COVID-19 might affect the economic recovery and the long-run economic situation through its impact on individual preferences

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The outbreak of the COVID-19 crisis has raised many concerns about its economic consequences in most countries. Very quickly, economists have realized that the shock associated with the worldwide spread of the disease will have severe macroeconomic consequences in most developed economies, Luxembourg included. The usual suspects are well-identified: falling growth and firms' profits, bankruptcies on the rise, soaring unemployment, etc. Recent estimates suggest that the COVID-19 crisis will have greater detrimental effects than the 2008 financial crisis, with expected drops in GDP as high as 6%. Many economists have come up with proposals for stabilization policies, i.e. policy measures aiming at mitigating the effect of the recession. However, less attention has been paid to the possible effects this crisis might have on the long-run economic behavior of economic agents and on the structure of our economies. The purpose of this article is to address one of these aspects.

Time and risk preferences matter for decision-making

People are characterized by what economists and other social scientists call deep parameters. These parameters capture individuals' preferences and are key for explaining important economic decisions individuals make. In that sense, they represent the economic DNA of any human being. Individuals have various types of fundamental preferences; in particular, attitudes towards risk and preferences for the present have important implications for economic decisions like investment, innovation, entrepreneurship, consumption, just to name a few. Risk aversion relates to the behavior of economic agents exposed to uncertainty. When confronted with an economic choice, the more risk averse people are, the more likely they will favor safe(r) alternatives, even if these alternatives clearly yield lower outcomes on average. One immediately understands that higher levels of risk aversion in a society will imply less investment, less innovation and fewer entrepreneurial initiatives, at least to the extent that these decisions involve non-negligible degrees of uncertainty. Time preferences relate to the preference people assign to immediate rewards relative to those that only materialize later. People with a higher preference for the present will discount future payoffs more and appear as less patient. Time preferences affect not only the economic decisions aforementioned but also decisions to invest in oneself such as human capital investment and in particular whether or not to pursue higher education.

Higher levels of risk aversion in a society will imply less investment.

How to measure risk and time preferences is a central component of research in behavioral economics. In the interest of space, we only present two central features of the measurement method that are important to keep in mind. First, these preference parameters are elicited through incentivized games involving monetary rewards for the (human) participants.

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This experimental design makes sure that the preference parameters herewith measured are meaningful and not contaminated by random thoughts or cheap talk. Second, the rules of the games are clearly stated and easily understandable. This makes sure the measurement is not capturing the effect of other variables such as cognitive ability. When measured as prescribed above, time and risk preferences have been shown to predict the outcome of real life economic choices: whether and how much to smoke or drink alcohol, (human) capital investment, occupational choice, whether and whom to marry, whether and where to migrate etc.

Major life events can affect preferences

However, one key question concerns the extent to which these preferences are malleable and affected by life events. The view of mainstream economists is that time and risk preferences are "deep parameters," i.e. parameters that are deeply rooted in human beings. It is therefore not surprising that economists initially viewed time and risk preferences as given for each individual and fixed over time. Nevertheless, recent academic research in social sciences shows that important events can affect preferences. For instance, empirical evidence has shown that the 2008 financial crisis increased the degree of risk aversion for those agents affected by its economic consequences such as unemployment.

Financial crises are one form of man-made event that can affect preferences. However, other types of event, not (directly) caused by men, such as floods, earthquakes, tsunamis or hurricanes, may also influence preferences. Recently, in a study conducted in Albania and funded by the FNR of Luxembourg, we looked at the consequences for preferences of two large earthquakes that hit the capital city, Tirana.[1] Our results show unambiguously that inhabitants become much more risk averse and impatient when affected by the earthquakes. Importantly, we also show that the second earthquake induced an additional effect: inhabitants become even more risk averse and impatient when affected by two earthquakes, not just one. This suggests that the effect on

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preferences is not simply the effect of awareness but rather related to one's experience of the world.

The magnitude of the effect on preferences is considerable. Unfortunately, the scales on which time and risk preferences are measured do not bear a universal meaning. It is therefore preferable to put the magnitude of the aforementioned effects in perspective. To this aim, note that women are on average more risk averse than men. This gender gap is extremely robust across studies using the same experimental design as ours, offering a yardstick to compare the magnitude of the effects of the earthquakes on preferences. Our results show that, for risk aversion, the effect of each quake is equivalent to about twice the gender gap, whereas, for time preferences, the effect of the first quake is about four times the gender gap, the effect of the second being as large as the gender gap.

Note that, in our study, data on preferences were collected over a period of four months, from September 2019 until December 2019. The first earthquake occurred on the 21st of September, the second on the 26th of November. This implies that the effects we measure are short-term effects. We do not know yet whether these effects are evanescent or enduring. However, their magnitude is so large that, in the best scenario, even if they are evanescent, it will arguably take months if not years before they disappear.

COVID-19, preferences and the economic recovery

We believe the aforementioned results obtained for the earthquakes in Tirana can, to some extent, be applied to the possible consequences that COVID-19 might have on economic behavior in our societies. Like natural disasters affecting one specific area, the COVID-19 outbreak can be seen as a global shock affecting all individuals. Just as some individuals are more affected than others by earthquakes (some houses were damaged or destroyed, others not), the virus will not affect all individuals with the same intensity. Some will be sick, others will not; some will lose relatives, acquaintances, others will not; some will lose their job, others will not. The intensity of exposition is likely also to affect the way the risk and time preferences of people change after the COVID-19 crisis. Lessons from the earthquakes in Tirana make us expect that, on average, people will come out of this crisis being more risk averse and more impatient than before. The magnitude of these effects will of course depend on the severity of the crisis, and its duration. At this stage, these two aspects are still largely unknown, which means that the expected amplitude of the impact on preferences is difficult to predict. It is therefore both less heroic and safer to make qualitative rather than quantitative predictions.

Entrepreneurship and technological innovation might be the most affected economic outcomes in the future.

With this in mind, drawing from the effects of the Tirana earthquakes, what are the most important expected economic effects that one can anticipate? Shortly after the crisis, because individuals will be on average more risk averse and less patient, they will be less inclined to invest. The skyrocketing economic uncertainty that will follow the crisis, added to the fact that people do not know how long the crisis will last nor how deep the shock will be, will only magnify this tendency. It is difficult to predict when and how the economic recovery will happen. For many sectors, this means that a large part of planned investments of different kinds will be postponed or simply forgotten. Besides physical investments, one might also worry about innovation. COVID-19 can make CEOs more risk averse but also less patient. As a result, CEOs will concentrate more on the current situation rather than the long-run prospects of their business. A related economic dimension will be the extent to which entrepreneurs will launch new businesses. Such economic choices are inherently risky and mostly made by individuals who are more resilient to risky outcomes. In the current context, entrepreneurship and technological innovation might be the most affected economic outcomes in the future. This is worrisome as investment and business development are well-known primary engines of our economies. They exert accelerating effects on many macroeconomic aggregates such as consumption. This will add detrimental effects to the ones caused by the economic shocks on demand and supply that we currently observe.

Other important economic activities could be affected too. One that springs to mind as particularly important is investment in human capital, i.e. enrollment in higher education. Considering the current lockdowns in many countries, the question of whether students will be able to graduate and hence enroll next year in further education is of central importance. Nevertheless, perhaps as important is the question whether future cohorts will be as willing to invest in higher education. As (young) individuals become less patient, they also become less likely to postpone labor earnings today, discount future earnings more heavily and, as a consequence, see less value in investing in education. All studies show that education is a profitable investment for the investor but also for society. However, only individuals that accept postponing the returns by several years, that are patient enough, will perceive this investment as profitable. Once again, it is difficult to assess how many people will be affected and how it will be reflected in global enrolment rates in higher

education. Nevertheless, it could be a natural consequence of the current crisis in the long run. The list of potential economic decisions impacted by the shift in risk and time preferences is very long and includes very diverse economic activities: (re)location decisions such as migration, changing jobs for workers, hiring new workers by firms, mergers and acquisitions of firms or investment in stock markets, to name a few examples.

Obviously, one can argue that the analogy between natural disasters and the outbreak of the COVID-19 virus can be misleading. These are indeed not the same shocks. As an alternative, one could use evidence provided by previous pandemic waves. The last important pandemic disease was the Spanish flu that affected many countries including European countries between 1918 and 1920. According to some estimates Spanish flu cost more than 50 million lives worldwide, having the potential to impact considerably the economy. Unfortunately, this pandemic wave occurred in very unconventional economic circumstances as the peak of the wave coincided with the end of the First World War. The war itself had destroyed the most important European economies and it is hence very difficult for economists and historians to assess the additional damage triggered by Spanish flu. To the best of our knowledge, almost no economic study has tried to address that issue.[2] A second important historical event is the Black Death that hit Europe in the 14th century. The Black Death constituted a major shock that affected many countries and cities: some estimates indicate the Black Death led to a decrease of at least 45% of the European population. In some areas, mortality rates shot up to 80%. Economists have studied some consequences of this tragedy, for instance on agricultural wages and productivity. One interesting aspect is that by decreasing the size of the labor force, the disease accelerated the transition process to a society free of agricultural serfdom. Nevertheless, due to the important scarcity of precise data on economic indicators, no real evidence can be used to measure the possible consequences of the current crisis on the business cycles or on economic aggregates such as consumption or investment, let alone on preferences.

Therefore, one has to rely on analogies with other natural disasters, such as earthquakes, to assess the effects of the COVID-19 on economic preferences of agents. This does not prevent us reflecting on the differences between earthquakes and a pandemic disease, however. Earthquakes are disasters of short duration while this COVID-19 is likely to affect lives over some time. Earthquakes are local, while this pandemic wave is global. Perhaps more importantly, a significant difference between the two types of disasters lies in its impact on trust: trust in other persons and trust in institutions like governments and central banks for instance. The local and instantaneous nature of an earthquake makes it less likely that it will affect individuals' trust in others and in institutions. This contrasts with the current COVID-19 crisis. The fact that the crisis is global and long-lasting forces all governments to take drastic decisions which differ widely across regions and countries. Debates about which measures are taken, where and why, fuel the (social-)media and other narratives. The question of how much trust in their government citizens of each country have in the face of this crisis will be of crucial importance when it comes to (economic) recovery. The effectiveness of policy interventions to boost economic recovery will very much depend on how much trust governments have been able to create/maintain vis-à-vis their citizens. A second important contrast between earthquakes and the current crisis is the dimension of trust in other people. In contrast with an earthquake, where people less affected mobilize to help those most affected, the current lockdown imposed in many countries and the contagious nature of a virus may affect the extent to which people trust each other. This may create an additional hurdle to recovery, as trust in others is an essential element of business activity and a cornerstone of the free market.

In conclusion, while the current crisis will have an important economic impact in most countries, we argue that the crisis will also leave individuals more risk averse and less patient. As a result, the success of the economic recovery will have to overcome a double hurdle: the crisis has made people intrinsically less inclined to invest, less willing to innovate and less entrepreneurial at the same time as it has created more uncertainty about the future. Offsetting the shift in preferences is a daunting if not impossible task for economic policy. Nevertheless, governments should account for higher risk aversion and the impatience of agents when designing and assessing the efficiency of future policy interventions. For instance, any measure aiming at boosting innovation and investment should integrate some insurance schemes that significantly decrease the uncertainty faced by the targeted economic agents. ◆

The crisis will leave individuals more risk averse and less patient.

1 Michel Beine/Gary Charness/Arnaud Dupuy/Majlinda Joxhe (2020), "Shaking Things Up: on the Stability of Risk and Time Preferences", https://tinyurl.com/qwmvfjd (checked on 26 March 2020).

2 See nevertheless the very recent study of Robert J. Barro/José F. Ursua/Joanna Weng (2020), "NBER Working Paper 26866", https://www.nber.org/papers/w26866.pdf (checked on 26 March 2020).