculated for each and every quarter of the five-quarter period.

If these 30 counties are assigned quarterly scores ranging from zero to one (zero for the least desirable, one for the most desirable index value) as per the min-max scaling formulae (2) and (3) for the GDP and the overall number of deaths, respectively,

$$\hat{x}_i = \frac{x_i - \min(x)}{\max(x) - \min(x)} \quad , \tag{2}$$

$$\check{x}_i = \frac{\max(x) - x_i}{\max(x) - \min(x)} \quad , \tag{3}$$

then the situation may be summarized as shown in Table 1.

It turns out that Serbia performed better than the EU and non-EU countries considered in terms of GDP ($\hat{x}_i$) in both 2020^{Q1} and 2021^{Q1}. Likewise, Norway performed better in 2020^{Q2}, and Luxembourg in 2020^{Q3} and 2020^{Q4}. Hungary performed better than the rest in bringing down deaths ($\check{x}_i$) in 2020^{Q1}, Croatia in 2020^{Q2}, Iceland in 2020^{Q3}, and Norway in both 2020^{Q4} and 2021^{Q1}. These are all small countries in terms of population, and lie disproportionally outside the EU, which, in turn, may suggest that there is something to be said about (a) managing small countries and (b) countries that may react independently (are not bound to check with or coordinate with others as a *block*), at least for brief periods of time.

Next, we look at the combined scores by calculating the mathematical product of the two:

$$\hat{x}_i^{w} \times \check{x}_i^{(1-w)} \tag{4}$$

with *w* featuring the weight assigned to achieving a higher GDP, and *1-w* featuring the weight assigned to achieving fewer deaths. We note (see Appendix) that: (a) Hungary and Serbia may top the county-list in 2020^{Q1} if, respectively, *w* takes values up to 0.5 or

from 0.6 on; (b) Bulgaria and Norway may top the county-list in 2020^{Q2} if, respectively, *w* is about 0.1 or runs from 0.2 on; (c) Iceland, Norway and Luxembourg may top the county-list in 2020^{Q3} if, respectively, *w* runs up to 0.1 or from 0.2 to 0.5 or from 0.6 on; (d) Norway and Luxembourg may top the county-list in 2020^{Q4} if, respectively, *w* runs up to 0.6 or from 0.7 on; (e) Norway, Luxembourg and Serbia may top the county-list in 2021^{Q1} if, respectively, *w* runs up to 0.2 or is about 0.3 or runs from 0.4 on[2].

Table 1. Performance scores on the 0-1 scale of 26 EU and four neighboring states during the pandemic

	Real GDP (score) based on the index obtained vis-à-vis 2019					Total number of deaths (score) based on the index obtained vis-à-vis 2019				
	2020^{Q1}	2020^{Q2}	2020^{Q3}	2020^{Q4}	2021^{Q1}	2020^{Q1}	2020^{Q2}	2020^{Q3}	2020^{Q4}	2021^{Q1}
AT	0.24	0.48	0.32	0.32	0.00	0.45	0.82	0.66	0.51	0.83
BE	0.36	0.43	0.37	0.37	0.40	0.49	0.05	0.63	0.51	0.95
BG	0.70	0.74	0.40	0.40	0.63	0.91	0.98	0.53	0.00	0.63
CH	0.52	0.79	0.69	0.69	0.51	0.57	0.75	0.88	0.33	0.88
CY	0.62	0.52	0.42	0.42	0.51	0.42	0.72	0.83	0.83	0.93
CZ	0.40	0.61	0.39	0.39	0.31	0.57	0.89	0.61	0.16	0.11
DE	0.37	0.58	0.62	0.62	0.22	0.58	0.80	0.73	0.77	0.81
DK	0.56	0.79	0.72	0.72	0.48	0.68	0.85	0.76	0.93	0.91
EE	0.44	0.82	0.73	0.73	0.82	0.69	0.75	0.55	0.86	0.59
ES	0.18	0.00	0.00	0.00	0.01	0.00	0.00	0.15	0.67	0.74
FI	0.45	0.85	0.78	0.78	0.39	0.68	0.66	0.68	0.95	0.91
FR	0.07	0.17	0.49	0.49	0.31	0.57	0.48	0.70	0.70	0.79
GR	0.40	0.34	0.29	0.29	0.37	0.51	0.99	0.59	0.73	0.92
HR	0.61	0.40	0.16	0.16	0.56	0.81	1.00	0.54	0.32	0.83
HU	0.72	0.46	0.51	0.51	0.55	1.00	0.89	0.80	0.32	0.66
IS	0.36	0.64	0.37	0.37	0.32	0.01	0.99	1.00	0.98	0.82
IT	0.00	0.19	0.27	0.27	0.17	0.13	0.48	0.58	0.46	0.81
LT	0.75	0.95	0.73	0.73	0.79	0.79	0.75	0.37	0.26	0.68
LU	0.64	0.77	1.00	1.00	0.95	0.81	0.68	0.62	0.69	0.82
LV	0.43	0.71	0.70	0.70	0.40	0.95	0.76	0.67	0.73	0.66
MT	0.70	0.38	0.10	0.10	0.55	0.89	0.91	0.17	0.41	0.81
NL	0.51	0.69	0.58	0.58	0.36	0.31	0.33	0.75	0.73	0.74
NO	0.66	1.00	0.79	0.79	0.55	0.52	0.92	0.87	1.00	1.00
PL	0.71	0.77	0.59	0.59	0.58	0.70	0.86	0.50	0.05	0.50
PT	0.33	0.30	0.26	0.26	0.05	0.77	0.57	0.00	0.65	0.55
RO	0.75	0.65	0.71	0.71	0.69	0.88	0.85	0.09	0.23	0.71
RS	1.00	0.86	0.75	0.75	1.00	0.71	0.94	0.39	0.44	0.80
SE	0.55	0.78	0.70	0.70	0.52	0.44	0.05	0.84	0.81	0.80
SI	0.32	0.49	0.42	0.42	0.50	0.80	0.77	0.70	0.03	0.82
SK	0.22	0.60	0.64	0.64	0.33	0.71	0.92	0.57	0.30	0.00

Key for country codes: Austria (AT), Belgium (BE), Bulgaria (BG), Croatia (HR), Cyprus (CY), Czechia (CZ), Denmark (DK), Estonia (EE), Finland (FI), France (FR), Germany (DE), Greece (GR), Hungary (HU), Iceland (IS), Italy (IT), Latvia (LV), Lithuania (LT), Luxembourg (LU), Malta (MT), Netherlands (NL), Norway (NO), Poland (PL), Portugal (PT), Romania (RO), Serbia (RS), Slovakia (SK), Slovenia (SI), Spain (ES), Sweden (SE), Switzerland (CH).

Source: Eurostat (the namq_10_GDP and demo_r_mwk_ts datasets updated, respectively, on 6 June and 17 June 2021). Author's own calculations.

2. This is not to say that the GDP or the number of deaths is more important or that they are weighted equally across Europe, or that particular social utility functions feature or are in line with the said or other weights.

To gain more insight, we turn our attention to the similarity or dissimilarity of responses observed across states, commencing from the time the pandemic reached Europe.

3. Performance patterns and shifts

The novel virus infection was first confirmed on European soil on 24 January 2020 in France, three days later in Germany, and by the end of the month in Italy, Spain, the United Kingdom and Sweden. As it spread within countries and across Europe[3], initially mild, subsequently more drastic steps were taken by authorities to slow or suppress the spread and mitigate the pandemic's impact on healthcare systems and society. These steps were met with varying success. By the end of June 2020, the number of confirmed virus-related deaths per 100 thousand population had increased substantially in Belgium, the United Kingdom, Spain, Italy, Sweden, France, the Netherlands, the Republic of Ireland, and Switzerland (Table 2, column 1); so had the total number of deaths reported in the United Kingdom, Spain, Sweden, Belgium, the Netherlands, Italy, France, Cyprus, and Iceland compared to the total number of deaths in the first two quarters of 2019 (Figures 1 and 2)[4]. At the same time, these steps also disturbed economic life.

The output and mortality statistics supplied by Eurostat suggest that in 2020^{Q1}, on average, output and overall mortality fell compared to 2019^{Q1}, and that, in general, the paths individual countries followed differed (see Figure 1). Specifically: (a) Mortality and output rose in Cyprus, Sweden, and Norway (1st quadrant). (b) Mortality rose, and output dropped along a geographic belt stretching from Belgium and the Netherlands, across the water, to the United Kingdom and Iceland; and along a belt stretching from Spain to Italy and to two of Italy's neighbors, namely, Austria and Greece (2nd quadrant). The list includes three of the six countries affected in the last week of January, i.e., earlier than the rest. (c) Both mortality and output dropped along a belt that stretched from France and Germany to Switzerland, Czechia, and Slovakia, as well as along a belt stretching from Finland to Estonia and Latvia; the same is true in Portugal, Slovenia, Albania (3rd quadrant). (d) Mortality dropped, and output rose along a belt that stretched from Hungary and Romania to Bulgaria, Serbia, and Croatia, as well as in Luxemburg, Denmark, Malta, Poland, and neighboring Lithuania (4th quadrant). So, it seems that several countries, including the quarter's *best performers*' (i.e., Serbia's and Hungary's) closest neighbors, moved in the same

3. The infection was confirmed in the last two countries considered in the article, Albania and Cyprus, on 8 March 2020.
4. The Figures supply the Cartesian coordinates (combinations) of the various countries in the output–mortality plane. The intersecting horizontal and vertical axes at the 100% mark, fix each country's 2019 quarterly output-mortality coordinates (or points) of reference, and divide the output-mortality plane into four sections (quadrants).

output and mortality direction. This may suggest more factors, presumably region-wide factors, in play besides the *best performers*' reaction or policy orientation.

Table 2. The number of confirmed SARS-CoV-2 deaths reported by national authorities per 100 thousand population

EU states	By end of 2020^{Q2} (1)	By end of 2020^{Q4} (2)	By end of 2021^{Q1} (3)
AT	7.8	63.9	99.9
BE	84.1	165.6	197.6
BG	3.2	102.5	182.1
CY	1.6	9.2	20.7
CZ	3.2	103.1	241.6
DE	10.7	35.5	90.6
DK	10.4	19.9	41.7
EE	5.2	15.4	63.9
ES	60.6	106.6	159.2
FI	5.9	9.5	14.7
FR	45.6	95.3	143.8
GR	1.8	43.7	75.1
HR	2.6	89.4	143.5
HU	6.1	93.7	206.7
IE	35.2	44.6	94.2
IT	57.5	118.5	178.0
LT	2.9	46.1	130.4
LU	17.6	75.1	117.9
LV	1.6	27.3	99.2
MT	2.0	46.7	87.2
NL	35.6	64.0	96.0
PL	3.8	71.7	137.1
PT	15.4	64.3	165.0
RO	8.5	78.5	119.5
SE	52.6	82.0	132.7
SI	5.3	121.7	207.3
SK	0.5	32.5	173.9
Other states			
AL	2.2	39.7	76.7
CH	19.4	75.2	110.7
IS	2.9	8.2	8.5
NO	4.6	7.8	12.1
RS	3.9	42.8	74.0
UK	64.2	103.7	186.4

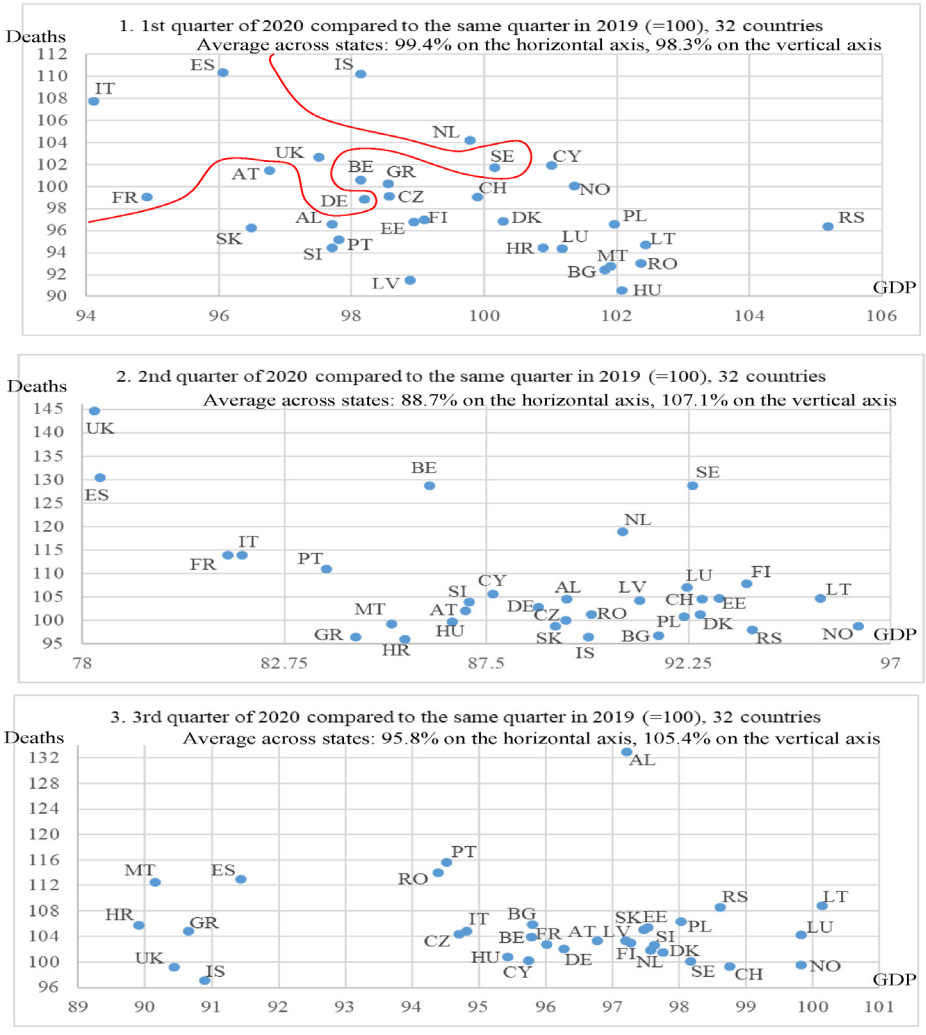
Key for country abbreviations: Albania (AL), Rep. of Ireland (IE), United Kingdom of Great Britain & Northern Ireland (UK). See also the key for country abbreviations provided in Table 1.

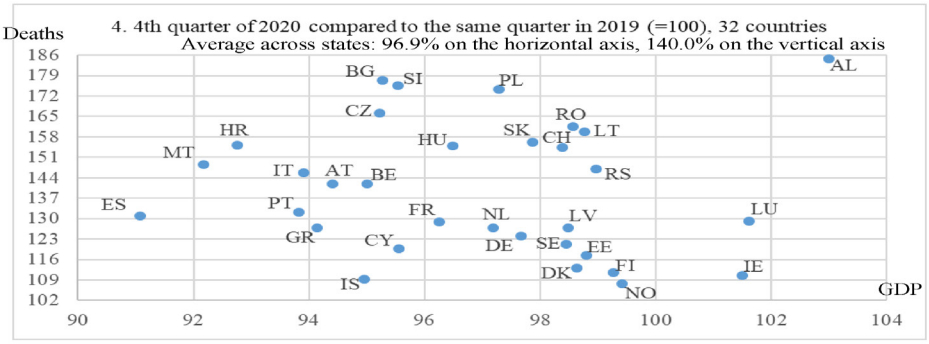
Note: WHO reports on the issue were incidental but became weekly from October 2020 onwards.

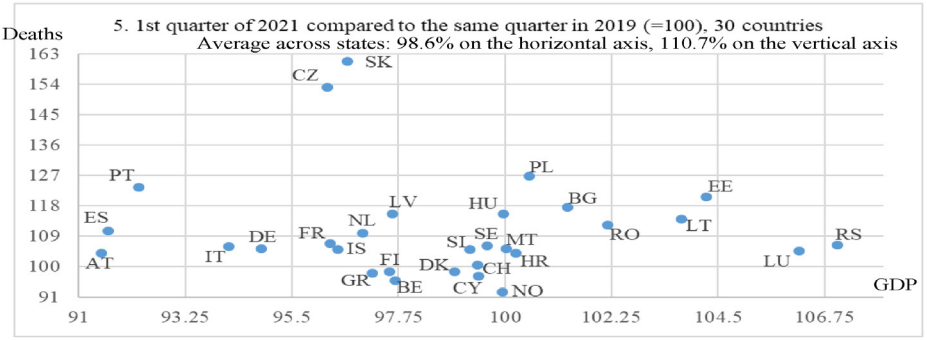
Source: WHO (2020a, 2020b, 2021). Author's own calculations.

Of the four types of responses, the one associated with the 4th quadrant is probably the most attractive, while that associated with the 2nd quadrant is probably the least attractive one, and the other two lie somewhere in-between. However, depending on people's values on suffering more (or fewer) deaths and achieving a higher (or lower) level of output, moving to a position in the 2nd quadrant close to the origin (e.g., the position of Greece) may be more attractive to positions (i.e., to coordinates) away from the origin in the 1st quadrant (e.g., the position of Sweden) or in the 3rd quadrant (e.g., the position of Germany or France). Alternatively, depending on people's values, moving to one of the latter combinations may be preferable to the former.

Figures 1-5. The evolution of the EU-member states and of six neighboring states in terms of real GDP (2015 values) and the total number of deaths during the pandemic, compared to the same quarter in 2019







Note: In Figure 1, the red colored curve distinguishes between the countries affected in January 2020 (situated above or to the left side of the curve) and the counties affected in February or March of 2020 (situated below or to the right of the curve).

Key for country codes: See Tables 1 and 2.

Source: See Table 1.

On average, during 2020^{Q2} output dropped and mortality rose compared to 2019^{Q2}, and all countries went down a path of reduced output (Figure 2): In about two thirds of the countries mortality increased (2^{nd} quadrant), and in the rest it decreased (3^{rd} quadrant). The latter comprised two of the eleven countries that had previously reached the 3^{rd} quadrant (Czechia, Slovakia), two of the eight countries that had previously reached the 2^{nd} quadrant (Greece, Iceland), five of the ten countries that had previously reached the 4^{th} quadrant (Malta, Bulgaria, Serbia, Croatia, Hungary), and one of the three countries that had previously reached the 1^{st} quadrant (Norway). As a result, mortality and output dropped in Norway, Iceland, and along a belt running from Czechia and Slovakia, through Hungary, Croatia, Serbia and Bulgaria to Greece and Malta (3^{rd} quadrant), while mortality rose and output fell considerably in the United Kingdom and Spain, and to a lesser extent, in the other countries under consideration (2^{nd} quadrant).

On average, during 2020^{Q3}, output dropped, and mortality rose compared to 2019^{Q3}, while more countries switched to the path already followed by the majority in 2020^{Q2} (Figure 3). However, the pace differed: mortality rose considerably in Albania; output dropped considerably in Spain, Malta, Greece, and Croatia; and both variables presented modest change elsewhere (2nd quadrant). At the same time, mortality and output rose in Lithuania (1st quadrant) and fell in four non-EU states: the United Kingdom, Switzerland, Iceland, and Norway[5] (3rd quadrant).

On average, during 2020^{Q4}, output dropped, and mortality rose compared to 2019^{Q4}, as nearly all countries went down the path already followed by the majority (Figure 4). In particular, mortality rose and output dropped in 29 out of 32 countries for which data exist (2nd quadrant)[6]. Of these, one country, namely, Norway, operated close to pre-pandemic levels in terms of *both* output and overall mortality. By contrast, mortality and output rose in the Republic of Ireland, Luxembourg, and Albania (1st quadrant).

By the end of the year the highest numbers of confirmed SARS-CoV-2 deaths per 100 thousand people were reported in Belgium, Slovenia, and Italy, and the lowest in Cyprus, Iceland, and Norway. At about the same time –in the second week of December in the UK and in the last week of December in the EU– mass immunization campaigns were launched, and the pace picked up in the months that followed. However, the number of deaths due to the infection continued to rise. By the end of 2021^{Q1}, the highest numbers of confirmed SARS-CoV-2 deaths per 100 thousand people were reported in Czechia, Slovenia, and Hungary, and the lowest in Finland, Norway, and Iceland (Table 2, columns 2-3).

On average, during 2021^{Q1}, output dropped, and mortality rose compared to 2019^{Q1} and 2020^{Q1} (Figure 5). Out of the 30 countries for which data exist, 16 continued along the path of the previous quarter[7]. The rest went down different paths: i.e., combinations of mortality and output they had tried or had not tried before. Thus, mortality and output rose in a number of places, namely, Poland, Lithuania, and Estonia; in Romania, Bulgaria, Serbia, and Croatia; in Luxemburg, and in Malta (1st quadrant). At the same time, mortality and output dropped in Greece and Cyprus, in Denmark, Norway and Finland, and in Belgium (3rd quadrant), while output dropped and mortality rose along a belt stretching from Iberia and France, through Italy, Germany, Switzerland and Austria, to Hungary, Slovenia, Czechia, Slovakia, the Netherlands, Sweden, Latvia, and Iceland (2nd quadrant).

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5. The United Kingdom previously operated in the 2nd quadrant, Switzerland in the 3rd and 2nd quadrants, Iceland in the 2nd and 3rd quadrants, Norway in the 4th and 3rd quadrants.
6. The data regarding the United Kingdom were not available at the time these lines were written.
7. The data regarding the United Kingdom, the Republic of Ireland, and Albania were not available at the time these lines were written.

On the whole, all ten countries that early in the pandemic had moved into the 4th quadrant (i.e., a state of higher output and lower mortality vis-à-vis 2019^{Q1}) soon switched to either the 2nd quadrant (i.e., a state of lower output and higher mortality vis-à-vis 2019^{Q2}) or to the 3rd quadrant (i.e., a state of lower output and mortality) and then to the 2nd quadrant. Luxemburg, Malta, Serbia, Bulgaria, Croatia, Romania, and Poland opted or managed to eventually move into the 1st quadrant (a state of higher output and mortality), Lithuania switched twice to (and ended up in) the 1st quadrant, Denmark moved into the 3rd quadrant, and Hungary remained in the 2nd quadrant. (See Table 3.)

Table 3. Summary of the developments in terms of output – mortality quadrants vis-à-vis the same quarter of 2019

	2020^{Q1}	2020^{Q2}	2020^{Q3}	2020^{Q4}	2021^{Q1}
LU	4	2	2	1	1
BG, HR, MT, RS	4	3	2	2	1
PL, RO	4	2	2	2	1
LT	4	2	1	2	1
DK	4	2	2	2	3
HU	4	3	2	2	2
NO	1	3	3	2	3
CY	1	2	2	2	3
SE	1	2	2	2	2
EE	3	2	2	2	1
FI	3	2	2	2	3
AL	3	2	2	1	//////////
CH	3	2	3	2	2
CZ, SK	3	3	2	2	2
DE, FR, LV, PT, SI	3	2	2	2	2
IS	2	3	3	2	2
GR	2	3	2	2	3
UK	2	2	3	//////////	//////////
BE	2	2	2	2	3
AT, ES, IT, NL	2	2	2	2	2
IE	//////////	//////////	//////////	1	//////////

Key for quadrant numbers and colors:
1 (dark gray): output ↑, mortality ↑. 2 (black): output ↓, mortality ↑.
3 (light gray): output, mortality ↓. 4 (white): output ↑, mortality ↓.
Other fill: Information is not available.

Key for country codes: See Tables 1 and 2.

Source: See Table 1.

Of the three countries that, early in the pandemic, had moved to the 1st quadrant, Sweden and Cyprus soon switched to the 2nd quadrant. Sweden maintained its position, and Cyprus eventually moved to the 3rd quadrant. By contrast, Norway moved to the 3rd quadrant, then the 2nd, and back to the 3rd.

All ten countries that early in the pandemic moved to the 3rd quadrant, sooner or later switched to the 2nd. Of these, France, Germany, Czechia, Slovakia, Slovenia, Latvia, and Portugal maintained their positions, Switzerland moved briefly to the 3rd quadrant and back, while Finland eventually moved to the 3rd quadrant and Estonia, eventually, to the 1st.

Of the seven countries that initially dealt with the pandemic under 2nd quadrant conditions, Spain, Italy, Austria, and the Netherlands maintained their positions; Iceland and Greece moved twice to (and Greece ended up in) the 3rd quadrant, while Belgium moved to the 3rd quadrant at the end of the period under consideration.

4. Econometric findings

To probe into the factors that may have influenced the choices and performance presented above, and even isolate one effect from another, we turn to the econometric examination of the two indices, namely, quarterly output and mortality during the pandemic vis-à-vis the same quarter in 2019, in terms of each country's population, area (acreage), per capita GDP, poverty/social exclusion figures, and number of confirmed SARS-CoV-2 deaths, both in level-level and log-log form. As the number of confirmed SARS-CoV-2 deaths is available only for three of the five quarters, we focus on 2020^{Q2}, 2020^{Q4} and 2021^{Q1}. Mindful of the limited degrees of freedom, we only engage in tri-variate analyses and report the best fits.

Table 4. The seemingly unrelated regressions (SURs) at the quarterly level of real output in million euro (2015 values) and of the quarterly number of deaths, each divided by the respective figure of the same quarter in 2019 (termed below x^1 and x^2, respectively), in the EU-27 states and six neighboring states during the SARS-CoV-2 pandemic

	Dependent variables	SURs of 2020^{Q2}		SURs of 2020^{Q4}		SURs of 2021^{Q1}	
		$Ln(x_1)$ (1)	x_2 (2)	$Ln(x_1)$ (3)	x_2 (4)	$Ln(x_1)$ (5)	x_2 (6)
	Independent variables						
1	Constant (refer. areas)	4.26	96.65	4.64	157.29	4.71	92.03
2	Aggregate number of confirmed SARS-CoV -2 deaths per 100,000 pop. reported at the end of the quarter		0.42				0.11
3	Real per capita GDP in thousand euro in the same quarter in 2019; based on the population figure of 1.1.2019				-6.39		
4	Squared value of the previous variable				0.22		
5	Ln (annual number of people at the risk of poverty or social exclusion in 2018)	0.09					
6	Ln (variable #3)			-0.08		-0.12	
7	Squared value of the previous variable	-0.01		0.02		0.03	
8	Spatial dummies	-0.07[a]	8.44[b]	-0.04[c]	28.44[d]	-0.05[e]	22.24[f]
	R^2	88.36%	93.02%	84.68%	86.75%	75.41%	70.22%
	N	32[g]		32[h]		30[i]	

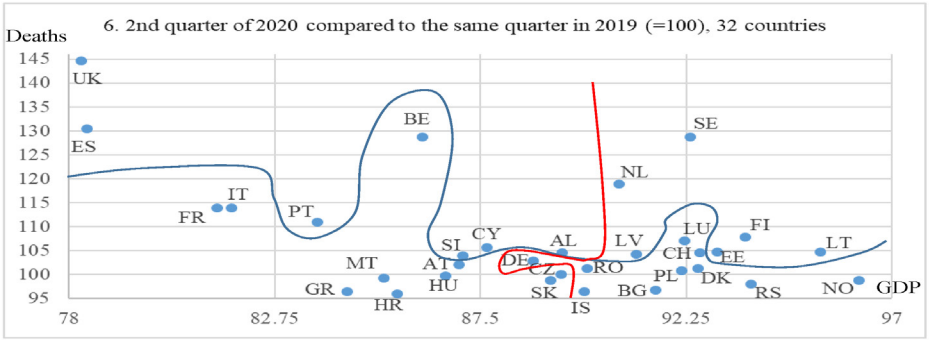
a AL, AT, BE, CY, CZ, ES, FR, GR, HR, HU, IT, MT, PT, SI, SK, UK.
b AL, CY, EE, ES, FI, LT, LV, NL, PT, SE, SI, UK.
c AT, BE, BG, CH, ES, GR, HR, IS, IT, MT, PT.
d AL, AT, BE, BG, CH, CZ, HU, IT, LT, MT, NL, PL, RO, SI, SK.
e AT, BG, CH, CZ, DE, ES, FR, GR, IS, IT, LV, NL, PT, SK.
f CZ, EE, IS, LV, PL, PT, SK. g Excluding IE (missing data).
h Excluding UK (missing data). i Excluding AL, IE, UK (missing data).

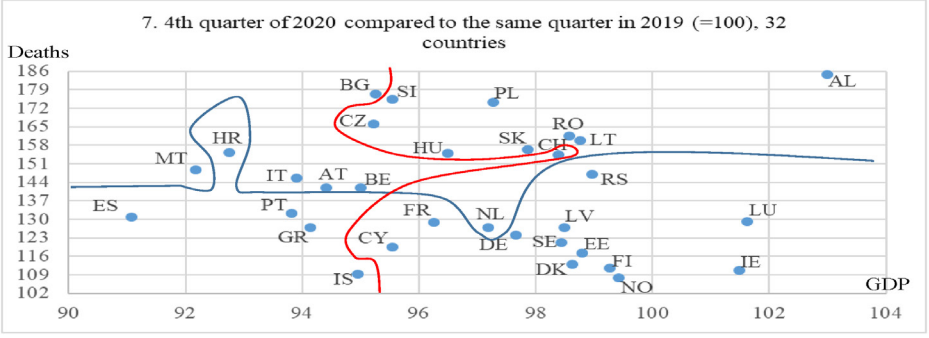
Notes: Country abbreviations are supplied in Tables 1-5. There were no WHO reports at the end of 2020^{Q1} and 2020^{Q3}, so variable #2 was not available for the said quarters. Additional regressors and both level-level and log-log expressions were considered in all cases. Only the best fits are presented. All P-values are equal to 0.0000.

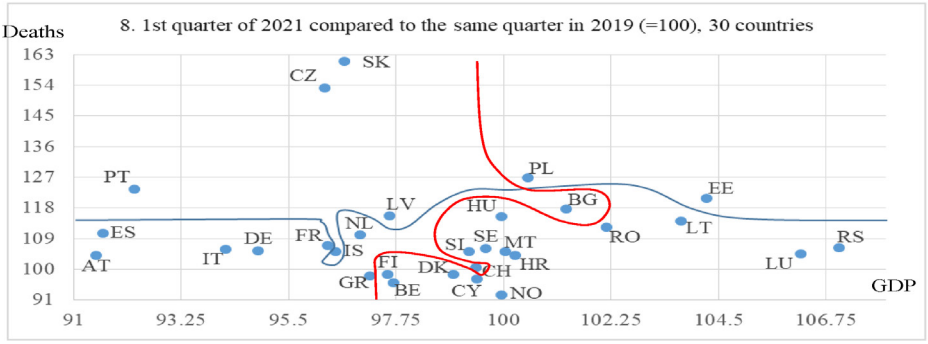
Sources: Variable #2: WHO (2020a, 2020b, 2021); other variables: Eurostat (the namq_10_GDP, demo_r_mwk_ts, demo_pjan$defaultview, and ilc_pers01n datasets as updated, respectively, on 6 June 2021, 17 June 2021, 27 April 2021, and 24 June 2021). Author's own calculations.

It turns out that in 2020^{Q2} (Table 4, columns 1-2) the mortality measure, x_2 was positively affected by the number of confirmed SARS-CoV-2 deaths per 100 thousand people, and by country-specific factors: Overall mortality was higher along a belt stretching from Iberia to the United Kingdom, the Netherlands, Sweden, Finland and the Baltic states, and in Cyprus, Albania, and Slovenia, for additional reasons. At the same time, the output measure, $Ln(x_1)$, was affected by socio-economic factors as proxied by the number of people at the risk of poverty or social exclusion during 2018, and by country-specific factors: Output was lower along a belt stretching from Iberia and France to Belgium, the United Kingdom, Italy, Malta, Greece, Cyprus, Albania, Croatia, Slovenia, Austria, Hungary, Czechia and Slovakia, for additional reasons. As a result, the shapes of the four quadrants appear somewhat *wavy* in terms of country-specific factors. (See Figure 6).

Figures 6-8. Redrawing the four quadrants of Figures 2, 4 and 5 in terms of the country-specific results of Table 4







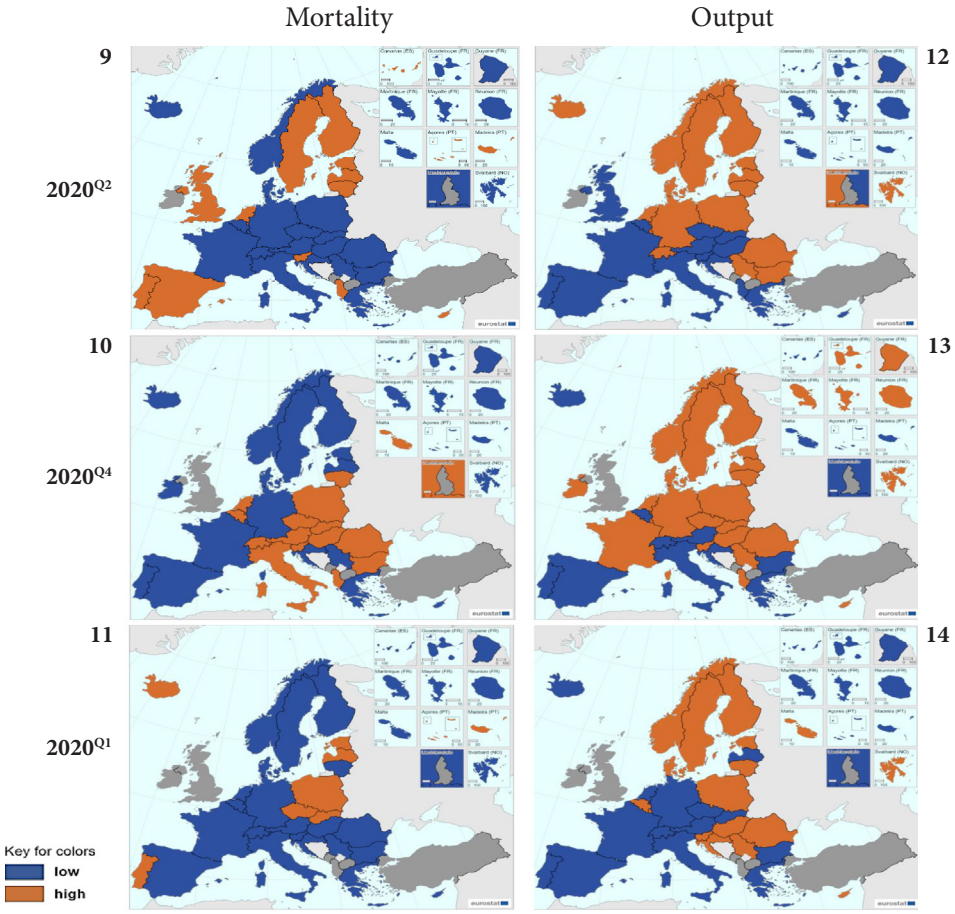
Likewise, the econometric analysis of the 2020^{Q4} indices (Table 4, columns 3-4) suggests that the mortality measure was negatively affected by the level of per capita GDP observed a year earlier, up to the amount of 14.6 thousand euro, positively affected by higher levels[8], and was also affected by country-specific factors: Overall mortality was higher along a belt stretching from Lithuania and Poland to Czechia, Slovakia, Austria, Hungary, Romania, Bulgaria, Albania, Italy, Malta, Slovenia, Switzerland, and in Belgium and the Netherlands, for additional reasons. At the same time, the output measure was affected by living standards, as proxied by the per capita GDP mentioned above, and also by country-specific factors: Output was lower along a belt stretching from Iberia to Italy, Malta, Greece, Bulgaria, Croatia, Austria, Switzerland, as well as in Belgium, and Iceland, for additional reasons. See Figure 7.

Last but not least, the econometric analysis of the 2021^{Q1} indices (Table 4, columns 5-6) suggests that the mortality measure was positively affected by the number of confirmed SARS-CoV-2 deaths per 100 thousand people, and also by country-specific factors: Overall mortality was higher in Poland, Czechia and Slovakia, in Latvia and Estonia, in Portugal, as well as Iceland, for additional reasons. At the same time, the output measure was affected by living standards, as proxied by the per capita GDP mentioned above, and also by country-specific factors: Output was lower along a belt stretching from Iberia to France, Germany, the Netherlands, Switzerland, Italy, Greece, Bulgaria, Austria, Czechia and Slovakia, as well as in Latvia, and Iceland, for additional reasons. See Figure 8.

For illustrative purposes, the spatial patterns of the said additional country-specific factors are presented in Figures 9-14.

8. The minimum value of 14.6 thousand euro results from examining the function via the, so-called, first order conditions (i.e., the differentiation) with respect to per capita GDP.

Figures 9-14. The spatial patterns of the country-specific results obtained via the econometric analysis (Table 4)



Note: The template is provided by Eurostat. Any presentational imperfections are inherent to the template, for instance Málaga and Ceuta are missing altogether.

5. Discussion

The novel virus infection reached the EU in the last week of January 2020 and, subsequently (in seven-to-eight weeks), spread to the rest of the EU and the six neighboring countries studied in the article. As a result, the virus affected counties for unequal lengths of time –one country for two months, another for three weeks– during 2020^{Q1}. We should keep this aspect in mind when comparing the 2020^{Q1} output and mortality indices (especially infection-related mortality indices) across-countries.

The steps taken to deal with the pandemic, both in 2020^{Q1} and subsequently, disturbed economic life. Despite the steps taken, no country was able to avoid going through a low output-high mortality phase, and ten EU member states (including the four most populous ones) remained in this phase for nearly a year. These countries are Portugal, Spain, France, Italy, Slovenia, Austria, Germany, the Netherlands, Sweden, and Latvia. Though different in many respects[9], these countries are either adjacent to each other or have close maritime boundaries.

By contrast, all post-2020^{Q1} deviations from the low output-high mortality model occurred along a crescent-like spatial formation stretching from Ireland, Great Britain and Iceland to Belgium and Luxembourg, to Denmark and Norway, Finland, Estonia, Lithuania, Poland, Czechia, Slovakia, Hungary, the Balkans (Croatia, Serbia, Romania, Bulgaria, Greece, and Albania), Cyprus, Malta, and in Switzerland. These countries are also different in many respects[10]. By 2020^{Q4} in several of these countries the total number of deaths dropped below that of 2019 (pre-pandemic) quarterly levels[11], while in other countries output rose above respective 2019 quarterly levels[12]. Besides, as mass immunization campaigns commence or accelerated in 2021^{Q1}, so did economic activity in several of these countries[13].

However, this higher output was accompanied with increased human losses compared to pre-pandemic levels. In other countries, where output did not exceed pre-pandemic levels, the number of deaths dropped below respective 2019 levels[14].

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9. For instance, four countries (Germany, France, Italy, Spain) have populations of 46-83 million people (each), another four (the Netherlands, Sweden, Portugal, Austria) 8-17 million people (each), while two (Slovenia, Latvia) have smaller populations.
10. For instance, two countries (the United Kingdom, Poland) have populations of 38-66 million people (each), six (Romania, Belgium, Greece, Czechia, Hungary, Switzerland) 8-20 million people (each), while the rest have smaller populations. Some of these countries were infected by the novel virus early on, while others were infected later or were the last ones to be infected. Some suffered huge loss of life, while others suffered much less. Some constitute longtime members of the EU (including the EU headquarters), while others are relatively new members, and the rest are not members. Some opted for or managed to reach combinations of reduced output and mortality vis-à-vis the pre-pandemic era, while others did the exact opposite or switched from one situation to the other.
11. This occurred: (a) along a geographic belt of EU and non-EU states stretching from Czechia, Slovakia, Hungary, through Croatia, Serbia, Bulgaria, down to Greece and Malta during 2020^{Q2}, (b) in the non-EU states of the United Kingdom and Switzerland during 2020^{Q3}, and (c) in the two non-EU states of Norway and Iceland during both 2020^{Q2} and 2020^{Q3}.
12. This occurred in Lithuania in 2020^{Q3}, and in Luxembourg, the Republic of Ireland and Albania in 2020^{Q4}.
13. Namely, Bulgaria, Romania, Serbia, Croatia (in the Balkans), Poland, Lithuania, Estonia (in the northeastern EU), Luxembourg, Malta. All but Estonia had managed to increase output and reduce human losses a year earlier.
14. This occurred in Belgium, Greece and Cyprus, Finland, Norway and Denmark.

These patterns may be attributed to several factors associated either with aspects regarding the spread of the virus and the responsiveness of the healthcare systems (proxied by the number of confirmed SARS-CoV-2 deaths), or living standards, socio-economic or other characteristics, and may be better investigated when more observations and data become available. However, it seems that there also exist additional country-specific effects, i.e., effects likely to capture cultural aspects or policy-maker preferences and abilities. In most counties these effects varied from one quarter to the next during the pandemic, which may suggest short-term priority shifts –not necessarily changes in the overall strategy, especially if the strategy was to alternate between (a) lockdowns, in order to slow the spread of the virus, and (b) quick re-opening of the economy as soon as the number of deaths subsided, in order to contain the economic downturn. Furthermore, in the cases of Norway, Serbia, and Luxembourg, the effects consistently feature 4th quadrant characteristics (combining higher output and lower mortality), and in the case of Greece the effects consistently feature 3rd quadrant characteristics (i.e., lower output and mortality). All four countries are small or medium-sized in terms of population[15], which may suggest that the day-to-day management may have been easier. We will know what exactly was done differently when we compare the policies carried out (including the manner of implementation) in these and in other countries. This finding also lends strength to an argument that some countries repeatedly sought to meet both welfare goals, while other countries repeatedly gave precedence to preventing the loss of life. Interestingly, none of the counties considered in the article appears to have attempted –let alone achieved– to go beyond slowing the spread of the virus, by eliminating the transmission of the virus altogether. All these issues are worth revisiting when more data regarding 2020 and the first quarter of 2021 become available.

6. Conclusions

As more data on what transpired in 2020 and 2021 become available and are studied, knowledge on pandemic economics will advance. The article takes notice of spatial patterns across a large part of Europe and identifies a dominant low output-high mortality reaction, along with occasional deviations from it. It seems that the four most populous EU member states, along with six other EU member-states, did not (or were not able to) shift from the low output-high mortality situation for nearly a year. The econometric analysis suggests that the patterns and reactions may be explained in terms of country-specific and other factors. In a small number of countries, these

15. The three former host populations of 0.6-7 million people (each) and the latter hosts a population of 10-11 million people. Due to data limitations, we cannot tell whether the higher output-lower mortality approach was also observed in 2020^{Q2} and in 2021^{Q1} in the Republic of Ireland (pop. 5 million).

country-specific factors are consistent quarter after quarter. Since the countries are known, the next step is to find out what they did differently (big or small), so that if the situation ever re-appears, the same or something similar to what these countries did may be done. All in all, these findings, along with findings from the rest of world, will have to be looked at closer in order to identify paradigms and good practices, on the one hand, and develop more effective responses in case they are needed in the future, on the other.

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Appendix:

The combined GDP and deaths scores of 30 European states during the pandemic - (GDP score)^{w} x (total number of deaths score)$^{1-w}$

	2020^{Q1}									2020^{Q2}								
	w = 0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
AT	0.42	0.40	0.37	0.35	0.33	0.31	0.29	0.27	0.25	0.78	0.74	0.70	0.66	0.63	0.60	0.57	0.54	0.51
BE	0.48	0.46	0.45	0.44	0.42	0.41	0.40	0.39	0.38	0.06	0.08	0.10	0.12	0.15	0.19	0.23	0.28	0.35
BG	0.88	0.86	0.84	0.82	0.79	0.77	0.75	0.73	0.71	0.95	0.92	0.90	0.87	0.85	0.83	0.80	0.78	0.76
CH	0.57	0.56	0.56	0.55	0.55	0.54	0.54	0.53	0.53	0.76	0.76	0.77	0.77	0.77	0.78	0.78	0.79	0.79
CY	0.44	0.46	0.48	0.50	0.51	0.54	0.56	0.58	0.60	0.70	0.67	0.65	0.63	0.61	0.59	0.57	0.55	0.53
CZ	0.55	0.53	0.51	0.50	0.48	0.46	0.45	0.43	0.42	0.85	0.82	0.79	0.77	0.74	0.71	0.69	0.66	0.64
DE	0.56	0.53	0.51	0.48	0.46	0.44	0.42	0.40	0.39	0.78	0.75	0.73	0.70	0.68	0.66	0.64	0.62	0.60
DK	0.67	0.66	0.64	0.63	0.62	0.60	0.59	0.58	0.57	0.84	0.83	0.83	0.82	0.82	0.81	0.81	0.80	0.80
EE	0.66	0.63	0.60	0.57	0.55	0.52	0.50	0.48	0.46	0.75	0.76	0.77	0.77	0.78	0.79	0.80	0.80	0.81
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FI	0.65	0.62	0.60	0.58	0.55	0.53	0.51	0.49	0.47	0.67	0.69	0.71	0.73	0.75	0.77	0.79	0.81	0.83
FR	0.47	0.38	0.31	0.25	0.20	0.17	0.13	0.11	0.09	0.43	0.39	0.35	0.32	0.28	0.26	0.23	0.21	0.19
GR	0.50	0.49	0.47	0.46	0.45	0.44	0.43	0.42	0.41	0.89	0.80	0.72	0.64	0.58	0.52	0.47	0.42	0.38
HR	0.78	0.76	0.74	0.72	0.70	0.68	0.66	0.65	0.63	0.91	0.83	0.76	0.69	0.63	0.58	0.53	0.48	0.44
HU	0.97	0.94	0.91	0.88	0.85	0.82	0.79	0.77	0.74	0.84	0.78	0.73	0.69	0.64	0.60	0.56	0.53	0.50
IS	0.01	0.02	0.03	0.04	0.06	0.08	0.12	0.17	0.25	0.95	0.91	0.87	0.83	0.80	0.76	0.73	0.70	0.67
IT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.40	0.36	0.33	0.30	0.27	0.25	0.23	0.21
LT	0.79	0.78	0.78	0.77	0.77	0.77	0.76	0.76	0.76	0.76	0.78	0.80	0.82	0.84	0.86	0.88	0.91	0.93
LU	0.79	0.77	0.75	0.73	0.72	0.70	0.68	0.67	0.65	0.69	0.70	0.71	0.72	0.73	0.73	0.74	0.75	0.76
LV	0.88	0.81	0.75	0.69	0.64	0.59	0.55	0.50	0.47	0.76	0.75	0.75	0.74	0.74	0.73	0.73	0.72	0.72
MT	0.87	0.85	0.83	0.81	0.79	0.77	0.76	0.74	0.72	0.83	0.76	0.70	0.64	0.59	0.54	0.50	0.46	0.42
NL	0.33	0.34	0.36	0.38	0.40	0.42	0.44	0.46	0.49	0.36	0.39	0.42	0.45	0.48	0.52	0.56	0.60	0.64
NO	0.53	0.55	0.56	0.57	0.58	0.60	0.61	0.63	0.64	0.93	0.94	0.94	0.95	0.96	0.97	0.98	0.98	0.99
PL	0.70	0.70	0.70	0.70	0.70	0.70	0.71	0.71	0.71	0.85	0.84	0.83	0.82	0.81	0.81	0.80	0.79	0.78
PT	0.71	0.65	0.60	0.55	0.51	0.47	0.43	0.39	0.36	0.53	0.50	0.47	0.44	0.41	0.38	0.36	0.34	0.32
RO	0.86	0.85	0.84	0.82	0.81	0.80	0.78	0.77	0.76	0.83	0.80	0.78	0.76	0.74	0.72	0.70	0.68	0.67
RS	0.73	0.76	0.78	0.81	0.84	0.87	0.90	0.93	0.97	0.94	0.93	0.92	0.91	0.90	0.89	0.88	0.88	0.87
SE	0.45	0.46	0.47	0.48	0.49	0.50	0.51	0.52	0.53	0.06	0.08	0.11	0.15	0.20	0.26	0.34	0.45	0.59
SI	0.73	0.67	0.61	0.56	0.51	0.47	0.43	0.39	0.35	0.74	0.70	0.67	0.64	0.61	0.59	0.56	0.53	0.51
SK	0.63	0.56	0.50	0.44	0.39	0.35	0.31	0.27	0.24	0.88	0.84	0.81	0.78	0.74	0.71	0.68	0.65	0.63

Key for country codes: See Table 1.
Source: See Table 1.

Appendix (continued)

	2020Q3									2020Q4								
	w = 0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
AT	0.62	0.57	0.53	0.49	0.46	0.42	0.39	0.37	0.34	0.49	0.46	0.44	0.42	0.40	0.38	0.36	0.35	0.33
BE	0.60	0.57	0.54	0.51	0.49	0.46	0.44	0.41	0.39	0.49	0.48	0.46	0.45	0.44	0.42	0.41	0.40	0.38
BG	0.51	0.50	0.48	0.47	0.46	0.44	0.43	0.42	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CH	0.86	0.84	0.82	0.80	0.78	0.76	0.75	0.73	0.71	0.36	0.39	0.41	0.45	0.48	0.52	0.56	0.60	0.64
CY	0.78	0.73	0.68	0.64	0.60	0.56	0.52	0.49	0.45	0.78	0.73	0.68	0.63	0.59	0.55	0.52	0.49	0.45
CZ	0.58	0.56	0.54	0.51	0.49	0.47	0.45	0.43	0.41	0.18	0.19	0.21	0.23	0.25	0.28	0.30	0.33	0.36
DE	0.72	0.71	0.70	0.69	0.68	0.67	0.65	0.64	0.63	0.75	0.74	0.72	0.71	0.69	0.68	0.66	0.65	0.64
DK	0.76	0.75	0.75	0.74	0.74	0.74	0.73	0.73	0.72	0.90	0.88	0.86	0.84	0.81	0.79	0.77	0.75	0.74
EE	0.57	0.58	0.60	0.62	0.64	0.65	0.67	0.69	0.71	0.85	0.84	0.82	0.81	0.80	0.78	0.77	0.76	0.75
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FI	0.69	0.70	0.71	0.72	0.73	0.74	0.75	0.76	0.77	0.93	0.91	0.89	0.88	0.86	0.84	0.82	0.81	0.79
FR	0.67	0.65	0.63	0.61	0.59	0.57	0.55	0.53	0.51	0.67	0.65	0.63	0.61	0.58	0.56	0.55	0.53	0.51
GR	0.55	0.51	0.48	0.44	0.41	0.38	0.36	0.33	0.31	0.66	0.60	0.55	0.50	0.46	0.42	0.38	0.35	0.32
HR	0.48	0.42	0.37	0.33	0.29	0.26	0.23	0.20	0.18	0.30	0.28	0.26	0.24	0.23	0.21	0.20	0.18	0.17
HU	0.77	0.74	0.70	0.67	0.64	0.61	0.59	0.56	0.54	0.34	0.35	0.37	0.39	0.41	0.43	0.45	0.47	0.49
IS	0.90	0.82	0.74	0.67	0.61	0.55	0.50	0.45	0.41	0.89	0.80	0.73	0.66	0.60	0.54	0.49	0.45	0.41
IT	0.54	0.50	0.46	0.43	0.40	0.37	0.34	0.31	0.29	0.43	0.41	0.39	0.37	0.35	0.33	0.31	0.30	0.28
LT	0.40	0.43	0.46	0.49	0.52	0.56	0.60	0.64	0.68	0.28	0.31	0.35	0.39	0.43	0.48	0.53	0.59	0.66
LU	0.65	0.68	0.71	0.75	0.78	0.82	0.86	0.91	0.95	0.72	0.75	0.77	0.80	0.83	0.86	0.90	0.93	0.96
LV	0.67	0.67	0.68	0.68	0.68	0.69	0.69	0.70	0.70	0.72	0.72	0.72	0.72	0.71	0.71	0.71	0.71	0.71
MT	0.16	0.16	0.15	0.14	0.13	0.13	0.12	0.11	0.11	0.36	0.31	0.27	0.24	0.21	0.18	0.16	0.14	0.12
NL	0.73	0.71	0.69	0.68	0.66	0.64	0.63	0.61	0.59	0.71	0.69	0.68	0.66	0.65	0.63	0.62	0.61	0.59
NO	0.86	0.85	0.85	0.84	0.83	0.82	0.81	0.81	0.80	0.98	0.95	0.93	0.91	0.89	0.87	0.85	0.83	0.81
PL	0.51	0.52	0.53	0.53	0.54	0.55	0.56	0.57	0.58	0.06	0.08	0.10	0.13	0.16	0.21	0.27	0.35	0.46
PT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.59	0.54	0.49	0.45	0.41	0.37	0.34	0.31	0.28
RO	0.11	0.14	0.17	0.21	0.25	0.31	0.38	0.47	0.58	0.26	0.29	0.32	0.36	0.40	0.45	0.51	0.57	0.64
RS	0.41	0.44	0.47	0.50	0.54	0.57	0.61	0.66	0.70	0.46	0.49	0.51	0.54	0.57	0.60	0.64	0.67	0.71
SE	0.83	0.81	0.80	0.78	0.77	0.75	0.74	0.73	0.71	0.80	0.79	0.77	0.76	0.75	0.74	0.73	0.72	0.71
SI	0.67	0.64	0.60	0.57	0.55	0.52	0.49	0.47	0.45	0.04	0.05	0.06	0.08	0.11	0.14	0.19	0.25	0.32
SK	0.58	0.59	0.59	0.60	0.61	0.61	0.62	0.63	0.64	0.33	0.35	0.38	0.41	0.44	0.48	0.51	0.55	0.60

Appendix (continued)

	2021[Q1]								
	w = 0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
AT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BE	0.87	0.80	0.73	0.67	0.62	0.57	0.52	0.48	0.44
BG	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
CH	0.84	0.79	0.75	0.71	0.67	0.64	0.60	0.57	0.54
CY	0.88	0.83	0.78	0.73	0.69	0.65	0.61	0.58	0.54
CZ	0.13	0.14	0.15	0.17	0.19	0.21	0.23	0.25	0.28
DE	0.71	0.62	0.55	0.48	0.42	0.37	0.32	0.28	0.25
DK	0.86	0.80	0.75	0.71	0.66	0.62	0.58	0.55	0.51
EE	0.61	0.63	0.65	0.67	0.70	0.72	0.74	0.77	0.80
ES	0.48	0.31	0.20	0.13	0.08	0.05	0.03	0.02	0.01
FI	0.84	0.77	0.71	0.65	0.60	0.55	0.51	0.46	0.43
FR	0.72	0.66	0.60	0.54	0.50	0.45	0.41	0.38	0.34
GR	0.84	0.77	0.70	0.64	0.58	0.53	0.48	0.44	0.40
HR	0.80	0.77	0.74	0.71	0.69	0.66	0.63	0.61	0.59
HU	0.65	0.64	0.63	0.61	0.60	0.59	0.58	0.57	0.56
IS	0.74	0.68	0.62	0.56	0.51	0.47	0.43	0.39	0.35
IT	0.69	0.59	0.51	0.44	0.37	0.32	0.28	0.24	0.20
LT	0.69	0.70	0.71	0.72	0.73	0.74	0.76	0.77	0.78
LU	0.84	0.85	0.86	0.87	0.88	0.90	0.91	0.92	0.94
LV	0.63	0.60	0.57	0.54	0.51	0.49	0.46	0.44	0.42
MT	0.78	0.75	0.72	0.70	0.67	0.64	0.62	0.60	0.57
NL	0.69	0.64	0.60	0.55	0.51	0.48	0.44	0.41	0.38
NO	0.94	0.89	0.83	0.78	0.74	0.70	0.65	0.62	0.58
PL	0.51	0.51	0.52	0.53	0.54	0.55	0.55	0.56	0.57
PT	0.43	0.34	0.27	0.21	0.17	0.13	0.10	0.08	0.06
RO	0.71	0.70	0.70	0.70	0.70	0.70	0.69	0.69	0.69
RS	0.82	0.83	0.85	0.87	0.89	0.91	0.93	0.96	0.98
SE	0.77	0.74	0.71	0.68	0.65	0.62	0.60	0.57	0.55
SI	0.78	0.74	0.71	0.67	0.64	0.61	0.58	0.55	0.53
SK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00