Transnational Cooperation for COVID'19 Control & Prevention

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Abstract: The paper presents a big-data-(OAM)-based approach, how the health management system of countries can be evaluated in an objective way involving online AI-oriented analytical tools in order to produce production functions based on similarities of the observed objects. The best managed countries are, where the ratio of deaths could be significantly more than in the reality.

Introduction

Transnational Cooperation for COVID' 19 Control and Prevention is a collaborative health initiative taken via cooperation of relevant ministries in Portugal, Spain and Germany. Coronavirus disease 2019 (COVID-19) is defined as illness caused by a novel coronavirus now called severe acute respiratory syndrome coronavirus 2. The novel coronavirus disease that emerged at the end of 2019 began threatening the health and lives of millions of people after a few weeks. Highly contagious with the possibility of causing severe respiratory disease, it has quickly impacted governments and public health systems. The coronavirus is also spreading in developing countries, and the impact on them is especially severe. The COVID-19 pandemic is having a drastic effect on people's health and social lives as well as on the economy. It is in every country's interests to support other states in the fight to overcome the COVID-19 crisis in order to limit the further spread of the pandemic and its devastating impact. This is why we decided to create cooperation about Covid-19.

The crisis caused by the spread of Covid-19 has demonstrated how difficult European cooperation can be, especially in policy areas where the EU has only a legal competence to support member states. Some commentators have suggested that this marks the death knell of European integration, and even the most optimistic of them recognize it as one of the greatest challenges the EU has ever faced in terms of crisis management and demonstrating supranational added value.

As the cooperation within the EU seems to be difficult, the idea was born to create a transnational cooperation between some European states. As part of the transnational cooperation project, 3 major EU countries Portugal, Spain and Germany will be pooling together economic, financial and administrative resources for an effective control and prevention of the ongoing COVID'19 Pandemic. Health, Finance ministries of the partner countries have primary involvement in the project while Education and Media reporting sectors shall also play an important role within the framework of cooperation.

About the cooperation

Main Fields of Cooperation

I. **Prevention and control of further spread of the COVID-19 Virus**

As the partner countries work towards a successful cooperation and developing effective immunization techniques, it must be ensured that their citizens must follow general preventive measures set in place against the pandemic. These include:

1. Wearing a protective shield (Surgical masks, scarves, covering) over the face at all times when outside.
2. Going out only when necessary.
3. Keeping a social distance of at least 2 meters when in Public gatherings.
   Within the framework of the cooperation the partner countries work in creating a common methods of preventing and controlling the further spread of the virus. Collaborating countries also take responsibilities of ensuring policy compliance. In order for the collaborative health initiatives to be successful, it is imperative that all the partner countries ensure 100% compliance with the

developed and suggested policies. This can be guaranteed via involvement of local law enforcement and administrative sectors and may include measures like: The general public and defaulters being subject to state regulated and imposed fines for not following directives of the collaborative initiative.

Causing public discomfort or imposing health risks via non-compliance of the general preventive measures.

II. Economical Help

As the WHO acknowledged the COVID'19 as a pandemic, there is a fear of post-pandemic financial and economic crisis in the world. COVID-19 will force a rebirth of many industries as we all sit at home in lockdown, re-assessing and re-imagining modes of consumption, supply, interaction and productivity. The economic damage is mounting across all countries, tracking the sharp rise in new infections and containment measures put in place by governments. To overcome this pandemic, we need a global, coordinated health and economic policy effort. The transnational cooperation collaboration with other partners—will be doing everything it can to ensure rapid support is available to involved countries through emergency financing, policy advice, and technical assistance.

Within the cooperation, Germany, Spain and Portugal will provide essential financial and economic aid that is needed in order to help affected regions as much as the legislation of the EU allowed it. A fund should be created to issue common debt with a common guarantee.

III. Humanitarian Aid

Humanitarian Aid is one of the main fields of cooperation. As a humanitarian aid most important thing is supporting Health Ministries, local hospitals and clinics through training and protective measures for medical staff. With the help of different training programs, projects and medical exchange programs the

cooperation will create a great opportunity of sharing experience and strengthening the medical system of the 3 countries.

Second important part of the humanitarian aid is improving medical facilities to help healthcare facilities address near-term needs related to the current COVID-19 pandemic. Help with the facilities is especially necessary in the clinics outside the capitals. Meeting the needs of those affected by the COVID-19 is also an important part of the collaboration.

Another important aspect of humanitarian aid is psychological help for those affected. Infectious disease outbreaks, like the current coronavirus (COVID-19), can be scary and can affect mental health. While it is important to stay informed, there are also many things we can do to support and manage wellbeing of people during such times. In public mental health terms, the main psychological impact to date is elevated rates of stress or anxiety. But as new measures and impacts are introduced – especially quarantine and its effects on many people's usual activities, routines or livelihoods – levels of loneliness, depression, harmful alcohol and drug use, and self-harm or suicidal behavior are also expected to rise. In populations already heavily affected issues of service access and continuity for people with developing or existing mental health conditions are also now a major concern. As part of its public health response, our transnational cooperation will work to develop a center for help and a set of new materials on the mental health and psychosocial support aspects of COVID-19.

IV.   Research

The main part of the collaboration between the countries is about the medical research needed for the prevention of the virus. It seems to be difficult to distinguish between the Corona virus and the normal flu, but main difference is that there is not medicine or vaccination against the COVID'19.

Researchers of the cooperation will be joining forces with scientists around the world to find solutions that will end the COVID-19 pandemic. The collaboration ranges from experiments to adapt a measles vaccine to prevent COVID-19 to efforts to understand how the human immune system's antibodies attack the coronavirus. Cooperation will support rapid development of vaccines to prevent COVID-19 infections. In order to conduct these kind of researches there will be created a laboratory located in Madrid, Spain.

V. **Raising Awareness (education, fighting against disinformation about the virus)**

Another important field of cooperation is raising awareness among the population of the tree countries. Cooperation will work hard to raise awareness about the corona virus. It will spread knowledge about the nature of the virus, its danger and most importantly how to avoid contamination. And it will explain the importance of social distancing in this critical period. The work will also be done on social media in order to raise awareness. On the social pages of the cooperation there will be all kinds of information and news concerning the virus in four languages, German, Spanish, Portuguese and English. With the help of articles and scientific researchers conducted by the professionals, cooperation will be able to help the education. It is important to help people distinguish between the normal flu and COVID'19 symptoms.

 One important part of the education will be fact-checking. With the help of online platform people will have the opportunity of fact-checking news about the virus as the disinformation about the COVID'19 is widespread even in developed countries as well. While answering online tests, people will be able to understand how much they know about the virus and it will give as an important data as well.

As the collaborative program continues, the partner countries shall keep receiving research inputs as well as suggestions for improvement from worldwide research

collaborations which will work towards adding to the measures already in place. Some of the future improvements suggested with regards to more effective prevention are: Developing interactive public socializing methods via virtual networks to promote mental and physical wellbeing while encouraging the general public to stay home. Government regulated monthly or quarterly payments to ensure continued supplied of essential items to all citizens of the partner countries.

Structural Framework & Hierarchy

Even though the workload is divided by the countries, which they take responsibilities for, within the transnational cooperation there will be hierarchy of beaurocracy as well.

The headquarter of the cooperation will be located in Berlin, Germany.

General Assembly

General Assembly is a deliberative organ. The assembly is represented by the governors of the countries and the ministers of Health, Finances, Education and corresponding ministries. General Assembly will meet 4 times a year. It will approve the budget and programmer of work and debate topics of vital importance to the health sector. Twice a year assembly will elect Secretary General from the ministers.

Executive Council

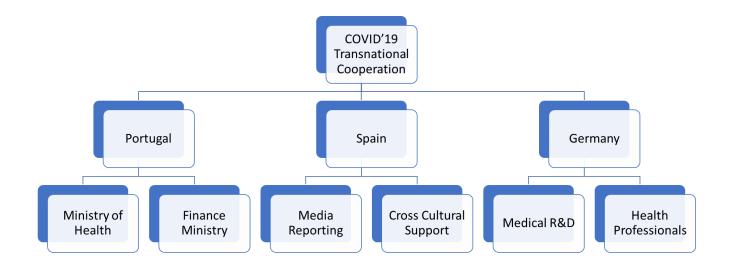Executive Council will be responsible for ensuring that the organization carries out its work and adheres to its budget.

Regional Commissions

There will be three regional commissions in Germany, Portugal and Spain. The transnational cooperation will have its representative commissioners in every country. Their main obligation will be monitoring the policy compliance.

Committees

As the transnational Cooperation has a wide range of varieties in the field of cooperation, there will be corresponding committees as well. The following committees are:

1. Committee of Education
2. Committee of Research
3. Committee of Health
4. Committee of Economics

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                        COVID'19
                      Transnational
                       Cooperation
        ┌──────────────────┼──────────────────┐
     Portugal            Spain             Germany
    ┌────┴────┐       ┌────┴────┐       ┌────┴────┐
Ministry of  Finance  Media   Cross Cultural  Medical R&D  Health
  Health    Ministry Reporting  Support                  Professionals
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As depicted in the previous Hierarchical chart, according to the transnational agreement, the partner countries will divide incumbent workload amongst various organizations for which they are able to pool in more resources. Workload division and management shall be ensured

by non-governing bodies and third party verification for an unbiased and smooth adjudication of the processes.

All of the partner countries shall share equal responsibilities contributing financially as well as administratively to ensure effective management of the entire project. The specific country roles will be detailed as well as the contribution required via medical professionals and administrative facilities.

Portugal

Portugal will take the responsibility of overseeing the Finance and economical perspectives of the collaboration project.

The Ministry of Health will ensure effective dispatchment of medical information and the development of relevant health policies with regards to control and prevention of COVID' 19.

The developed policies will be shared with the remaining 3 partner countries and strict implementation shall be ensured within Portugal itself.

Spain

Media coverage and specialized televised broadcasts shall fall under the jurisdiction of Spain as a partner country.

The developed health policies and important information regarding economic measures being taken by the other participating partner countries shall be shared in all of the partner state languages as well as English to help ensure complete understanding of the policies and procedures.

Germany

As the most technologically advanced country out of the transnational coalition, Germany will be responsible for investing heavily into COVID'19 specific research in order to discover the most effective preventive measures as well as work towards a working vaccine to fend off the current pandemic.

The high number of advanced medical facilities existing within the country in addition to state of the art manufacturing companies lending their support for R&D ventures shall enable Germany to effectively contribute with high tech medical equipment and trained medical personnel to the other partner countries.

Case study

Also as part of the transnational Cooperation, a number of studies were conducted and the results found from these can be summarized and interpreted as follows:

UNIT	Full-time equivalent (FTE)	Full-time equivalent (FTE)	Full-time equivalent (FTE)	Full-time equivalent (FTE)	Full-time equivalent (FTE)	Full-time equivalent (FTE)	Full-time equivalent (FTE)	cases	capita
	X1	X2	X3	X4	X5	X6	X7	Y	for relativising Xi & Y
ISCO08	Medical doctors	Nursing professionals and midwives	Nursing associate professionals	Health care assistants	Hospital employment	Other health service providers employed by hospital	Other staff employed by hospital	COVID-deaths	Population
GEO/TIME	2016	2016	2016	2016	2016	2016	2016	2020	2016
Belgium	6825,18	63839,09	667,22	7394,95	149044,33	18698,68	51619,21	9656	11311117
Czechia	20661,84	53207,71 :		3157,08	141423,39	37673,66	26723,1	329	10553843
Denmark	16021	37127	0	9573	106246	21909	21616	597	5707251
Germany (until 1990 former territory of the FRG)	166000	341000	34000 :		988000	179000	268000	8791	82175684
Estonia	2567,1	4824,4	0	2741,2	12790,2	2567,4 :		69	1315944
Ireland	7580,46	20706,58	0	4384,69	54143,78	7623,46	13849	1706	4726286
France	129366,47	352461,05	0	226711,78	1164679,41	50293,79	405846,32	29407	66638391
Cyprus	787	4023	95 :		:		858	271	18	848319
Lithuania	9753	15674	0	6072	45988	3259	11230	75	2888558
Hungary	17142,19	27509	7064,67	13922,49	99556,29	10694,77	23223,17	563	9830485
Malta	1084,03	2652,47	0	1515,62	8469,13	980,52	2236,49	9	450415
Netherlands	21605	58536 :		11563	198647	106943 :		6059	16979120
Austria	22470,96	50998,08	0	9027,73	139702,6	22847,16	34358,67	677	8700471
Romania	27667	10112	54679	41349	166297	7385	25105	1410	19760585
Slovakia	9027,29	21394,42	0	6697,27	41442,12	4323,14 :		28	5426252
Iceland	647	1497	603 :		5047	626	1675	10	332529
Liechtenstein	15,2	53,75	0	25,4	167	19,72	52,93	1	37622
Norway	13064	42689	0	8110	100037	14816	21368	242	5210721
Switzerland	21454,68	48019,39	8356,17	10756,23	161945,41	23337,13	50021,81	1676	8327126
Serbia	11216	5555	23271	0	62606		8262	14302	254	7076372
direction (txt)	the less the more	the less the more	the less the more	the less the more	the less the more	the less the more	the less the more		
direction	1	1	1	1	1	1	1	1	
	X1	X2	X3	X4	X5	X6	X7	Y	Y
	per 1000000capita	per 1000000capita	per 1000000capita	per 1000000capita	per 1000000capita	per 1000000capita	per 1000000capita	per 1000000capita	

1. Figure FTE of Transnational Cooperation and European Countries

Figure 1 shows the current situation of the different categories related to medical professionals within general Europe and primarily focusing on the transnational cooperation countries. With most European countries there is almost always a shortage of highly qualified medical personnel and the current state of the country's economy generally reflects the state of qualified medical personnel within that country or region.

OAM-relativised	Medical doctors	Nursing professionals and midwives	Nursing associate professionals	Health care assistants	Hospital employment	Other health service providers employed by hospital	Other staff employed by hospital	COVID-deaths
Belgium	603	5644	59	654	13177	1653	4564	854
Czechia	1958	5042	[red]	299	13400	3570	2532	31
Denmark	2807	6505	0	1677	18616	3839	3787	105
Germany (until 1990 former territory of the FRG)	2020	4150	414	[red]	12023	2178	3261	107
Estonia	1951	3666	0	2083	9719	2019	[red]	52
Ireland	1604	4381	0	928	11456	1613	2930	361
France	1941	5289	0	3402	17478	755	6090	441
Cyprus	928	4742	112	[red]	[red]	1011	319	21
Lithuania	3376	5426	0	2102	15821	1128	3888	28
Hungary	1744	2798	719	1416	10127	1088	2362	57
Malta	2407	5889	0	3365	18803	2177	4965	20
Netherlands	1272	3448	[red]	681	11699	6299	[red]	357
Austria	2583	5862	0	1038	16057	2626	3949	78
Romania	1400	512	2767	2092	8416	374	1270	71
Slovakia	1664	3943	0	1234	7637	797	[red]	5
Iceland	1946	4502	1813	[red]	15178	1883	5037	30
Liechtenstein	404	1429	0	675	4439	524	1407	27
Norway	2507	8193	0	1556	19198	2843	4099	46
Switzerland	2576	5767	1003	1292	19448	2803	6007	201
Serbia	1585	785	3289	0	8847	1168	2021	36
average	1864	4399	585	1441	13244	2017	3441	146

2. Figure OAM Relativized for Transnational and Other EU Countries

Figure 2 depicts the condition of different European countries and the transnational cooperation countries with respect to their current economy and hence the term Relativized OAM is used for the description of this set of data. The method used to calculate relativized OAM included the multiplication of all the data sets by the general population of the concerned country in order to derive the "per capita" values for all of the different data sets.

OAM-ranked	Medical doctors	Nursing professionals and midwives	Nursing associate professionals	Health care assistants	Hospital employment	Other health service providers employed by hospital	Other staff employed by hospital	COVID-deaths
Belgium	2	15	11	3	10	10	13	853
Czechia	13	12	1	2	11	18	6	31
Denmark	19	19	1	12	16	19	9	104
Germany (until 1990 former territory of the FRG)	14	8	13	1	9	14	8	106
Estonia	12	6	1	13	5	12		52
Ireland	7	9	1	6	7	9	7	360
France	10	13	1	17	15	3	17	441
Cyprus	3	11	12	1		5	1	21
Lithuania	20	14	1	15	13	7	10	25
Hungary	9	4	14	10	6	6	5	57
Malta	15	18	1	16	17	13	14	19
Netherlands	4	5	1	5	8	20		356
Austria	18	17	1	7	14	15	11	77
Romania	5	1	17	14	3	1	2	71
Slovakia	8	7	1	8	2	4		5
Iceland	11	10	16	1	12	11	15	30
Liechtenstein	1	3	1	4	1	2	3	26
Norway	16	20	1	11	18	17	12	46
Switzerland	17	16	15	9	19	16	16	201
Serbia	6	2	18	1	4	8	4	35

3. Figure OAM ranked by EU and Transnational Cooperation Countries

Figure 3 depicts the overall countries ranked by the different categories of medical proficiency such as the number of Medical Doctors, the number of medical nurses and other general health professionals. The inclusion of this ranking within the data set can better help understand potential researchers of how capable certain countries are with regards to an effective response dealing with COVID.

Results

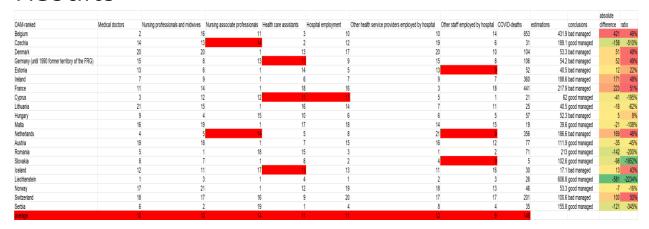| OAM-ranked	Medical doctors	Nursing professionals and midwives	Nursing associate professionals	Health care assistants	Hospital employment	Other health service providers employed by hospital	Other staff employed by hospital	COVID-deaths	estimations	conclusions	absolute difference	ratio
Belgium	2	16	11	3	10	10	14	853	431.9	bad managed	421	49%
Czechia	14	13	14	2	12	19	6	31	189.1	good managed	-158	-510%
Denmark	20	20	1	13	17	20	10	104	53.3	bad managed	51	49%
Germany (until 1990 former territory of the FRG)	15	8	13	11	9	15	8	106	54.2	bad managed	52	49%
Estonia	13	6	1	14	5	13	9	52	40.5	bad managed	12	22%
Ireland	7	9	1	6	7	9	7	360	188.6	bad managed	171	48%
France	11	14	1	18	16	3	18	441	217.9	bad managed	223	51%
Cyprus	3	12	12	11	11	5	1	21	62	good managed	-41	-195%
Lithuania	21	15	1	16	14	7	11	25	40.5	good managed	-16	-62%
Hungary	9	4	15	10	6	6	5	57	52.3	bad managed	5	8%
Malta	16	19	1	17	18	14	15	19	39.6	good managed	-21	-108%
Netherlands	4	5	14	5	8	21	9	356	186.6	bad managed	169	48%
Austria	19	18	1	7	15	16	12	77	111.9	good managed	-35	-45%
Romania	5	1	18	15	3	1	2	71	213	good managed	-142	-200%
Slovakia	8	7	1	8	2	4	9	5	102.6	good managed	-98	-1952%
Iceland	12	11	17	11	13	11	16	30	17.1	bad managed	13	43%
Liechtenstein	1	3	1	4	1	2	3	26	606.8	good managed	-581	-2234%
Norway	17	21	1	12	19	18	13	46	53.3	good managed	-7	-16%
Switzerland	18	17	16	9	20	17	17	201	100.6	bad managed	100	50%
Serbia	6	2	19	1	4	8	4	35	155.8	good managed	-121	-345%
average	10	10	14	11	11	12	9	146				

Figure Nr.4 – Evaluation of countries

Figure 4 demonstrates that Liechtenstein > Slovakia > Czechia (green highlighted in column "ratio") are the best managed countries if the less the better principles for each attribute are valid. The presented methodology can be used for more attributes and counties – it means: such kind of analyses should be produced in an automated way for the unlimited access of the total population of the planet…

More details:

https://miau.my-x.hu/miau/quilt/2020/covid19_project/health_management_quality_v2.xls

https://miau.my-x.hu/miau/quilt/2020/covid19_project/eurostat_views.docx (incl. handling of missing data positions)

Rapid-project-tutorial: https://miau.my-x.hu/miau/quilt/2020/quilt2/launching2020IV29/part5.html +

https://miau.my-x.hu/miau/quilt/2020/AI-project/tutorials_eu/?C=M;O=A

Discussion

The above presented logic assumes that we are capable of declaring directions for each attribute and these directions may be simple (see: the more the more or the more the less). It would also be possible to use doubled directions for simulating optimum-like connections between Xi and Y: c.f.

https://miau.my-x.hu/miau/quilt/2020/quilt2/launching2020III25/part1a.html

Conclusion

The spread of new COVID'19 viruses has affected a lot of countries. In general, all member states of the EU were initially inward-looking in their reactions; they unilaterally closed borders and focused on crisis management at home. European solidarity has largely been absent while there is a need of preventing the further spread of the virus. This fact leads us to creating a transnational Cooperation.

We believe that 3 countries working together pooling all their strongest resources for a common goal will lead to highly optimized results.

As the policies will be developed on a consensus basis, the general public will be much more likely to follow these regulations leading to an overall improved enforcement of the regulations.

The success of such a transnational project shall hold as a hallmark for other countries to follow suit and ideally lead into a European Union wide cooperation to effectively combat the current global pandemic.