

Health
Society
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the research
of the
Bocconi
Covid
Crisis Lab

The impact of COVID19

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Sharing best practices and learning from mistakes. Coordinating and planning actions. A focus on people. These are the lessons we need to take with us from managing the Covid19 pandemic and transform them into mantras in the near future. We must, if we hope to avoid being overwhelmed by the next emergency, whether it is health-related, climatic, economic or political in nature.

At Bocconi we immediately went to work trying to put these principles into practice. We did so in order to not stop teaching on February 24 (the day on which universities in Lombardy decided in concert to suspend on-campus activities to protect their communities and their families) and we pushed on to move everything possible online: first lessons, then graduation and then exams. We are still moving forward, planning a safe return to campus in September while ensuring inclusion and equal opportunity. Safety means a campus equipped with all the devices and indications to guarantee social distancing, sanitized spaces and air, and temperature measurement for anyone entering the Bocconi Campus. Equal opportunities and inclusion means that those who are unable to return to Milan will continue to attend lessons in streaming, synchronously or asynchronously, and those who have suffered the economic effects of this emergency will need concrete help. For this reason we have increased the funds



The Bocconi Commitment in the Era of Covid19

available for scholarships this year by 15% over the 30 million euros awarded in 2019.

Another crucial role at Bocconi is to produce impactful knowledge. In this delicate period not only have we not stopped, but we have actively contributed to understanding the effects of the pandemic. We did this by creating the Covid Crisis Lab, a multidisciplinary research laboratory conceived by our Dean for Research Jérôme Adda, and Bruno Busacca, Dean of Fundraising and Alumni Engagement. The Lab is led by Prof. Alessia Melegaro, a demographer and statistician who since the beginning of the pandemic has collaborated with the Lombardy Region's technical commission on health to analyze the spread of the virus in Lombardy.

This special issue of the magazine is dedicated precisely to the activities of the Covid Crisis Lab and the researchers who are helping us understand the emergency in four fundamental areas: Health; Economics, Finance and Firms; Legal Issues; and Society. The work has just begun but, as you will read in these pages, there are already many research projects and other output that Bocconi has made available to policy makers and decision makers in a few months. Because today our motto, Knowledge that Matters, is as important and as real as ever.

Gianmario Verona, Rector





EXECUTIVE CHATS LIVE

Executive Chats never stopped, it just adapted its format to the new conditions dictated by the coronavirus pandemic. Debates involved leading figures of academia, research, news media, diagnostics and institutions on how the emergency, both health and economic, is redesigning the world. Five meetings and ten distinguished guests who exchanged views with Gianmario Verona, Rector of Bocconi.





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A Research Lab to Relieve the

Faced with a crisis that is global both in terms of size and in health, economic and social impact such as Covid19, the answer to understanding the problem and setting out the various responses can only be equally global and multidisciplinary. For this reason, Bocconi established the Covid Crisis Lab, the research laboratory that fosters dialog among scientists from different fields and with very different skills

by Jérôme Adda @

The Covid19 has so far seen millions of individuals contaminated worldwide and a death toll of several hundred thousand people. It hit European countries particularly hard before moving to the American continent and the rest of the world. In its wake, it leaves battered countries, with looming economic crises, political unrest and many questions on what will come next. The Covid19 crisis was from the start more than just an epidemiological issue. It was a challenge to the health care sector, but also to policy makers, business leaders and the general public. Options were limited from the outset but with harsh consequences either way: stamp out the pandemic



JEROME ADDA
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but drive the economy down; or take a more lenient approach and watch hospitals being flooded and mortality skyrocket. The choices were not easier at the individual level - lock yourself up, or continue risky interactions with people. One of the important dimensions of this crisis, which affects all aspects of it is its associated uncertainty.

Uncertainty about the virus and its properties in terms of contagion, lethality and immunity, uncertainty about the efficacy of the recommended policy measures and the uncertainty of the economic legacy of this pandemic. Faced with this global uncertainty, society has turned to scientists to inform the debate.



Uncertainty of the Pandemic

At the start of the crisis, research that could shed light on the crisis was lacking, to say the least. Existing epidemiological models were mostly targeted towards flu epidemics and had no role for the behavioral adjustment of individuals. Few policy measures such as confinement, quarantines and the adoption of social distancing by the public at large had been studied or even envisaged previously. No one had ever seen such a sudden and large economic shock, which left business leaders, workers and policy makers reeling almost simultaneously across the world. Looking forward, strict confinement policies may trigger fundamental changes in the behavior and views of people and raise a host of legal issues. The epidemic may have lasting effects and change fundamental trends that defined the last decades in terms of global governance and how the global economy is organized.

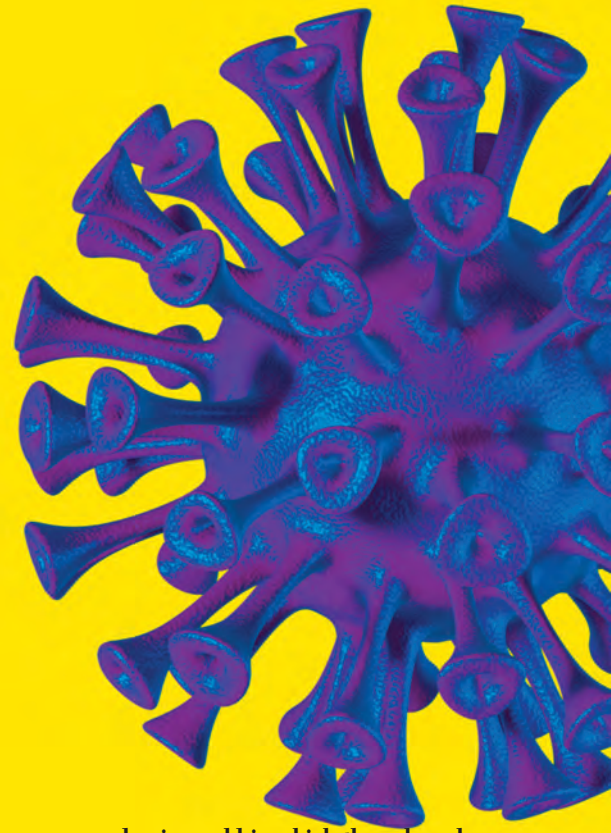
Hence, understanding the Covid19 crisis in its entirety requires research from many different fields, not only from the epidemiological side, but

also from a host of social sciences that study behavior and their determinants and how individuals interact. Studies from the economic, financial, management or legal side can help understand the unfolding crisis, along with other disciplines such as statistics and computer science that can inform the debate by producing real-time knowledge about the crisis. All these fields are present at Bocconi, and the surge in research to understand the Covid19 crisis produced by Bocconi faculty during these last couple of months is frankly amazing. However, all the different aspects of the crisis are interrelated. The epidemiological side of the crisis shapes behavior as much as behavior determines the outcome of the epidemic. There is therefore a need to integrate the research across many fields to have a global and informed view of the crisis. This is precisely the role of the Covid Crisis Lab, set up at Bocconi to bring together researchers from very different backgrounds and to foster collaboration across fields in an unprecedented way. ■

The Virus Can Be Conquered Through Contamination. Of Knowledge

Alessia Melegaro, demographer and Director of the Covid Crisis Lab, is convinced of this. A contamination and a network that must be built "in peacetime because it is difficult to improvise during an emergency." This is why the new Lab is first and foremost a model, "because today we have a word that has brought us together, which is Covid, but tomorrow there could be others"

by Emanuele Elli @



In an academic world in which there has always been a tendency to reward excellence in specialization and pigeonhole people in specific disciplinary sectors, Alessia Melegaro, Associate Professor of Demography and Social Statistics at Bocconi, has always promoted and applied multidisciplinary and contamination as a research idea. All the more reason today that, in her role as Director of the recently established Covid Crisis Lab, a point of contact for research on the virus at Bocconi, she coordinates the work of more than 30 researchers from the University's eight Departments, creating connections and weaving threads between seemingly different subjects. → In this sense, the Covid Crisis Lab is also an experimental model.

I don't like theory very much, I think everything we do even as researchers should have a practical value. In my case, it is to answer which vaccine is best or most affordable, when to administer it, or



THE COVID CRISIS LAB

The mission is to understand the spread of the Covid19 and analyze its numerous implications on the health of populations, health care, society, the economy at large and its financial and legal consequences.

which health policy decisions should be supported. This has become even more relevant with Covid because the first phase focused entirely – and rightly so – on medical and health aspects, while the contribution of all disciplinary areas is

required for Phase 2, and dialogue between various experts is critical. The Covid Crisis Lab can become a model to be replicated in other areas, even less dramatic areas we hope, because today we have a word that has brought us together, which is Covid, but tomorrow there could be others.

→ *How much has the research done to date prepared you for what happened?*

In the UK there was talk of an impending pandemic in epidemiology and public health institutes as early as 2000.

Simulations, real time evaluation, ad hoc modeling were also carried out and there was considerable pressure to prepare guidelines. The problem is that all infections are different and there is an essential element of improvisation. So what you can prepare for is to create useful connections to deal with the problem. If you can't have an answer ready, at least so you know who to ask. And of course this network must be built in peacetime because it is difficult to improvise during an emergency.

→ *Over the past few months there have been moments of considerable confusion and even scientists, from virologists to economists, have seemingly not always agreed with each other. So is there always a subjective factor in research? How do you personally deal with this aspect?*

I always try to be guided by scientific evidence, by studies, which are the result of experience, work and generally a close scrutiny of the validity and reproducibility of the same. The overabundance of opinions regarding the facts is a phenomenon that was not new with Covid but I believe that in this case too, adopting a multidisciplinary approach in discussions, though challenging, will only lead to better results: if virologists stop where their expertise ends and pass the ball to epidemiologists who then involve mathematicians, demographers or economists in the answer, in the end the loop closes with a positive outcome for everyone. They don't all answer, but they all answer together. To this I would add that we should begin to accept that a question can also be answered with: «I don't know, I have to check.» You shouldn't be ashamed or think of it as a defeat; especially in forecast models there is always a gray area. For communication



ALESSIA MELEGARO
She graduated from Bocconi with a thesis on mathematical models applied to the spread of tuberculosis, immediately combining an economic education with her interest in quantitative demography and a dialogue with epidemiology. «After graduation, I moved to the UK,» says Melegaro, «where I completed my PhD at the University of Warwick and worked at Public Health England, the equivalent of Italy's ISS. Even then, there it was normal for mathematicians and statisticians to talk to clinicians and immunologists.» Returning to Bocconi at the Dondena Center in 2008, she was awarded a European Research Council Grant to coordinate the DECIDE project on the impact of demographic trends in the spread of infectious diseases with particular reference to developing countries. «This gave me the opportunity to delve into modeling research applied to healthcare, while also integrating demographics. Furthermore, work with countries in sub-Saharan Africa also added strong personal motivations to the study, a very important aspect when doing field research.»

and the media this is a taboo, but for anyone doing research, uncertainty is a parameter around which information that is not yet known gravitates; one should not be afraid to face it and, when appropriate, to affirm it.

→ *Policy decision makers have often been the recipients of your research. What do you think the dialogue between science and politics has been like during Covid?*

I would say the case in the UK is emblematic. There are very good scientists in London, who have been preparing for these emergencies for decades, yet it is currently the European country with the highest number of deaths. It is not just the fault of politics, it is also a communication problem. It is not easy to transfer the results of an epidemiological model analysis to a community, the media or policy makers, it is a fundamental step in the chain that must be optimized. Here's an example: the monitoring of the RT index in Italian regions should not be the prerogative of the media, but carefully monitored by a technical-scientific committee, otherwise you end up chasing data that, taken individually, have no value and maybe scream emergency as soon as there is a number above the threshold. A competent committee, on the other hand, could observe long-term evidence, identify troubling signs and pass on indications that have already been thought out to those making decisions.

→ *Do you agree with the idea that the Covid era will end when a safe and accessible vaccine is available?*

We are slowly enjoying a return to normal but, it seems to me, with a different individual awareness and this should help. The level of immunity in the Italian population is still very low, reaching peaks of 30-40% in areas with high prevalence or in groups of people who have been exposed to the virus, so we are nowhere near the 60-70% national average required to feel comfortable. However, the disease is better understood, interventions are being completed earlier and more effectively, contact tracing is being done. In short, we are learning a lot and this makes me optimistic. ■



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History of a Metamorphosis

After we adapted to the big data and sustainability imperatives of the 2010s, the great uncertainty caused by the pandemic has revealed other needs. We must move to strengthen the skills of managers and decision-makers in critical thinking, creativity, people management, and more generally the ability to manage complex situations with a vision for the common good

by Giuseppe Soda@

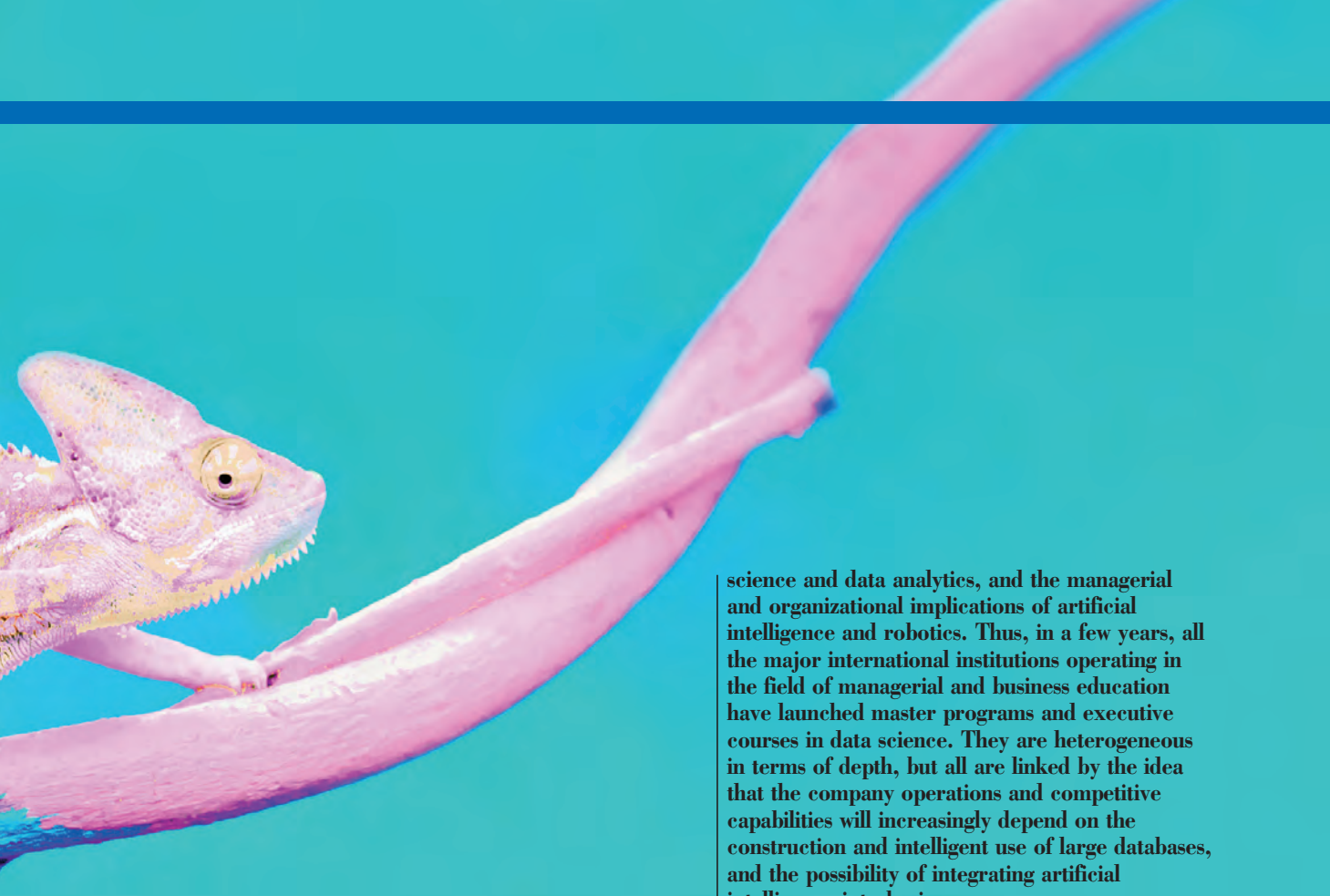
The Covid19 tsunami hit hard the world of postgraduate and business education, which had been stormy for reasons of its own for several years already. The winds of transformation of educational offerings, contents and formats in higher education had started to blow with the financial crisis of 2008 triggered by subprime mortgages and worsened by the sovereign debt crisis. Major financial scandals and mounting criticism of the dominant model of shareholder value leading to hyperbolic finance pushed many business schools to start new programs and integrate in the curricula of MBAs and executive



GIUSEPPE SODA
Dean of the SDA Bocconi
School of Management

training programs new subjects dealing with issues of corporate social responsibility, business ethics and sustainable finance.

But the processes leading to great metamorphoses are never linear and seldom follow a strictly diachronic development. In fact, the United Nations had already noticed the need to complement management education with ethical responsibility and socio-ecological sustainability subjects. In fact, in 2007 Secretary General Ban Ki-Moon had already launched globally the Principles for Responsible Management Education (PRME), a global initiative aimed at influencing



the training of the ruling classes towards responsible leadership, attentive to the objectives set out in the UN Sustainable Development Goals. In response to this growing international attention, courses of study offered by the great business schools started to systematically integrate contents that a few years earlier had been unthinkable, such as business ethics and decision-making, environmental sustainability, multi-stakeholder management, diversity management, responsible marketing and consumption, social entrepreneurship and fair trade, just to name a few.

But, to make the picture more complex, since the first decade of the 2000s another process began which, like sustainability, would have had a profound impact on the structure of managerial training programs: the big data revolution. The tumultuous development of digital technology has made it increasingly inevitable to expose future leaders of private and public organizations to data

science and data analytics, and the managerial and organizational implications of artificial intelligence and robotics. Thus, in a few years, all the major international institutions operating in the field of managerial and business education have launched master programs and executive courses in data science. They are heterogeneous in terms of depth, but all are linked by the idea that the company operations and competitive capabilities will increasingly depend on the construction and intelligent use of large databases, and the possibility of integrating artificial intelligence into business processes.

These radical, and almost contextual, transformations in the contents conveyed in management programs were grafted into a parallel process which was to manifest all its disruptive strength precisely with the crisis generated by the coronavirus. In fact, in the first half of the 2000s the great march of distance learning had begun, under the radar and amid much skepticism, fueled, once again, by the development of new technologies and the transition to the digital world. The progressive affirmation of distance learning technologies and models has experienced an unexpected acceleration and has attracted tens of millions of students of all levels and degrees with the crisis of recent months.

Thus, caught between the industry's metamorphosis caused by online technologies, which allowed entry into the executive training sector of operators very different from traditional universities and business schools, and the revolution of data and sustainability, managerial training is nearing a third and final transformation, which few have paid attention to but is the story of these days. But even to tell this current story, a quick flashback is needed. In 2015, following a very extensive research study involving a very large and stratified-by-industry group of Human Resources managers, the [Word Economic Forum](#) had



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ventured a prediction regarding the skills that would be central to businesses and institutions in 2020.

This forecast was premised on the observation of instability of existing core skills in many industries, generated by the mass of ongoing socio-economic, cultural and technological changes. For some sectors, for example industrial manufacturing, finance and mobility, the forecast for the destruction rate of skills between 2015 and 2020 was set at around 40%. Skills that become obsolete must be replaced by other ones, and in this special ranking of the abilities predicted to be the most relevant for 2020, “decision-making ability in complex conditions” stands out, followed by critical thinking, creativity and people management. The top 10 also includes “judgment”, i.e. discerning ability in decision-making processes, and cognitive flexibility. Skills pertaining to data science and sustainability are absent as they are considered necessary, part of the core skills, but not capable of making a difference for the immediate future. Obviously the Covid19 pandemic was not contemplated, but reading that list carefully, these are the areas of competence that in this tragic epidemic have proved most challenging for public

and private decision-makers all over the world. We have discovered that data, even if we can handle them with increasing sophistication, often are not available here and even when they are, they are not always decisive. We suddenly remembered that decision makers often face hard trade-offs and unsolvable dilemmas, where data science certainly helps, but then many decisions are taken on the basis of judgment, sense of responsibility, intuition. We have painfully understood that in conditions of uncertainty we need multiple perspectives, that critical thinking feeds innovation and can foster the discovery of effective solutions.

The health crisis has highlighted the need to have knowledge and tools useful to understand in depth the situation we are facing, next to a better systemic vision and perspective on the evolution of the situation, in order to have full awareness of the consequences of our actions and others’. To integrate all this, it is necessary to develop knowledge transfer, communication, relational and negotiation skills that are aimed the



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emergence of favorable context for achieving the common good, especially when there are multiple stakeholders and conflictual interests at the table. All this without ever losing focus on the end result, and the ability to measure and monitor it. Furthermore, distance working has suddenly revealed much redundancy in daily jobs and shown that trust can replace control, but also that people and human intelligence remain central, so individuals have to be managed with great attention and care.

In essence, the virus has revealed many weaknesses in decision makers, indicating a new core of skills towards we need to orient executive training programs in the coming years. Business education will serve to help people and future leaders deal responsibly with the complexity challenge that the future holds. These skills will not replace those upon which MBA programs are based today, but will enrich executive education by building depth and breadth of skills through flexible training programs customized on the needs of the individual. ■



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Monetary Policy No Longer Facing a Crisis A

The European Recovery Fund is a historic turning point: the first embryo of a common fiscal policy for the EU, so long awaited

by Carlo Altomonte and Gianmarco Ottaviano @

We accept change only in case of need, and we acknowledge need only in case of crisis. Thus spake Jean Monnet, father of the European unification project. He would therefore not be surprised by what in recent months has been happening in the Old Continent under the effects of the pandemic.

In fact, having faced the financial crisis of 2008-2009 and the sovereign debt crisis of 2011-2012, European countries have already been dealing with the tension between need and change for quite a while now. But even when crises strike, it's not easy to build political consensus and arrive at optimal solutions. The Fiscal Compact of March 2012, the political prerequisite for the agreement on the European Stability Mechanism (ESM) and for OMT operations (Outright Monetary Transactions – Draghi's «Whatever it takes») required the insertion of a balanced budget clause, so dear to "frugal" member states, as condition for having a fiscal policy of the eurozone. The result was de facto fiscal contraction in a period of economic crisis, which led to the widespread perception (especially, but not only, in Italy) of so-called austerity as being the right policy at the wrong time. At the end of 2018, also due to structural lags keeping the country behind, Italian GDP per capita was still 6 percentage points below the 2008 value.

With the pandemic crisis, however, the transition from necessity to change seems to have come easier even for Germany, the leading country of the frugal coalition. Previous experience with the euro crisis, and the recent reservations on ECB monetary policy expressed by the German Supreme Court, seem to have generated a rethinking of the traditional EU game, according to which crises are managed by granting a modicum of



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fiscal redistribution between member states, while leaving the bulk of the burden of adjustment on the shoulders of the ECB. The rethinking took place on May 18, 2020, when France and Germany announced, completely unexpectedly, their common proposal for a €500-billion European Recovery Fund endowed with actual funds, meaning fiscal transfers, to be included in the multiannual financial framework of the EU budget and then distributed among member states. The European Commission has then intervened on the original Franco-German proposal, with a detailed proposal for the employment of funds, known as the Next Generation.

Beyond other concomitant measures, such as subsidized loans to support the unemployed (SURE) and the activation of a new temporary credit line for health spending related to the coronavirus emergency (in the ESM context), the Franco-German proposal represents an epochal turning point. In fact, it breaks two of the fiscal taboos that have characterized the single currency since the start. On the one hand, for the first time it accepts the principle that the EU budget can be used in a counter-cyclical way, while so far the consensus was that the EU budget should only cover structural spending, without any role in stabilizing aggregate demand across the economic cycle. Secondly, it designs a common debt instrument (bonds issued by the European Commission based on the guarantees of future national contributions to the EU budget), which is paid by the member states according to their economic weight, but which can be disbursed to the member states in function of financial needs emerging from the pandemic crisis.

By virtue of this sprout of common fiscal policy, for the first time European monetary policy will not find itself alone in dealing with a common crisis, creating a kind of financial support that could also become relevant for key industries and regions of the frugal countries. As Jean Monnet would say, a great privilege of producing cognac is that, more than anything else, it teaches you the virtue of waiting: man decides and organizes, but the seasons must be on his side. ■



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lone



As has occurred for more than a decade now, the Fed and the ECB will continue to resort to unconventional monetary policy in the coming months. And central bank independence will have to be defended

by Donato Masciandaro @

The Post-Lockdown Phase Also Applies to Cen

The two most important central banks in the world, the Fed and the ECB, must also prepare for the Phase 2 of the pandemic. They have only one certainty: for months to come, monetary policy will have to be conducted by unconventional means. So what are the main points? In normal times - which date back to 2008 - there were at least four fixed points: the central bank must be independent; monetary stability must be a relevant target; policy instruments must be neutral, in the sense of minimizing the fiscal and banking effects of monetary policy; finally, the only instrument of monetary policy was changes in nominal short-term interest rates. The discount-rate instrument maximized the neutrality of monetary policy, because it minimized its potential redistributive effects, which act through three possible channels, concerning redistribution between citizens, between sectors, and between generations, respectively. When nominal interest rates change, citizens can be divided into borrowers and savers, with the one group



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happy when the other is not. But for some time these two categories have cut across the traditional distinction between households and businesses, so that distributional effects have traditionally been scarcely felt. Furthermore, in normal times, with relatively small central banks' balance sheets, and assets mostly composed of short-term government bonds, the sectoral effects also seemed negligible. Finally, low inflation minimized intergenerational transfers.

From 2008 onward, the monetary policies of the Fed and the ECB have become unconventional in three different ways. First, short-term nominal interest rates have kept on decreasing, reaching zero in the United States and going into negative territory in the European Union. Secondly, the action of central banks to purchase financial assets to inject liquidity into the economy and also affect long-term interest rates has taken extraordinary proportions. The size of purchases has grown enormously, while the type of assets purchased has changed profoundly, to include



tral Banks

public and private securities, with increasing risk for the lender of last resort. Finally, the central banks have adopted the policy of binding announcements, seeking to influence future interest rates, through the mechanism of expectations.

The automatic reflex of the massive adoption of unconventional policy tools has caused the exponential emergence of redistributional effects. The more redistribution effects increase, the more politics wants to - and must, we would add - deal with central banks. Since both the Fed and the ECB will continue to pursue heterodox policies, it is in the interest of American and European citizens that the effectiveness of monetary policy be protected by strengthening two other safeguards: central bank independence and consistency in monetary policy objectives.

The independence of the central bank is predicated on the assumption that having a stable currency is functional to the long-term welfare of citizens and such an aim can

only be successfully pursued by entrusting the task to an independent bureaucracy. Thus the defense of the independence of central banks from politics and high finance must continue. Rather, the two central banks should reconsider the appropriateness of equating monetary stability with controlling variations in consumer prices. Such an identity is risky for a number of reasons, of which I should mention at least two. First, an objective is credible if it is attainable. If you think changes in consumer prices do not depend solely on monetary policy, then it would be more prudent to consider the inflation variable a compass rather than a target. Secondly, an objectively punctual and asymmetrical value can be more risky than definitions based on time intervals, or on the price level. Without changing the definition of monetary stability, the work of the Fed and ECB will become much more complex. The sword of Damocles will continue to hang over the heads of central bankers. Courageous decisions are needed. Let's hope it will be enough. ■

How Right-wing Populism Could Grow

From Trump to Johnson, a look at the short and long-term effects on the popularity of leaders and governments who managed Phase 1 and 2 of the pandemic. And how the economic recession can give new life to extremists

by Catherine De Vries @

The Covid19 pandemic is an unparalleled global crisis. As governments struggled to suppress the spread of the virus, they resorted to extraordinary and often draconian measures, such as restrictions on individual movements, physical distancing requirements, surveillance of civilians and border closures. While these lockdown measures are extraordinary, so was the first public response to them. Despite the grave adversity faced by citizens and the infringement of their rights, many incumbents have experienced a boost in popularity during the onset of the outbreak. Even the approval of President of the United States Donald J. Trump, who has faced sustained criticism for his slow response to the crisis, rose at the start of the Covid19 outbreak in March to the highest ever with 49 per cent of adults in the United States approving of his performance.

Governments cannot sustain these approval ratings. Once the crisis becomes embedded in domestic politics and crisis response, performance of the incumbent will start to matter more. Just as we have seen in relation to natural disasters, when governments are often blamed, and held to account, for their inadequate disaster responses. Some governments may try to react to this by grabbing hold to power through executive overreach, as we are currently witnessing in the United States. The pandemic may accelerate the hollowing out of democratic institutions and norms. In other countries, political developments may prove less dramatic. Governments will face



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increased public scrutiny for their handling of the crisis and their response gets reconstructed and assessed. The situation in the United Kingdom for example is a case-in-point. While prime minister Boris Johnson enjoyed an initial boost in popularity, the critique of the government's chaotic response to the pandemic made his approval ratings tumble.

Right-wing populist politicians will also be eager to exploit the crisis for their own political gain. Right-wing populist parties often thrive if they can claim a topic that allows them to oppose the government. While most right-wing populist parties lost traction during the start of the pandemic, they may regain attention by blaming governments for the economic consequences of the pandemic. It is important to distinguish between short-term and long-term effects.

When it comes to an unexpected event, such as a pandemic or environmental disaster, a government can show decisiveness by acting quickly and appropriately. This may lead to electoral gains in the short term. Two political scientists examined the electoral consequences of the flooding of the River Elbe in Germany in 2002. The then Federal Chancellor Gerhard Schröder and his Social Democratic Party gained more votes in the areas affected by the flood. The adequate emergency aid was one of the main reasons why the Schröder government was re-elected in 2002. At a time of crisis, citizens demand action. If governments act swiftly and their measures prove to be effective, they can gain electorally. Shouting from the



sidelines can be viewed by voters as a sign of political weakness.

But if we start looking at the longer term, the picture may change dramatically. Especially if a crisis, such as the Covid19 pandemic now, triggers a deep recession and turn into a full-blown economic and financial crisis. Economic historians have analyzed data from twenty OECD countries for the period 1870 to 2014 and demonstrated that electoral support for far-right parties

increases with an economic and financial crisis. In fact, these parties even saw their votes grow by a third. Why might this be the case? Right-wing populists are extremely good at finding a scapegoat to exploit an electoral crisis. Currently, we do not know yet how deep and sustained the economic recession will be. This makes predicting the long-term political consequences of the pandemic difficult, but what we do know is that rallying around governments will not last. ■

by Alfonso Gambardella @

Data: Helpful, U

To make managerial (but also political) decisions, is it better to rely on

We have learned many lessons from Covid19, and many more we are going to learn. I want to focus on one: management under uncertainty. This squares with the soaring availability of data and technologies for managing and processing data. The pandemic has shown that data can be helpful, useless, or misleading, depending on how we make decisions and use data.

I am part of a research group that advocates that management should become more “scientific” in the sense that managerial decisions under uncertainty should follow the same approach that scientists use in their research. Many managerial decisions involve no uncertainty. They are decisions about how to achieve a known goal more efficiently - e.g. how to minimize costs to produce a given quantity of output. But decisions that involve growth, such as innovation, or responses to competitive threats, are decisions under uncertainty. While management has taught us a lot about the first type of decisions, the same is not true of the second type. We should also beware of extreme views: artificial intelligence and computer science will solve most managerial problems, or at the other extreme, gut feelings is the only way to go. A scientific approach to managerial decisions advocates that managers have to first develop a theory of what they expect. They then have to use data to test their theories and take actions based on the outcomes of these tests. As an illustration, I played a game in one of my classes. I told two students that they were going to earn 100 points per supporter of Inter FC in the class if they made an investment that costs 800 points upfront. The question is whether to make this investment. They developed a theory based on the number of male students, students from Milan, and other potential predictors. They predicted, respectively, 18 and 6 Inter supporters in the class. I then asked them to take a sample of 15 students out of the 100 in the class, and they found that 2 (or 13.3%) supported Inter FC. Both the test and the students’ original gut feelings matter because they updated their prediction to 14 and 10. On the one hand, their predictions converge; on the other hand, gut feelings may embody information that we do not account for in the tests. Who is right or wrong? It depends on who had the best gut feelings, or in the language of statisticians on “priors”. However, the important point is that, compared to the initial gut feelings, the test improved both decisions: there were



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12 Inter supporters in the class!

If you think that this is not real, here is another example. A company has used big data to predict that customers who pay their bill online are more reliable (pay earlier and they are more likely to pay). But what to do with this prediction? Only a theory can inform about actions. Customers who pay online could be more reliable because of their characteristics or because online payment is easier. This yields two different managerial actions: monitor offline payers or diffuse online payments. The company could study two identical populations that for random reasons paid online or offline. If they observe differences in reliability, the company ought to extend online payment, otherwise it needs other experiments to understand what affects payment reliability. A similar example is the prediction made by Scott Stern and colleagues at MIT that used data on all the start-ups in Massachusetts to show that start-ups with shorter names are more likely to grow. This is useful for venture capitalists who need to predict high-growth companies, but not for entrepreneurs because if they shorten their names they are unlikely to grow faster. In order to understand how to grow faster, they need theories and tests that inform them whether it is a good idea to take the actions suggested by their theories.

Managers still rely too much on gut feelings and use data to make descriptions (“here is how sales are going this year”) or, more rarely, predictions. The big opportunity is to use data for making decisions using theories and by designing tests that identify the value of the actions they theorize. Gut feelings help the scientific management of decisions. For example, if our prior is that online makes payments easier and do not find good evidence of it, we run another test to be sure; if we have the opposite prior, we save the cost of the new test.

This also puts Universities and business education in the right perspective. Too often we hear of genius entrepreneurs who made it only thanks to their intuitions; but we never hear of the many more that did not make it for the same reason. Universities and business education are, and will remain, the locus in which we learn the method for making good managerial decisions, whether in firms, government or other organizations. The Covid experience has shown that this is truer if we use and manage data efficiently. ■

Useless or Misleading?

instinct or on the scientific method? The pandemic has shown that the answer is in how we use the data

Risks Light Up Innovation

Whether they are medical emergencies or sudden natural catastrophes, the increase in uncertainty and risk perception accelerates changes and innovations in the product, process and business model. First to benefit are the companies that, apart from their size, have an efficient governance and that over time have invested in research

by Andrea Fosfuri

Even in the darkest days of the Covid19 pandemic, innovation has been flourishing all around the world. We have marveled at the ingeniousness of Dr. Renato Favero who had the idea of an emergency ventilator mask, produced by adjusting a commercially available snorkeling mask. Based on his idea, Isinnova, an Italian startup located in Brescia, 3D printed and patented an adaption valve that connects Decathlon snorkeling masks to a ventilator. Within two months from the beginning of the pandemic, Akara Robotics, an Irish startup founded by Conor McGinn, an assistant professor of mechanical engineering at Trinity College in Dublin, developed a robot emitting ultraviolet light (UVC) with the ability to disinfect hospitals and kill the Covid19 virus that hides on surfaces. In China, robots have been designed to deliver medicines, meals, and to collect bed sheets and rubbish in hospitals. Fortunately, these are not exceptions. Hundreds of innovations have already been developed in response to the Covid19 pandemic, as documented by online repositories like www.covidinnovations.com.

Academic research suggests that necessity is the mother of innovation. Necessity increases the expected rewards for the successful innovators, prioritizes and focuses creative efforts and pushes researchers to look for solutions outside the box. For instance, natural disasters, like earthquakes, droughts and flooding, have been associated with greater technical innovations that can reduce the risk of future hazards. Because the new normalcy will need to accommodate an appropriate level of economic activity while addressing the health and safety risks of potential new outbreaks of Covid19, technologies that eliminate or attenuate such risks are likely to meet an increasing demand in the incoming months. A paper by Hong Luo (HBS) and Alberto Galasso (Rotman) presented last



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December at the Baic conference organized by SDA Bocconi School of Management and Icrios specifically analyzes innovation in the realm of risk mitigating technologies. Their research suggests that firms will develop technologies, business practices, and strategies that improve customer and employee safety by mitigating the risk of contagion because the increase in risk perception makes consumers more willing to pay for safety features, which, in turn, provides producers greater incentives to innovate. Both existing companies and new startups are likely to come up with innovative solutions that can meet the enlarged demand for safety.

Many of the innovations developed in current months are solutions that could be quickly implemented in company operations. Most companies, out of necessity, have been forced to innovate in how they organize business meetings: face-to-face interactions have been replaced by video conferences across many sectors of the economy. Most universities have quickly shifted from their traditional on campus education to online teaching modalities. The research by Luo and Galasso shows that small and large companies are equally likely to develop and adopt this type of innovation. Other innovations instead require greater investments and more substantial adjustments in company operations. For instance, the development of an instantaneous testing technology that is reliable and affordable requires investments not only

in product development, but also in scaling up production and commercialization. Large firms usually have deep pockets and control the complementary assets that are required to profit from innovation, as research by David Teece has shown more than 30 years ago. Together with the temporary drying up of venture capital financing, these considerations suggest that large incumbent firms have a relative advantage with this type of innovation.

Finally, other innovations will require companies to completely overhaul their current business model to deliver value to customers. Luo and Galasso's research is silent about this case because in their study firms did not face a pandemic. However, in some sectors, to cope with social distancing and other potential disruptions should new Covid19 outbreaks emerge, current business models may become completely obsolete. Many companies have been forced to go through a digital transformation that included migrating from on-premises systems to hybrid clouds, streamlining their financial and operational processes, improving the customer experience using technology, and creating a more flexible working environment. However, not all companies have been able to embrace these changes quickly and effectively. In a recent article with Dogan Dalay (former PhD student at Bocconi University), David Wehrheim (IESE Business School) and Christian Helmers (Santa Clara University), we show that those corporations that have both an efficient governance that allows them to be bold in decision making and have invested in science are better positioned to adjust to such a discontinuous

transformation of their business model. How long the pandemic will last and for how long our way of living will be disrupted by risks and fears is difficult to predict. However, extant research suggests that, in the incoming months, innovation surely will make it less daunting to bear with the burden of Covid19 and hopefully will allow us go back to the old normalcy. ■

Giving Italian Businesses a Fresh Start

What if Italian companies did like the Americans? Cavallini and Gietzmann analyze how and under what conditions to introduce Chapter 11 of United States bankruptcy statute into Italian law

by Cesare Cavallini
and Miles Gietzmann @

What would every Italian company like to see when they emerge from the long Covid lockdown? A fresh start for their balance sheets!

Obviously, the Italian legal system has well developed bankruptcy processes in place allowing debtors who can no longer pay their creditors to get a fresh start by liquidating assets to pay their debts or by creating a repayment plan. In a formal bankruptcy the debtor's finances are reorganized. The debtors pay their creditors what they can afford. What they cannot afford is discharged. A debt discharged through bankruptcy is no longer enforceable against the debtor. However, these legal proceedings may take some time and the remaining company may be a shadow of its former self. This has motivated some commentators to pejoratively describe post-bankruptcy emerging firms as zombies. While such a description is probably unfair it is interesting at this time to ask whether there are any other possibilities? One alternative approach is the fresh start accounting option under US Chapter 11 bankruptcy.

In its most stark form fresh start accounting allows a company to close business one night and, in the morning, open with a completely new balance sheet typically unencumbered with major debts. In some well-known cases the length of time between declaring bankruptcy and the fresh start company opening for business is minimal because on declaring bankruptcy the company simultaneously announces a prepack settlement outlining an agreed reorganization. So, the US approach can be rapid, and companies need not languish for weeks in administration. How though does the magic happen? The essential difference in the US is, creditors are incentivized to follow a loan to own strategy. Unfortunately, at the same time typically the shareholders of the original troubled company lose all interest in the company with the fulcrum debtors of the former company becoming the controlling shareholders of the new company. Clearly there is no magic for the former shareholders. If one's policy objective was to



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promote speedy return of companies to the market place the US approach clearly has some merit. However, could such a system be implemented in Italy? We attempt to address this question in two ways. First, we will consider what it would mean for financial institutions and secondly what constructive reforms in part inspired by US practices were recently proposed by the European Commission.

In terms of institutions one sees immediately that if a company's major creditor was a local bank, that bank may not find a loan to own opportunity an attractive option since managing and advising on day to day operations may not be a skill they specialize in. Yes, they can monitor daily cash flow but giving strategic advice in a specialized industry may not be within the bank's core competencies. How does the US deal with this? The simple answer is that trading in the debt of distressed companies is made possible. Put simply a local bank can sell the distressed debt to a private equity reorganization specialist who then becomes the loan to own participant. In the US, the institutions that specialize in purchasing distressed debt are sometimes referred to unattractively as vulture investors. The vulture investors make their money from taking control of the formally distressed company and getting it back on its feet as quickly as possible, so its equity value increases significantly. Aggressive reorganizations may involve systematic changes in the way the company is run which has implications for management and staff. Whether this could work in Italy would therefore depend upon whether sufficient vultures with their own finances and entrepreneurial spirit would be prepared to come forward and whether laws would allow them freedom to make sweeping organizational changes. Perhaps the fast-paced fresh start accounting methods of the US are a step too far? Recognizing that some reform in bankruptcy procedures was necessary within the EU, the commission has come up with some new proposals. The EU Directive no. 1023/2019

follows selected features of US Chapter 11 bankruptcy. The Directive provides a model for preventive restructuring frameworks (PRFs) to avoid insolvency proceedings such as bankruptcy. In particular, these frameworks allow entrepreneurs to submit their creditors a restructuring plan aimed at restructuring their business through several measures such as changing the composition, conditions or structure of a debtor's assets and liabilities or any other part of the debtor's capital structure. The wide scope of these provisions, potentially including several kinds of financial measures, can probably allow a fresh start for the European companies' balance sheets. But there are still too many unknowns in this case. First, the Directive needs to be adopted within each national legal system. This fact can reasonably determine different adaptations of the EU law in accordance with the existing legal rules in each Member State. While some States could adopt a regulation for PRFs that authorizes companies to organize fresh start accounting, other States could forbid it by reducing the scope of PRFs. Second, the EU Directive requires that the PRF shall be not only be adopted by the parties who are affected by the plan such as creditors or equity holders but also confirmed by a judicial or administrative authority. These limitations will probably reduce the initial impact of PRFs involving fresh start accounting on national legal systems. However, it is reasonable to expect financial practices in individual states to exploit the potential of the Directive. National legal systems will have to ensure various ways of implementing the restructuring plan in accordance with the broad scope of the directive. This fits in well with the new structure of Italian insolvency legislation (Legislative Decree no 14/2019) which prioritizes the negotiated solutions for restructuring the companies' financial crisis as opposed to liquidation solutions. Thoughts of a quick fresh starts for some Italian businesses may be considered fanciful because we all know recovery will often be slow and difficult. However speedy attention by regulators on how to apply the new PRFs is essential. While US fresh start accounting has issues it does illustrate what is possible if regulators choose to focus upon innovative solutions in a post Covid environment.

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Covid Crisis Lab Health

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Let's Not Forget the Elepha

Inadequate investment, inability to coordinate decentralized systems, weakened of primary care : the problems that emerged during the acute phase of the emergency are not new. Not in Italy, nor in other countries such as the United States and the UK, that is, some of the most affected nations. Here are the lessons we need to learn to draw a new road map for healthcare systems

by Rosanna Tarricone, Aleksandra Torbica, Valeria D. Tozzi @

The pandemic has laid bare an undeniable fact: all economic and social institutions fully depend on the activities performed by people. Without people, or better, without healthy people, society and the economy cannot work.

No matter how obvious this may sound, putting population health and healthcare systems at the core of government actions cannot be taken for granted.

Cost containment pressures and austerity measures adopted in recent years have had a significant impact on the amount of resources available for healthcare. These trends were particularly evident in Italy, UK and US, the three countries that ranked among the first in number of deaths from Covid19 in the world.

At present, Italy spends less on healthcare than most other western European nations: at €3,428 per capita, remains well below Germany's €5,986 per capita.

The United Kingdom (UK) has likewise implemented austerity measures over the last 10 years, employing contractionary measures that, though the National Health Service (NHS) budget was not reduced, kept increases in funding below previous levels.

Public health expenditure has also been declining in the US. Funding for core emergency preparedness, through the Public Health Emergency Preparedness (PHEP) Cooperative Agreement Program of the Centers for Disease Control (CDC), significantly declined from \$940 million in 2002 to \$667 million in 2017, compromising state and local health departments' preparedness for emergencies.

The current epidemic has demonstrated that debilitated healthcare systems can be brought to the brink of collapse with unforeseen consequences for the entire society.



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→ CLEAR STEWARDSHIP IS ESSENTIAL, ESPECIALLY IN DECENTRALIZED SYSTEMS

In times of public health emergency, the effectiveness of decentralized systems can be measured by the promptness and determination of the coordinator (i.e., the central government) in creating the conditions to face the emergency (e.g., infrastructure, supply, evidence, communication) and by the local actors to efficiently enact, and if necessary adapt, national guidelines for local execution, in a typical command-and-control manner. But Covid19 has threatened this equilibrium. Since the beginning, some regions have charged that the central government's response has been too slow and disjointed and have started organizing the response to coronavirus autonomously. Each region was differently hit by the virus and tried to implement appropriate and coherent health policy measures. Conversely, central governments tried to impose universal measures in the name of the unity of the nation thus prompting conflicts between the regions and the State first, and between regions afterwards. This happened not only in Italy. A series of missed chances by the US Federal Government to ensure more widespread testing came during the early days of the outbreak, when containment would have been easier. Even now, after weeks of mounting frustration toward federal agencies over flawed test kits and burdensome rules, states with growing cases such as New York and California are struggling to test widely for the coronavirus. In Germany, the first phase of the emergency has been successfully governed at the Federal level, which promptly facilitated adequate responses in the Landers (regions) based on local needs and contributed to keeping mortality rates at low levels compared to other EU countries. The second phase, however, appears to be problematic,

nt in the Room

MARCO BONETTI

Data Analysis Made Easier

Marco Bonetti, Director of the Dondena Centre for Research on Social Dynamics and Public Policy at Bocconi, along with **Ugo Filippo Basellini** (Max Planck Institute for Demographic Research and Institut national d'études démographiques), created an open source [tool](#) to facilitate the visualization of the coronavirus's spread and local trends. «The tool uses the free statistical program R, widely used in the scientific community, and displays Italian data on the number of people infected, hospitalized or deceased», says Professor Bonetti. A [beta version](#) of an online app that shows the results of the analysis updated in real time is also available.

The program incorporates official data at the province and region level and, through a simple

statistical analysis, summarizes the trend that the epidemic has followed so far locally. The result is a graph for each province or region, including cumulative data on contagions (or other variables) and an interpolation curve. Next to the graph, there is an indication of the estimated relative growth rate of the curve on the day of analysis. This translates every day into an updated map of Italy, in which each province corresponds to a circle. The size of the circle corresponds to the number of events up to the day of the analysis, while the color of the circle indicates the speed of growth at the time of the map. For example, light colored circles indicate provinces where the growth of contagion is modest, while dark colored circles indicate

provinces where it is high.

Bonetti, Professor of Statistics at the Department of Social and Political Sciences at Bocconi, described the analysis and the tool in a working paper free to download. The code can be downloaded by clicking [here](#), and the beta version of the online app is available by [here](#), where updated maps can be produced very easily.

«The objective of this type of analysis is to follow the progress of the epidemic in the different areas of the territory,» concludes Bonetti, «and great caution is needed when extrapolating on the future. Moreover, we are currently working to increase the flexibility of our software to capture changes in the trends during the summer stage of the epidemic. We hope that we will not witness a second wave of infections, but if this were to be the case, the software will allow one to capture such signals in a timely manner».

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THE PAPER

EpiLocal: a real-time tool for local epidemic monitoring
by Marco Bonetti, Ugo Filippo Basellini

ELIO BORGONOV

The Role of Social Factors on Spread and Mortality

The project *Diffusion Factors and Mortality from Covid19* is the result of a collaboration with virologist **Ilaria Capua** from the University of Florida. It started in March, when the multidimensionality of the Covid phenomenon began to fully emerge. The large study includes several work packages, which aim to reconstruct the data of real mortality at the municipal, regional and international levels, but also the differences that affect male or female subjects in consideration of socio-behavioral factors, comorbidity variables and possible repercussions of the pandemic on other pathologies.

«From the initial idea provided by Ilaria Capua, the work group has expanded and today includes many subjects, including Cern in Geneva. Its formidable computing power has been provided to process collected databases, which are often uneven, analyze the data and cross-reference the different factors,» explains **Elio Borgonovi**, Professor of Economics and Management of Public Administration and President of Cergas. «Today we can start thinking about the first results.»

Starting from the data of deceased people who tested positive for the virus declared by various countries and predictive analyses, for example, a more realistic mortality rate for Covid19 could be calculated, as well as a weighted average which could be used to estimate the patients infected in different countries.

«Some of these data are now in the hands of Cergas, where my colleague Benedetta Pongiglione is processing image maps with the evolution of the situation week by week for about 7200 municipalities, according to the latest data released by Istat,» says the professor.

«Among the most important research objectives, however, is that of introducing into the calculations other possible causes of the pandemic, from pollution to the transportation network to social relations. The last factor, in particular, is the newest element and the role of social aggregators present in a territory still needs to be compared to the area's propensity to spread the virus.»

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Statistics shows that early lockdown measures are our best weapons

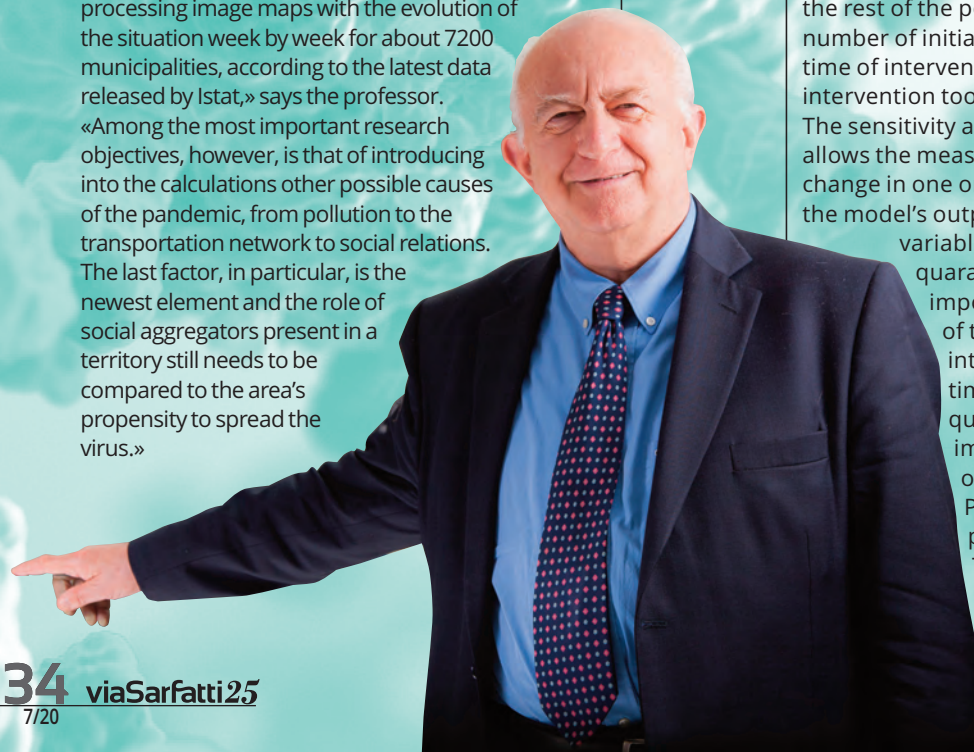
Emanuele Borgonovo and **Xuefei Lu** have singled out the time of lockdown introduction as the key variable in reducing the number of Covid19 infections, in a paper that combines a standard epidemiological model (SEIR: Susceptible, Exposed, Infectious, Recovered), machine learning techniques and sensitivity analysis.

Borgonovo, Full Professor at Bocconi University, and Lu, PhD in Statistics at Bocconi and now Assistant Professor at the University of Edinburgh, used publicly available data for the progression of the pandemic in Italy up to 20 April 2020 and estimated the relative importance of six factors acting as parameters of the SEIR model: protection rate (the rate at which the susceptible population becomes insusceptible due to activation of public health policies such as the imposition of social distance measures or provisions for wearing face masks, the introduction of contact tracing apps, etc.), infection rate (the parameter controlling how often a susceptible-infected contact results in a new infection, that can be reduced by measures such as social distancing), average latent time (the period between the time an individual is infected and the time at which the individual becomes infective), quarantine rate (the rate at which the infectious portion of the population can be isolated from the rest of the population) number of initially infected individuals, time of intervention (the date at which the intervention took place).

The sensitivity analysis (a set of methods that allows the measurement of the effects of a change in one or more model input variables on the model's output) highlighted that policy

variables such as intervention time and quarantine rate are much more important than the intrinsic features of the pandemic. Time of intervention turned out to be 4 times more relevant than quarantine and 8 times more important than the initial number of infectious and infection rate. Protection rate and latent time play an even smaller role.

The scholars have also been able to estimate the time lag between the issuance of the lockdown





and the full effect of the measure: 5 days. These results are in accordance with discussions in current economic research. «This study», concludes Professor Borgonovo, «confirms the strength of sensitivity analysis in obtaining insights useful to the decision-makers. Not only does it say that policy variables are the key drivers of pandemic containment, it also shows that there isn't much interaction between the variables, i.e., that a change in one of them displays its own effects irrespective of the changes in the other variables».

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unveiling weaknesses in the capability of the Federal government to coordinate Landers and thus emphasizing asymmetries that are now impacting local economies.

Decentralized governance in managing population health and healthcare can attain excellent performance provided that the central government becomes more rapid in responding, less bureaucratic, streamlines processes and procedures, increases its capability to analyze and interpret future (demographic, epidemiologic, technological) trends so as to anticipate health policies aimed at supporting and coordinating the work of local governments.

→ MORE ATTENTION ON PRIMARY CARE AND PUBLIC HEALTH

When epidemics spread, there was no time to re-design care services, so those regions that already routinely used territorial services converted them to manage infected patients. Areas like Scandinavia, the Catalan region of Spain and the Veneto region of Italy had more robust models of primary care and were able to keep patients at home by organizing different forms of remote monitoring, thus alleviating the pressure on hospitals and, at the same time, providing effective care to home-based patients. Furthermore, the Covid19 experience has shown the importance of effective public health services. Over time, public health services have become disconnected from the gamut of services provided at the single patient level, reducing the level of coordination.

Epidemics, as Covid19 has reminded us, require that community interventions be coordinated with primary care. To move toward community intervention requires reconnecting the public health and hygiene mandate with that aimed at guaranteeing individual patient services through large scale managerial action.

→ THE FAST PACE OF HEALTH CARE SERVICES' TRANSFORMATION

If there is one thing that we have realized, it is that local health systems can be both flexible and controlled, thanks in large part to the ability of top management to improvise within a system full of constraints and in unknown territory. This silent community of professionals (healthcare managers, starting with the general managers) acted by reorienting the organization of LHAs that had become unwieldy (the average population covered by an LHA has climbed to 500,000 inhabitants) due to continued mergers and concentration of processes over the last few years. The hospitals and LHAs were able not only to withstand the onslaught of the virus but also weather the uneasy relationships between the national, regional and



THE PAPER

Is Time To Intervention In The COVID-19 Outbreak Really Important? A Global Sensitivity Analysis Approach
by Emanuele Borgonovo, Xuefei Lu

local levels. Unprecedented crisis made clear how important effective and capable management at the provider level is for facing these challenges. Boosting management capacity at the local level is one of the essential ingredients of a strong and resilient healthcare system.

→ NOT TO FORGET

When Covid19 is over, human losses will be painfully countless while economic downturns have already started counting thousands of billions of US dollars worldwide. As strange as it may seem to say, we believe that Covid19 did not create new problems but violently brought to the surface many of the challenges healthcare systems have been facing for a long time. Governments play a pivotal role in ruling healthcare systems, and this becomes even truer in times of epidemics, i.e., whenever health clearly reveals its 'public good' nature. Healthcare is the cornerstone of society and must be funded appropriately. The pandemic is evaporating, but the extra funds for the Italian public healthcare system must not. It's time to develop a forward-looking, evidence-based road-map for making the future normality different from the one before. ■



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SIMONE GHISLANDI

Life Expectancy: The Cost of the Pandemic in Lombardy and Piacenza

In the study *News from the Front: Estimation of excess mortality and life expectancy in the major epicenters of the Covid19 pandemic in Italy*, **Simone Ghislandi**, Associate Professor of Health Economics, calculates the impact of Covid19 on seasonal (1 January-30 April) and annual (2020) life expectancy in the provinces and regions most affected by the epidemic: Bergamo, Brescia, Cremona, Lodi and Piacenza and the Lombardy Region. For the study, Prof. Ghislandi worked with **Benedetta Scotti**, also from Bocconi, and two researchers from the Wittgenstein Center for Demography and Global Human Capital in Vienna. «Our approach is notable due to two aspects,» he explains. «First, we consider mortality in general, not just deaths classified as Covid19. This is mainly because official deaths in Italy very likely underestimate the actual deaths directly and indirectly caused by the epidemic. Secondly, we focus on specific areas. This is because epidemic waves in Italy have been mainly localized in certain provinces, and calculating life expectancy for the entire nation would greatly underestimate the impact of the epidemic.»

Based on data provided by Istat regarding the number of deaths per municipality for the provinces considered and comparing them with mortality in previous years, the study calculates that: in some municipalities mortality from 1 January to 30 April increased by more than 300%; age is the most relevant risk factor. In Lombardy, people over 70 showed an excess mortality 69 times higher than that of those under 60; men have an increased relative risk of dying (always calculated in terms of excess mortality), up to 6 times the risk for women; the reduction in life expectancy from 1 January to 30 April is dramatic: for males, almost 8 years in Bergamo (as low as 6.2 years in Piacenza), for females, 5.8 years in Bergamo (down to 3.6 years in Piacenza); projecting the (low) excess mortality remaining to finish the cycle of the epidemic and assuming that post-Covid mortality returns to historical trends, the expected loss of life in Bergamo, the most affected province, is of 4.1 years for men and 2.6 for women. Other provinces have less pronounced, but still significant, reductions. «Basically, for these provinces, and especially for Bergamo, this is the event with the highest human costs ever seen from the post-World War II period to today,» concludes Prof. Ghislandi.



THE PAPER

News from the front: Estimation of excess mortality and life expectancy in the major epicenters of the COVID-19 pandemic in Italy
by Simone Ghislandi, Raya Muttarak, Markus Sauerberg, Benedetta Scotti

ALESSIA MELEGARO

The truth about the Lombardy case

«Why was Lombardy so affected by Covid?» This is the catchphrase question that **Alessia Melegaro**, Professor of Demography and Social Statistics, has been addressing recently. In fact, the faculty member is dedicating a research project (*Mathematical Modeling and Epidemiological Analysis of Covid19 Data*) to the analysis of the region's data and their modeling. It aims to monitor the progress of infection and its potential spread and predict the evolution of the epidemic curve in different scenarios. «I still don't have the answer to the question I'm always being asked, however,» she jokes. «And I don't think I'll ever have a definitive one, because there is not a single reason, but a combination of causes that have determined the extraordinary nature of the Lombardy situation in this pandemic.»

The project started at the beginning of the spread, when Melegaro herself, working in close collaboration with the Region and the Bruno Kessler foundation in Trento, created a mathematical model with which to analyze the spread of the virus and predict its evolution. «Today this phase has ended, the model is operational and we are collecting a lot of data on what happened» summarizes the professor. «There is a lot of information to extract that we hope will give us answers to various questions: What is the timeline between a first infection and a second one? What are the risks associated with socio-demographic variables? In which areas have hospital routes been effective and functional and in which



THE PAPER

Potential short-term outcome of an uncontrolled COVID-19 epidemic in Lombardy, Italy, February to March 2020; by Guzzetta, Poletti, Ajelli, Trentini, Marziano, Cereda, Tirani, Diurno, Bodina, Barone, Crottogini, Gramegna, Melegaro, Merler

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areas haven't they? Can pollution be considered an additional risk factor?»

The first study, which describes the epidemiological curve and the trend of the RT contagiousness index over time and in the various provinces, is being published. This will be followed by others on the different areas addressed in order to put together the puzzle of the long-awaited answers. «Every aspect analyzed provides a fragment of truth,» concludes Melegaro. «In the spread of contagion in Lombardy, demographic characteristics, the distribution of the transport network, the high exposure of cities like Bergamo to trade with China and Asia in general, the frequency of social contacts, and certainly the overload of hospital capacity. And, though it's not reflected in any of the mathematical models, even a little bad luck.»



THE PAPER

The early phase of the COVID-19 outbreak in Lombardy, Italy by Cereda, Tirani, Rovida, Demicheli, Ajelli, Poletti, Trentini, Guzzetta, Marziano, Barone, Magoni, Deandrea, Diurno, Lombardo, Faccini, Pan, Bruno, Pariani, Grasselli, Piatti, Gramegna, Baldanti, Melegaro, Merler

EDUARDO MISSONI


The Importance of a Strong National Health Service

Research fellow at CERGAS Bocconi **Eduardo Missoni** and a team of his alumni now at the Saluteglobale.it association have carried out a series of 10 qualitative studies looking at different aspects of how health systems dealt with the Covid19 emergency. The publications resulted from the multidisciplinary collaboration of former students from three different Universities: Bocconi, University of Brescia (Faculty of medicine) and University Milano-Bicocca (Department of Sociology and Social Research). Several of the projects look at the issue of universal health care during the epidemic, focusing on Italy, such as [The Italian health system facing the Covid19 challenge](#) (Lancet, March 19) and [Covid19: Universal Health Coverage now more than ever](#) (Journal Of Global Health, April 20). «From the Italian side, we wanted to share internationally how the epidemic has highlighted certain weaknesses in a system that was seen as one of the best in the world,» said Missoni. «What we should learn from Covid19 is the importance of the central steering of the national

health service. We found that health systems in general run into difficulty when they have weak primary level of care (community medicine teams and general practitioners), and suffer the consequences of cuts on financial and human resources, and privatization.»

Fragmentation and regionalization is also a problem, because it creates procurement issues and creates confusion about rules, especially during emergencies, he says.

Italy's regions often followed different paths and had different results. The study *So close yet so distant: evidence from Lombardy and Veneto to plan Covid19 recovery strategy* (coming soon in *Archives of Community Medicine and Public Health*) compares the approaches in of two different screening models. The region of Lombardy focused on testing mainly the symptomatic cases and invested less in territorial care, whereas Veneto practiced extensive population testing, including asymptomatic and paucisymptomatic cases; Veneto's model was more effective.

A portrait of Eduardo Missoni, a man with a beard and glasses, wearing a dark suit, white shirt, and a colorful striped tie. He is smiling and looking towards the camera.

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ALEKSANDRA TORBICA

Measuring European attitudes on complying with health policies



The Covid19 pandemic offers an historic opportunity for social and political scientists to study behavioral response to a global health emergency. To what extent does the population comply with political decisions on social distancing, and adhering to

World Health Organization recommendations? To answer these and other questions, the Hamburg Center for Health Economics has launched a survey of 7,500 people in seven European countries carried out by Bocconi University, the Erasmus School of Health Policy and Management, the University of Hamburg and the Nova School of Business and Economics. The project is being conducted within ETN (European Training Network) framework, in which Hamburg, Bocconi and other universities are partners.

Called *Countering Covid19: A European survey on acceptability and commitment to preventive measures*, the first wave of fieldwork took place from April 2 to April 15 using an online questionnaire addressing such issues as people's risk perceptions, support of containment policies, trust in information, worries, vaccination attitudes, and o behavior. The second wave is ongoing, and two more are planned for September and November, taking snapshots of how attitudes progressed over time.

«I was surprised by the variation of attitudes across countries regarding attitudes towards organizations like the WHO. There are countries that trust much more the WHO than others,» said **Aleksandra Torbica**, Director of Bocconi's Centre for Research on Health and Social Care Management (Cergas) and Associate Professor at the Department of Social and Political Sciences.

For example, people in Denmark have the highest level of trust in the WHO in Europe, while France and Germany have the lowest. Attitudes also varied greatly when people were asked if they were worried about unemployment: 51% were "not worried at all" in the Netherlands, 49% in France, 35% in the UK, and only 20% in Italy.

Adherence to the WHO guideline on social distancing was slightly more uniform across the seven countries surveyed but still showed variations. In Italy, the first country in Europe to be hit by the virus, 73% said they fully adhered to the one-meter-apart guideline. In the Netherlands, it was 67%, in Germany 59% and just 54% in Denmark.

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RICCARDO ZECCHINA

Artificial Intelligence for the Days After

Dystopian, utopian or science fiction visions apart, the main function of artificial intelligence remains extracting and processing information in large quantities. Even before the pandemic, the group of researchers working at Bocconi with **Riccardo Zecchina** was looking into the design of automatic data analysis tools in the biomedical field.

The emergency led the group to interface with the University of Oxford and with ELLIS (European Lab for Learning and Intelligent Systems) for the development of machine learning algorithms for backend analysis of the data coming from tracking apps. «The different technological platforms are converging on very similar solutions in different countries and the problem is to understand how to use the data effectively. From the epidemical point of view, if we want to control the second or third waves of Covid19 we will have to rely on the strategies of swab testing, on teams for hot spot tracing, social distancing, remote medicine and, precisely, the use of information from the apps», says Prof. Zecchina.

The algorithmic problems seem possible to tackle, but the political and legal constraints related to privacy make the problem more complex. «The analysis of data from apps, and the risk assessment of individuals,

can be done in more or less effective ways, with varying degrees of algorithmic complexity. The scientific community has provided several solutions that respect privacy».

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A detailed 3D rendering of COVID-19 virus particles. The particles are spherical with a dark, textured surface and are covered in numerous red, crown-shaped spikes. Some yellow, circular structures are also visible on the surface. The background is a soft, out-of-focus light blue and white.

Covid Crisis Lab Society

Arnstein Aassve
Guido Alfani
Francesco Billari
Nicoletta Balbo
Alessandra Casarico
Catherine De Vries
Dirk Hovy
Francesco Passarelli
Marco Percoco
Paolo Pin
Paola Profeta

Watershed on Three levels

The Covid19 era represents a discontinuity in history that will leave its mark on society, family and individuals. It will affect social cohesion, and the attitude towards risk and towards other generations, phenomena that will remain over time and will be studied by social scientists

by Francesco Billari @

There are historical moments that have a strong influence on individuals, households, and societies. The Covid19 pandemic, and its spread during the early months of 2020, starting from China and East Asia, moving to Southern Europe towards the rest of the world, will be one of these moments - a watershed. History will refer to the post-Covid-crisis era, and scholars, social scientists in particular, will try to seek the impact of what happened (as well as to reconstruct what happened), for decades. To use a well-entrenched idea in the social sciences, the Covid19 pandemic is a discontinuity in our history. What can we say about the consequences of this crisis on societies, and in particular on social cohesion? While it is clearly too early to answer this question, we can try to characterize these consequences according to a 'standard' three-fold view that social scientists frequently adopt, distinguishing between macro-level, meso-level, and micro-level consequences. On the macro-level, societies are likely to be shaped by the economic consequences and policy reactions to the crisis, in particular concerning their openness and interconnection. Covid19 hit in a period of uneven economic development. The backlash against economic and political globalization and the rise of sovereignism as a response to perceived uncertainty were there before the crisis. It is therefore easy to imagine that, without explicit changes and interventions, the Covid discontinuity is bound to accelerate the push against having more open and interconnected societies, with nationalist, if not localist, political reactions. Higher levels of sovereignism within societies could become a challenge, more likely a risk, for social cohesion in the whole world. This is even more important for Europe where the EU is ideally bound to the idea of an even closer union. It is no coincidence that policymakers such as Angela Merkel and Emmanuel Macron jointly pushed for unprecedented moves that change the economic functioning of the EU in order to defend, at least within the union, societal openness and interconnection. At the meso-level, social and family networks will also be shaped by the crisis, in particular given the



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Dean of the Faculty,
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GUIDO ALFANI The message of History Is Unpredictability

It is undeniable - pandemics in history have created devastating shocks. But regardless of the mortality of the single pathogen (be it Plague or Coronavirus) and looking at the long-term impacts, what causes results at times very different from one another? «The starting economic and social conditions», explains **Guido Alfani**, Full Professor of history of economics at Bocconi. In [Plague and Lethal Epidemics in the Pre-Industrial World](#), published in the *Journal of Economic History* together with **Tommy Murphy** and in [Pandemics and asymmetric shocks: Lessons from the history of plagues](#) on Vox.eu, Alfani highlights precisely these differences. «Let's take the case of Europe. In the fourteenth century, the plague massacred more or less 50% of the population everywhere, in a continent that was fairly homogeneous from a socio-economic point of view,» explains Alfani. «This generalized rebalancing between men and resources had long-term positive consequences for development.» It went differently during the seventeenth century plague, which struck in a more localized way in the countries of Southern Europe: «In this case, the demographic loss caused a development gap between North and

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THE PAPER

Pandemics and social capital: From the Spanish flu of 1918-19 to Covid19, by Arnstein Aassve, Guido Alfani, Francesco Gandolfi, Marco Le Moglie

South of Europe, leading to negative and lasting consequences for the southern countries most affected». In addition, with colleagues Aassve, Gandolfi and Le Moglie, in the study *Pandemics and social capital: From the Spanish flu of 1918-19 to Covid19*, Alfani assessed the permanent consequences of the pandemic on individual behavior: «We have found that the social disturbances during that period led to a long-term deterioration of social confidence, which had important economic consequences.» Making a parallel with the emergency going on today, the authors highlight the importance of a strong response to Covid19: «The message is that history is unpredictable,» concludes Alfani. «It shows us that we cannot know who will suffer the worst consequences in the long run, so it is important for everyone that the response today shows unity and solidarity at European level».

ARNSTEIN AASSVE
Full Professor
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ARNSTEIN AASSVE

Capturing Changing Social Attitudes Towards Government in the U.S. as the Pandemic Unfolds

Bocconi professors **Arnstein Aassve**, **Chen Peng**, **Nicolò Cavalli** and **Letizia Mencarini** were carrying out a survey called *The Relationship Between Trust and Institutions in the United States* when the Covid19 pandemic broke out. The team, along with **Pierluigi Conzo** at the University of Turin, jumped at the chance to adjust their questionnaire to measure how these attitudes are playing out during the health emergency. The survey mapped 100 individuals daily for 10 days starting on 6 April. After a 20-day break, the team went back starting in early May and re-interviewed the same people in order to understand whether they changed their opinions as the situation worsened. They were still reviewing the results in mid-June.

«I am excited about it, because we really captured the unfolding of the pandemic. We just turned around and said, let's jump in, let's get in the field,» said Arnstein Aassve, Professor in Demography. As a methodology, they opted for open ended questions like «To what extent do you trust Donald Trump» asking for written responses, and then applied techniques like data mining and text analysis to draw out any patterns. The questions focus on levels of trust for the World Health Organization, science, social media, the U.S. government and the U.S. president. It should indicate whether U.S. President Donald Trump's attack on the WHO will create polarization among the American public. «It's kind of a bottom-up approach to try to understand what trust really means, rather than asking respondents to give a score from 1 to 10,» he said.

The next step is to ask people taking the survey if they would be willing to provide their Google Takeout data, so to compare their responses to actual movements during the lockdown. Another project looks at what happens to fertility rates during and after Covid19. «The media has suggested that there would be a baby boom, but our prediction is that fertility will go down. People are losing their jobs and experience strong uncertainty about the future. At the same time, childcare was re-internalized during the lockdown – often placing a heavier burden on women. None of these factors are conducive to having more children» said Aassve.

NICOLETTA BALBO

Epidemiology with Demography, Studying Intergenerational Contacts

Researchers that study infectious diseases are well aware of the decisive role that social contacts play in their spread. Regarding this area, Covid19 attracted the interest of demographers and epidemiologists for its particular lethality for older population groups. «In the first part of the study, which has already been published, we deal with precisely this aspect, that is, the spread of the epidemic and intergenerational contacts, studying the latter's trends in various countries,» explains **Nicoletta Balbo**, a faculty member at the Department of Social and Political Sciences. «For the empirical analysis we combined demographic data from several surveys that offer information on co-residences and intergenerational contacts of people over 60 in different countries, with data typically used in epidemiology, extracted from diaries by individuals who were asked to report all their contacts in one day. The result was that both types of data offer a similar picture: in countries in Southern Europe, such as Italy and Spain, there is more contact between young people, adults and the elderly.» The research has now reached its second phase, in which some socio-demographic areas (structured by age of the population, number of contacts and heterogeneity by age of these contacts) are entered into epidemiological models to observe how the epidemic scenario varies as each of them changes. «Understanding how these elements influenced the initial spread of the pandemic can also serve to inform predictive models,» continues the faculty member, who is completing the research with colleagues **Alessia Melegaro** and **Francesco Billari**. «The demonstration of how the individuals' social contacts move today should advise how and where to intervene to limit the chances of contagion or identify the subjects most at risk. The importance of social contacts has always been at the center of epidemiological studies, but Covid has accelerated their combination with socio-demographic data, uniting two worlds that previously tended to think autonomously and that now have become synergistic. The study also confirms the importance of each country's socio-demographic characteristics, the population's age structure, the culture, the family model, and the institutional and welfare setting. Because everything is interconnected, and no aspect can be ignored when facing a pandemic of this type.»

fact that Covid19 spreads through close contacts—many of which have happened within the family, household or other residential contexts, as well as at work. Physical distancing, with the reduction of the strength of network ties, has been widely used as a policy response. The presence of strong family ties including co-residence and contacts across generations has been hypothesized as an important risk factor for the spread of Covid. Strong network ties have moved to the digital world, for those who could afford it, i.e. those not on the wrong side of the digital divide. As a consequence, the Covid19 discontinuity is likely to become a crucial push towards the digitalization of social and family networks - digital ties will become social ties in an irreversible way. At the micro-level of individuals, impacts are likely to be shaped by the Covid crisis in different ways according to their age and socio-economic status (as well as their place of residence). While older individuals have suffered the heavier health burden of the virus in the hardest-hit areas, children and youth have suffered high social (through the physical closure of schools and universities) and economic consequences even in areas that have been less hit by the health crisis. Every individual who passed away because of the pandemic left a number of family members bereaved. Moreover, the negative consequences of the crisis were less buffered by the disadvantaged at all ages. As a discontinuity, the pandemic will

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THE PAPER

The strength of family ties and Covid-19, by Nicoletta Balbo, Francesco C. Billari, and Alessia Melegaro

ALESSANDRA CASARICO

PAOLA PROFETA

Working from Home, Housework and Childcare: How Families Divide the Workload



THE PAPER

Women's work, housework and childcare, before and during COVID-19 by Daniela Del Boca, Noemi Oggero, Paola Profeta and Maria Cristina Rossi

Evidence from past economic crises indicates that recessions often have a greater impact on male-dominated sectors. But the Covid19 lockdown may end up having a greater effect on women's employment than men, according to two separate studies.

Women's Work, Housework and Childcare, before and during Covid19 (2020, CEPR Covid Economics 28: 70-90) was carried out by **Daniela Del Boca**, **Maria Cristina Rossi** and **Noemi Oggero** (at Collegio Carlo Alberto & University of Turin) and **Paola Profeta** (Bocconi University & Dondena) using survey data collected in April 2020 from a representative sample of about 1,000 Italian women. The study analyzes jointly the effect of the emergency on working arrangements, housework and childcare of couples where both partners work. Results show that most of the additional workload of household chores from the lockdown falls on women, while childcare activities are more equally shared within the couple than housework.

In a family where both partners were working from home, 65% of women increased the amount of housework they did, while only 40% of men did so. In terms of childcare, the increase for men rose to 60%.

«If we consider that Covid increased the extra work for the family in terms of housework and childcare and most of it fell on women, we have a very high risk that female workplace participation could fall, and this is a big problem, because it is already quite low in Italy,» said Paola Profeta, Associate Professor of Public Economics, and coordinator of the Dondena Gender Initiative at the Dondena Research Center for Social Dynamics and Public Policy.

According to the *Global Gender Gap Report 2020*, Italy ranks 76 out of 153 countries in terms of gender equality.

In *The Gendered Effects of Covid*, Associate Professor of Public Economics **Alessandra Casarico** and **Salvatore Lattanzio** (University of Cambridge) have two objectives: to evaluate how business closures impact female occupations, and to examine how public policy mediates the effects of the emergency on women's work. This study is still underway, though

it hints that the impact is higher for women workers because more of them are employed in sectors which were more harshly hit by the lockdown and which opened up later, when restrictions started being lifted, said Casarico. «What was surprising is that men and women are equally involved in the essential sectors that were never locked down, but 72% of those returning to work first were men,» said Casarico, who is also member of the Dondena Research Center of Social Dynamics and Public Policy. In addition, it is young women aged below 30 who were kept out of the labor market the longest, with potentially negative consequences on their career prospects.

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DIRK HOVY

Capturing the Public's Emotional Response to the Health Crisis

To understand the impact of Covid19 on public opinion, old paradigms are not enough. Epidemiology can reveal how the virus spread, but not how people reacted. An interdisciplinary approach can shed a clearer light on thoughts, hopes and fears triggered by the health emergency. A trio of Bocconi academics specializing in computer science, demographics and infectious diseases teamed up to analyze 6.5 million tweets over the course of the pandemic in a project that should be completed this summer.

Dirk Hovy (Associate Professor of Computer Science, Department of Marketing) **Nicoletta Balbo** (Assistant Professor in the Department of Social and Political Sciences) and **Alessia Melegaro** (Associate Professor at the Department of Social and Political Sciences) are trying to augment regular numbers-based analysis of the spread of the virus by studying its effects on people. Does it affect age groups differently? Are people more worried about health, or the economy? Are women and men worried about different aspects? «We also want to look into the spread of misinformation, like false claims about drinking bleach or that 5G towers spread the virus,» says Hovy, who was joined by his post-doctorates **Debora Nozza, Federico Bianchi, and Tommaso Fornaciari.**

A few conclusions already stand out. «Obviously the overall mood is not good, but there are glimmers of hope and satisfaction with how the government has coped,» he says. The emotional impact of the arrival of medical teams from Cuba and Russia was strong enough to show up in the team's statistical models – indicating it is something that other countries could do in the future.

Their goal is to use the conclusions to show patterns and correlations in the data that could be useful for policymakers.



THE PAPER

Words can hurt: How political communication can change the pace of an epidemic by Lucas Argentieri Mariani, Jessica Gagate-Miranda, Paula Rettl

Communication is also the topic of the paper *Words can hurt: How political communication can change the pace of an epidemic* by **Lucas Argentieri Mariani**, and Bocconi PhD students **Jessica Gagate-Miranda** and **Paula Rettl**. How much impact can political leaders have on compliance? In Brazil, President Jair Bolsonaro disrespected measures implemented by health authorities during a country-wide pro-government demonstration that took place amid the Covid19 outbreak. The authors conclude that Bolsonaro's behavior increased the pace of diffusion.



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change the trajectories of individuals in ways that will need to be studied for years, and that are likely to change attitudes towards risk and other generations.

The potential social consequences of the Covid19 crisis at the level of societies, networks and individual are likely to be negative, except perhaps for the boost to the digitalization of life. The negative impacts may be more important for frailer societies, households, and individuals. For these reasons, policymakers and key stakeholders, including business leaders, must intervene, using the best available evidence, in order to limit, or hopefully cancel, the threat to social cohesion that the pandemic constitutes. ■

CATHERINE DE VRIES

The Trade-off Between Restrictive Health Measures and Liberal Norms

Governments in Europe have experienced a short-term bump in popularity during the Covid19 pandemic as people initially unite behind their leaders. But to what extent could this desire for government action eventually threaten liberal democratic norms? Two recent papers shed light on how the coronavirus health emergency interacts with liberal political practices. In *How Italy's Coronavirus Lockdown Affected Government Support in other European Countries*, **Catherine E. De Vries** (Bocconi University), **Bert N. Bakker** (University of Amsterdam), **Sara B. Hobolt** (London School of Economics and Political Science) and **Kevin Arceneaux** (Temple University) it was clear that people in France, Germany, Poland and Spain rallied around their governments when the lockdown began, says Catherine De Vries, Full Professor at Bocconi's Department of Social and Political Sciences. Yet steps like restricting public gatherings, closing borders and curtailing individuals' movement to contain the spread of the virus are in danger of eroding liberal democratic institutions. In the paper *Covid19 and the Threat to Liberal Democratic Norms*, De Vries, Hobolt, Arceneaux and Bakker try to answer the question «how much are you willing to give up in



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terms of your freedoms to flatten the curve?»

The team ran an experiment online asking people in the U.S. and the U.K. to choose between two sets of policy proposals they prefer for a lockdown. Should social distancing be mandatory or voluntary? Is postal voting ok? What about postponing elections? Can protests be prohibited?

In the U.S. and the U.K., people are in support of liberal values, «but there is definitely a tension,» says De Vries.

«People are very outcome-focused and they want to stop the virus. That makes them support some things that we as political scientists see as liberal rights built up over the years. Clearly what is not popular is to have no health restrictions at all. But illiberal methods, like indefinitely postponing elections, are not popular either. So what we are seeing is kind of in the middle.»



THE PAPER

Crisis Signaling: How Italy's Coronavirus Lockdown Affected Incumbent Support in Other European Countries by Catherine E. De Vries, Bert N. Bakker, Sara Hobolt, Kevin Arceneaux

FRANCESCO PASSARELLI

How lockdown changes political attitudes in the EU

Balancing a branch of scientific research committed to wondering what happened and how it was possible, another equally important one is beginning to question the future of post-Covid humanity. The research on the long-lasting effects of Covid19 among EU citizens is at the centre of an impressive survey launched by the transnational project *Covid19 and Europeans' Political Attitudes* which aims to investigate how the pandemic has changed people's attitudes towards institutions and their policies and can therefore influence their next electoral choices. **G. Daniele, A. Martinangeli, W. Sas and L. Windsteiger** are also part of the group of researchers. «In the background there is the will, first of all, to verify the widespread belief that in dramatic circumstances there is a greater propensity towards authoritarian policies», comments **Francesco Passarelli**, professor of European Economic Policy, «but the survey is composed of dozens of questions and therefore offers cues in many directions, from considerations on solidarity among individuals and countries to expectations towards supranational



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institutions». In order to grasp the causal effect of Covid on the answers of the interviewees, the survey adopted an experimental technique that consists in changing the sequence of some questions in a random way and is now beginning to give its first results, in some ways surprising. «From a first analysis of the data we are able to identify some effects», says Passarelli. «Covid in fact has strengthened people's confidence in science and law enforcement but, at the same time, it has reduced their confidence in politics, the European Union and the Community's institutions. Returning to the question of the possible emergence of new phenomena of populism, the data show that the demand for authoritarianism on the part of European citizens has declined, but the strengthening of an anti-system sentiment creates a fertile ground for populist proposals among European citizens. Another element to underline is that the demand for public welfare would seem to be shrinking, especially if it is given to immigrants or populations of European states other than their own, as if Covid, in the end, has made us all more selfish».

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MARCO PERCOCO

Social Distancing Also Benefits the Environment

A study by **Maurizio Malpede, Marco Percoco and Valentina Bosetti** from the GREEN research center at Bocconi University shows, in particular, a decrease in PM2.5 and PM10 particulates and in nitrogen dioxide, in the weeks following the outbreak in the metropolitan areas of Wuhan and Milan.

The researchers do not limit themselves to a pre- and post-restrictions picture, as the satellite photographs we have seen in these days do. On the contrary, their data use the daily measurements of dozens of control units and take into account climatic and atmospheric conditions. The authors can thus calculate not only the variation in the concentration of pollutants, but also the portion of the reduction due to Covid19.

The study highlights very significant reductions, but lower than those suggested by satellite photographs. In Milan (where the favorable climatic conditions would have cleaned the air even in the absence of restrictions) only a portion between one sixth and one third of the total reduction, depending on the type of pollutant, can be attributed to the Covid19 effect. In Wuhan, on the other hand, Covid19 is a bigger factor and is responsible for about half the total reduction.

In Milan, then, Covid19 is responsible for a 9.4% reduction in PM10, 6.79% in PM2.5 and 8.68% in nitrogen dioxide.

In Wuhan, the percentages are 9.05% for PM10, 11.78% for PM2.5 and 21.55% for nitrogen dioxide.

In the Beijing area, which has undergone milder restrictive measures, the reductions, depending on the pollutant, range from 0.10% to 0.22%. «Since pollution makes respiratory diseases such as Covid19 more dangerous and has long-term negative effects on human organisms», says Marco Percoco, Director of GREEN, «the reduction in pollutants is likely to save many lives and improve the prospects of children, who are only marginally affected by the contagion». In China, with the loosening of social distancing measures, the concentration values are returning to their pre-Covid19 levels. «In Italy», says Professor Percoco, «if we observe that smartworking does not reduce productivity, we could take the opportunity to rethink the way we work, considering the environmental benefits».

The survey also highlights unexpected changes in the concentration of other pollutants, which cannot yet be explained. Carbon monoxide is rising both in China and in Italy, while ozone decreases in China, but not in Italy.



THE PAPER

Covid19: unless one gets everyone to act, policies may be ineffective or even backfire by Alessio Muscillo, Paolo Pin and Tiziano Razzolini

PAOLO PIN

How Much Are Individual Choices Worth

The lockdown imposed or suggested in many countries around the world to contain Covid19 has already shown its greatest effectiveness where most people complied with restrictions. This evidence has prompted new questions about the role and value of individual choices.

«I have always dealt with social relation networks and game theory to study how ideas, news and trends spread within a society,» summarizes **Paolo Pin**, Professor of Microeconomics and co-author of the Covid19 study: *Unless one gets everyone to act, policies may be ineffective or even backfire*. «At the beginning of the year I was planning a vaccination study, but then this virus came and I decided to change targets. However, the goal is not very different: we want to demonstrate that, when you want to limit the spread of something, requirements must be adhered to, especially by those subjects or social groups that have the most contacts. Ironically, if people with lots of contacts reduce them proportionally less than those who don't have many, the risk is that the disease will be incubated, making it endemic and therefore making containment policies counterproductive.» To validate what has been worked out in theory, the study cross-references data relating to the spread of the coronavirus with that of social contacts. Data was taken from the aggregated information provided by several social networks, data sets from phone companies and the many surveys carried out in recent weeks. A direct correlation between infections and contacts in an evolutionary span of 2-4 weeks in macro-areas such as Italian Regions or US states will then be evaluated. «Confirming that where a quarantine was imposed, containment was faster, while where there was more room for individual choices, the measures were less effective,» predicts the professor. «So I don't expect surprises,»

But the research aims to offer new data to the debate on the value of the choices of individuals. And it should not only be considered on a small scale, within municipalities or cities, there should be a consideration of the significance when a region or a state within a community is making different choices.»

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THE PAPER

Social distancing measures following covid-19 epidemics had positive environmental consequences

by Maurizio Malpede, Marco Percoco, Valentina Bosetti

Bocconi

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A microscopic image showing numerous blue, irregularly shaped virus particles with yellow circular centers, set against a light blue background. The particles are densely packed in some areas and more sparse in others, creating a sense of depth and scale.

Covid Crisis Lab

Economics, Finance and Firms

Jérôme Adda
Mario Daniele Amore
Tito Boeri
Elena Carletti
Mariano Max Croce
Andrea Dossi
Carlo Favero
Vincenzo Galasso
Francesco Giavazzi
Andrea Gilardoni
Pamela Giustinelli
Basile Grassi
Thomas Le Barbanchon
Anastasia Nanni
Julien Sauvagnat



V-shaped or Swoosh-Shaped?

From businesses to governments, the actions to be put in place to restart the economy must first consider whether the effects of the Covid crisis will be long lasting or pass quickly. Financial markets are already placing a premium on resilient companies, sending a signal to investors about the future of the recovery

by Francesco Giavazzi @

How will the post Covid19 recovery look like? Will it be «V-shaped» or «Swoosh-shaped»? It is a crucial question: for companies that are redrafting their plans for the next few years, and for governments and central banks that are calibrating the economic policies that will have to accompany the recovery.

There are two different theses among economists. Larry Summers, ex-US Treasury Secretary and Harvard former President, leans towards the V-shape hypothesis. On May 22, during a [virtual seminar held at Princeton](#), he argued we will remember the pandemic as much as we remembered 9/11 on Christmas 2001: mostly, it will be forgotten. Paul Krugman also thinks more or less like along these lines.

On the opposite side there are Barrero, Bloom and Davis, respectively at ITAM in Mexico City, Stanford Graduate School of Business, and Booth School of Business in Chicago, who in early May published «Covid19 Is Also a Reallocation Shock» where they argue that recovery will be slow, because it will require extensive reallocation of capital and labor: from industries that will disappear in the aftermath of Covid to industries that will conversely boom. Reallocations take time: pushing for faster recovery would mean preventing them, at a very high cost: it would mean to waste the Covid crisis opportunity. The implications for businesses and policymakers are evident. Betting on the wrong hypothesis means, for a company, either prolonging an unsustainable situation or miss an unrepeatable opportunity. Ditto for economic policy actors. Who's right?

Marco Pagano, Christian Wagner and Josef Zechner, the first one at the Frederick II University of Naples, and the other two at the University of Vienna, in [Disaster Resilience and Asset Prices](#) released on May 17th, look at option prices and find evidence in favor of the second hypothesis. Looking back, and controlling for traditional risk premium measures, Pagano, Wagner and Zechner document that the US stock market already before Covid was rewarding companies with business models more compatible



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with social distancing, suggesting awareness of epidemic risk ahead of the pandemic outbreak of 2020.

Looking ahead - looking at option prices in the US stock market until the end of April to measure market expectations after the start of the pandemic - the above paper finds that this continues to be true today. Over a two-year time horizon, investors expect the stocks of the most pandemic-resistant companies to produce significantly lower returns than the less resilient ones, reflecting their lower exposure to catastrophic risk. These differences are enormous in the case of some companies.

For example, in early April 2020, the expected return on equity for low resilience companies such as Royal Caribbean and United Airlines was around 60% and 40% respectively, while high resilience companies such as Apple and Microsoft paid between 3% and 4%. In other words, market prices of some companies are unusually low because investors, perhaps thinking about the pandemic, consider them very exposed to high risk. And does this matter for the speed of recovery? It does matter a lot! Market valuations are signaling investors to focus on the more resilient companies and stay away from the less resilient ones. The market is sending the right signal. In fact, cruise ship with thousands of passengers crammed on decks are unlikely to have a future. The same applies to airline companies. Instead, the price of Zoom shares has doubled in less than six months because registrations on the platform have exploded.

And so, is the future going to be V or Swoosh? If the recovery is accompanied by a deep reallocation in output, and therefore of labor and capital inputs, it will take time, certainly much more time than the alternative hypothesis of returning to the world as we knew it until last year. A Swoosh recovery would be a slower one, but it would lead us to a more resilient world. Governments, if they safeguard non-resilient businesses, for example by keeping airlines afloat that have no future, are hindering the transition to a more resilient world. ■

That Is the Economic Question



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JÉRÔME ADDA The Interaction Between Beliefs, Behavior and Epidemiology

Economics and epidemiology meet in *Costs and Benefits of Social Distancing*, a study being carried out by **Jérôme Adda**, Full Professor in the Department of Economics. This project aims to provide a comparative cost-effectiveness analysis of public policies during the Covid19 epidemic in France, examining social distancing, testing, and protective measures like hand-washing and wearing a mask. The goal is to have one more item in the tool kit to help policy makers take rational decisions. «We want to deepen our understanding of how individuals perceive the threat of the infection,» he says. «What are the beliefs that guide their behavior? You can tell people to wear a mask, and they may or may not believe you.»

The cost analysis is not the focus of the study, says Adda. «The key is more to look at what kind of policies should be implemented to minimize the infection.» The model is a cross between epidemiology and economics, so it also incorporates behavior. Epidemiological models tend to leave behavior out. «There is a lot of work to be done in terms of integrating behavior and beliefs into models currently used for predicting an epidemic, but which are poor in predicting behavior,» he notes. Adda is also working on a second research project, with **Paolo Pinotti**, Associate Professor in Economics at the Department of Social and Political Sciences, using data to examine the cultural norms of how people comply (or do not comply) with health recommendations. «We are looking at measures of trust, and trust in government in general, and see how that effects people's respect for recommendations,» says Adda. The pair are crunching tracking data from Google for millions of people across Europe, Asia and the US, plus information from the World Values Survey that reveals people's attitudes towards governments and other people. Research is ongoing and will be concluded in a few months.



THE PROJECT

The **Costs and Benefits of Social Distancing project** by Jérôme Adda aims to provide a comparative cost-effectiveness analysis (CEA) of public policies undertaken in real-life conditions during the Covid-19 epidemic in France



Banks back at the center (as

The crisis we are experiencing, unlike the previous ones, has affected the real economy and not the financial sector. The need for new liquidity for businesses and the risks associated with their solvency have given banks a leading role. Will they overcome the stress of a possible new wave of non-performing loans?

by Elena Carletti @

The Covid19 outbreak in the early months of 2020 signaled a new watermark for the economy and, consequently, the financial industry. The Covid19 crisis is profoundly different from the 2007-2009 financial crisis and the 2011-2013 sovereign debt crisis. First, it hits the real economy directly, combining supply interruptions due to global chain disruptions with demand freezes following lockdowns. Second, it constitutes an exogenous, sudden and symmetric shock to numerous economies. As such, it requires different policy responses than the previous crises. The most urgent need relates to the provision of liquidity to companies, of all sizes. This liquidity has been injected either directly through government lending and central bank financing policies or through the banking sector, mostly in the form of payment moratoria and state guarantees. For instance, in March 2020, the European Central Bank (ECB) eased the conditions of its Targeted Longer-Term Refinancing Operations (TLTRO III) to support firms' access to bank credit, enlarged the list of corporate collateral eligible assets, and expanded the range of assets eligible for its purchases under the Corporate Sector Purchase Program (CSPP) to include non-financial commercial paper. At the same time, several Eurozone governments offered export guarantees, liquidity assistance, and credit lines to firms, through their respective national development banks, ranging from 38.6% of GDP in Germany and 29.8% of GDP in Italy, to 14% in France and 9.1% in Spain ([Anderson et al., 2020](#)). Despite the massive policy responses, various important concerns remain. A first issue relates to firm solvency. As liquidity reaches companies through debt, it increases their leverage, hence raising their default risk and leaving them vulnerable, with little room to invest and grow. In addition, the crisis is likely to lead to a substantial drop in firm profits, thus reducing firm capitalization. For example, using a representative sample of Italian firms, Carletti et al. (2020) find that a 3-month lockdown entails an aggregate yearly drop in profits of €170 billion, with an implied



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equity erosion of €117 billion for the whole sample, and €31 billion for distressed firms, that is firms that would end up with negative equity book value after the shock. As a consequence of these losses, about 17% of the sample firms, whose employees account for 8.8% of total employment in the sample, become distressed. The equity shortfall and the incidence of distress are concentrated among small and medium enterprises, with a distress rate of 18.1% relative to 14.3% for the medium firms and 6.4% for the large firms, and in the manufacturing and wholesale trading sectors. These results highlight the urgent need to think about firm solvency, not just liquidity, and to inject new equity into viable firms.

Some governments are already moving in that direction. The German federal government has already allocated €100 billion to inject equity and buy stakes in (large) companies affected by the Covid19 shock via the so-called Economic Stabilization Funds, €50 billion in direct grants to distressed one-person businesses and micro-enterprises, and €2 billion to expand venture capital financing to start-ups, new technology companies and small businesses. This federal funding is complemented with some regional initiatives. Meanwhile, the equity injections provided to firms by other Eurozone governments pale in comparison to the German figures, in particular due to the existing significant sovereign



THE PAPER

Coronavirus and financial stability 3.0: Try equity-risk sharing for companies, large and small by Boot A., E. Carletti, H.H. Kotz, J.P. Krahnen, L. Pelizzon and M. Subrahmanyam



THE PAPER

Coronavirus and financial stability 4.0: Implementing a European Pandemic Equity Fund by Boot A., E. Carletti, H.H. Kotz, J.P. Krahnen, L. Pelizzon and M. Subrahmanyam

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MARIO DANIELE AMORE

A Family Company Is More Resilient

What can make a company more resilient to the Covid19 shock that has upended financial markets? The question is recurrent among researchers and has prompted **Mario Daniele Amore**, professor in the Department of Management & Technology, to do a study to verify whether family ownership made a difference. The research, conducted with colleagues **Fabio Quarato** and **Valerio Pelucco**, examined the performance of 350 Italian listed companies by analyzing their daily stock prices from the beginning of January to the end of April 2020. «Controlling for differences in size and industry, the result is that, on average, family companies have a stock performance which is 8% higher than the others,» explains Amore. The objective was then to find confirmation for potential interpretations of the data. To do this, data on stock performance was supplemented by data on corporate organization, i.e. the structure of command, internal organization, implementation or not of remote working, changes in work shifts, and more generally, changes in market strategy.

«What is emerging is that the companies that have reacted best are those where the family is present both as controlling shareholder and corporate leader, typically as CEO,» continues the Bocconi professor. «In the eyes of investors, some characteristics of the vision of family entrepreneurs, for instance their long-term horizon and desire to give continuity to the firm, are guarantees of the ability that these companies have to implement organizational changes. They can leverage their superior knowledge of local conditions and the better relations they maintain with employees and stakeholders. As for the forms of governance, no dominant model was identified, but the fact that the sample was made of listed companies, which are subject to greater transparency requirements and are typically more open to the external world, confirms what

we have been saying for some time. Namely, that complementarity between the owning family and qualified external managers is decisive to deal successfully with even the most complicated situations.»



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THE PAPER

Family Ownership During the Covid-19 Pandemic by Mario Daniele Amore, Fabio Quarato, Valerio Pelucco



TITO BOERI Less than Half of Jobs Are Safe

In the thick of the lockdown, **Tito Boeri**, Full Professor of Labor Economics at Bocconi, analyzed the work-safety trade-off in six European economies along with **Alessandro Caiumi** (Fondazione Rodolfo De Benedetti and Bocconi) and **Marco Paccagnella** (OECD). In absence of



personal protection equipment, they concluded, less than half of the jobs could have been considered safe, even after relaxation of mobility constraints and allowing for limited face-to-face contact. The share of safe jobs was calculated to vary from 42.93%

in Spain to 49.17% in Sweden, with Italy at 46.23%, the UK at 47.71%, France at 47.87% and Germany at 48.93%.

In particular, the authors estimated that around 15% of the jobs in Europe were being carried out remotely at the end of March, as opposed to 10% in normal times, but that a share from 24% to 31% could potentially be carried out from home and be thus considered completely safe. «These jobs are mainly concentrated in services. Professors, engineers, lawyers, architects are just some examples of the occupations included in this category». Envisaging a lift of the strictest limitations of the lockdown, the authors added up jobs involving limited mobility away from home and no personal contact (veterinarians, animal caretakers, foresters and conservation workers, archivists, jewellers, chemists, etc.); and limited mobility and infrequent and safe face-to-face contact (mechanics, plumbers, electricians, drivers, etc.), thus reaching the 40-50% share of jobs.



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THE PAPER

Mitigating the work-security trade-off while rebooting the economy by Tito Boeri, Alessandro Caiumi, Marco Paccagnella

Unfortunately, the fraction of safe jobs is particularly low in most of the strategic industries involved in the war against coronavirus, notably those that could help enhance capacity in the health sector. Furthermore, the option to call younger workers back to work, as they appear to have a much lower risk, would have been less effective than expected, because the young are under-represented in unsafe jobs and a large share of them, in Italy, live with vulnerable parents.

MARIANO MAX CROCE Why Markets Grow (Yes, Grow) When an Official Covid Announcement Arrives

Paradoxically, news about Covid is good for the stock market. In the moments immediately following the daily official announcements on victims and infections, stock markets rise. This is what emerges from an analysis conducted by **Mariano Max Croce**, full professor of Finance at Bocconi, and two PhD students, **Paolo Farroni** and **Isabella Wolfskeil**. The researchers consider the markets of 15 countries and build two datasets on the dissemination of information on Covid19: a dataset that includes official announcements and one that includes tweets from the major media (a measure of the dissemination of information) and their retweets (a measure of market attention to the pandemic trend).

The three scholars analyze the relationship between information dissemination and financial market trends, giving scientific evidence of some trends and making some counterintuitive observations. «The rise of the markets in the moments immediately following the announcements», explains Croce, «seems to be due to the effect of dissipating uncertainty. When the announcement arrives, the stock exchanges react positively because an element of uncertainty



THE PAPER

Mitigating the work-safety trade-off by Tito Boeri, Alessandro Caiumi and Marco Paccagnella



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THE PAPER

The Covid-19 Shock and Equity Shortfall: Firm-level evidence from Italy by Carletti, E., T. Oliviero, M. Pagano, L. Pelizzon and M. Subrahmanyam

debt obligations in some of these countries. To overcome this asymmetry, Boot et al. (2020a, 2020b) have proposed the creation of a new European Pandemic Equity Fund (EPEF), in charge of providing equity support particularly to small and medium companies which would be unable to easily fund equity funding elsewhere. A second important concern relates to the banking industry. Although the Covid19 pandemic is not a financial shock in itself, it occurs at the end of a decade of deep transformation of the financial industry because of persistently low interest rates, stricter regulation and competition from shadow banks and new digital entrants. These phenomena have contributed to increase the solvency of financial institutions, but also to contain their profitability and consequently market valuation, in particular in Europe.

How the new crisis will play out for the banking industry is highly uncertain. So far, banks have coped quite well with the new situation despite the very adverse real shock. Even more, banks are back to the center stage of the intermediation chain as they are being seen as a useful tool (by central banks and fiscal authorities) to support the real sector liquidity and financing needs. In addition, they have significantly accelerate their digital transformation due to the need for smart working and remote operations. Yet, the severity of the crisis may put banks under stress going forward, in particular should large-scale insolvencies in the business sector as well as among households emerge, leading to a new surge of non-performing loans. ■



THE PAPER

When the Markets Get CO.V.I.D.: COntagon, Viruses, and Information Diffusion by Mariano Massimiliano Croce, Paolo Farroni, Isabella Wolfskeil

disappears. In the countries most affected by the epidemic, however, this effect is very short-lived: in the following 60 minutes, the prices drop, then slowly rise again.» Unlike stocks, government bond prices do not appear to be affected by announcements, either positively or negatively. The analysis of the positive or negative tone of the tweets of the second dataset serves scholars to derive an indicator «which represents a good predictor of the future trend of the markets», continues Croce. «Moreover, whereas in the event of a sovereign debt crisis we can monitor the trend of risk by observing the prices of the credit default swaps, for the pandemic risk we had no such tool.» The Twitter-based dataset includes thousands of observations and allows very reliable and fast statistical analyses: «The tweets represent a real-time thermometer of the sentiment of the investors, consequently it can be a tool available to the market to predict the trend of quotations depending on the trend of the pandemic,» says Croce. Precisely for this reason, it could prove useful, in the future, to avoid being caught by surprise by emergencies of this kind.



How Companies Have to Invest for the New Normal to Be Better

Time to invest for recovery. Three rules for not repeating mistakes: divest quickly from unprofitable areas and products, realign strategy around the new priorities of business investment, and adopt sustainability as a criterion for capital budgeting and managerial assessment

by Andrea Dossi @

The quantity and quality of investments that companies will decide to implement is the most pressing management issue during the Covid19 crisis. We know from research that the investment behavior of companies in times of crisis, especially in situations of financial constraints, is sub-optimal. It indiscriminately penalizes all categories of investment, and those who cut down the most recover the least in the post-crisis phase. The current situation has all these characteristics. The data tells us that at the beginning of 2020, 26% of world companies with more than \$10 million in revenues had financial debt higher than their net worth. Of the remaining 31%, there was a high risk of a block in business cash flows which are vital for investments, especially in medium-sized companies, those that are strategic for the development of economic activity: 12% because of operating losses and 19% due to having an operating leverage greater than 5. The financial tension that most companies are experiencing therefore also depends on how companies were at the beginning of the crisis, on the investment errors they made, which they must not repeat, as it already makes the crisis more serious. Today, businesses and entrepreneurs must do the right thing. And to better manage the most critical aspect, i.e. investment behavior, three aspects are of great importance.

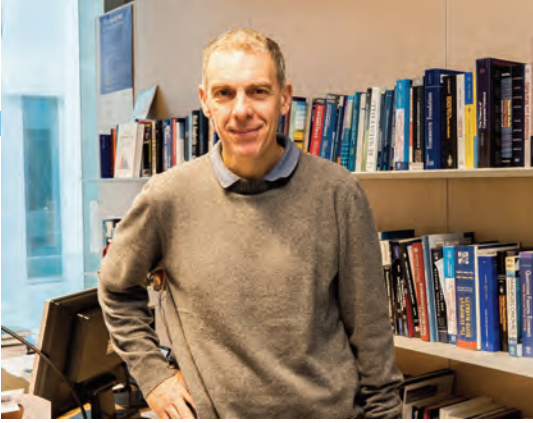
First, you need to quickly divest from products, markets, customers, projects that have proven neither profitable nor growth drivers, so as to free up managerial attention, the scarcer business resource of all, as well as financial resources to be devoted to priority investments. The efficiency of investment processes, which is one of the reasons for the superiority of the company as an organizational form with respect to the market, requires the setting



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of simple and automatic internal processes and rules to develop the ability to quickly exit investments with uncertain results. Any position of weakness that reduced the pre-crisis cash generation capacity and has imploded in the crisis phase, thus absorbing attention, remains weak in the post-crisis phase. Nothing is better than a crisis to intervene decisively to alter less than optimal situations.

Second, companies must have the courage to prioritize investments, by putting strategic quality first. There is no need to stress here how fundamental investments in digital technology and human capital are, which are inputs transversal to any type of investment. Here we want to underline three priorities for the three relevant business macro-processes: innovation management, operations management and customer management. First of all, data on global companies with revenues of more than \$1 billion say that setting the value of 100 for total revenues at the beginning of 2020, the share of resources dedicated to customer management processes is relatively low, on average around 25%. In very few sectors this share is proportionate to resources devoted to business operations. It is a sign of the scarce attention paid to investments in customer proximity. As required by the principles of the digital economy, attention must be paid to maintaining a lasting relationship with the customer, not only on sales transactions. Relational commercial capital is the intangible asset that can be least imitated by competitors, and protects an essential business resource, both for B2C and B2B. After experiencing the difficulty of maintaining a proactive business relationships during the lockdown, firms must prioritize investments in product, service and knowledge platforms to support the nurturing of relationships with clients, co-opting



CARLO FAVERO

A Complete Return to Normality Would Push the R0 Above 1

Since the onset of the Covid19 outbreak in Italy, **Carlo Favero**, Full Professor of Econometrics at Bocconi Department of Finance, has been working at an adaptation and calibration of the standard SEIR (susceptible, exposed, infectious, recovered) epidemiological model to the trend of the epidemic in Italy. He observed that mortality didn't match the predictions of the standard model, unless the scarcity of intensive care beds were introduced, thus making a compelling argument for "flattening the curve". In fact, easing the pressure on the health system was the only way to make the intensive care constraint not-binding and lower the mortality rate. 6 weeks into lockdown, though, the urge to restart at least some activities was clear. Professor Favero, with economists Andrea Ichino and Aldo Rustichini, extended his model by dividing the population into two production sectors characterized by different levels of coworkers proximity and thus by different infection risks and into 9 age brackets (from 0-9 to 80+), characterized by fatality and hospitalization rates that increase with age. They also calculated the GDP effect of a return to work of people in those age brackets and sectors. Their aim: to devise a staggered lockdown exit strategy capable of balancing public health and economic needs, keeping in mind that «each death due to the current epidemic is a tragedy, but the social, mental, and even health implications of prolonged inactivity are also tragic». When calibrating for Lombardy and Veneto, Favero and colleagues found that the only policy that causes the basic reproduction number R_0 to exceed the threshold of 1 (thus reigniting the pandemic) is a complete return to normality, while a number of different age/sector combinations that warrant economic recovery and limit human loss are possible. They are now including in the model the behavioral response of agents to measure how the evidence on the diffusion of the virus and associated lethality changes the attitude of agents to social contacts.



THE PAPER

Covid: Not a great equaliser by Vincenzo Galasso

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VINCENZO GALASSO

Covid Was No Equalizer

The fact that no economic sector has been immune to the effects of Covid19 has allowed many to interpret the pandemic as a leveling factor capable of flattening differences and apportioning economic pain equally. A widespread opinion that the research study conducted by **Vincenzo Galasso**, Professor of Political Economy, has set out to verify empirically. «We conducted a large survey in two waves, one in late March covering 8 OECD economies, and a second in mid-April expanded to 12 countries, in which we asked people to describe their trust in institutions, doctors, science, behavior during the lockdown, the psychological impact they felt and the repercussions of the pandemic and resulting quarantine on their work», summarizes the member of the Bocconi faculty. «The data set we collected was therefore big, but we decided to focus on employment from the start. As is clear right from the title of our study, Covid was no economic equalizer. In Italy, for example, the impact of the pandemic on the labor market was as strong as it was heterogeneous: 45% of Italians stopped working in mid-March, while only 18% kept going into work; data similar to what occurred in France, but very different from Germany, where the lockdown was less rigid and furloughed only 25% of workers, while 50% continued to go to work in their usual workplaces.»

«If we go into detail, and look at the social strata affected, however, we see that in all countries the highly skilled employees were not as likely to be put on standby and had more access to smart working solutions. Blue collar workers and service workers were initially forced to stay at home, while more recently, at least in part, have returned to their jobs,» says Galasso. «These inequalities are also a matter of income disparities: almost one out of two low-income workers have suffered a contraction, while only one out of four high-income workers have been dealt a blow to their livelihoods. In short, Covid has increased social differences; certainly, it has not reduced them and on the whole, the most vulnerable people have had to face the worst consequences and had to pay the highest psychological price».

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THE PAPER

Restarting the Economy While Saving Lives Under Covid19 by Carlo A. Favero, Andrea Ichino, Aldo Rustichini



THE PAPER

Impacts of the health emergency on utilities.
First reflections by Giacomo Salvatori and Andrea Gilardoni

ANDREA GILARDONI

Utilities Haven't Been Hit Too Hard by Covid, But Energy Transition Looms

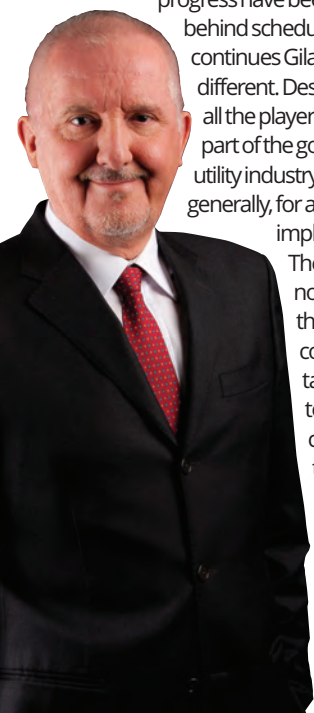
«Utilities were perhaps less affected than other industries, but its critical issues must be watched closely in view of the essential services that companies in this sector provide», comments **Andrea Gilardoni**, who teaches Management of Public Utilities. For this reason, in early March, the Bocconi faculty member had already started an Instant Research interviewing top executives of 40 large utilities, representing more than 50% of the market. The emerging picture is that of a sector which has reacted promptly and in synergy with government institutions, also by virtue of the public stakes that distinguish many of these corporate actors, focusing their efforts where the national territory required them.

«The industry has suffered a drop in energy consumption, which however never exceeded 30%. Demand did not collapse; on the contrary, for example water consumption has increased in certain areas, and for the whole sector the expectation is that within 24 months there will be a return to pre-Covid levels», says Gilardoni.

«There also exists a critical factor linked to the non-payment of utility bills by hard-pressed users, to which companies have responded by according delays in payments and providing credit». However, the most interesting aspect that emerged was about investment. «Investment projects in progress have been maintained; construction sites are behind schedule but none have been canceled,»

continues Gilardoni. «The situation for the future is different. Despite the generally positive sentiment, all the players are waiting for a clear intention on the part of the government to confirm the priority of the utility industry for national development and, more generally, for achieving the energy transition and implementing the European Green Deal.

The constraints affecting the sector have not changed with Covid; they have stayed the same for a number of years now. Just consider that Italy has an investment target for renewable energy equivalent to installing 5 GW/year and we are currently barely above 1. The hope is that this emergency will be experienced as an opportunity to overcome impediments to green energy by promoting simplification and unlocking investment.»



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Costs and Benefits of Social Distancing,

How have Italians and Britons reacted to the lockdown? Have containment measures been effective? How did they evaluate them in terms of costs and benefits? And what aftermath did they leave behind on people's lives and minds? These are some of the questions addressed by the research study of **Pamela Giustinelli**, Assistant Professor at the Bocconi Department of Economics, with colleague **Gabriella Conti** at University College London, which was funded by the European Research Council. The study looks at the medium-term outcomes of the lockdown to help public authorities evaluate the most effective incentives to increase people's respect of the principles of social distancing. A preliminary analysis of the data on the first wave suggests that British citizens perceived lockdown measures as decidedly effective but also very harmful to physical and mental health.

The outlook for the future is sobering both for the UK and Italy: most of the participants expect to return to normal only when a vaccine is developed or in any case not before 2021. «The first batch of questionnaires was distributed in the two countries in first days of May, and a second one has recently followed», Giustinelli says. «In the case of Italy, the first wave questionnaires focused on the experience with coronavirus and risk perceptions ahead of Phase 2, while the second one investigates the respect of behavioral rules and protocols to restart the economy and movement of people, and testing and tracing systems to track Covid19.»

The most original aspect of the research is looking into the decision-making mechanisms that arise in moments of uncertainty, a fact that is obtained with a precise



THE PROJECT

Costs and Benefits of Social Distancing: Giustinelli and Conti (University College London) want to better understand the perceived costs and benefits of social distancing measures for people with different backgrounds, in order to design appropriate incentives to compliance

Italy and UK Compared

survey methodology that consists in measuring conditional risk expectations (in particular the subjective probability of being infected by the coronavirus) and other costs and benefits deriving from the individual and/or collective adoption of the rules of conduct and TTT measures (Testing, Tracing, Treatment). In the second wave, these measurements were combined with a randomized treatment of information and awareness on TTT measures. «Also in this case we expect to register heterogeneity in individual responses», explains the researcher, «but to be able to define a behavioral model that shows how people perceive and resolve the trade-offs they are facing, depending on their knowledge, beliefs and preferences.»

them in their management processes. The list of the 100 best global brands in Interbrand rankings, which lists companies of different size, both B2B and B2C, offers a series of examples of how to move towards this direction.

Secondly, companies need to invest more in innovation processes. The average of R&D costs on the turnover of world enterprises is only a bit more than 2%. If knowledge-intensive sectors are removed from the calculation, the average is even lower. No business can survive without innovation in the long term. It's not just about increasing R&D budgets. You have to put it on the agenda of priority investments for the development of corporate entrepreneurship, through mechanisms and projects that have the ambition to activate all the potential for open innovation within the corporate community and its reference stakeholders. Thirdly, we must invest in reducing the risk profile of the business, especially in the supply chain. In the last decade, the data show that all companies managed the supply chain more efficiently, recovering profit margins and cash flows. It is time to consider the supply chain from the perspective of intellectual capital, creating hubs of data and services to share operational and financial risks and co-design innovation. Take a look at how US group Aptar presents its online Supplier Portal as a distinctive competence of its business model.

Lastly, it is necessary to invest in the permanent

adoption of sustainability as a key variable in the design of the strategic and organizational architecture of business models, and not just as a mere communication asset. If companies had adopted the ESG perspective in their strategic plans, the impact of Covid19 on their business would have been more limited. It suffices to think that in the 5 most relevant issues that characterize *Business model and innovation according to the materiality map compiled by the Sustainability Accounting Standard Board*, a list which reflects the findings of academic research, the Materials Sourcing and Efficiency item looms large. It requires explicitly managing the resilience of materials supply chains to impacts of climate change and other external environmental and social factors, especially for the impacts on availability and pricing of key resources, through new policies of «product design, manufacturing and end-of-life management and screening, selection, monitoring and engagement with suppliers. This issue is considered highly material for 7 macro-sectors out of 11. The reference KPIs are given for each sector. This mapping could have been very useful to limit the impact of lockdowns and resulting logistical difficulties in maintaining supply chains in operation. Companies must therefore avoid delaying the adoption of what research shows has value. To avoid further delays, today executives to act on two critical points of corporate decision-making processes. Sustainability performance must be included in capital budgeting processes as an additional investment analysis criterion. Enel, world leader in the energy industry and benchmark of innovation and sustainability, is doing it. And in accordance with the results of the research study, the cost of capital adopted in the calculation of NPV of an individual investment is reduced as a function of estimated ESG results. Furthermore, executive compensation packages must reflect sustainability performance, in order to trigger a cultural shift, which is more likely known, starting from the decisions of individual top managers. You can refer to the description of Alcoa's compensation system in the proxy statements of the last few years to understand how it is done and fine tune executive pay.

Adding speed to divestments, making strategic realignment the basic priority for business investment, and adopting sustainability as a substantial element of capital budgeting and managerial assessment are three key choices to be made today. Changing investment behavior is a decisive aspect for companies to avoid wasting the financial support for the recovery coming from the economic policies decided by various governments. This is crucial for the new normal to be not only different, but better than the old normal. ■

THOMAS LE BARBANCHON Understanding Impacts on the Labor Market

One of the most surprising things about the Covid19 virus was how millions of people successfully adapted to working at home literally from one day to the next. Since the economic consequences of the lockdown are likely to depend on how easily workers can perform their jobs away from their workplace, gaining a clear picture of which jobs are affected is important for policymakers.

THOMAS LE BARBANCHON
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«It was very important to understand which jobs could be done at home across occupations and industries, and when we started working on the paper two months ago there was no information about Covid19 in different economic sectors,» says **Thomas Le Barbanchon**, Associate Professor in the Economics Department at Bocconi University. In the discussion paper *Which Jobs Are Done from Home? Evidence from the American Time Use Survey*, **Lena Hensvik** from Uppsala University, Bocconi's Le Barbanchon and Roland Rathelot of University of Warwick used a data-driven approach to rate occupations and industries by their propensity to substitute home-working for workplace work between 2011 and 2018 for more than 30,000 people.

The paper found that except for agriculture, the broad industries with the most hours worked at home are information, financial activities, and professional and business services. The industries with the least home-working hours are transportation and utilities, and leisure and hospitality. Workers in high-skilled occupations, such as management, business, financial, and professional occupations, work more hours at home than workers in less skilled occupations,



THE PAPER

Which Jobs Are Done from Home? Evidence from the American Time Use Survey by Lena Hensvik, Thomas Le Barbanchon and Roland Rathelot

BASILE GRASSI AND JULIEN SAUVAGNAT Social Distancing and its Economic Impacts

The optimal social distancing policy would find the right balance between the benefits of limiting infections and saving lives, and the economic damage from the drop in output. Economic models to measure the impact of social distancing are therefore important policy-making tools. Two faculty members, **Julien Sauvagnat** in the Finance Department and **Basile Grassi** in the Economics Department, immediately set out to measure the GDP and market impact in two papers. The first, *Sectoral effects of social distancing* was published in March 2020 with **Jean-Noël Barrot** from HEC Paris. It estimated the economic consequences of the 6-week lockdown imposed by the French authorities would create an overall drop in the active workforce of 52%, producing a decline of 5.6% in annual GDP. The



THE PAPER

Estimating the Costs and Benefits of Mandated Business Closures in a Pandemic by Jean-Noël Barrot, Basile Grassi, Julien Sauvagnat

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drop varies from 8.8% to 4.1% depending on the sector. The same measures would cost 6.6% of GDP in Italy, 5.7% in Germany, 5.5% in the United Kingdom and 6.7% in Spain.

«The bigger the number of people that could work from home, the smaller the impact on GDP,» explained Sauvagnat. «We found in general that the sectors that suffer the highest decrease in value-added are those upstream, or distant from final demand, like mining and construction.»

In a working paper called *Estimating the cost and benefits of business closures* published in May 2020, the trio estimated the effects in the



THE PAPER

Sectoral Effects of Social Distancing by Jean-Noël Barrot, Basile Grassi, Julien Sauvagnat



except farmers. Furthermore, the share of hours worked at home is also larger in higher-skilled occupations.

«This means there is a bigger impact on low-income workers,» says Le Barbanchon.

This paper provided a useful basis for classification of “home working” jobs in a second study called *Job Search During the Covid 19 crisis* by the same trio analyzing activity on the largest online job board in Sweden. This showed a surprisingly large drop in job search during the health emergency, to the extent that it could become difficult for employers to recruit, and that people redirected their searches towards the high homeworking areas of the economy – even if it was in a sector they had not previously considered.

«We see that at this turbulent time people will consider employment opportunities they usually don't,» he says. «This was the most surprising finding.»



THE PAPER

Job Search During The Covid-19 Crisis by Lena Hensvik, Thomas Le Barbanchon and Roland Rathelot

United States of business closure decisions on firms' market value, and on infection and death rates. They found that a 10-percentage point increase in the share of restricted labor (or workers in sectors closed by executive order) was associated with a drop of 3 percentage points in April 2020 employment, a 1.87%

drop in firms' market value, and 0.15 and 0.011 percentage points drop in

Covid19 infection and death rates, respectively. An extrapolation of these preliminary findings suggests that state-mandated business closures might have cost \$700 billion in

publicly-listed firms' market value,

and saved 36,000 lives so far. Their analysis will be refined as more data becomes available on firms' economic performance and when there is an exhaustive account of Covid19 related infections and deaths.



ANASTASIA NANNI An Interactive Virtual Tour Improves Your Wellbeing

ANASTASIA NANNI
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Virtual tours won't save the day for tourism destinations struggling with the consequences of the Covid19 pandemic, but an experiment conducted by **Anastasia Nanni** (Bocconi) and **Aulona Ulqinaku** (University of Leeds) shows that they could improve people's attitudes towards a tourist attraction.

In particular, an interactive virtual tour of a museum, as opposed to non-interactive virtual tours, has proved to engage technology-minded people and to increase their willingness to pay for the service and to donate to the museum.

The Covid19 pandemic represents a mortality threat that affects people's behavior by lowering life-satisfaction, well-being and self-esteem. In such predicaments, people have more positive attitudes towards brands or

products that provide them with relief from mortality threats. In an experiment with 296 US participants, Nanni and Ulqinaku asked them how they felt about the life-threatening situation related to the spread of Covid19 and the importance of technology adoption for their self-esteem. They, then, addressed innovative (interactive) virtual tours of New York's MET to part of their sample and less innovative virtual tours to the rest. If technology innovation adoption is important to one's self-esteem, the argument goes, given the importance of the latter one to mitigate mortality threats, interactive virtual tours should result in more positive attitudes towards the museum offering. As mortality threat and importance of technological adoption to self-esteem increase, in fact, participants are more willing to pay for an interactive virtual tour or a 360-degrees virtual tour versus a static, non-interactive one and they are also more willing to donate to the museum. Conversely, no statistically significant effect is found on intentions to visit the museum once the Covid19 lockdown policies are relaxed. A possible explanation could be that consumers may be scared to attend touristic places immediately after the end of the emergency.



THE PAPER

Mortality threats and technology effects on tourism

by Anastasia Nanni, Aulona Ulqinaku



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A detailed 3D rendering of coronavirus particles. The particles are spherical with a grey, textured surface and are covered in numerous red, crown-like spikes. Some particles also show yellow, hexagonal structures. The background is a soft, out-of-focus orange and white gradient.

Covid Crisis Lab Legal issues

Leonardo Borlini
Cesare Cavallini
Maurizio Del Conte
Francesco Mucciarelli
Oreste Pollicino
Pietro Sirena
Arianna Vendaschi
Marco Ventoruzzo

The Crisis, a Laboratory for Ex

From constitutional law to bankruptcy law, from contracts to the management of corporate assemblies to the rules for safeguarding employment: there are many actions implemented that have affected various areas of law. The question now is what will remain of everything achieved to ensure the balance between privacy and health protection, to implement smart working and to guarantee corporate governance through new technologies?

by Cesare Cavallini, Maurizio Del Conte, Francesco Mucciarelli, Oreste Pollicino, Pietro Sirena, Marco Ventoruzzo @

The Covid19 pandemic has raised momentous legal issues in virtually every facet of the law. States have emerged as the first responders in a period of chaos and fear. Their proximity to local specific needs, the ability to adopt measures more precisely tailored to different situations and to enforce them has inevitably made them key actors in reacting to an unprecedented situation. International organizations, including the EU, have been somehow slower to take action, partly because of inevitable coordination problems, but also due to partially conflicting national interests. The EU, however, eventually stepped in: while it is not yet certain how effective its intervention will be, cooperation and solidarity is now more important than ever. The question whether it will emerge reinforced or weakened by the crisis is still unclear, but surely the last three months will prove a watershed for the political, social, economic and legal future of the continent.

In this article we offer a brief overview of the major issues and measures adopted in Italy, often in haste, in some key areas: public law, private law, business law (including insolvency), labor law and criminal law. Needless to say, this snapshot is partial and limited, but it illustrates the complexity of the situation and possible trends that might outlive the medical emergency.



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→ EFFECTS ON THE RULE OF LAW AND REPRESENTATIVE DEMOCRACY

From a constitutional law perspective, the emergency has profoundly affected consolidated constitutional safeguards. The adoption of administrative orders to restrict fundamental freedoms, precisely (but not limited to) freedom of movement, has questioned the principles of the rule of law and representative democracy, due to the marginalization of the Parliament in times of emergency. Likewise, the situation has challenged the functioning of constitutional bodies required to perform their public functions at distance as in the case of the judiciary. In addition, the pandemic season has impacted on the balancing process of conflicting fundamental rights, as, for instance, in relation to the constitutional tensions between privacy and public health. The debate has until now focused on the proportionality of privacy restrictions, whereas the relevance of concurring constitutional rights and the necessity of the restrictions in question have been neglected. A clear example of such underestimation is emerging in the context of the contact tracing debate. If we cannot be reasonably certain that the digital tracing model, which is in compliance with European constitutional law, will be effective and, hence, necessary, then, even minimum restrictions on privacy become problematic. Otherwise, the alternative is moving from the European model of exposure notification to an Asiatic system based on digital surveillance, and consequently unforgivingly betraying the spirit of European constitutionalism.

→ THE RISK FOR CONTRACTS

Important problems have emerged in contract law, in light of the difficulty or impossibility to perform. In principle, the continuity of contractual relationships must be preserved and, so far as possible, the contracting parties must be entitled to render their performance at a distance as well. In case of impossibility of performance (or force majeure), or excessive onerousness, each party might terminate the contract or, when appropriate, to reduce the performance owed in exchange. Hardship might also call for a renegotiation in good faith of the contractual terms. To clearly distinguish when performance is impossible, unreasonably onerous, or has been frustrated is however difficult, also considering that courts have suspended their activity due to social distancing rules. Additionally, the outbreak of Covid19 has urged many legislatures to provide for a moratorium on certain payments (particularly on

Experimenting with New Rules

PIETRO SIRENA

Keeping Check on Exceptional Legal Developments

As the Covid19 pandemic has led most States to set unprecedented restrictions on our fundamental rights, it is of the essence that such restrictions be subject to democratic control and the rule of law. For this reason the European Law Institute has drafted a set of 15 «ELI Principles for the Covid19 Crisis», that address some of the main issues arising in relation to the Covid19 crisis and offer guidance on post-crisis responses to States and other policy-makers. As a member of the ELI Executive Committee, **Pietro Sirena**, Full professor of Private Law and Dean of Bocconi School of Law, participated in the drafting process.

One of the most debated issues across Europe is the role of tracking technologies, which can limit personal liberties. «The related ELI principle», Professor Sirena says, «suggests that such technologies, in the name of public interest and health protection, could be adopted and made mandatory, irrespective of personal willingness, but on strict conditions: a parliamentary act would be necessary, data should be collected and aggregated in anonymous form and, when the emergency is over, data should be deleted or made available only for research reasons». The ELI Executive Committee members also think that, in this issue as in the rest, a pan-European approach would be more beneficial than regulatory competition between national authorities.

As for contracts and obligations, the main point is the possibility to renegotiate contracts and delay payments. «When the object of the contract becomes impossible», Prof Sirena says, «damage compensation for non-fulfillment should not be requested. In other cases, contract continuity should prevail, with possible renegotiations for contracts that have turned burdensome».

Furthermore, ELI Principles envisage that doctors cannot be held liable for adverse events related to the Covid19, except in the case of gross negligence; by contrast, the liability of the State should remain as it is.

The ELI Principles for the Covid19 Crisis have been recently debated in a webinar you can watch [CLICK HERE](#).

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THE PRINCIPLES

15 European Law Institute Principles for the Covid-19 Crisis

ORESTE POLLICINO / 1

The Changing Face of Digital Democracy

This is an initiative which, in fact, is the direct consequence of escalating events in Italy and Europe. The origin of the research project Pandemic and Democracy. Rule of Law in the Digital Society, born under the aegis of the Leonardo Foundation from the collaboration between Bocconi, the University of Florence, the University of Trento, the Feltrinelli Foundation and the Treccani Encyclopedia Institute, had intended to investigate the impact of digital transformation on rights protection. But the pandemic has reshuffled the deck by making the researchers take another perspective.

«With our partners we decided to investigate the relationship between digital technology and democracy in the context of the coronavirus emergency», explains **Oreste Pollicino**, Full Professor of Comparative Public Law. He is part of the Bocconi team participating in the initiative together with **Marco Bassini** and **Giovanni De Gregorio**, who will work with him on digital rights, and **Pietro Sirena** and **Francesco Paolo Patti**, who will look into the private law aspects associated with the impact of the pandemic.

The project involves the development of six major topics: the first concerns the way in which, under the push of the emergency, the sources of law are changing; the second looks at the relationship between health and privacy and, therefore, at the relationship between digital technology and surveillance; the third considers the impact on citizens and private contracts. And while the fourth topic is that of the use of technology in the fight against the virus, especially as regards the protection of health, the fifth considers the socio-economic impact of the pandemic, also with reference to the relationship between Northern and Southern Italy. Finally, in the last of the six macro areas of the research project, scholars evaluate the impact on the European integration: What kind of Europe is emerging from the ordeal?

«The Bocconi faculty chairs in constitutional law and private law have placed particular emphasis on the present and future implications of Covid19, investigating how rights and fundamental freedoms are going to be protected in a future characterized by the accelerated digitization of society.»

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ORESTE POLLICINO / 2

Impact on Public Choice.

60 Countries Compared

The scope undertaken by the research project Global Response to Covid19: a comparative law and economics study reflects the vastness of the Covid phenomenon. In fact, over 150 scholars from over 60 national jurisdictions around the world are taking part in the research investigation promoted by the International University College of Turin, Istituto per il Nuovo pensiero economico and the Italian Association for the Promotion of Political Economy and Law. «The study wants to shed light on the procedural, substantive and (re)distributive aspects of the response of government institutions to the emergency», explains **Oreste Pollicino**, Full Professor of constitutional law at Bocconi and co-coordinator of the research group together with **Aleksandar Stojanovic**, post-doctoral fellow at the BAFFI CAREFIN research center.

Oreste Pollicino goes on and adds: «In particular, the research questions are focused on five aspects: the degree of participation in the elaboration of the political decisions taken (was Parliament involved? How and to what extent?); the degree of exceptionality in the exercise of power with respect to the adopted norms (Are traditional legal channels being used or not? Has there been a recourse to special legislation? Has the Constitution been the relevant compass?); the use of surveillance techniques and digital tracing and monitoring tools (Have individual rights and freedoms been respected, starting with the right to privacy?); the (re)distribution of aid and rescue measures among different social groups (Has there been a focalization of resources towards the most vulnerable layers of society?), and the degree of pluralism in policy options».

An imposing research study, therefore, that has a double objective. First of all, to create an information database that will be made accessible to the media and the general public, and later to assess the long-term impact on legal institutions of the political decisions taken in response to the pandemic and therefore in any state of emergency. «We are currently collecting answers from individual research groups to one or more of the questions in the research questionnaire,» summarizes the Bocconi faculty member. «Subsequently, a report will be drafted for each legal system considered, where all the above-mentioned aspects will be analyzed,» he concludes.

taxes, rents, and loans).

→ THE THREE ANSWERS OF CORPORATE LAW

In the area of corporate law and financial markets, the Italian legislature, similarly to other European policy makers, has adopted measures that can be roughly grouped along three lines: (a) facilitating corporate governance notwithstanding social distancing; (b) limiting the consequences of a hopefully temporary liquidity and earnings crisis; (c) curbing possible speculation on financial markets. In the first group we have seen great liberalization of shareholders' meetings held online, opting out of rules requiring physical presence and adopting new techniques to identify shareholders entitled to participate, something that has partially limited shareholders' voice or, better, more traditional ways to use it, but has also brought greater efficiency in holding the annual general meeting. To counter an avalanche of voluntary and involuntary liquidations, in some jurisdictions a sort of presumption of business continuity has been allowed, in order to avoid accounting losses; more commonly, rules mandating to recapitalize or liquidate a going concern in case of significant losses have been suspended. Finally, some supervisory authorities have temporarily banned short-sales (or imposed more stringent disclosures) to discourage massive sales that might drive prices of listed securities down, and State powers to block acquisitions of control, especially foreign, have been made more biting. Some of these measures are criticized because they appear to "hide the thermometer" rather than curing the underlying illness, with the consequence that, when lifted, might result in a delayed but not less severe crisis; and might hinder the common market. On the other hand, the exceptional rules also represent a unique legal experiment whose legacy might outlive the pandemic, for example concerning virtual meetings or with respect to a more flexible regime of minimum legal capital.

→ BANKRUPTCY IN TIMES OF PANDEMIC

Specific issues and measures concern insolvency law. Bracing for a steep increase in the number of insolvencies of going concerns, the Government has postponed the entry into force of the new Code of the Crisis, a statute that will profoundly modify the existing legal framework, from August 2020 to September 2021. The idea is that it would be unwise to apply new and untested rules to the contingent situation. Additionally, the already mentioned suspension of judicial activities makes it impossible to activate typical remedies available vis-à-vis insolvency. The concern is that once the doors of the courthouses reopen, an avalanche of litigation will overwhelm them.

Insolvency law also raises delicate criminal law

questions. Statutory measures recently introduced led to – extraordinary and temporary – amendments to the Civil Code, and to the Italian Bankruptcy Act provisions governing arrangements with creditors impacting corporate crimes and bankruptcy offences. In particular, when public funds are granted to businesses two main issues arise: on the one hand, there is the need to criminalize embezzlement and diversion from the recovery purposes; on the other hand, in case of subsequent bankruptcy, potential criminal ramifications might involve even the bankers as accomplices.

→ THE CURE FOR THE EMPLOYMENT SHOCK

In order to prevent an unemployment crisis, the Government has intervened on three main axes: prohibition of dismissals, general extension of the wage subsidy fund and home working. The prohibition to proceed with any non-conduct related dismissal would not have been sustainable by companies, already weakened by the forced closure and the lack of incomes, if it had not been accompanied by the intervention of the wage subsidy fund which has the effect of replacing wages paid by the employer with an allowance paid by the state, while keeping intact the employment contracts. In April alone, the total number of hours paid by the wage subsidy fund rose by almost 3000% compared to the same month of the previous year. Additionally, companies were allowed to require employees to work from home. This form of work organization made it possible to save most of the activities that did not require physical presence in the workplace, making home workers go from less than 600,000 in pre-Covid19 time to about 8 million during the lockdown.

As this brief and incomplete list shows, the problems and the responses are numerous and diverse. The crisis however also represents a unique laboratory to experiment with new rules that under normal circumstances might have required years to be enacted. It will be interesting to see what remains after the emergency has abated, for example with respect to the balance between privacy and protection of health, smart-working, and corporate governance through new technologies. ■



THE PROJECT

The Future of Food Safety and Sustainability in Globally Integrated Markets is the research project Leonardo Borlini is working on with Alessandra Arcuri.

LEONARDO BORLINI

How the Way We Think About Food Safety Is Changing

The coronavirus probably passed from bats to humans in a live animal market in Wuhan. This circumstance brings to the fore the theme of food safety, dealt with in the Sanitary and Phytosanitary Standards chapters of the international free trade agreements. It also changes the perspectives of the research project **The Future of Food Safety and Sustainability in Globally Integrated Markets**, which **Leonardo Borlini**, Associate Professor of International Law, was supposed to complete in the coming months at Erasmus University in Rotterdam with **Alessandra Arcuri**, thanks to a grant from the Dutch Research Council. «The coronavirus makes the precautionary principle paramount», says Prof. Borlini, «and could pave the way for environmental impact considerations in food risk assessment».

In previous work carried out at the Fletcher School of Law and Diplomacy under a Fulbright Research Scholar Grant, Prof. Borlini identified and analyzed all the rules of international free trade agreements concerning food safety and highlighted the negotiating position of three major players: the European Union, the United States and China. According to the precautionary principle, if there are well-founded grounds for fearing possible harmful effects on the environment and on the health of humans, animals and plants, but there is not scientific consensus, measures can still be taken to minimize or avoid potential risks. The principle is defended by the European Union and criticized by the other economic powers, which believe it can be used as a protectionist tool. «After the coronavirus, though» comments Prof. Borlini, «it is clear that the EU will have even less reason to change its position on this issue, while the US and China may face the need to accept its wider use and its inclusion in the new preferential agreements yet to be concluded.»

In the wake of the outbreak of the pandemic, Prof.

Borlini also launched a research project on Pandemic Emergency Financing Facility programs, such as the so-called Pandemic Bonds, managed by the World Bank. «These are instruments aimed at financing the management of pandemic situations in developing countries, which are less equipped to deal with them. In the past, with Ebola, they showed clear weaknesses and there is consensus that they should be changed. We need to understand how to change them for the better».

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ARIANNA VEDASCHI

The Remains of the Legislation

Some forty scholars of Comparative and European Law, coordinated by **Arianna Vedaschi** (Bocconi) and **Lorenzo Cuocolo** (Università di Genova) are at work to understand similarities, differences and peculiarities of national and supranational bodies' reactions to the health emergency caused by the coronavirus.

The health emergency has triggered different, but comparable, legal dynamics in the various countries of Europe and the world. Vedaschi, a Full Professor of Comparative Public Law at Bocconi, has launched through the *Rivista di Diritto Pubblico Comparato Europeo* edited by **Giuseppe Franco Ferrari** a collaborative research project that is feeding the [journal's website](#), and will result in a special issue. «The call, launched at the start of the emergency», says Prof. Vedaschi, «was answered by a large number of colleagues, almost all of whom are Italian Comparative Law scholars specializing in the legislation of individual countries and international bodies».

The project unfolds on a vertical dimension - the analysis of the individual legal systems and supranational institutions - and on a horizontal one, focused instead on specific topics. Among the vertical cases, not only European and Western countries will be represented. Certain countries, less studied perhaps, but of strong topicality with respect to the coronavirus, such as South Korea, India and Iran, are also being analyzed. In addition, the European Union and the World Health Organization are among the international bodies under observation.

The horizontal dimension will not necessarily apply to all the countries under research. «The marginalization of parliaments, for example», explains Prof. Vedaschi, «will be analyzed in European democracies. Another issue of interest is the system of the sources». The uncertainty about the prevalence of national

decrees and ordinances and their coordination with regional ones will be one of the themes studied. While the most structured studies will be published in the journal, the DPCE website has set up a permanent [Observatory](#), where normative acts (decrees, etc.) from all over the world are uploaded, accompanied, if necessary, by summary sheets for less known languages. «It is a service to the entire legal research community because, in these days of uncertainty, even on legal chats there is a lack of clarity about what the reliable sources are», comments Prof. Vedaschi.

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The Solution Is in the Details

We are Covid-19, its strength is in our behavior, its ability to spread depends on the many variables that characterize our cities. This is why not only are simplistic forecasts difficult to make, but a multidisciplinary approach must also be adopted, says the Director of the One Health Center in Florida and member of IAC Bocconi, Ilaria Capua

by Andrea Celauro @

Virologists and scientists aside, the way we have dealt with Covid-19 in recent months is an example of a fundamental error that as humans we tend to repeat: simplifying complex problems. We tend to consider situations with a thousand nuances within a binary system, zero or one. Like wanting to paint a sunset with only two colors. «Covid-19 is a complex system and should be treated as such. There is an utterly palpable need for multidisciplinarity,» explains scientist **Ilaria Capua**, Director of the University of Florida's One Health Center of Excellence and member of Bocconi's International Advisory Council. She is also working with CERGAS Bocconi on a study that aims to analyze the real mortality rates of the virus and is author of *Circular Health: A necessary revolution*, published by Bocconi University Press.

→ **Let's start with 'Circular Health'. Picking up the hypotheses on the origin of the virus that produced Covid-19, in this book you write that we have created the perfect environment for certain pandemic pathogens like this to originate and be supported within certain host populations.**

We are an integral part of nature, we are inside an aquarium together with plants and animals. What Covid-19 has shown is that the organizational system of humans is not flexible enough to host such a virus. So

ILARIA CAPUA is a veterinarian by training and for over 30 years she has led research groups in Italian and international laboratories in the field of diseases transmissible from animals to humans and their epidemic potential. In 2008, the magazine *Seed* included her among their «Revolutionary Minds» for being a catalyst for more collaborative approaches in influenza virus research by promoting data sharing on open access platforms. In 2013, she was elected to the Italian Chamber of Deputies where she held the position of Vice President of the Science, Culture and Education Committee. During her tenure, she was swept up in a judicial investigation that turned out to be unfounded. After being acquitted, she resigned as a Member of Parliament and moved to the United States, where she directs the University of Florida's One Health Center of Excellence. She is a member of Bocconi's International Advisory Council.

Covid is a huge wake-up call because it has told us that we cannot handle an unexpected event of this type. It is the proof that this emergency must be faced with different points of view, because cities are affected differently. The virus makes the virus, it's our surroundings that make the difference.

→ **Should we also look at our place in the ecosystem with different lenses?**

Absolutely. We have to stop acting like invaders and start acting like guardians. In the plural, because everyone has to do his or her part to face the post-pandemic period.

→ **During the emergency, a certain creativity emerged in dealing with it, like the engineers who transformed a snorkeling mask into a respirator. How important is it to think outside the box?**

I am of the opinion that every institution should have a sort of Outside-the-box office, an office in which there are people who do not belong to that area, but who are continually on the edges of that environment. To respond to Covid, each of us must find new ways, we can't waste this crisis, we have to use it to improve.

→ **What is Covid's most important lesson?**

Our fragility and the fragility of our health. We take for granted that they aren't fragile but the virus has brought us back to our earthly weakness. It hit us hard and made us understand that we have no escape clauses. Just like for the environment people say, «There is no



Planet B,» we must understand that «There is no Plan B» regarding the virus.

→Which countries did the best job of handling the emergency?

Nobody was prepared. Some very small or very organized countries, such as certain Northern European countries and New Zealand, fared better. Covid is a multifactorial system: the mobility of people, their age, the country's health policy and pollution all matter. Each country is a different setting, so ranking who has done better is sheer folly. We all made mistakes, it's not like someone did a great job. We just have to learn from our experience, for better or for worse.

→And what about the US, where you live and work?

In the United States there is a polarization of opinions and information that is truly unreal. There is a negationist front, the Republican and Fox News front, and a catastrophic one, which is the Democrat and CNN front. The tragicomic thing is that both are right: there was a catastrophe in some cities, mainly Democratic-majority ones, while not many deaths occurred in rural America. The effect of this polarization is that people are confused and lost.

→And here we return to the issue of complexity in dealing with Covid-19. What do you feel is your job as a scientist?

I think my role is to explain to people who are not in the industry that there is a need, first of all, to take responsibility on a personal level, and then how much an emergency like this requires a multidisciplinary approach. There are no simple solutions.

→Should we expect a second wave in the fall?

The second wave is us, because without people the virus cannot go anywhere. We have flattened the curve, but we have not reset it. There will be second waves that can do more or less damage based on the conditions in which they break loose. But a prediction is not possible, because it depends on individual behavior.

→In recent months there has often been talk of an 'infodemic,' that is, an excess of information about the virus that may not have been properly verified. What do you think about how information about Covid has been communicated?

In general, nobody was prepared, so information was handled badly. We should reflect on this because it is clear with social media that incorrect information influences epidemiology. Information is one of the main



THE BOOK

Thinking Outside the Box to Regain Our Health

What happened in the beating heart of the megalopolis of Wuhan, in China and in the crowded streets New York, in USA? The truth is that we don't know yet but we have created the perfect environment to sustain pandemic pathogens in certain host populations. The challenge today is how to identify the obsolete pathways we must abandon and find new, unexplored, alternatives. One way to do this is to be open to ideas from other disciplines and to fully embrace an outside-the-box thinking approach, Ilaria Capua explains in *Circular Health. Empowering the One Health Revolution* (Bocconi University Press, Oct. 2020, 110 pages)



drivers of how the infection evolves and therefore should be used well.

→What can we say about Covid's real mortality rate?

That the data, in recent months, have been generated and collected unevenly. There is a need to clean up, reorganize and re-categorize the data to understand how many lives Covid has taken in Lombardy, Italy and Europe.

→Was there collaboration in the research or did everyone want to work by themselves?

There was a certain level of collaboration, sequences were shared, but a network should have been organized in advance. If we had already had an organized network, a vaccine would have been ready in six months.

→Finally, big data. 2020 is not 1990: how can the ability to analyze large numbers contribute today?

They are the future, they will be islands of light that will allow us to see and understand things we didn't see. Like it was during this emergency, when, thanks to big data and not to individual cases, we understood the greater risk of a severe form developing in men. Thanks to big data, today we can understand all the facets of this gigantic puzzle. ■



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