The COVID-19 epidemic struck the world with exceptional speed, severity and breadth. Globalisation contributed to the rapid spread of this modern-day plague to all corners of the world. The international market mechanisms which we have relied on over the past three decades to promote economic growth and welfare, including their flexibility to weather exceptional and unexpected events, failed to deliver the hoped-for relief in a timely fashion, thereby slowing down many governments in their desperate attempt to fight the spread of the virus. The lack of anticipation of the possible occurrence of such an event, combined with the breakdown of market mechanisms for some of the most essential products needed to fight the disease, has left many governments unsure of how to react and often constrained their ability to make strategic choices. In some countries, the humanitarian goal of saving as many lives as possible came at the cost of confining the entire population, considered the only option available in the circumstances. The economic cost of this solution, which standstillled the economies of these countries and disrupted global value chains, is likely to be followed by several years of economic depression that will dwarf the cost of the 2008 financial and economic crisis.

The dramatic events of the first quarter of 2020 lead us to reconsider some of the implicit assumptions underlying the design of our economic systems and to think about some of the dilemmas and trade-offs that we are facing during this stressful period. The lessons learned could help us better anticipate or deal with future Black Swans.

Science and politics

March 24, 2020 was a day of panic in the United States because for the second time Doctor Anthony Fauci (the director of the US National Institute of Allergy and Infectious Diseases) was not alongside President Trump during the president’s daily press conference. In France, we are told that all decisions of the President or the Prime Minister are taken after consultation with a Scientific Council in charge of advising the government on the COVID-19 epidemic or are justified by the positions taken by this Scientific Council. Democratically elected politicians are considered to have a mandate from the people; scientists are considered legitimate authorities because they know more than the average citizen. Yet, it is clear that in a period of crisis the public puts more trust in scientists than in politicians to advise on the appropriate course of action to fight an epidemic. However, this raises many questions about the respective roles of scientists and politicians in public policy decision making in times of crisis. Can scientists raise issues on their own initiative to influence political decisions? Or should their role be

* An earlier version of this note was published by SSRN [http://dx.doi.org/10.2139/ssrn.3563076](http://dx.doi.org/10.2139/ssrn.3563076).
limited to answering questions raised by political leaders? Do we expect that political leaders will always follow the advice of scientists and, if not, how will we be made aware of differences in their views?

There are related questions about the responsibility of doctors in the development and containment of the epidemic. Their work and their devotion to helping the population overcome this disease are admirable and doctors are paying a heavy tribute. They are our heroes, they have our respect and our admiration. But one thing that is very unsettling is the fact that specialists of virology are divided on the correct way to proceed. There are clearly very different views on the best strategy to fight a pandemic of this nature (confine the whole population? test everyone to try to identify all the individuals at risk?), different ideas about the usefulness of masks, different ideas about how medicines untested for COVID-19 should be used, different ideas about whether China did the right thing or not, etc. So the disagreements among doctors are not limited to secondary issues. Even if it comes as no surprise that doctors can disagree, the question then is what is the legitimacy for governments of recommendations by advisory bodies made up of doctors who disagree?

**Human rights and the response to the health crisis**

Countries (such as China, Viet Nam) where individual freedom is limited seem to be better able to take adequate measures (for example confinement in China or targeted action in Viet Nam) to limit the spread of the virus than elsewhere. Some advanced countries (such as the United States, the United Kingdom, France, etc…) seem to have shown, at least at the very beginning of the outbreak, more hesitation about confinement measures (or imposed less drastic confinement measures) and we have therefore witnessed a greater tendency for the virus to spread.

Another aspect of this interface, is the reticence expressed in a number of countries (based on an attachment to individual freedom and the respect of privacy) regarding the use of invasive modern technologies, such as facial recognition or geolocation, which could help public authorities to monitor the strict enforcement of confinement orders when a government has acknowledged they not being sufficiently respected by the public. The degree of resistance to the use of such technologies to track potential cases of COVID-19 varies from one country to another. For example, Slovakia (following in the steps of countries like Singapore, South Korea and Chinese Taipei, where aggressive contact tracing has crucially contributed to limiting the spread of the virus) passed a law on March 25th 2020 which allows the government to use data from telecom companies to track the movements of people who have tested positive to COVID-19 to ensure that they are abiding by quarantine rules. The adoption of this law was not easy but the Slovak Justice Minister insisted that in the face of this epidemic the right to privacy could not be absolute (see “Slovakia to track victims through telecoms data”, Financial Times, March 26, 2020). In Germany, however, the government was less successful and forced to abandon its proposal to use “technical means” to identify who had been in contact with people who have tested positive to COVID-19. In France, the government decided to use police to patrol people in public places to monitor whether confinement measures were being followed. In this instance, it seems obvious that the use of more advanced technology might have allowed us to save scarce human resources, which could have been better allocated to important alternative tasks such as the logistics of supplying hospitals and their security. This raises the question of how we should deal with the trade-off between public health and the protection of human rights.

**Scientific methodology and the precautionary principle**

Third, there is a question about the respective merits of scientific methodology and the precautionary principle to inform public policy making. This question is not new in Europe but the crisis offers a new illustration of the dilemma we face. When it comes to hydro-chloroquine, the scientific community insists that the correct clinical methodology has not been followed and that more testing is necessary. However, the question that can be asked is whether, in a crisis, we have the time to follow the correct methodology. What took place in Marseilles shows that the response of many citizens is, I do not care if the correct scientific methodology has been followed. I want to be tested and to have this drug prescribed if I have the virus because there is no alternative medicine and I risk dying. To a certain extent, governments (the French Government, President Trump) have felt an irresistible urge to side with their citizens against scientists (hence the position of the French Government that this drug can be given to dying patients under some circumstances). The implicit questions then can be: Isn’t the scientific (rational)
approach a luxury that we cannot always afford? Isn’t the precautionary principle (at least in some cases) a better alternative? Do we have a systematic method to propose for dealing with the dilemma?

Another aspect of this debate is the discussion about whether the French government should have kept larger stocks of masks, respirators, medicines etc. In 2009, the French government, worried about the development of the H1N1 virus bought massive quantities of vaccine to treat this disease and massive quantities of masks. H1N1 never became an epidemic in France and the government was rapidly accused of having wasted public money. After that, the government let France’s stock of protective medical equipment diminish to such an extent that France is now unable to react when there is an epidemic. From a public policy standpoint, the question is: How should we deal with the risk of rare, but exceptionally destructive events (such as epidemics, major earthquakes, extreme weather events, nuclear accidents etc. . . . )? To what extent should we provide for these risks (that have a small probability of occurring) when doing so will be costly but could save many lives? Or should we admit that we do not want to prepare for such events (both because of the cost involved and because of their unpredictability)? But in that case, what should we do to ensure that our economic systems remain sufficiently flexible to react in a timely manner when such catastrophes do occur?

The economic costs of public health strategies

Fourth, there is a question as to whether there can be a trade-off between public health strategy and economic strategy used to overcome the crisis and if there is such a trade-off what policy prescription should be followed. The idea that there may be a trade-off comes from the fact that confinement policies (destined to minimise the number of deaths from COVID-19 and adopted in a number of countries) lessen the impact of the epidemic in terms of the number of people infected but decrease economic output, and therefore the severity of the economic crisis because citizens are prevented either from going to work or for continuing to work if their jobs are not suitable for working from home. The sectors economically most affected by the current confinement measures are service sectors, such as air transport, hotel, restaurants, retail distribution and cinemas, because working from home is for the most part impossible. Thus the more extensive and the longer the confinement, the more severe will be the adverse effects in those sectors and the larger will be the decrease of GDP. There are two alternative health strategies. One is to let the epidemic run its course, which would imply many more deaths but a much lower decrease in GDP as the people not infected and the people infected with no or mild symptoms (which represent the large majority of cases) would continue to work. The other is to test the population widely and confine only people infected by the virus. In this second case (which is reminiscent of the strategy adopted in countries like Korea,1 there would both be fewer deaths than if nothing were done and more people working than if a strategy of general confinement of the population were followed. The strategy chosen in European countries may well worsen the economic crisis compared to that resulting from alternative strategies. From this standpoint, we can expect that the economic cost of the pandemic will be much worse than the cost of the 2008 financial crisis for the simple reason that people, for the most part, kept working during the financial crisis. It is said by some that this strategy could impose a GDP loss on advanced economies of up to 15% of GDP in the short run and require many years of effort to try to get back to where these economies were before the epidemic. What the trade-off between health strategy and economic strategy actually is and how we should consider this trade-off when determining public policy raise both empirical questions (requiring assumptions about the severity of the economic crisis in different policy configurations, the speed of recovery, etc.) and ethical questions (such as whether, when it comes to health policy, one can or should put an economic value on lives). President Trump’s call to reopen the United States for business by Easter Sunday and argument that you cannot run a country by listening to doctors because the cure they would favour (confinement) could be worse than the disease was a particularly brutal way of raising the issue.

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1 Between the beginning of February 2020 and March 10, 2020, more than 200.000 people were tested in Korea in 600 testing centres and confinement was limited to infected people. As a comparison, during the same period there were 15.000 tests in France but starting on March 16, 2020 a general confinement of the population was implemented. During the month of February 2020, US authorities tested 472 people.
Globalisation, global supply chains and national sovereignty

The benefits of economic globalisation have been much discussed over the past twenty years. One view is that the decline in trade and foreign investment obstacles and the development of new communications technologies have allowed an international reallocation of resources through a restructuring of production processes which has benefited developed countries by allowing them to secure their consumption needs at a lower cost and allowed developing countries to benefit from economic opportunities thanks to the development of export-oriented activities. It is often pointed out that globalisation has lifted hundreds of millions of people in developing countries out of poverty.

However, the COVID-19 crisis could strengthen the hand of those who, in developed countries, see economic globalisation and trade and investment liberalisation as unacceptable threats to the sovereignty of their Nation State. In the eyes of those sceptical of the benefits of globalisation, there are several ways in which trade and investment liberalisation limits the ability of Nation States to pursue independent domestic policies.

First, the granting of trade concessions necessary to guarantee an effective access to the domestic market of goods or service from foreign trading partners usually implies giving up trade protection tools which could have been used to alleviate in the case of domestic crises.

Second, liberal trade policies allow firms operating in very different domestic regulatory environments to compete on world markets. Regarding competition, firms coming from countries with the highest domestic standards in terms of human or social rights or property rights or environmental protection or food security etc.… may be at a disadvantage with regard to firms coming from countries with less exacting standards. Thus, to a certain extent, opening up to international trade constrains the ability of countries to freely make the domestic societal choices that they would like to make.

Third, the development of international trade, together with a number of recent technological developments in the communications and transportation sectors, has led to an internationalisation of supply chains whereby domestic firms externalise a number of functions in countries where such functions can be fulfilled at a lower cost (such as accounting and finance in India and production in China, or more recently in Vietnam). But this internationalisation of the value chain, often combined with just in time policies of keeping stocks at the lowest possible level in order to reduce costs, make firms very much dependent on the smooth functioning of the international value chain. Such smooth functioning can break down when an external shock affects the economy of any of the countries where firms contributing to the value chain are located. In a world characterised by economic globalisation, disruptions due either to a natural catastrophe affecting another country or to a political decision by a foreign government can hinder the ability of firms to serve their domestic markets.

Thus, whether through trade concessions or through the risk of seeing their domestic firms displaced in international competition or through the unavoidable consequences of foreign disruptions, trading nations may seem to have given up the ability to protect their firms or their citizens.

It is the latter mechanism, which has, so far, been a source of concern in advanced countries during the COVID-19 epidemic.

European and North American countries now depend to a large extent on foreign countries, such as China, for their supply of a number of essential medical products of which they did not have enough stocks to face the COVID-19 health crisis. This dependency became a major source of concern when some countries, such as China, where the sourcing firms are located, were hit by the epidemic and decided to follow a strict confinement policy which halted their production. European and North American countries were then unable to restock masks, respirators or active ingredients used for testing and this limited their options to fight the virus.

In France, for example, since the beginning of the COVID-19 epidemic, there has been an acute shortage of FFP2 masks, which are supposed to protect the wearers both against the aerial transmission of the virus and against the possibility of inhaling the virus. It has been even difficult to provide enough
surgical masks (which offer a lesser level of protection) for the health professionals dealing with patients infected by epidemic.

The reasons for this shortage of masks are twofold. First, in 2011 and 2012 the French authorities reversed the choice they had previously made to keep an important stock of masks on the basis of the idea that China, which produces about 70% of the world supply of masks, would be able to provide France with the necessary masks in case of an emergency. Second in late February, by the time it became clear that the epidemic was going to severely hit France and that France needed masks, the epidemic had hit China with full force and a large portion of the Chinese population had been confined. As a result, while the theoretical Chinese production capacity of masks was estimated to be about 20 million masks per day, China was only producing 15 million masks due to confinement measures when the Chinese domestic demand for masks had shot to between 50 and 60 million masks per day. Not only was China not in a position to export its masks to France but it had become a large importer of masks from Indonesia and Vietnam. When the French firms whose employees need to use protective FFP2 masks (such as construction companies and other industrial firms whose workers are exposed to dust and small particles) became aware of the impending difficulty to obtain such masks, they reacted by attempting to increase their own reserves of the most protective masks (FFP2). Then the lack of availability of masks in pharmacies created a panic, which led the French President on March 3, 2020 to requisition all FFP2 masks available.

With slight variations, the same story occurred in other European countries such as Italy and Germany.

On the day when the French President requisitioned all available FFP2 masks in France, Germany banned the export of masks. Chinese Taipei and India also took steps to stop exports of medical equipment.

The situation in the United States seems to have followed a similar path. In the early 2005 and 2006, the US Government advocated the stockpiling of protective gear in preparation for pandemic influenza and a strategic stockpile of 52 million surgical masks and 104 million N95 respirator masks was amassed. About 100 million of those masks were used in 2009 in the H1N1 pandemic and were never replaced in the stockpile. As the COVID-19 outbreak worsened in the US in the early days of March 2020 and as the demand for masks grew rapidly, the shortage of masks, particularly N95 masks, became a topic of controversy. The shortage was attributed to a combination of low strategic stocks, widespread buying of masks by anxious citizens and dwindling supply (either due to hoarding or to reduced production) from China. Interestingly, on March 17, 2020 when the Center for Disease Control published an updated set of recommendations for optimising the use of protective gear by medical professionals and suggested that surgical masks were acceptable when examining or treating a COVID-19 patient (a suggestion aligned with advice provided by the World Health Organization), this suggestion was considered with great suspicion by some medical professionals and in particular by the American Nurses Association which argued that the C.D.C.'s new recommendations were based “solely on supply chain and manufacturing challenges”, thus suggesting that national sovereignty in the health sector was compromised by the economic forces of the global market.

Besides the fact that the spread of the COVID-19 epidemic may have further eroded the faith of some in the benefits of economic globalisation (possibly unfairly because in most countries a better appraisal by national governments of the possible catastrophic risks which could disrupt the welfare of their citizens and the adoption of public precautionary measures against those risks could have significantly decreased the impact of the disruptions in markets for essential goods), it should be noted that the adoption of necessarily far reaching measures to alleviate the economic crisis which will follow the pandemic is also likely to lead to a retreat from the logic of globalisation. Indeed, as seen previously, it is clear that national governments will need to inject massive amounts of money into their economies in the hope that firms will, with this financial help, survive long enough to weather the disruption caused by the epidemic, confinement measures and the subsequent economic depression.

For the reasons we have analysed earlier the bailout of our economies will require financial measures many more times more important than those taken in the aftermath of the 2008 financial crisis. But one

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of the lessons we learned from that financial crisis is that when national governments use economic stimulus to shore up their economies following an exogenous shock, they should make sure that their stimulus does not end up shoring up other economies through a surge in imports. To ensure that there is no leakage they tend to resort to protectionist tools. As Simon Evenett and the Global Trade Alert have documented, a massive increase in protectionist measures followed the 2008 crisis. It is hard to believe that the same cause is not going to lead to the same effects, particularly in view of the importance of the financial commitments, which have already been announced.

The need for industrial policy

Sixth, a concern related to the previously discussed question is the apparent inability of market-oriented countries to pursue an effective industrial policy which is both pro-competitive and allows countries to keep fundamental strength in strategic industries and resources which can be called on (or quickly activated) in a time of crisis. The issue is not new and has been actively discussed in France and Germany over the past few years. But whereas the discussion was largely a discussion among economists and bureaucrats, the difficulties experienced by a number of countries (including France) to have an adequate supply of simple things such as masks or active ingredients for tests are seen by the general public to result from a failure to follow an effective industrial policy. Furthermore, at a time when we would very much want to see domestic firms which still have production facilities in our countries switch their production to products or services that are urgently needed to face the crisis (say, for example the production of respirators for emergency rooms in hospitals), in France there is no one in charge of planning, organising, enforcing and supervising this move because France no longer has a ministry of industry. So what has been gained in efficiency by relying on markets to direct the economy has created a loss of ability to mount a coordinated response to an unanticipated economic disaster.

Privacy, digital technologies and public health

Seventh, there are interesting questions about Data and digital policy. As the Financial Times reported on March 24, 2020: “The coronavirus crisis is forcing the EU to redraw its digital strategy. The previous calls for EU data sovereignty shows its limitation at a time when to anticipate the expected path of the epidemic and to find a vaccine we are very dependent on getting the largest possible pooling of data and when, to get this pooling of data, we need the cooperation from non EU countries like China.

It was only a month ago that it was reported that EU Internal Market Commissioner Breton was flirting with the idea of forcing European companies to store and retain at least some of their data in Europe and told lawmakers that data produced in Europe: "should be processed in Europe". We are clearly caught in a dilemma between the desire to protect our privacy and to prevent the GAFAM from becoming ever more economically dominant by feeding their artificial intelligence algorithms with our data and the fact that in the health sector as in other sectors, the best performances of the artificial intelligence algorithms that we count on to produce scientific advances, in particular in the health sector, depend on the quantity of data which can be gathered to train them.

What future for competition law and policy?

Eighth, there are a number of questions concerning if and how the role of competition law and competition policy should be redefined in a time of deep economic crisis. A discussion on the goals, achievements and failures of competition law enforcement and competition policy was begun a few years ago. But, in Europe, this discussion was largely focused, first, on questions related to the unfairness of international competition from countries, such as China, where government intervention allowed subsidised, state owned enterprises to gain a substantial advantage over their Western competitors by means considered to be both unfair and anticompetitive and, second, on the question of whether the European focus on the protection of competition in Europe (for example, through merger control) had impaired the development of national or European champions and accelerated the de-industrialisation of Europe. In the US, there was also a concern with the unfairness of international competition among countries which had vastly different economic systems and a suspicion that the narrow focus of US antitrust authorities on the protection of consumer surplus in the short run coupled with a permissive attitude toward economic concentration and an excessive fear of type I errors (risk of
misguided intervention by competition authorities leading, in fact, to a restriction in competition) had led to under-enforcement of antitrust laws, increased macro-economic concentration and profit margins and domination of the digital economy by the GAFAM.

The brutal economic crisis we are experiencing now requires different types of adjustments, depending on the time perspective we consider.

In the very short term, the main issue to be confronted is the brutal disruption in the value chain of a number of products, leading to shortages either because of insufficient level of production or because of difficulties in product distribution due to confinement measures. The issue for consumers is not, as it is in a normally functioning economy, to be able to choose the best price/quality ratio among products offered by competing suppliers but simply to be able find the product (even if in smaller quantity than what would be desirable). In such circumstances, first, cooperation between suppliers (and/or government intervention) to identify both the needs and the existing stocks may be necessary to permit an adequate supply of essential goods and services. For example, as the US Federal Trade Commission and the US Department of Justice have suggested, health care facilities may need to coordinate providing resources and services, and other businesses may temporarily need to combine production, distribution, or service networks to facilitate production and distribution of COVID-19-related supplies. Second, consumers need to be protected against abuses resulting in price gouging of products in short supply. This requires two adjustments for competition authorities. First, to take a more nuanced approach with respect to cooperation among competitors than the approach they have taken in the past, and, second to focus on exploitative abuses of market power rather than on exclusionary practices (the creation of barriers to entry) on which they have focused in the past.

Competition authorities both in the context of the European Competition Network and outside the EU (for example, in Great Britain and in the United States) have already signalled their willingness to allow, at least temporarily, cooperation or coordination between competitors whenever such cooperation or coordination is necessary to avoid a shortage due to the COVID-19 crisis, or ensure security, of supply. They have also signalled their intention to fight price gouging.

In the medium run, say over next two to three years, our economies will be depressed, with the risk of a large number of bankruptcy of firms either directly hit hard by the COVID-19 epidemic (in the service sector) or affected by the disruption of their supply chain, rising unemployment and dwindling demand.

As is widely known, competition is a virtuous economic mechanism when economies are at full employment of their resources because it allows them, in a static perspective, to grow through a more efficient use of scarce resources. But with the aftermath of the COVID-19 pandemic, in the medium run, we face the risk of an economic depression and a high level of bankruptcies and unemployment for a number of years. In such an environment, the important goals are to quickly stimulate economic growth, to engage in the kind of redistribution mechanisms which will alleviate the economic suffering of the poor and to ensure that the economic framework that we create will be more resilient in the future. It will thus be necessary to stimulate employment and to help firms in the sectors affected by the crisis, particularly SMEs but also a number of larger firms, from going bankrupt.

Massive amounts of state aid, tax deductions or deferments and subsidies of various kinds or even the nationalisation of entire sectors will be necessary and the initial financial packages already put together by the governments of many countries in Europe and in the US.

In this context, it is clear that there is a possibility of conflict between the necessity to artificially keep a large number of firms going in the short run in order to kick start the economy in the medium run and to allow it to retain its footing in the long run and a policy of competition law enforcement which assumes explicitly or implicitly that the economy is already in a stable equilibrium with full or near full employment.

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4 See, for example, the CMA approach to business cooperation in response to COVID-19 Published 25 March 2020 or the “Joint statement” issued by the European Competition Network on the ‘application of competition law during the Corona crisis’, on 23 March 2020 which states that ‘necessary and temporary measures put in place in order to avoid a shortage of supply… are unlikely to be problematic, since they would either not amount to a restriction of competition under Article 101 TFEU… or generate efficiencies that would most likely outweigh any such restriction’.
of the factors of production and that the most important problem is to ensure that the competitive process in the short run guides the allocation of resources to maximise consumer welfare.

The promotion of competition may not be as central an economic preoccupation in the near future as it was during the first two decades of the 21st century. It will be useful, however, to review the lessons of the period which followed the Great Depression. To the extent that it is still useful, we will also have to think again about the trade-offs between static efficiencies, reallocation of resources through industrial policies, dynamic efficiencies and economic resilience.

At the very least, competition authorities will have to take a longer and more dynamic view of the process of competition than they have in the past and adapt their reasoning with respect to state aid, crisis cartels or mergers to circumstances of disequilibrium caused by an exogenous shock to the economic system.

Finally, in a longer-term perspective, the challenge raised by the COVID-19 crisis and the necessity to be better prepared to face future epidemics require a massive reallocation of resources toward the health sector. This is not the only notable reallocation of resources that must be implemented. We also must deal head on with climate change and redirect our resources toward clean energies. The development of the digital economy also requires a reallocation of resources to allow firms in traditional sectors to fully benefit from the new technologies at their disposal.

A number of economists have convincingly argued that market forces are by themselves insufficient to reallocate resources at the level and the speed required to face those challenges. This means that if competition remains necessary it is not sufficient to meet the challenges we face in the 21st century. Competition policy must be better integrated in a wider context of complementary economic policies.

**Conclusion**

Black Swan events and major humanitarian crises do occur and they can durably affect both advanced and developing economies. One of the policy questions we have to think about is if and what amount of our resources we want to devote to achieving more resilient and agile economic systems better able to withstand rare but potentially catastrophic events. There is no easy answer to this question because we do not know the probability of such events or, in some cases, their nature and potential for destruction. Yet, as Jean Tirole argued recently (Le Monde, March 25, 2020) and as the COVID-19 crisis is showing us, the alternatives for the future are to make reasoned choices which may allow us to maintain some degree of control, even in dire situations, or to let future events run their course, decide for us, and possibly destroy us all. It is time to move to a longer-term perspective and to better integrate risk factors in our economic analysis and policy decisions.