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# **Covid project – Epidemiology**

**data integration from social networks,  
environment and economic sources with  
the outbreak statistics**



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# Introduction

In any crisis, managers have two equally important roles: to solve urgent problems and prevent them from happening again. The Covid-19 pandemic is one such example. We now need to save lives while improving the overall response to the epidemic. The case is more urgent, but the second case has key long-term consequences. The long-term challenge of improving our ability to respond to the epidemic is not new. However, in order to resolve the long-term challenge, we must be clear: how can we understand the development of the outbreak and its consequences from different sources ? Accordingly, we are able to make clear in three parts, the first part will be about society, due to the fact viruses reason sickness in humans, and every individual is a bimolecular of society, while cells are weakened, society is the area in which the sickness is expressed. Part two is the surroundings, while society has been at once stricken by the pandemic, the surroundings may have properly or awful effects, they'll be clarified through precise statistics in order that we will see the consequences. from the pandemic. The third part is likewise the ultimate element: affecting the economic system, we positioned the financial trouble on the quit due to the fact while the economic system is stricken by the pandemic, it will gradual down the drug studies process, restoration in addition to the recuperation of society after the pandemic.

# Social

First of all, we can notice that the coronavirus has impacted every human being on a social side.

## Workers

In terms of employment, youth are disproportionately unemployed, and those who are employed often work on precarious contracts or in the service sectors of the economy, that are likely to be severely affected by covid outbreak. According to press data, such as Arte, it is hard for precarious workers to face the outbreak. For instance, the cleaning staff of unessential companies could lose their jobs. "In my work I come into contact with people. There is a big concentration of people.

And with what's going on right now, they want to avoid people coming together. I'm going to lose everything. I live from day to day on my pay-check," says Mamadou Cherif, a New York cleaner. This fear is also expressed in social networks. Based on official data such as the World Health organisation, nearly half of the world's 3.3 billion global workers are at risk of losing their jobs. Informal economy workers are particularly vulnerable because the majority lack social protection and access to quality health

care. As they lose their livelihood, they do not earn any income during lockdown which means no food, or, at best, less food to feed themselves and their families. In addition, millions of agricultural workers, especially migrant agricultural workers, regularly face high levels of working poverty, malnutrition and poor health. With low and irregular incomes and a lack of social support, many of them are still working, thus exposing themselves and their families to additional risks.

## Education

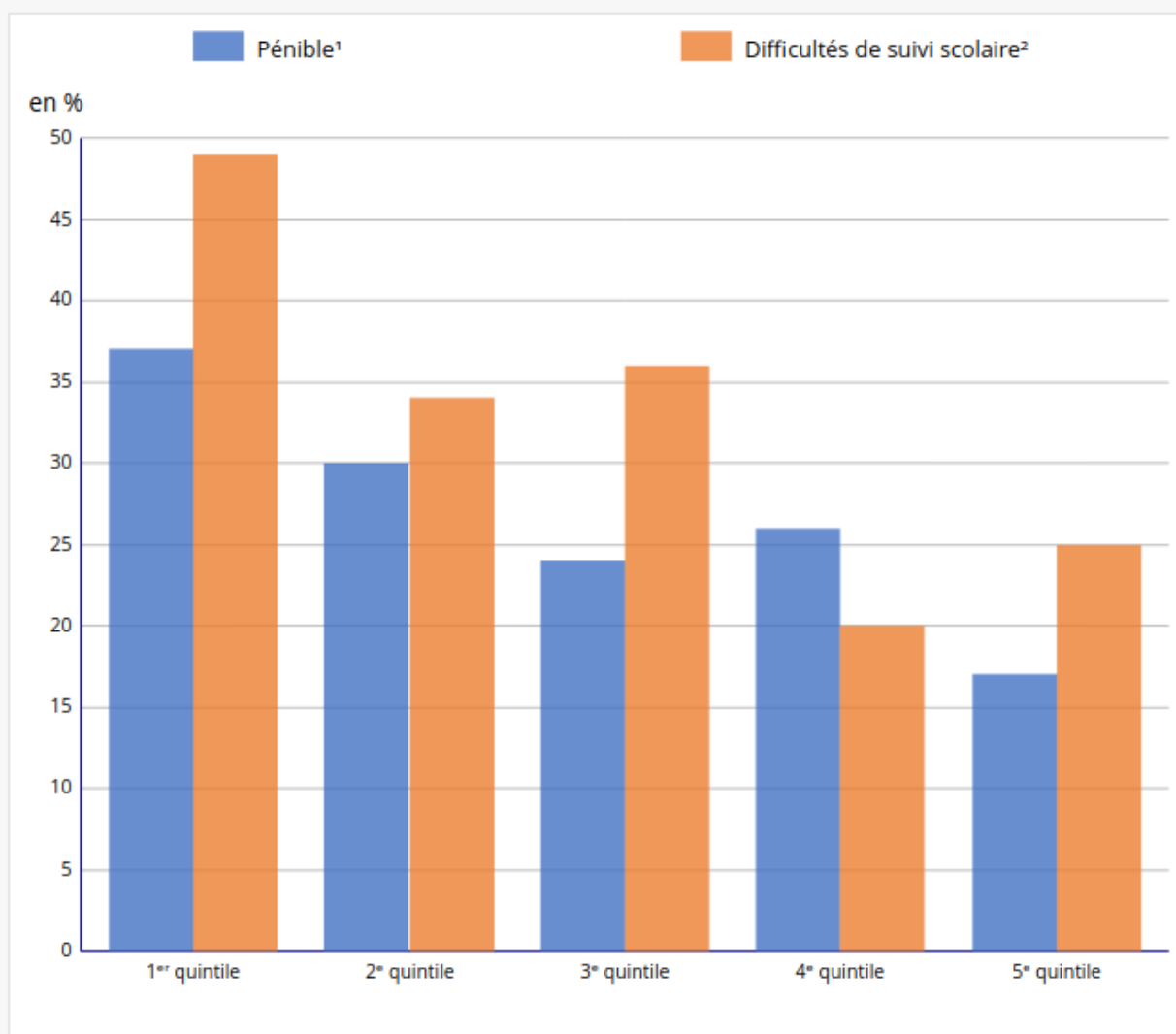
The closure of schools and universities have led to a breakdown in learning for a lot of students. Many of them, more than one billion, have still not returned to school according to a study by UNESCO, UNICEF and the World Bank. The disruption in learning could have long-term consequences on the quality of education, despite the efforts made by teachers to cope with the unprecedented

circumstances. The consequences are particularly dramatic for girls. Indeed, they are faced to issues such as increased violence or early pregnancies.

According to a chart from INSEE (National Institute for Statistics and Economic Studies), as students were used to studying on campus, they had grown accustomed to the online class. They must face many

difficulties. Indeed, students do not have the same study environment as in class. They have to study alone and cannot communicate as well as in class. This arduousness is even more pronounced for children from low-income families. Indeed, this may be due to the lack of digital means to follow the online courses or to the noise at home.

**Figure 3 - Perception du confinement comme pénible et difficultés de suivi scolaire selon le niveau de vie**



1. Note supérieure ou égale à 7 à la question « À quel point la période de confinement vous a paru pénible (sur une échelle de 0, pas du tout pénible, à 10, extrêmement pénible) ? ».

2. Parmi les ménages ayant des enfants de 14 ans ou moins.

Champ : France métropolitaine, personnes de 15 ans ou plus.

Source : Insee, enquête Camme, mai 2020.

As we can see in testimonials from students at the Paris-East Créteil University, some of the students tell that :

- “The stress is building up [], not seeing anyone and having classes at home is very complicated psychologically.”

- “The isolation due to the lockdown weakens my mental health, which is already quite unstable. I fell back into depression, started having insomnia again and had migraines.”

- “I can't concentrate for long at home, there is a lot of noise.

It's very hard, especially with many family losses due to the virus.”

- “Constant pressure at home, noisy neighbours and children at all hours.”

We can also notice these social effects on youth in some unofficial data such as Twitter.

## Poverty

The economic crisis caused by the Covid-19 pandemic could lead 420 million people, mostly from sub-Saharan Africa and South Asia, into absolute poverty. The loss of income due to the loss of activity imposed by new measures poses a risk to people's livelihoods. In addition to the loss of income due to the loss of activity, there is the cost of health care. The United Nations estimates that health care costs lead 100 million people into poverty every year.

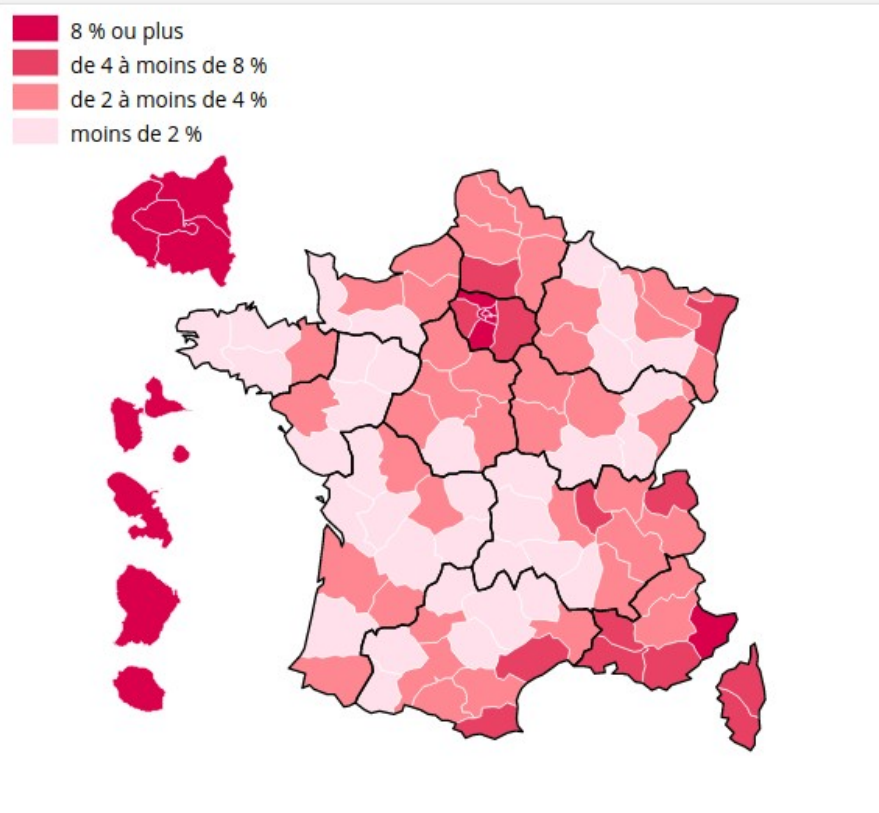
Many vulnerable persons, such as migrants or

homeless, are in precarious situations. It was already difficult for them to find some help and the coronavirus has increased this difficulty. They are in a situation without even their minimum requirements being met on health, education or employment so they are the most exposed to infections or chronic diseases. Besides, they have difficulty accessing resources such as hydro-alcohol gel or masks. "We are the most likely to contract or spread the virus," says Alfonso Seville, a homeless man. Moreover, many associations that used to help the homeless

have been closed because of the pandemic, which worsens the situation.

Another point is that, as we can see in this chart from the National Institute for Statistics and Economic Studies in France, poverty can be seen in over-occupation of homes. Indeed, as we can see in this map, some French regions, such as Ile-de-France, have a significant share of over-occupied homes. This leads to a higher transmission of the virus as well as a more painful experience of lockdown.

Figure 1 - Part des résidences principales suroccupées



Note de lecture : dans les Alpes-Maritimes, 11,7 % des résidences principales (hors studio de 1 personne) sont suroccupées.

Champ : France hors Mayotte, résidences principales hors studio de une personne.

Source : Insee, recensement de la population 2016, exploitation complémentaire.

## Food insecurities

Globally, it is estimated that the coronavirus crisis may increase the number of undernourished people by 130 million. In a July 2020 official report, WFP and the United Nations Food and Agriculture

Agency identified 29 countries, most of them in Africa, at high risk of worsening food insecurity. The most significant food crisis is reported in the Democratic Republic of Congo, with 21.8

million food insecure people, including 5.7 million on the verge of famine. The situation is also particularly worrying in countries such as Sudan, Nigeria, Somalia or Burkina Faso.

## Older persons

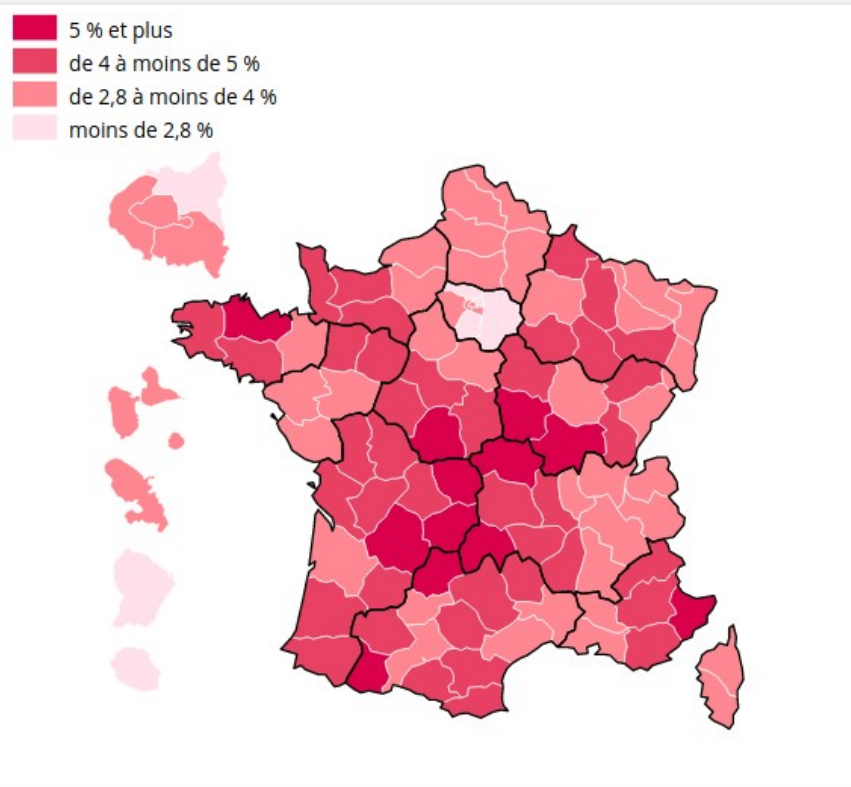
In addition to facing greater health risks, older persons are also likely to be less able to support themselves in isolation. Although social distancing is necessary to reduce the spread of the disease, these measures can

also lead to increased social isolation of older people at a time when they may need support the most.

Further, we can see on this chart, which is from an official statistical organisation, the proportion of people who

are more than 75 years old living alone. We can see these proportions are highest in regions in the centre or in the east of France. Therefore, we conclude that it is there that we can see the most cases of social isolation.

Figure 5 – Part, dans la population, des personnes de 75 ans ou plus vivant seules



Note de lecture : dans la Nièvre, 5,9 % de la population a 75 ans ou plus et vit seule.

Champ : France hors Mayotte, Guadeloupe et Guyane, population des 75 ans ou plus vivant seuls.

Source : Insee, recensement de la population 2016, exploitation principale.

## Persons with disabilities

General individual self-care and other preventive measures against the coronavirus pandemic can challenge people with disabilities. For instance, it may be difficult for persons with disabilities to implement

measures to keep the virus, including personal hygiene and frequent cleaning of surfaces. Official data such as the World Health Care organization tells us that washing hands frequently and cleaning homes can be hard

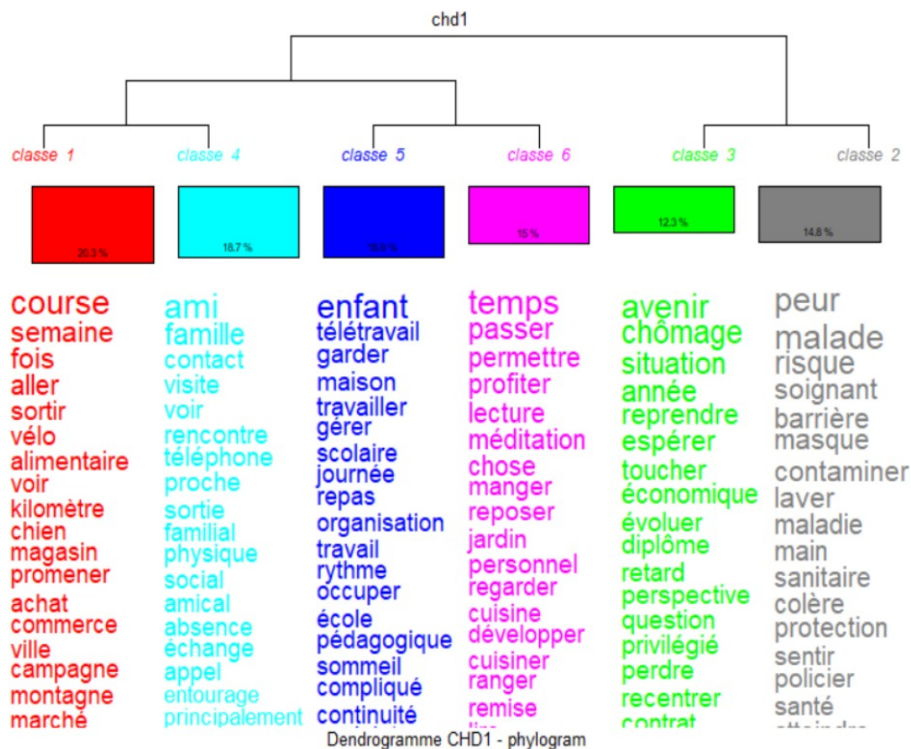
for persons with disabilities, due to physical impairments or interrupted services. Others may not be able to practice social distancing because they require regular help and support from other people for everyday tasks.

## To sum up the social impact of the pandemic

EPIDEMIC, which is a research programme of the Institut Fédératif d'Etudes et de Recherches Interdisciplinaires Santé Société, has done a survey in France from 17 March to 11 May 2020 composed of 4689 people. They had to answer the following question: "how has lockdown changed daily life?". 20.3% of people (class 1) refer to the difficult organisation of

daily life (shopping, household chores) 18.7% of people (class 4) refer to the difficult experience of breaking social ties. 18.9% of people (class 5) think of the mental burden that this situation of lockdown between the organisation of working time at home and the management of school at home can represent. 15% of people (class 6) experienced the lockdown

positively because they had time for themselves. 12.3% of people (class 3) are worried about the future and the economic consequences of the crisis. 14.8% of people (class 2) were afraid of infecting others and did not understand the sanitary measures taken. In this way, we can see the pandemic from all angles and therefore have a comprehensive view of it.





# Environmental

Secondly, we can notice that the coronavirus has impacted the environment.

## Positive points

On one hand, we can see that the virus has had positive impacts on the environment.

### Air quality

First of all, official data, such as data from governments or organisations, and press data suggest that one of the impacts of lockdown was a betterment in air quality. In France, lockdown has led to a clear improvement in air quality, both in urban and rural areas. For instance, the Ile-de-France's traffic was reduced by 90%, with a direct improvement in air quality of between 20 and 30%. On a global scale, a study published

in Nature Climate Change notices that the outbreak led to a 9% drop in CO2 emissions. In several major Chinese cities, Nasa scientists have observed that the concentration of nitrogen dioxide, one of the most common pollutants, has decreased by 30-50% compared to 2019. Pollution and the greenhouse effect have been drastically reduced in many areas in the world. Indeed, restrictions on

economic activity, land, sea and air traffic, as well as the closure of industries, have led to a surprising decrease in environmental pollution and greenhouse gas emissions. According to experts, the epidemic has paradoxically saved more lives than the deaths it has caused. The improvement of air quality is also perceived by people as we can see in social media such as Twitter.

### Species free

Finally, lockdown has also had the effect of allowing many species to move more freely in their environment.

Thanks to it, wild animals have been observed several times in some regions: a puma in Santiago, a wild boar in the

streets of Barcelona, a civet cat in India, dolphins in Venice, or shearwaters, herons and gannets in Marseilles.

However, these positive impacts were only short-term. As various activities resume to normal levels, these positive environmental effects begin to disappear.

## Negative points

Unfortunately, the outbreak has led to longer-term environmental issues.

### Internet issues

One of the first issues is the dramatic increase in internet use. Official data, such as Telecom Italia, says

that in France or in Italy, for instance, Internet traffic increased by more than 50% following the closure of schools and the first days of

the lockdown. As the internet is energy and server intensive, this increase has led to an increase in CO2 emissions from the digital sector.

## Plastic issues

Another consequence of this health crisis is the increase in bad practices around the end of life of disposable protective masks. Indeed, according to some organisations, more and more masks or gloves are being thrown away so they are ending up in places where they must not be. They can easily be found on pavements, wild habitats, beaches and seas. This phenomenon is also

perceived by some people as we can see in social media such as Twitter. NGOs such as Plastic@Sea have done research and were able to conclude that, among the waste found in nine European rivers chosen for the study, one in nine was a mask or glove.

In addition, the pandemic has increased the use of single-use plastic. As shown by an expert, many

grocery stores are not allowing customers to bring their reusable bags and are delivering products in single use plastic bags instead. In restaurants there is an increase in the frequency of online ordering of food which increases the use of plastics as well. This is not good news because plastic's degradation time is known to be 400 years.

## Environmental issues forgotten

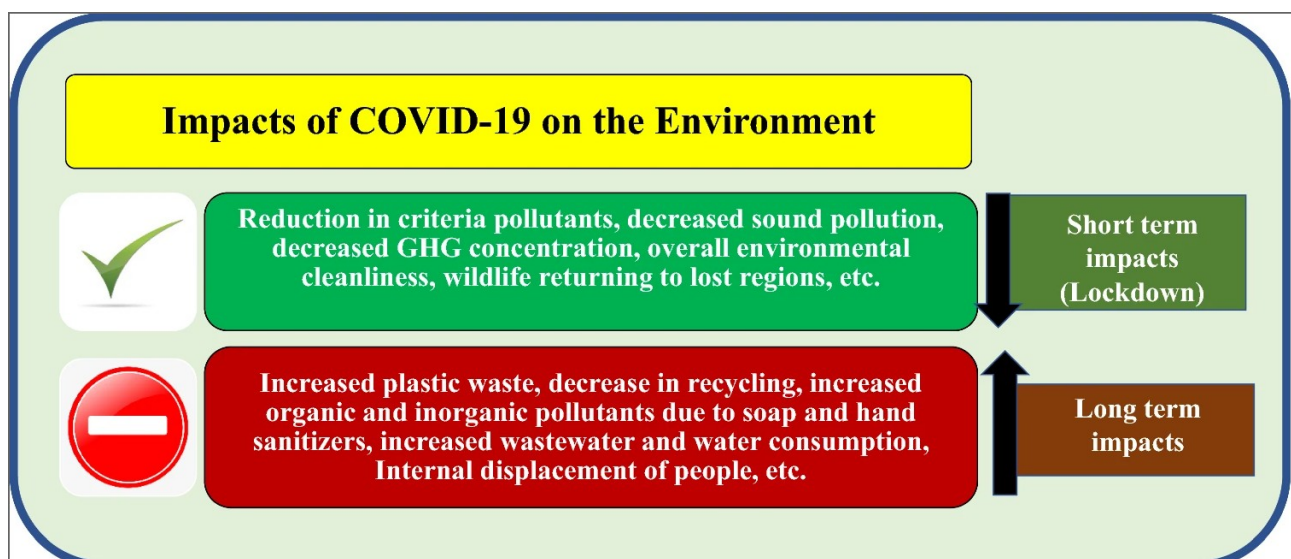
Another problematic aspect, and probably the most critical one, is that environmental issues have been forgotten from the news. Indeed, the news was entirely devoted to the outbreak. Thus,

short-term issues have taken precedence over longer-term issues such as climate imbalance.

The main consequence of the global crisis caused by the outbreak is that other debates,

including the climate emergency, are taking a back seat. The pandemic is temporary, but climate imbalance remains a serious problem for our planet in the centuries to come.

To sum all these positive and negative impacts, here is a diagram.



# Economic

Finally, we can notice that the coronavirus has impacted the world from an economic point of view. The infection has not only become a public health crisis but has also affected the global economy. There have already been, and will continue to be, severe economic consequences because of the outbreak.

## Global economy

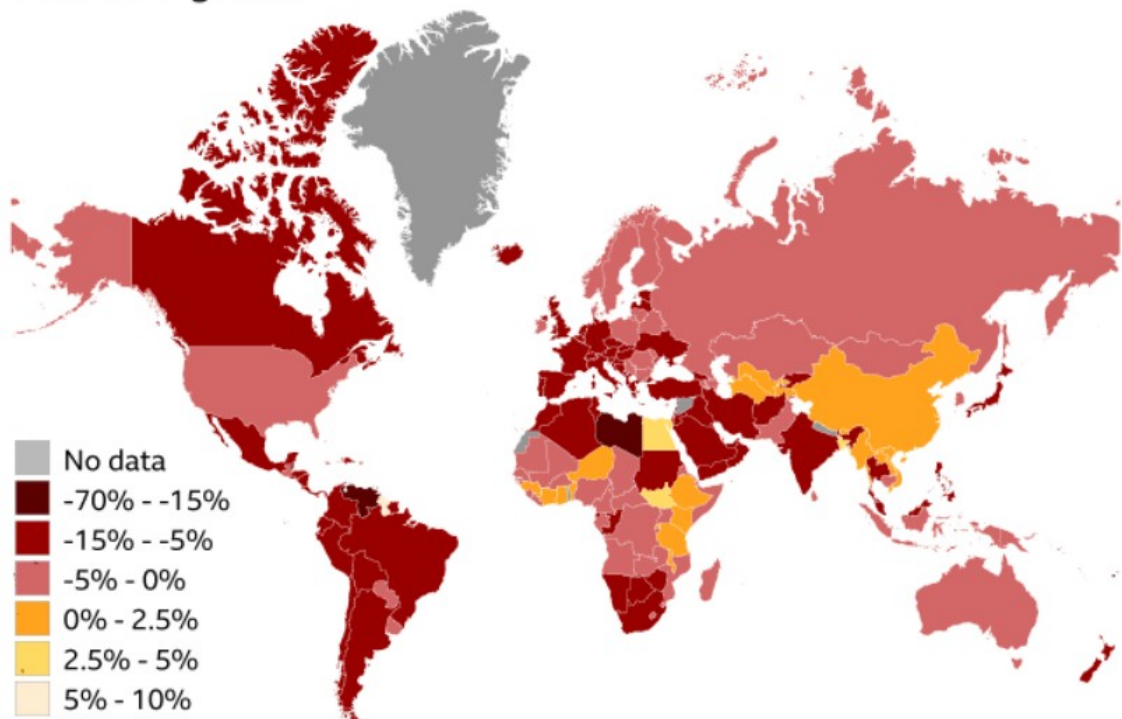
The covid pandemic has induced direct influences on income because of premature deaths, workplace absenteeism, and reduction in productivity. As they are dependent on foreign companies, some companies are forced to be on lay-off. Several sectors (aerospace, automotive, textile) are

affected. For instance, in China, the manufacturing index in February declined by more than 54% from the previous month's value. The IMF estimates that the worldwide economic system will shrink by 4.4% in 2020. The organisation described the decline as the worst since the Great Depression of the 1930s.

As we can see in this graph from the BBC, the only major economy to grow in 2020 was China. It registered a growth of 2.3%. Recovery in big economies that have been hit hard by the outbreak, such as the UK or Italy, is expected to be slow.

## Majority of countries in recession

Real GDP growth



Source: International Monetary Fund

BBC

## Stock markets

Global stock markets were heavily impacted by the effects of coronavirus disease spread. As the numbers of instances began to grow globally, the sector monetary and oil markets drastically

declined. Since the beginning of the year, main U.S. and European inventory marketplace indices have misplaced a quarter of their value value, with oil charges declining by more than 65% as

of April 24, 2020. If lower than predicted oil charges continue, many oil-structured economies may contract following discounts in change and investment.

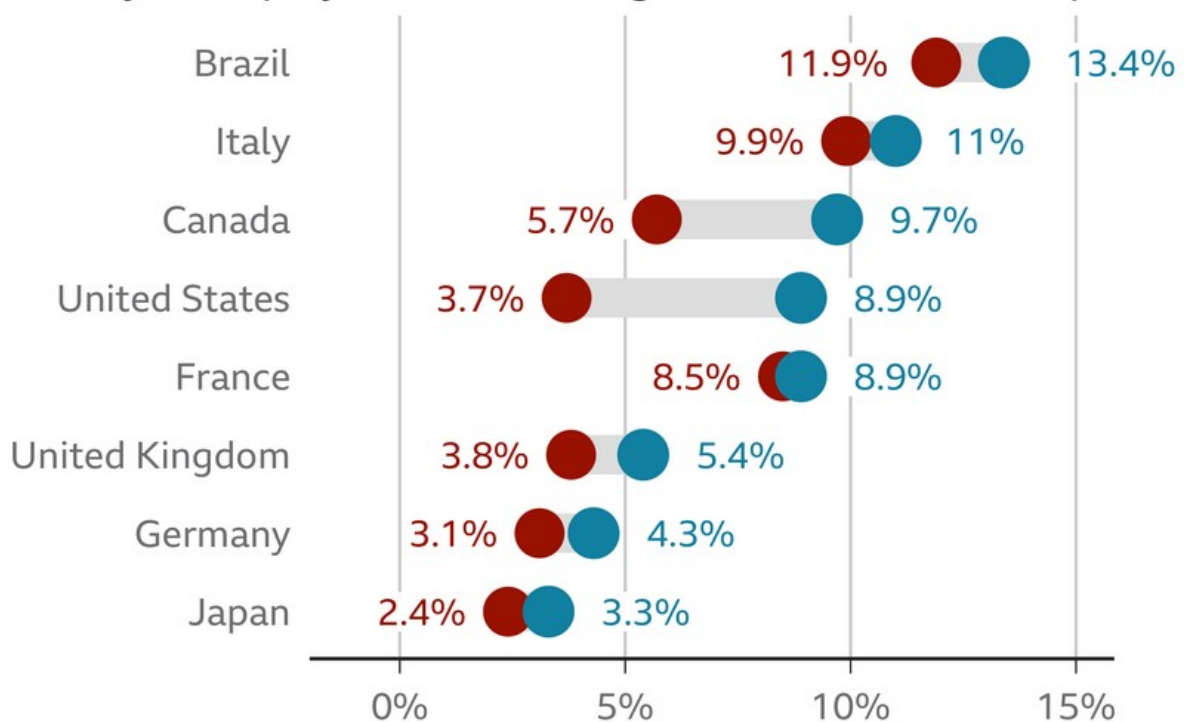
## Increasing unemployment rate

Because of the economic crisis due to the coronavirus, levels of employment have fallen sharply. Businesses are closed in many countries. Many human beings have been ordered to stay at home to keep away from contracting and spreading the disease.

Those who have remained at work, despite the risk of exposure, are considered essential. We can see in the cart below that in some countries, such as Japan, the unemployment rate has not increased so much despite the crisis. However, in other countries, such as the United

States, the unemployment rate has almost tripled. Unfortunately, the number of new job opportunities is still very low in many countries. Millions of workers have also been put on government-supported job retention schemes.

Yearly unemployment rate change, 2019 and 2020 compared



Source: International Monetary Fund

BBC

## People on lower incomes are more affected by the virus

Press data says there are income gradients, as well as gradients in access to care in several countries, between persons in chronic conditions and those without. In addition, despite universal publicly

financed health insurance, income gradients in access to care remain. It stands to reason then that if those with lower incomes are more likely to have multiple chronic diseases and those with multiple

chronic conditions are more likely to experience severe responses to coronavirus, then low-income people are going to be hit harder by the virus.

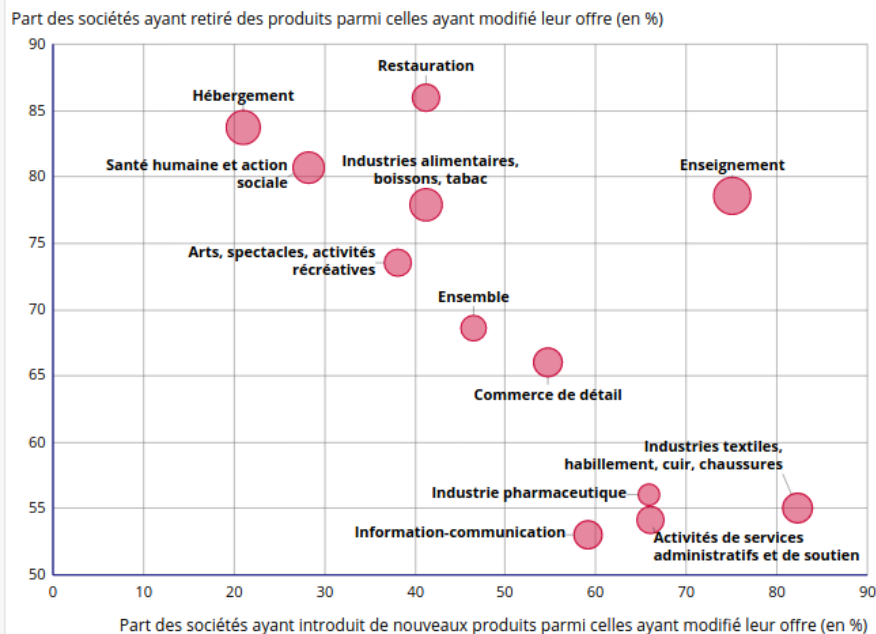
## Various sectors affected

Restaurants, travel and transportation are among the sectors that are the worst affected by lockdown measures. To cope with the epidemic, many sectors have had to find alternatives in their offerings. As we can see from

the INSEE graph, some sectors have had to remove products from their offer while others have had to add products. For example, the catering industry has had to remove products from its offer (e.g. eat in) while the

pharmaceutical industry has had to add products (e.g. marketing of vaccines). The education sector has had to remove some of the face-to-face courses but also add the possibility of distance learning.

**Figure 5 - Modification de l'offre, retrait ou introduction de nouveaux produits ou services pendant le premier confinement**



Note : la taille des ronds représente la proportion de sociétés ayant modifié leur offre.

Lecture : dans l'industrie pharmaceutique, 14 % des sociétés ont modifié leur offre pendant le premier confinement (taille du rond). Parmi celles-ci, 66 % ont proposé de nouveaux produits ou services, 56 % en ont délaissé.

Champ : sociétés de 10 salariés ou plus, sauf pour le commerce de détail (sociétés de 5 salariés ou plus).

Source : Insee, enquête Impact de la crise sanitaire sur l'organisation et l'activité des sociétés, 2020.

## Decrease in flows

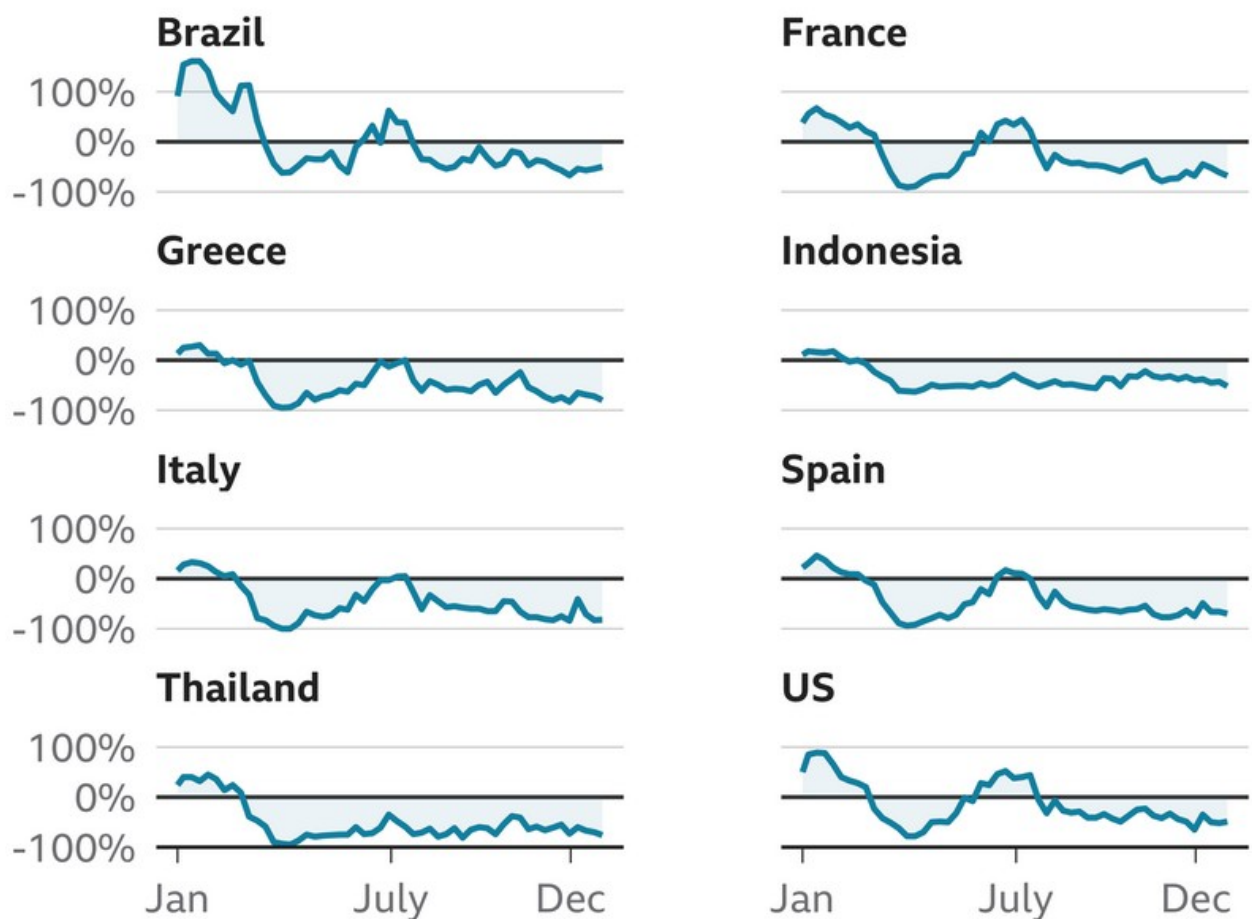
As international travel restrictions and lockdowns are likely to remain during the future as nations try to halt the unfolding of the virus, migration flows will be limited, hindering worldwide economic

growth, and development. This is particularly evident in the tourism industry as shown in the graph below. The decrease in demand has been drastic. If some countries have been able to get by more or less thanks to

national tourism (like France for example), others that depend solely on international tourism like Thailand have not experienced such increases.

## The global tourism industry is crumbling

Weekly percentage change in the number of reservations, 2019 v 2020



Source: SeeTransparent, 24 January 2020, 00:01 GMT

**BBC**



## Changes in spending behaviour

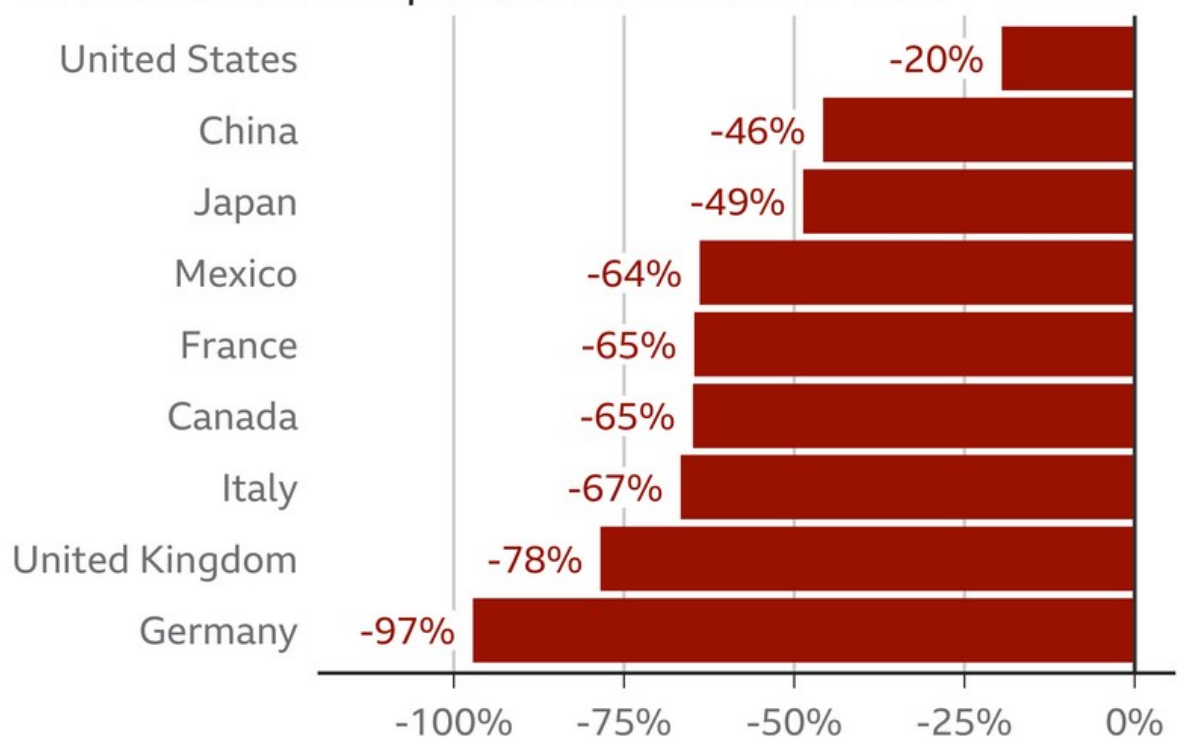
In addition to the effect on productive economic activities, purchasers typically modified their spending behaviour, particularly due to decreased earnings and family finances, as well as the fear and panic that accompany the epidemic.

We can notice, in the BBC chart, a huge drop in shoppers in countries such as Germany (97% less than before the pandemic). Separate research suggests that consumers are still feeling anxious about their return to stores (they are now not

willing to travel more than 5 kilometres for shopping). This change in shopping behaviour has significantly boosted online retail, with a global revenue of \$3.9 trillion in 2020.

### Huge drop in shoppers

Annual percentage change of footfall,  
12-28 Jan 2021 compared to same dates in 2020



Source: ShopperTrak, 24 January 2021, 00:01 GMT

**BBC**

# Conclusion

Although it is difficult to determine the exact impact of the coronavirus on the global economy, it is clear that the impact will be huge and widespread, and the worst seems to be coming. Investors around the world are closely monitoring the impact of the coronavirus on global markets. Even if the situation changes quickly and the spread of the virus slows down, the impact may be long-term. Coronavirus disease continues to spread around the world in unpredictable ways. National health, humanitarian and socio-economic policies will determine the speed and intensity of recovery. Governments and policymakers must take important steps to ensure that this restoration process does not become a temporary component. The focus of the research is on excellent air handling during off-hours. Once the pollutant substitutes for the discounted category and its economic impact, the impact of introducing a storage period must be carefully studied. This result can also be used as a basic report for post-failure analysis and to study the impact of reducing pollutant levels on the health of sensitive recipients. Everyone is now trying to develop an appropriate strategy to deal with Covid-19. The early implementation of the lockdown has shown an absolute way to restore the ecosystem and the environment.



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