

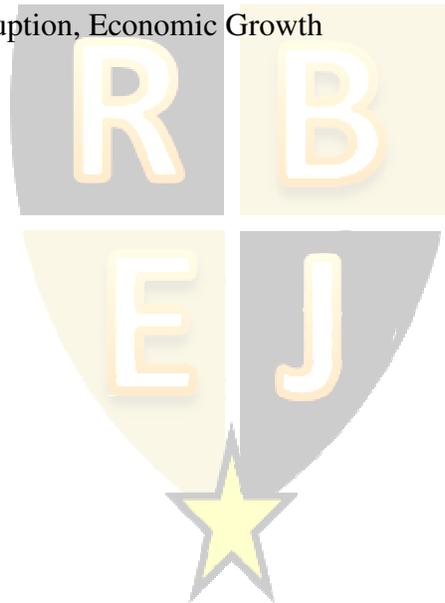
A descriptive analysis of the coronavirus pandemic and corruption on economic growth

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ABSTRACT

The corona virus pandemic had destabilized the world's economies in 2020. Prior to this pandemic, the age-old problem of corruption plagued numerous countries. This study investigated the economies of the nations based on their corruption perception and assessed if the pandemic, coupled with corruption further compounded the economic problems. It was found that countries with the most corona virus cases were negatively impacted economically, as per negative real gross domestic product (GDP) change. Additionally, most countries with more cases of covid 19 were ranked as highly corrupt.

Keywords: Corona virus, Corruption, Economic Growth



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INTRODUCTION

The corona virus pandemic had destabilized the world's economies in 2020. Prior to this pandemic, the age-old problem of corruption plagued certain countries.

Corruption is the manipulation and abuse of public property for private benefit. Corruption results in waste of public resources and impedes the economic development that is beneficial to all citizens in that social contract is corroded.

The corona virus caused extreme uncertainty and global crisis. Stifling economic growth; as well as disruptions due to lock-downs and illnesses were prevalent. Furthermore, customer demand was weakened, customer expectations and needs were unstable, supply chain disruptions were rampant resulting in scarcity and rationing of basic items like essential paper products. The stock market was also very volatile and there were various policy and regulatory changes during the pandemic. While unemployment arose, some people who remained employed were furloughed.

While the pharmaceutical companies prospered, most other companies were negatively impacted. Companies that were negatively impacted the most included travel, airline and other transportation companies as well as hotels and restaurants. Retail and departmental stores as well as the entertainment industry were also adversely affected.

Most economies in the world were suffering and since corruption had been found to compound suffering, this study aimed to find out if more corrupt countries' economies were more adversely affected with the added impact of the pandemic. The motivation to conduct this study was due to the novel virus that had unleashed havoc in most economies and this study would enable regulatory bodies in their decision making. The results could also help in planning and implementation of policies and forecasting models that will benefit economic recovery.

With the pandemic came an increased role in most governments in their countries to combat the problem and provide economic support to citizens as well as businesses. Does the increase governmental responsibility enhance corruption? This study analyzed the economies of the top 100 countries affected the most by the pandemic and using their rank on the corruption perception index investigated the effect of the pandemic on the economies based on their corruption ranking.

It was found that countries with the most corona virus cases as well as highest number of deaths due to the virus were negatively impacted economically, as per negative real Gross Domestic Product (GDP) change. Furthermore, most countries with more cases (more than 1 million cases) were ranked as more corrupt.

The paper continues as follows Section 2 literature review; 3, Methodology; 4, Results and Conclusion

2. LITERATURE REVIEW

Mo (2001) studied the impact of corruption on economic growth through transmission channels. They found that an increase of 1% in the corruption level leads to a decrease of 0.72% in growth rate. Moreover, an increase of one unit in the Corruption index leads to a decrease of 0.545 of growth rate. Additionally, they found that the share of private investment as well as human capital is reduced by corruption. Furthermore, political instability through corruption affected economic growth the most (53%).

De Vaal, A. and Ebben, W. (2011) studied how bureaucratic corruption through

institutions affected economic growth. Their framework looked at how corruption through stealing of public goods and rent seeking negatively impacts economic growth. Additionally, they stipulated that corruption may positively impact if it takes on the function of institutions. They found that overall impact on economic growth by corruption depends on the country's institutional settings. When institutions were not greatly developed corruption may impact economic growth positively, because it tends to be conducive. They also found that interaction among institutions were also important.

Ahmad, E., Ullah M. A and Arfeen MI (2012) used panel data from the Corruption Index among other sources for developed and developing countries, to analyze the relationship between corruption and economic growth. Their investigation used estimations based on a generalized method of moments. They found that a "decrease in corruption increases the economic rate in an inverted U -shaped way." These results remained robust with different specifications with regards to economic relationships.

Grundler, K. and Potrafke, N. (2019) re-investigated the nexus of economic growth and corruption by using the reversed CPI which became comparable after 2012. Using data from almost 200 countries they found that a one standard deviation increases in the CPI resulted in a 17% decrease in the per capita GDP. Furthermore, they found that autocracies exhibited pronounced effects on economic growth by corruption due to increased inflation and decrease in foreign direct investment.

According to Carlsson-Szlezak, P., Reeves, M. and Swartz P. (2020) the disruptive behavior of the financial markets could be attributed to the Covid 19. They however caution against ascribing financial markets sell-offs to the economy due to differences in asset valuations to uncertainty with the epidemic. The risk of recession was however real because major economies had become vulnerable. Most economies could not absorb more shocks since growth was slow. They assert that recession could be avoided depending on the path to growth after Covid 19 such as whether demand was foregone or even delayed, whether the spike lasts or was temporary or if the damage caused was structural.

3. Methodology

To analyze the effect of the pandemic the 100 countries with the most covid 19 cases as of January 11, 2021 were obtained from the John Hopkins data. The cases were identified according to real data covered by, Henrik Pettersson, Byron Manley and Sergio Hernandez. 2021 and reported on January 11, 2020. Countries with more than 1 million cases of covid 19 was obtained: (Table 1). Since some countries are more populated than others, the data for covid 19 cases per 100000 were also obtained to scale for size. Among these countries, only countries with more than 5000 cases per 100000 were selected: (Table 2).

To determine the economic impact, the International Monetary Fund's (IMF) data was used to obtain real Gross Domestic Product (GDP) change. (Table 1,2,3 and 4) According to the IMF annual rate of change in GDP per capital was calculated "based on the percentage change in real GDP between two consecutive years." Data for change in GDP between 2019 and 2020 was obtained to capture the decreases or increase in GDP before the beginning of the pandemic and during the pandemic. Using the difference in GDP between 2019 and 2020 to capture the economic impact pre pandemic and during pandemic was the closest data that could be obtained; however, it is noted that the pandemic did not hit all counties at the same time. Real GDP per capita was calculated as GDP at constant prices divided by the country's population. Real GDP

was calculated in US dollars to assist in the calculation of country growth rates, according to the IMF.

To analyze the effect of corruption, Transparency International was used to obtain the rank as well as the corruption perception index of the countries being studied. (Table 1, 2, 3 and 4) Each year Transparency International not only ranks but also scores countries based on the perceived corruption. The rank and score were based on the country's public sector perception. A composite index the Corruption Perception Index, CPI was scored based on thirteen assessments and surveys of corruption aggregated by reputable institutions. Even though the CPI did not capture the reality of frustrations of corruption, it indicated the informed views of experts, analyst and businesspeople worldwide.

4. Results

Countries with more than 1 million cases of covid19 (as reported on January 11, 2020) were analyzed and it was found that United States had the highest number of cases: 22,423,006 while Peru had the lowest cases 1,026,180 cases in the group. Additionally, all the countries with more than 1 million cases had negative changes in their GDP ranging from -3.6 for Poland to -13.6 for Peru as shown in Table 1. All the countries with more than 1 million cases were therefore adversely economically impacted as shown by the negative change in GDP.

Among the countries with more than 1 million cases of covid19 ; none of them were ranked as least corrupt (a score of less than 10) according to the CPI except Germany that ranked 9 on the CPI. Furthermore, among the countries with more than 1 million cases of covid19 ; none of them were ranked as least corrupt (a score of less than 30) according to the CPI apart from, Germany ranked 9 United Kingdom ranked 12, and United States and France both ranked 23. Some of the countries were moderately corrupt rank of 30, Spain to 66, Argentina.

Most importantly, more than half of the countries with more than 1 million cases of covid19. were found to be very corrupt according to the CPI, with more than 6 of those countries ranking over 100 on the CPI. Peru ranked 101; Brazil ,106; Ukraine, 126; Mexico, 130; Russia 137; and Iran, ranked 146 (Table 1). Results from Table 1 reveal that countries with more than 1 million cases of covid19 experienced an adverse economic impact and were highly corrupt.

]Due to the fact that some countries have greater population than others due to size, the countries according to cases per 100 000 were further analyzed to scale for size. The countries that had more than 5000 cases per 100 000 (Table 2) were chosen. It was found that all countries with more than 5000 cases per 100,000 had a negative real GDP growth annual percent change ranging from Lithuania with -1.8 to Croatia with -9. All these countries scaled for size also exhibited adverse economic impact as shown by the negative change in GDP, from Montenegro -12 to Serbia -2.5.

Furthermore, it was found that Montenegro had the highest cases per 100 000 a total of 8,425 cases. It was ranked 66 on the CPI. Netherlands had the lowest 5,097 cases with a CPI rank of 8. (Table 2) Moreover, among the countries with more than 5000 cases per 100 000 only Switzerland, Netherlands and Luxemburg were found to be least corrupt with a CPI rank of 4, 8 and 9 respectively. All others were ranked above 10 on the CPI, with Panama being the most corrupt with a rank of 101. Table 2 reveals that countries with the highest cases per 100 000 were mostly corrupt and experienced an adverse economic impact.

To further investigate the economic impact, data for countries with greatest negative

change in real GDP (Table 3) were obtained. It was found that these countries with negative changes in real GDP ranged from -10 for both Portugal and Oman to -66.7 for Libya. The rank for these countries on the CPI ranged from 30, Portugal and Spain to 173 Venezuela. This shows that all the countries that were most negatively impacted were corrupt. None of the countries with greatest negative change in GDP were perceived as least corrupt, with less than a CPI rank of 30. Table 3 showed that countries with greatest negative change in real GDP were very corrupt.

For a deep dive on the effects on the economy, the countries with covid19 cases were further investigated to see if any of them were not adversely affected economically. Countries with positive change in real GDP were therefore analyzed. Table 4 shows countries with positive change in real GDP growth from Nepal 0 to Bangladesh 3.8. Even though these countries did not seem to be adversely affected economically during the pandemic, they seemed to be corrupt with a CPI rank ranging from China 80 to Uzbekistan 153. Out of the 9 countries with positive change in GDP during the pandemic, 6 of them ranked over 100. Table 4 revealed that countries with positive change in real GDP were very corrupt.

However, of all the countries that showed positive changes in real GDP, none had more than 1 million cases of covid19. The country with the highest cases was Bangladesh 523,302 and the lowest Ghana 56,230. Additionally, none of these countries had more than 5000 cases per 100 000. Of these countries China had 6 while Nepal had 944 cases per 100 000. Only 2 countries had more than 5000 deaths due to the virus, Bangladesh 7,803 and Egypt 8,197. Table 4 shows that countries with positive change in GDP had less covid19 cases.(less than 1 million cases and less than 1000cases for every 100000 people) .

Conclusion

This study was a descriptive analysis of the economies of the top 100 countries affected the most by the pandemic coupled with their corruption perception. The analysis reflected that countries with the most corona virus cases were negatively impacted economically, as per negative real GDP change. Furthermore, most countries with more cases of the corona virus (more than 1 million cases) were ranked as more corrupt.

Future studies would analyze if least corrupt countries had less covid19 cases. Additional analysis will investigate if there is a statistically significant relationship between the countries with more covid19 cases, their corruption rank and the economy (real GDP change).

More importantly, this study also found that some countries like China, Egypt and Bangladesh did not experience a negative change in real GDP as most other economies did. Furthermore, the countries that were not negatively economically impacted had less covid19 cases, Additional studies can investigate the practices that in place in these countries so that other economies can benefit.

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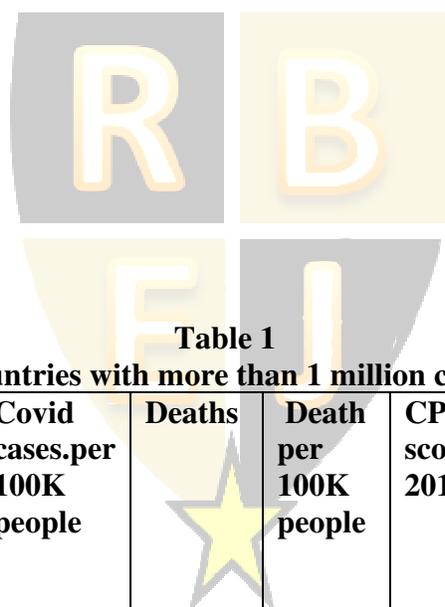


Table 1
Countries with more than 1 million cases

Country	Covid Cases	Covid cases.per 100K people	Deaths	Death per 100K people	CPI score 2019	CPI Rank	Real GDP growth annual percent change
United States	22,423,006	6,854	374,442	114	69	23	-4.3
India	10,466,595	774	151,160	11	41	80	-10.3
Brazil	8,105,790	3,870	203,100	97	35	106	-5.8
Russia	3,389,733	2,346	61,389	42	28	137	-4.1
United Kingdom	3,072,349	4,621	81,431	122	77	12	-9.8
France	2,777,921	4,147	67,380	101	69	23	-9.8
Turkey	2,326,256	2,826	22,807	28	39	91	-5
Italy	2,276,491	3,767	78,755	130	53	51	-10.6
Spain	2,050,360	4,388	51,874	111	62	30	-12.8
Germany	1,936,070	2,335	40,971	49	80	9	-6

Colombia	1,786,900	3,599	46,114	93	37	96	-8.2
Argentina	1,722,217	3,871	44,495	100	45	66	-11.8
Mexico	1,534,039	1,216	133,706	106	29	130	-9
Poland	1,390,385	3,661	31,264	82	58	41	-3.6
Iran	1,292,614	1,580	56,262	69	26	146	-5
South Africa	1,231,597	2,132	33,163	57	44	70	-8
Ukraine	1,154,850	2,588	20,719	46	30	126	-7.2
Peru	1,026,180	3,208	38,049	119	36	101	-13.9

Table 2
Countries with more than 5000 cases per 100000

Country	Covid Cases	Covid cases.per 100K people	Deaths	Death per 100K people	CPI score 2019	CPI Rank	Real GDP growth annual percent change
Montenegro	52,431	8,425	725	116	45	66	-12
Czech Republic	835,454	7,863	13,272	125	56	44	-6.5
Luxembourg	47,744	7,856	527	87	80	9	-5.8
United States	22,423,006	6,854	374,442	114	69	23	-4.3
Slovenia	139,707	6,758	3,022	146	60	35	-6.7
Panama	279,196	6,684	4,455	107	36	101	-9
Georgia	239,780	6,427	2,796	75	56	44	-5
Bahrain	95,558	6,089	356	23	42	77	-4.9
Belgium	664,263	5,816	20,078	176	75	17	-8.3
Lithuania	160,446	5,752	2,232	80	60	35	-1.8
Switzerland	484,506	5,689	8,324	98	85	4	-5.3
Israel	495,063	5,573	3,689	42	60	35	-5.9
Armenia	162,288	5,498	2,931	99	42	77	-4.5
Croatia	220,223	5,385	4,403	108	47	63	-9
Qatar	146,068	5,251	246	9	62	30	-4.5
Serbia	361,782	5,182	3,610	52	39	91	-2.5

Netherlands	878,263	5,097	12,411	72	82	8	-5.4
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Table 3
Countries with greatest negative change in GDP

Country	Covid Cases	Covid cases.per 100K people	Deaths	Death per 100K people	CPI score 2019	CPI Rank	Real GDP growth annual percent change 2020
Portugal	489,293	4,759	7,925	77	62	30	-10
Oman	130,780	2,708	1,508	31	52	56	-10
India	10,466,595	774	151,160	11	41	80	-10.3
Italy	2,276,491	3,767	78,755	130	53	51	-10.6
Ecuador	221,070	1,294	14,177	83	38	93	-11
Argentina	1,722,217	3,871	44,495	100	45	66	-11.8
Kyrgyzstan	82,380	1,304	1,371	22	30	126	-12
Montenegro	52,431	8,425	725	116	45	66	-12
Iraq	603,739	1,571	12,906	34	20	162	-12.1
Spain	2,050,360	4,388	51,874	111	62	30	-12.8
Peru	1,026,180	3,208	38,049	119	36	101	-13.9
Lebanon	219,296	3,202	1,606	23	28	137	-25
Venezuela	116,610	404	1,061	4	16	173	-25
Libya	105,378	1,578	1,589	24	18	168	-66.7

Table 4
Countries with positive change in real GDP growth

Country	Covid Cases	Covid cases.per 100K people	Deaths	Death per 100K people	CPI score 2019	CPI Rank	Real GDP growth annual percent change 2020
Bangladesh	523,302	324	7,803	5	26	146	3.8
Egypt	149,792	152	8,197	8	35	106	3.5
Myanmar	131,186	244	2,858	5	29	130	2

Ethiopia	128,316	117	1,994	2	37	96	1.9
Mainland China	87,553	6	4,634	< 1	41	80	1.9
Kenya	98,334	191	1,713	3	28	137	1
Ghana	56,230	189	338	1	41	80	0.9
Uzbekistan	77,611	236	617	2	25	153	0.7
Nepal	265,268	944	1,927	7	34	113	0

