R Project Overview

Team 5 (20130358 신자환, 20190495 이정호, 20180380 양찬열)

1. Project objectives

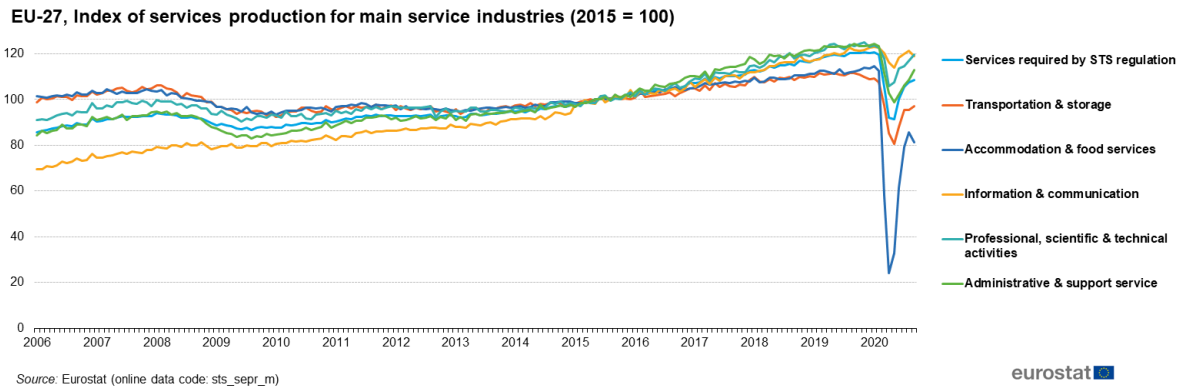

Figure 1. Impact of COVID-19 crisis on service industry (EU)

The spread of COVID-19 has led to rapid changes in all areas, including living, consumption patterns, and the economy. In the case of individuals, unemployment, falling income, and fear of going out affected consumption patterns and economic activities. In the case of corporations and industrial companies, they suffer lack of resources, delayed import/export goods, and reduced customers. In the case of countries, various policies such as masks, lockdown, and inspecting COVID-19 were decided to prevent the spread of Corona, which greatly affected individuals' lives.

According to the graph "Impact of COVID-19 crisis on service industry (EU)", a remarkable decline in service production is shown. And recently, service production has tended to recover due to the individual's adaptation of the COVID-19 situation and vaccine development. Our goal is aimed at analyzing and correlating how many individual and national policy factors have affected various economic indicators, such as consumer trends and GDP to find out the impact of COVID-19 .

2. Analysis Plan

The biggest factor in analyzing the economic impact of COVID-19 in each country is expected to be the choice of COVID-19 policy. Therefore, we will identify COVID-19 related policies in each country and classify countries according to which policies are implemented. Afterward, we will analyze the relationship between the implementation of each policy and the number of patients that occurred to compare the effectiveness of the corona response policy, and derive its impact on various economic indicators such as changes in consumer sentiment and total sales in the service industry.

3. Data to be analyzed

3.1. COVID-19 data

<Raw data of COVID-19 policy>
https://raw.githubusercontent.com/OxCGRT/covid-policy-tracker/master/data/OxCGRT_latest.csv

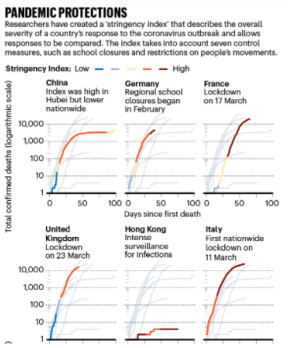

Figure 1. Correlation between policies and number of patients in each country

<Policy responses to the coronavirus pandemic by country>
https://ourworldindata.org/policy-responses-covid

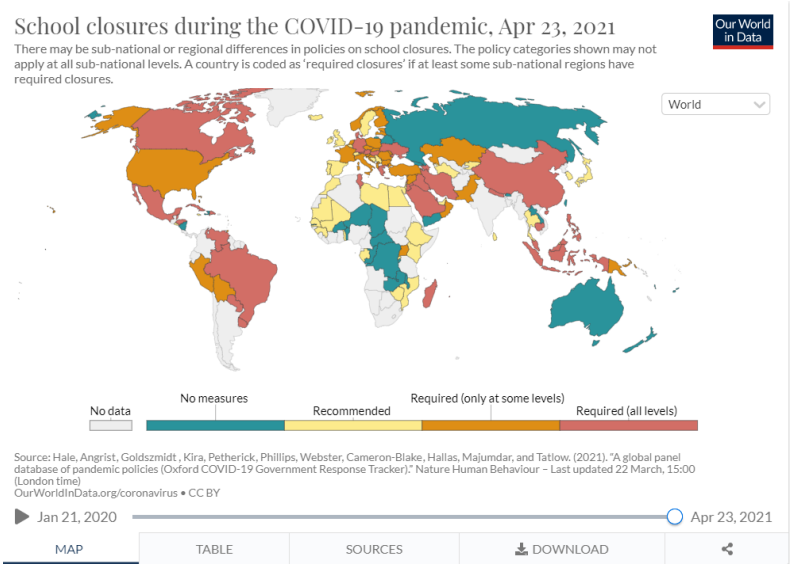

Figure 2. Examples of statistics related to School closure

3.2. Economy data

<OECD economy data> (link is for CCI)
https://data.oecd.org/leadind/consumer-confidence-index-cci.htm#indicator-chart

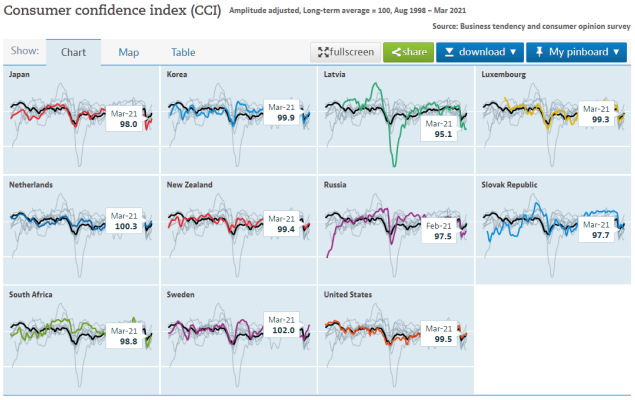

Figure 3. Consumer Confidence Index 예시

<Economic Aspects for Each country> (link is for China CCI)
https://tradingeconomics.com/china/consumer-confidence

3.3. Additional Data

<OECD total GDP>
https://fred.stlouisfed.org/series/USALORSGPNOSTSAM

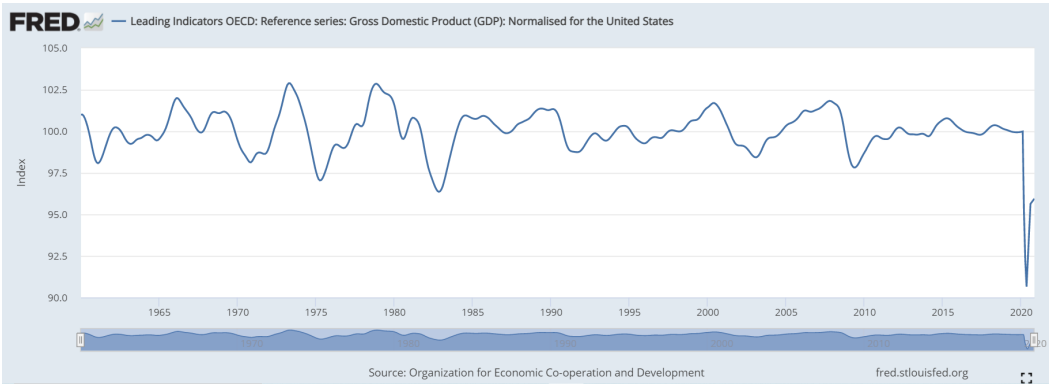

Figure 4. OECD GDP data

<Corona measures in each state in the U.S.>
https://github.com/OxCGRT/USA-covid-polic

<South Korea service industry data>
https://kosis.kr/statHtml/statHtml.do?orgId=101&tblId=DT_1KS2015&vw_cd=MT_TM2_TITLE&list_id=B80_04_002&scrId=&seqNo=&lang_mode=ko&obj_var_id=&itm_id=&conn_path=MT_TM2_TITLE&path=%252FeasyViewStatis%252FcustomStatisIndex.do

<England service industry data>

https://www.ons.gov.uk/economy/economicoutputandproductivity/output/datasets/indexofservices

<EU service industry data>

https://ec.europa.eu/eurostat/databrowser/view/sts_setu_m/default/table?lang=en

3. Anticipated Problems

The factors that may be problematic in future analysis can be divided into two main categories: problems in data collection and tidying, and problems in data analysis.

First of all, in data collection and tidying, we expect problems such as data that are hard to modify (non-csv/txt/xlsx data, only chart data that we need to write in hand, big size data, and etc), and the difference of data between countries (If some country has data A and some country doesn't, we can't use it.), mismatch of data collection period (Economy: annually, quarterly... COVID-19: daily) etc.

Next, the biggest problem in the data analysis process is that it is difficult to exclude the effects of non-COVID-19 factors, which may distort the correlation between the economy and COVID-19-related factors. In addition, the countries we will analyze will be limited to countries that we can collect data without any problems mentioned above(data collection and tidying). Therefore there is a possibility of sample bias.

4. Schedule and role distribution

Every weekend, we will decide what work to do that week, and we will distribute the work to each person and collect it next weekend to produce results. Therefore, the exact schedule is likely to change depending on the results of each week's analysis, but the tentative plan is as follows:

Period	To Do	Remark
Week 09	Project overview	Project Overview
Week 10	Choose which data and countries to analyze	
Week 11	Tidy chosen data	
Week 12	Tidy & analyze chosen data	
Week 13	Team meeting preparation	Team meeting
Week 14	Final analyze	
Week 15	Document & presentation	Project Document