Measuring the Efficiency of COVID-19 Policies in the United Kingdom

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Abstract. The UK government has promulgated pandemic response policies since the beginning of COVID in the United Kingdom amid exponentially rising cases. Thus, this research assessed the efficiency of the UK government's pandemic response policies. This paper argues that the government's policies have not been as efficient as they could have been as the policies caused unemployment rates in the UK to rise immensely. We compared the number of COVID cases and the unemployment rates in the UK to the COVID policies by creating three graphs. We then compared all the graphs, and observed a pattern within two of the graphs, showing that higher stringency policies were insignificant to decreasing instantaneously the number of COVID cases. Using two of our graphs, it is clear that the UK government's dilatory promulgation of its pandemic response policies failed to address the rising number of COVID cases in the country. Additionally, major COVID policies such as the first lockdown caused a massive increment in the unemployment rates. We conclude that the COVID policies lacked the impact and efficiency they were supposed to due to the government's inability to announce the policy earlier.

Keywords: COVID-19, COVID Polices, Stringency, Unemployment Rates, UK Government

Introduction

At the end of January 2020, the United Kingdom faced COVID-19 – a large family of viruses causing respiratory infections, which can range from the common cold to more serious diseases. As a result of the spread of COVID-19 in the UK, there has been a total of 182,609 deaths, which have been recorded on death certificates (UK Government). Of course, there are many more deaths that have not been accounted for due to various factors. Additionally, the virus produced employment and economic decline; there has also been a rise in mental health issues across the United Kingdom. Hence, at the onset of the COVID-19 outbreak, the government decided to enforce significant policies hoping that these would mitigate the number of deaths and the number and number of cases.

For two years, various policies have been enforced in the UK, ranging from lockdowns and closure of businesses to simple restrictions such as social distancing measures. On the 20th of March, 2020, Boris Johnson announced the closure of leisure centres while on the 23rd of March, 2020, the Prime Minister declared the first lockdown. Evidently, new policies were promulgated in the span of a few days; even though only a few days apart, some new policies included considerable changes such as the first lockdown and second lockdown, respectively. As the number of UK COVID-19 cases increased, the stringency of the policies likewise increased. Additionally, during the COVID-19 crisis, the unemployment rate grew immensely, indicating a correlation between unemployment rates and COVID. Hence, knowing the policies are a direct repercussion to the number of COVID-19 cases, it is imperative to question the efficiency of the UK COVID-19 response policies in 2020 and if they have caused unemployment rates to increase.

Methodology

Initially, we hypothesised that the extreme COVID policies had more impact on the number of cases than the less stringent policies; however, to support this claim, we had to research data - taken from multiple sources - that included the number of cases on the same

day as the new policy in effect. First, we researched data that provided information, specifically on policies that aimed to lessen the number of UK COVID cases. Using *The Health Foundation's* website, we were able to find and examine those specific policies (Dunn et al.). After we collected our data on the policies, we then analysed the government's official coronavirus website and identified data representing the number of COVID cases per day - starting from the 31st of January 2020. We specifically used the number of COVID cases that correspond with the dates of when the policies were publicised. Afterward, we designed a graph to show the correlation between the cases and policies. For the x-axis, we numbered the months according to dates of the policies starting from the first major policy - March 2020 being the 1st month, to 20th of December 2020 being the 10th. Additionally, as there were some policies that were introduced in the same month, we created a system where every three days meant a 0.10 increase. For example, in the 1st month, March 2020, the 1st three days = 1.1, the next 3 days = 1.2, and so on. After we implemented this system into the x-axis, we set the y-axis to be the number of COVID cases. Aside from this graph, we created another graph to better understand the efficiency of the UK's COVD 19 policies through the use of the COVID stringency index.

As Figure 1 displays COVID policies in terms of months, the stringency graph includes data that represents a correlation between the policies in the stringency index and the number of COVID cases. The stringency index calculates the strictness of each COVID policy, ranging from 1 to 100 – 100 being the strictest. By analysing the stringency index provided by the University of Oxford, we were able to locate the corresponding stringency number by using the same dates as when the policies were established (Ritchie et al., 2020). We were then able to construct a graph as we already had the number of COVID cases as shown from Figure 1. In the X-axis of Figure 2, we used numbers from the stringency index. Furthermore, for the Y-axis, we, again, used the number of COVID cases. As shown in Figure 1 and Figure 2, we compiled data that represented the effects on the number of COVID-19 cases. On the other hand, Figure 3 displays how COVID policies have had a direct impact on the unemployment rates.

In Figure 3, we designed a graph that compared the stringency index to the unemployment rates per month in the period of 10 months. First, through the information given by *statista*, we were able to locate the necessary data to graph Figure 3 (Clark). We used specific unemployment rates in the United Kingdom that was during the same month as the policies/stringency we were using in our two previous graphs. Furthermore, we used the X-axis to provide the numbers from the stringency index, and then used the Y-axis to provide the unemployment rates; each unemployment rate was compared to a single number from the stringency index depending on the month. As a result, through Figure 3, as well as, Figure 1 and Figure 2, we were able to see patterns similar to each other.

Figure 2 and Figure 3 coordinates are not in order along with their tables. For example, the first column in the table does not correspond with the first coordinate in the graph. In both of the Figures, the x-axis is the stringency numbers of the major policies. The stringency numbers do not only increase, or only decrease throughout the months, but instead, there is fluctuation. Consequently, the coordinates will not correspond directly with the 1st, or even the 2nd column. Thus, for Figure 2 and Figure 3, we will need to look at the coordinates written in the specific column and then directly find them on the graphs.

Figure 1

UK's COVID-19 Policies	Month (2020-2020	Number of COVID-19 cases in UK
20th of March: All cafes, pubs, bars, clubs, restaurants, gyms, leisure centres, nightclubs, theatres and schools must close tonight	1.6	714.0
23rd of March: Lockdown starts meaning non-essential stores closed, Stay-at-home order	1.8	967.0
13th of May: First step of easing out of first lockdown by allowing anyone who can't work at home can go to office, unlimited outdoor exercise, allowed to meet with one person max	3.3	3557.4
1st of June: Second step of easing out of lockdown by reopening schools for children up till year 6, car showrooms and outdoor markets reopen, groups up to 6 can meet outside	4.1	1905.0
15th of June: Third step of easing out of lockdown by reopening shops selling non-essential goods, outdoor attractions, and secondary schools begging to offer face-to face support	4.5	1306.9
4th of July: Fourth step of easing out of lockdown by reopening restaurants, pubs, leisure facilities (not including indoor gyms) and weddings with up to 30 guests	5.2	573.3
25th of July: Indoor gyms, swimming pools and sports facilities are allowed to reopen	5.8	696.6
1st of August: Indoor performances, sporting events, and wedding receptions of up to 30 people no longer permitted	6.1	794.6
15th of August: Establishments within sports, leisure and business reopen, so do wedding receptions (up to 30 guests) and sport events	6.5	1071.0
1st of September: Schools and colleges across England start to open. Government provide 40m to local authorities to increase home to school transport and ease pressure on public transport	7.1	1529.0
5th of November: 2nd lockdown starts as non-essential stores and leisures facilities close. People still allowed to meet for work and legal obligations	9.1	22443.0
20th of December: new tier 4 alert announcing to stay at home, and all stores will close	10.6	34395.0

Figure 2

UK's COVID-19 Policies	COVID-19 Stringency Index	Number of COVID-19 cases in UK
20th of March: All cafes, pubs, bars, clubs, restaurants, gyms, leisure centres, nightclubs, theatres and schools must close tonight	37.0	714.0
23rd of March: Lockdown starts meaning non-essential stores closed, Stay-at-home order	79.6	967.0
13th of May: First step of easing out of first lockdown by allowing anyone who can't work at home can go to office, unlimited outdoor exercise, allowed to meet with one person max	71.3	3557.4
1st of June: Second step of easing out of lockdown by reopening schools for children up till year 6, car showrooms and outdoor markets	67.6	1905.0
15th of June: Third step of easing out of lockdown by reopening shops selling non-essential goods, outdoor attractions, and secondary schools begging to offer face-to face support	71.3	1306.9
4th of July: Fourth step of easing out of lockdown by reopening restaurants, pubs, leisure facilities (not including indoor gyms) and weddings with up to 30 guests	69.9	573.3
25th of July: Indoor gyms, swimming pools and sports facilities are allowed to reopen	64.4	696.6
1st of August: Indoor performances, sporting events, and wedding receptions of up to 30 people no longer permitted	69.9	794.6
15th of August: Establishments within sports, leisure and business reopen, so do wedding receptions (up to 30 guests) and sport events	66.2	1071.0
1st of September: Schools and colleges across England start to open. Government provide 40m to local authorities to increase home to school transport and ease pressure on public transport	64.4	1529.0
5th of November: 2nd lockdown starts as non-essential stores and leisures facilities close. People still allowed to meet for work and legal obligations	75.0	22443.0
20th of December: new tier 4 alert announcing to stay at home, and all stores will close	76.9	34395.0

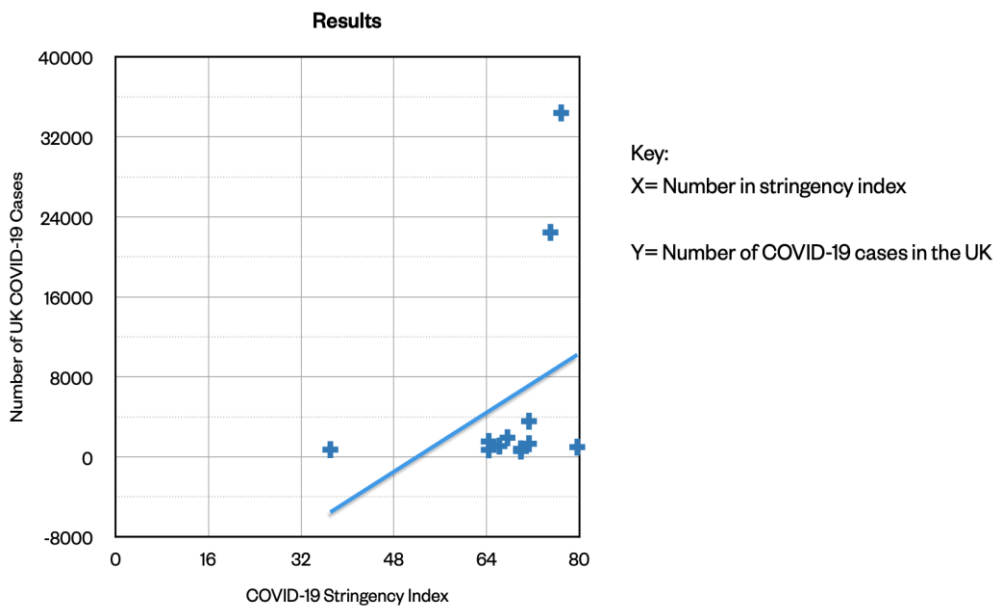
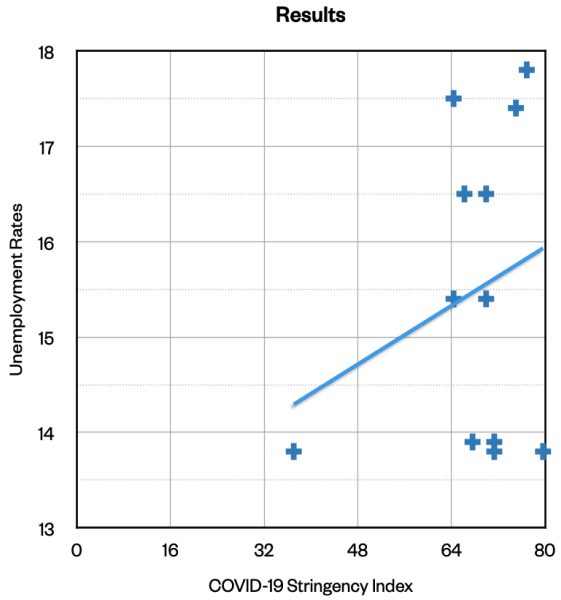


Figure 3

UK's COVID-19 Policies	COVID-19 Stringency Index	Unemployment rates
20th of March: All cafes, pubs, bars, clubs, restaurants, gyms, leisure centres, nightclubs, theatres and schools must close tonight	37.0	13.8
23rd of March: Lockdown starts meaning non-essential stores closed, Stay-at-home order	79.6	13.8
13th of May: First step of easing out of first lockdown by allowing anyone who can't work at home can go to office, unlimited outdoor exercise, allowed to meet with one person max	71.3	13.8
1st of June: Second step of easing out of lockdown by reopening schools for children up till year 6, car showrooms and outdoor markets reopen, groups up to 6 can meet outside	67.6	13.9
15th of June: Third step of easing out of lockdown by reopening shops selling non-essential goods, outdoor attractions, and secondary schools begging to offer face-to face support	71.3	13.9
4th of July: Fourth step of easing out of lockdown by reopening restaurants, pubs, leisure facilities (not including indoor gyms) and weddings with up to 30 guests	69.9	15.4
25th of July: Indoor gyms, swimming pools and sports facilities are allowed to reopen	64.4	15.4
1st of August: Indoor performances, sporting events, and wedding receptions of up to 30 people no longer permitted	69.9	16.5
15th of August: Establishments within sports, leisure and business reopen, so do wedding receptions (up to 30 guests) and sport events	66.2	16.5
1st of September: Schools and colleges across England start to open. Government provide 40m to local authorities to increase home to school transport and ease pressure on public transport	64.4	17.5
5th of November: 2nd lockdown starts as non-essential stores and leisures facilities close. People still allowed to meet for work and legal obligations	75.0	17.4
20th of December: new tier 4 alert announcing to stay at home, and all stores will close	76.9	17.8



Key:
X= Number in stringency index

Y= Number of COVID-19 cases in the UK

Results

Figure 1 exhibits minimal effect on the number of COVID-19 cases resulting from the UK policies; instead, it is evident that policies were promulgated too late. Throughout the graph, major COVID policies such as the first lockdown have failed to instantly impact the number of cases; instead, cases continue to arise when these policies are in effect. For instance, the third coordinate represents the 28th of March, where there are 967 COVID-19 cases. On this day, the first lockdown in the UK began during which everyone was ordered to stay at home. The next coordinate represents the 13th of May, where there are 3557.4 COVID-19 cases. On this day, the first lockdown began to ease, allowing people to go to work, unlimited outdoor exercise, and to be able to meet one person outdoors. This data highlights how the government possibly unreasonably took time to institute timely policy. Therefore, the policy was less efficient than it could have been. Additionally, if the government instituted a timely response, the 13th of May would have fewer cases as the virus would have spread less. This issue of dilatory pandemic response policy can also be seen through the 9th, 10th, and 11th coordinates. During the 9th and 10th coordinates, leisure centres reopened, followed by schools/colleges. However, during this period, the COVID cases increased immensely. The 9th coordinate represented 1071 cases, and the 10th coordinate represented 1529 cases. Two months later, as seen on the 11th coordinate, the second lockdown was promulgated. On that day, there were 22443 cases. This immense rise in the number of cases was a result of the failure to announce the second lockdown during the period of the 9th and 10th coordinate - where there was already an obvious rise occurring - and instead elongating the time to institute the COVID policy. Ultimately, Figure 1 represents a clear picture of how a few major policies were established too late, resulting in the negative correlation of number of cases surprisingly increasing.

Figure 2 shares a pattern with Figure 1 as the higher stringency numbers are evidently proven to be insignificant to decreasing the number of COVID cases instantaneously. In Figure 2, a high stringency number, 79.6, does not immediately cause cases to decrease. Instead, cases are still increasing afterward, as shown in the later data. Furthermore, the second coordinate includes a stringency of 79.6, which represents when the lockdown policy was established. The third coordinate includes a stringency of 71.3, representing when the first lockdown began to ease. Surprisingly, the third coordinate had more cases than the second coordinate. Evidently, this demonstrates how some of the policies with a higher stringency did not have an instant effect on the number of cases as in this case, two months later cases were much higher.

Figure 3 presents stringency numbers compared to UK unemployment rates. In the data, there was a rise in the unemployment rates starting from the first lockdown, which is represented in the coordinates 79.6,13,8. Furthermore, the data highlights how the first lockdown had an immense impact on the overall long-term future of the UK's unemployment rates, as seen through the next ten coordinates which lead to the 20th of December. Additionally, between the period of ten months, there was a significant rise in unemployment rates as in March it was 13.8%, and in December it was 17.8%. Furthermore, In the graph, the increase in unemployment rates throughout the period of 10 months, was partially caused by many local businesses shutting down as due to COVID, they did not have enough money to pay workers. Even though Figure 3 did not have a pattern, it showed a clear indication of how much to an extent the first lockdown had on unemployment rates.

Conclusion

Figure 1, Figure 2, and Figure 3 have each presented, through the use of looking at the months and stringency numbers, how COVID policies have had an impact on the number of COVID cases, and unemployment rates. For instance, Figure 1 presented extreme COVID policies – seen as months on the x-axis – compared to the number of cases. Similarly, Figure 2

focused on the same COVID policies, but as stringency numbers, compared to the number of cases. On the other hand, Figure 3 displayed how policies affected unemployment rates. Unlike Figure 1 and 2, Figure 3 did not exhibit any clear patterns but instead revealed how the first lockdown had a detrimental effect on the unemployment rates, as unemployment rates drastically increased in the span of the ten months on the graph. Ultimately, as seen through various data, the COVID policies lacked the impact and efficiency they were supposed to due to the government's inability to the late promulgations of policies.

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