

From the open society to the closed society: reconsidering Popper on natural and social science

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Abstract

The paper points out the relevance of Popper's seminal work on *The open society and its enemies* for the current situation of the handling of the corona crisis. It shows how studies that were employed to justify coercive policies committed two well-known mistakes that were pointed out notably by Popper: (i) they promoted as actual predictions model simulations that set initial parameters in such a way that pessimistic outcomes are produced; (ii) they applied methods of natural science to social science without paying heed to the fact that humans spontaneously adapt their behaviour to new information they receive. The paper then argues, following Popper, that there is no knowledge that enables social engineering with the aim of realizing one particular value such as health protection. The paper concludes with a suggestion how to deal with negative externalities that is based on human freedom.

Keywords: Corona crisis, closed society, human rights, negative externalities, Popper, open society, social engineering

1. Introduction

Karl Popper wrote his major book in political philosophy, *The open society and its enemies*, in exile in New Zealand during the Second World War. This book revealed the intellectual foundations of totalitarianism. It showed how both National Socialism and communism were based on the same foundations, which implement a closed society in contrast to the open society envisaged by Enlightenment philosophy since the 18th century. Popper's book thereby became one of the intellectual foundations of the political course that was established after 1945: the formation of a Western community of states based on the rule of law and human rights to oppose the Soviet empire. This setting established a framework that encompassed all the major social groups and political parties in the West: whatever divergent interests and different political programmes existed, the rule of law based on fundamental rights in contrast to the totalitarianism of the Soviet empire was not in dispute. This setting shaped politics and society for four decades. In 1989, after the fall of the Berlin wall, no new course seemed necessary: freedom and the rule of law had prevailed. Francis Fukuyama (1989) even envisaged the end of history.

That was a mistake. This paper lays out why, in the aftermath of the corona crises, we stand again at a crossroads between freedom and totalitarianism, which could, again, shape our lives for decades to come. Again, it is about a trend that could encompass all major social groups

and political parties, whatever their differences otherwise are. This trend will be determined by the consequences that we draw from the corona crisis.

Section 2 recalls Popper's characterization of the open society and its enemies. Section 3 argues that the political reaction to the coronavirus outbreak runs the risk of leading us from an open to a closed society based on scientific studies that commit well-known mistakes: they suggest that simulations that set initial parameters in such a way that pessimistic outcomes are produced count as actual predictions, and they apply methods of natural science to social science without paying heed to the fact that humans spontaneously adapt their behaviour to new information they receive. Section 4 generalizes these observations by discussing the problem of negative externalities. Section 5 argues, following Popper, that there is no knowledge that enables guiding society with the aim of realizing one particular value such as health protection. Section 6 concludes the paper with a suggestion how to deal with negative externalities based on human freedom.

2. *Popper on the open society*

The open society is characterized by recognizing every human being as a person: the person has an inalienable dignity. Persons have the freedom to live their lives as they see fit, as well as the responsibility to account for their actions on demand. We are free because the human species has freed itself during evolution from a behaviour that is a mere reaction to stimuli. Popper considered human freedom as falling outside the scope of natural laws. Together with the neuroscientist John Eccles, he developed in Popper and Eccles (1977) an interactionist dualism according to which the human mind is distinct from the body including the brain. Nevertheless, human free will is causally efficacious for bodily motions due to its influence on certain quantum events in the brain.

Mind-body dualism, and this interactionist version in particular, is highly disputed both in philosophy and in science. What is not in dispute in this context and what is relevant for the purpose of this paper is human freedom in the sense of a basic notion of freedom that is by and large neutral with respect to the various philosophical and political accounts of freedom: when we think and act, we are free. This is so because one can demand reasons and thus justifications for thoughts and actions – and only for these. By contrast, it makes no sense to demand reasons for behaviour that is a reaction to biological stimuli and needs. Therefore, reason and freedom stand and fall together. Given biological inputs such as sense impressions, needs and desires, the use of reason consists in forming one's own judgements about what to think and what to do. Nothing that is given to the mind of a person – such as sense data, biological needs and desires, or even inborn ideas – can as such be a reason for a thought or an action because it cannot as such justify a thought or an action. It becomes a reason when a person endorses it as a reason for her thoughts and actions.

One can illustrate this issue in terms of Popper's (1980) distinction between three worlds: material objects (world 1), persons with their thoughts and actions (world 2) and abstract objects such as concepts and theories (world 3). Based on their interactions with material objects (world 1), persons (world 2) conceive theories that then enter into world 3 as abstract objects. The freedom of persons then consists in the manner in which they relate the objects of world 1 to the objects of world 3. Acknowledging this freedom does not entail a commitment to mind-body dualism as set out in Popper and Eccles (1977). Furthermore,

Popper's (1980) postulation of three worlds is just one possible way to illustrate this freedom. No ontological commitment to the existence of several worlds is entailed by its recognition.

The issue is a basic notion of freedom that is a central pillar of Enlightenment philosophy expressed, for instance, by Immanuel Kant when he says: "If an appearance is given to us, we are still completely free as to how we want to judge things from it".¹ Accordingly, Kant regards the concept of freedom "as the *keystone* of the whole structure of a system of pure reason" in the preface to the *Critique of practical reason*.² This pillar is further strengthened by the linguistic turn in 20th century philosophy, for instance by Wilfrid Sellars (1956) in his rejection of what he calls the myth of the given, that is, the idea that there can be something given to the mind that has as such an epistemic or normative status in being a reason for a thought or an action. In contrast to concerns that one may have about Popper's mind-body dualism, there's no conflict with science in such a basic notion of freedom.

Quite to the contrary, such a basic notion of freedom is a presupposition of science. Data on their own do not determine scientific theories. Science gets from data to theories by formulating hypotheses that are based on the assessment of data and the weighing of reasons in a community of scientists. By the same token, the testing of theories through experiment and experience presupposes the freedom of scientists in selecting the parameters to test and how to test them. One may go as far as maintaining that science implements a disciplined scepticism: hypotheses, once formulated, are subject to a rigorous examination through experiment, evidence and argument. Freedom in this sense is not a particular moral value among others that one may recognize or not, but a very presupposition of science.

Nonetheless, in a more general sense, fundamental rights are widely considered to follow from this freedom to make up one's mind in thought and action, because this freedom confers a normative status upon persons – namely, being subject to giving and asking for reasons in thought and action. These are rights of defence against external interference in one's own judgement about how one wants to live one's life. In philosophy, these fundamental rights are conceived as being given with the existence of persons as such. They do not depend on the positive law of a state and contingent historical circumstances. To mention a few examples, this is so in natural law since antiquity; in the Enlightenment, which politically demanded universal human rights that apply to all human beings and which led, among other things, to the abolition of slavery; in Kant, whose categorical imperative demands that people always be treated as ends in themselves and never merely as means to an end; in the 20th century, also in the discourse ethics of Karl-Otto Apel (1996) or the theory of justice of John Rawls (1971), among others. The state is a constitutional state that protects these rights. This political freedom of thought and action then characterizes the open society.

According to Popper (1945), the intellectual enemies of the open society are those who claim to possess knowledge of a common good. On the basis of this knowledge, they take themselves to be entitled to control society in a technocratic manner in order to realize this good. This knowledge hence is both factual-scientific and normative-moral: it is moral knowledge about the common good together with scientific or technocratic knowledge about how to guide people's lives in order to achieve this good. Therefore, this knowledge stands

¹ *Prolegomena* § 13, note III; quoted from Kant (2002, p. 85).

² Quoted from Kant (1996, p. 139).

above the freedom of individual people, namely above their own judgement about how they want to live their lives.

These enemies come from within our society. Popper (1945) makes this point in terms of the transition from Socrates to Plato and then from Kant to Hegel and Marx. Socrates and Kant lay the intellectual foundation for the open society; Plato, Hegel and Marx destroy it by replacing the search for what everyone sees as a successful life for themselves with the claim of possessing knowledge of an absolute good towards which history is heading. This knowledge entitles them to disregard fundamental rights and human dignity; for it is about the very goal of human existence. That is why this leads to a closed society, ending up in totalitarianism: the entire society is centrally planned and micromanaged down to the level of families and individuals towards the realization of the alleged absolute good, with no limits being set by human dignity and fundamental rights.

These enemies of the open society have lost their credibility as a result of the mass murders that proved inevitable on the way to accomplish the alleged good during the 20th century. On this path, not only were human dignity and fundamental rights eliminated, but at the same time a bad outcome was achieved in relation to the alleged good. Under communist regimes, on the way to a classless, exploitation-free society, in fact severe economic exploitation occurred. Under National Socialism, the path to the goal of a pure-blooded *Volksgemeinschaft* led this very people to the brink of ruin. These ideas and their political consequences indeed belong to history.

3. *The threat to the open society in the management of the corona crisis*

Nevertheless, we stand once again at a crossroads between establishing an open society or going down the road to a closed society that ends up in totalitarianism. Using Popper's expression "enemies of the open society", we face today new "enemies" of the open society. These "enemies" come again from within our society, namely from science, politics, media and business. Again, they make knowledge claims that are both cognitive and moral in nature. These knowledge claims result again in a technocratic shaping of society that overrides human dignity and fundamental rights. The difference is that the new "enemies" of the open society do not operate with the mirage of an absolute good, but with deliberately stoked fear of threats that allegedly endanger our existence. Let us consider two examples to illustrate this claim.

When the outbreak of the virus SARS-CoV-2, or coronavirus for short, reached Western democracies early in 2020, one of the most influential policy advice papers was the one of Neil Ferguson and his team from Imperial College London published on 16 March 2020. This study had a considerable impact on the coronavirus policy of the USA and the UK and probably other countries as well. The aim of the study was to predict the number of deaths and hospitalizations depending on the measures taken by the political authorities. The main outcome was this: a "do nothing" policy without any government interventions would result in an enormously high number of deaths by late summer 2020 (2.2 million in the US, 510000 in the UK). The study suggested that only a lockdown strategy could prevent overcrowding in intensive care units.

As any such study in whatever field, this is a model simulation that should not be confused with a prediction of what is going to happen. As a simulation, its outcome crucially depends on two things: which parameters one takes into account and which ones one ignores as

background conditions that can be neglected for the purpose at hand; and how the initial values of the parameters are set on which the calculation then is based. There always is a range within these values can be set. Model simulations typically are highly sensitive to slight variations in the initial values of the parameters that they employ. That is to say: slight variations in how the initial parameters are set lead to large differences in the outcomes. In the case at hand, Ferguson et al. (2020) set central parameters such as the overall infection fatality rate, the proportion of symptomatic infections and the mortality rate of intensive care patients at high values. They thereby ignored the possible range of values of these parameters based on the evidence that was already available in mid-March 2020.³

More importantly, any model simulation that concerns social science – in contrast to a simulation that concerns only natural science – has to take into account the fact that humans change their behaviour consequent upon new information that they receive. As Hayek (1952) and Popper (1957) famously argued, this impedes significantly the utility of employing the methods of natural science when it comes to social science: it is unpredictable how exactly humans will adapt their behaviour upon the reception of new information. It is no objection to this claim that there may be historical data available on how humans adapted their behaviour in comparable situations in the past. The point at issue is that humans invent new strategies to cope with new situations and that it cannot be predicted which strategies they will invent and how they will implement them. In the case of a virus outbreak, people spontaneously adapt their behaviour to reduce the risk of infections. This alone is sufficient to falsify the prediction that an unlimited exponential growth of infections will occur in the absence of external interventions.

Indeed, the model simulation of Ferguson et al. (2020) left the possibility open that the overcrowding of intensive care units and the predicted enormously high number of deaths can be prevented by spontaneous adaptation of the behaviour of people alone. Moreover, while suggesting lockdowns as the most effective strategy, Ferguson et al. (2020) deliberately left out a discussion of the damage that lockdowns cause and hence omitted an overall cost-benefit analysis as well as ethical considerations about human rights that lockdowns would violate. They made clear that such considerations were outside the scope of their study.

The point at issue for present purposes therefore only is that Ferguson et al. (2020) contributed to stoking fear in highlighting an extremely pessimistic model prediction that committed the well-known mistake of applying methods from natural science in social science without taking into account human spontaneity in adapting behaviour to new information. The paper then employed the thus stoked fear to promote an extreme political reaction that leads from an open to a closed society: the aim of health protection is put in focus in such an extreme way that the whole society down to the lives of families and individuals is controlled through central planning towards that aim, regardless of human dignity and basic human rights.

As a second example that this time explicitly combines scientific and technical knowledge with moral and normative claims, consider the 7th position statement on the coronavirus

³ For similar mistakes based on focusing on the case fatality rate instead of the infection fatality rate see Roth, Clausen and Möller (2020). See furthermore Kuhbandner et al. (2022) who show how the confusion between reported dates of detected infection and actual infection dates let to wrong model simulations in the case of the lockdown in Germany in spring 2020.

pandemic by Leopoldina, the German National Academy of Sciences, issued on 8 December 2020. This statement culminates in the following recommendation:

Despite the prospect of a start of the vaccination campaign soon, it is *absolutely necessary from a scientific point of view* to quickly and drastically reduce the still clearly too high number of new infections through a hard lockdown.⁴

At least the following seven points are worth highlighting about this document:

(i) It claims to be THE scientific viewpoint, with no discussion, no plurality of voices within science that argue with reason and evidence.

(ii) It fails to provide a cost-benefit analysis of the recommended hard lockdown.

(iii) It suggests that the pandemic can be dealt with through a hard lockdown of a few weeks – the Christmas holidays 2020/21 –, although it has been clear since the study of Ferguson et al. (2020) that successful lockdowns are a matter of many months (with possible intermediate easings), until vaccines are available and further virus outbreaks can hopefully be kept under control through vaccination.

(iv) The argument for the efficacy of the lockdown draws on a model simulation that is based on only one example, namely a lockdown in Ireland. The issue here is no longer about reservations against the use of model simulations in scientific reasoning like the objections raised above against Ferguson et al. (2020), but about the abuse of scientific model simulations for political purposes: one particular case – such as the lockdown in Ireland – can obviously not constitute a sufficient basis for a simulation of the efficacy of lockdowns.

(v) It displays coercive measures by the political authorities that imply a massive encroachment on basic human rights as *absolutely necessary*, with no gap to be overcome between science that discovers facts and normative proclamations.

(vi) Given a controversy about the appropriateness of such coercive measures in the general public, the mission of the Academy, consisting in promoting “a scientifically enlightened society and the responsible application of scientific insight for the benefit of humankind”,⁵ is to employ its authority and reputation to help the government out: science becomes the *ultima ratio* to legitimize central state planning of people’s lives, including their social contacts and family life, and the suspension of the constitutional rights that this implies.

(vii) The urgency of the situation requires an immediate implementation of the recommendations. There is no time for an assessment of the scientific knowledge claims and a political debate. Indeed, with this document in her hands, the German chancellor, Angela Merkel, justified a hard lockdown in parliament only one day later on 9 December 2020, invoking laws of nature such as gravitation and the velocity of light as well as the force of enlightenment.⁶

The last point probably is the most important one with respect to the passage from an open to a closed society: no one is responsible for laws of nature such as the law of gravitation. By way of consequence, if coercive political measures follow from laws of nature, no one bears responsibility for these measures – neither the scientists who recommend them nor the politicians who implement them. There simply is no choice, at least no rational choice. This is

⁴ My translation and emphasis. See “7. Ad-hoc-Stellungnahme zur Coronavirus-Pandemie”, <https://www.leopoldina.org/publikationen/stellungnahmen/>

⁵ See <https://www.leopoldina.org/en/about-us/about-the-leopoldina/leopoldina-mission-statement/>

⁶ Text of the speech on <https://www.bundesregierung.de/breg-de/service/bulletin/rede-von-bundeskanzlerin-dr-angela-merkel-1826624>

a central characteristic feature of modern totalitarian closed societies: the leaders of these societies claim to simply implement what follows from the laws of nature, such as the laws of history in communism or biological race laws in national socialism with no choice left to them; they just follow the inevitable course of history as given by natural law.

In any case, this document is a striking example of the tacit transition from scientific and technical knowledge to moral and normative knowledge that is characteristic of all forms of totalitarianism: it is suggested that a hard lockdown is merely a matter of technical knowledge to fight the pandemic. But obviously, this conclusion can follow only under the moral premise of setting the health protection of those for whom an infection with the virus presents a significant risk absolute, that is, setting it above human dignity and basic human rights, since these are seriously infringed upon by a hard lockdown when people are deprived of the freedom to decide for themselves how to live their lives including their social life.

Taking that moral knowledge for granted, not only society, but also science is shaped in such a way that scientific freedom is suppressed. If science is to deliver political advice how to micromanage society (“social engineering”), science has to be presented as speaking with one voice: if the usual discussion within science were allowed to take place, this strategy would be doomed from the start. In the case of different views voiced in science with giving reasons and based on the available evidence, neither a vote among scientists nor politicians can decide who is right. Accordingly, as is evident from the cited Leopoldina position statement and many other sources, it was suggested in the communications to the general public that the usual scientific debated does simply not take place this time. Dissenting voices were not met with arguments, but with defamation.

Until 2019, it was common knowledge to fight viral outbreaks in the range of the present one (infection mortality rate under 1%) with medical means only that are focused on the protection of the vulnerable persons and with general hygiene recommendations such as washing one’s hands frequently, keeping distance and wearing face masks in certain situations. This established knowledge of efficient pandemic management was thrown overboard in the spring of 2020. The experts who advocated the proven medical strategy of general hygiene recommendations and targeted protection of those at risk were defamed. The goal was to replace the medical strategy with a political strategy that attempts to guide the entire society through the pandemic by an all-encompassing control of physical contacts.

However, the switch from a medical to a political strategy in fighting the coronavirus outbreak cannot be based on medical facts, since these facts are and always were within the range of previous viral outbreaks such as the Asian flu in the mid-1950s and the Hong Kong flu in the late 1960s. Furthermore, we know from the history and sociology of science in particular since the seminal work of Thomas Kuhn (1962) that there is no sudden paradigm shift in science. There always is a discussion, if not a fight within science in which one group may eventually gain the upper hand and replace one paradigm with another one. But this is a process that takes time. If such a paradigm shift occurs out of sudden, without any discussion within science, we know that this is not a scientific process, but a process due to external influence such as influence from politics and media.

Nonetheless, there is no conspiracy at work here. There were certainly individual scientists, politicians and business leaders who called for coercive political measures already during past virus outbreaks such as the swine flu in 2009. These individuals were prepared to use the next best virus outbreak to push through their plans – out of sincere conviction, will to power or

profit interests. But as Popper (1945, 1957) convincingly showed, no individual or group of individuals can determine the course of society by means of a prepared plan. It was contingent circumstances – such as perhaps the images from Wuhan and Bergamo – combined with panic reactions that led to the outcome that this time these plans found favour in broad circles of media, politicians and scientists. A trend then developed that was (and still is) difficult to escape.

Hence, the danger for the open society that is involved here is this one: a trend is about to develop in which it becomes acceptable to set certain values absolute and to micromanage society down to family and individual life with respect to these values (“social engineering”), thereby overriding human dignity and the basic human rights. Like the trend that established the open society in the West after the Second World War, this trend may again encompass all major social groups and political parties and shape our societies for decades to come – but this time in the form of a closed society that is poised to end up in totalitarianism, that is, total control of social and even private life towards health protection.

Indeed, this trend concerns not only the reaction to the outbreak of the coronavirus. It can be shaped in exactly the same way with respect to the climate crisis – as, for instance, explicitly proposed in the editorial of *Science* on 26 November 2021:⁷ again, the model simulations that predict catastrophic outcomes neglect the wide range of possible initial values for the relevant parameters. They furthermore commit the mistake pointed out by Hayek (1952) and Popper (1957): they hugely overestimate the applicability of model simulations stemming from natural science in social science by neglecting the spontaneous and unpredictable adaptation of humans to new situations. These model simulations can be employed to justify rendering the value of fighting global warming absolute as a moral value that overrides basic human rights and shaping science accordingly with the defamation of dissenting voices. As in the corona crisis, there are voices that do not dispute the evidence for climate change, but the advocated comprehensive political strategy to cope with it.

4. *Negative externalities: the Achilles heel of the open society*

The general scheme that leads us from an open to a closed society is this one: the challenges that we face, which are indeed serious, are taken as an opportunity to render certain values absolute, such as health protection or climate protection. An alliance of some scientists, politicians and business leaders claims to have the knowledge of how to micromanage social down to family and individual life in order to safeguard these values. The issue is about a higher social good – health protection, living conditions of future generations – behind which individual human dignity and basic rights have to take a back seat.

The mechanism employed is to spotlight these challenges in such a way that they appear as existential crises: a killer virus going around, a climate crisis threatening the livelihoods of our children. The fear that is stirred up in this way then makes it possible to gain acceptance for setting aside the basic values of our coexistence – just as in the totalitarianisms criticized by Popper (1945), in which the supposedly good motivated many people to commit de facto criminal acts. It is not primarily evil people who do evil, but often good people who, out of concern for what they believe to be a threatened and important value for our existence, do things that ultimately have devastating consequences.

⁷ See Pai and Olatunbosun-Alakija (2021).

This mechanism strikes the open society at its heart, because one plays out a well-known problem, namely the one of negative externalities. The problem is this one: the freedom of one person ends where it threatens the freedom of others. Actions of one person, including the contracts she enters into, have an impact on third parties who are outside of these relationships, but whose freedom to live their lives according to their own judgement can be impaired by these actions. The boundary beyond which the free shaping of one's life causes harm to the free shaping of the lives of others is not fixed from the outset. It can be defined in a broad or a narrow way. The mentioned mechanism consists in spreading fear and exploiting the moral value of solidarity to define this boundary in so narrow a manner that, in the end, there is no room for the free shaping of one's life left: every exercise of freedom can be construed as generating negative externalities that pose a threat to the freedom of others.

Fear is stoked of the spread of a supposed once in a century pandemic – but, of course, every form of physical contact can contribute to spreading the coronavirus (as well as other viruses and bacteria). Fear is stoked of an impending climate catastrophe – but, of course, every action has an impact on the non-human environment and may thus contribute to climate change. Consequently, the idea is that everyone has to prove that their actions do not unintentionally further the spread of a virus or the change of climate, etc. – this list could be extended at will. In this manner, everybody is placed under a general suspicion of potentially harming others with everything they do. The burden of proof thus is reversed: it is no longer required to provide concrete evidence that someone impairs the freedom of others with certain of their actions. Rather, everyone must prove from the outset that their actions cannot have unintended consequences that potentially harm others (other compatriots, or members of future generations). Accordingly, people can free themselves from this general suspicion only by acquiring a certificate that clears them – like a vaccination certificate, a sustainability passport or a social pass in general. This is a kind of modern sale of indulgences. One thereby abolishes freedom and installs a new totalitarianism in the guise of an unlimited social control: the exercise of freedom and the grant of fundamental rights depends on a licence that an elite of experts grants – or refuses to grant.

The crossroads with which we are confronted hence is this one: an open society that unconditionally recognizes everyone as a person with an inalienable dignity and fundamental rights; or a closed society to whose social life one gains access through a certificate whose conditions are defined by certain experts, as envisaged by Plato's philosopher-kings. Like the latter, whose knowledge claims were debunked by Popper (1945), their present-day descendants have no knowledge that would put them in a position to impose such conditions without arbitrariness. And they certainly do not have the moral qualification that Plato attributed to the philosopher-kings.

5. *The illusion of knowledge to micromanage society*

It is a triviality that health protection is a common good. By the same token, it is a triviality that one needs a certain amount of good health in order to be able to exercise one's freedom. However, to derive from this triviality the norm of a technocratic control of society towards health protection is a fallacy that unfortunately many intellectuals commit (a particularly blatant example is Habermas (2021)). There is no common good of health protection towards which technocratic control of society is possible. No one lives to stay alive as such, but seeks to give meaning to one's existence. In order to achieve one's goals in life, everyone takes

certain risks. This goal in life is a source of strength and thus also creates physical health. The problem now is that there is no uniform life goal for everyone and no uniform risk assessment for everyone. That is why the attempt to technocratically guide people towards health protection as a condition for exercising freedom fails because of this very freedom, on the basis of which people set themselves different life goals and weigh risks differently. Instead of being a precondition for freedom, this technocratic control undermines freedom. It always amounts to privileging the life goals of certain groups in society at the expense of the life goals of other groups. In the end, one achieves a bad result with respect to the very common good of health protection itself.

Indeed, the negative effects of the repressive political measures to fight the spread of the coronavirus for society, economy and public health become the more evident the longer these measures endure. Since the first evaluations of the effects of the lockdowns in spring 2020 have become available, numerous studies from several countries suggest that the health, social and economic harm of the political measures to fight the spread of the coronavirus will by far exceed their benefits.⁸ Furthermore, these negative effects concern primarily underprivileged social classes and developing countries, mainly due to the regressions in health care and poverty reduction in these countries.⁹ Obviously, these figures cannot be estimated exactly and there is considerable uncertainty about them, but their magnitude seems clear: the damage in terms of years of life lost may exceed the potentially gained years of life many times over.¹⁰

If this is confirmed, we see again a well-known result: if one places value X – in this case health protection – above human dignity and fundamental rights, then one not only undermines these, but also eventually achieves a bad outcome in relation to X. In this case, the bad outcome consists in serious negative effects for health protection, for the entire population and viewed globally, as a consequence of the significant damage caused by the corona protection measures. In addition, this result confirms that these measures do not implement the moral value of solidarity with the people at risk. Their targeted protection is undermined by the political regimentation of all social life. The political regimentation of everyone's social life becomes almost an excuse for not having to specifically take care of the protection of vulnerable people, with fatal consequences for them, visible in the scandalously high number of corona deaths in nursing homes. The conclusion that one should draw from this for the future is to prohibit lockdowns and the like in the constitution of the states that implement the rule of law in order to avoid that what we have experienced since March 2020 can be repeated.

Unfortunately, however, a similar situation may arise in the political reaction to the climate crisis. Global warming correlated with industrialisation is indeed a serious challenge. Nevertheless, the handling of climate change in history shows us how humanity has mastered it hitherto through spontaneous adaptation and technological innovation. The open society provides the best setting for this. Imposing political conditions in the form of controlling the economy and society, which overrides human dignity and fundamental rights and operates

⁸ See e.g. for the UK Miles, Stedman and Heald (2021); for Germany Raffelhüschen (2021); for Switzerland Beck and Widmer (2021). See furthermore notably Bjørnskov (2021) and Savaris et al. (2021).

⁹ See Roberts (2021) for a first estimation of the health damages notably for children in developing countries.

¹⁰ See also Kotchoubey (2021).

with rather arbitrary, politically influenced definitions of what is supposed to be sustainable, does not achieve this aim. For instance, the facts already show that CO₂ emissions in industrialised countries without an energy transition hitherto (such as France, England, the USA) have declined by the same percentage as in countries that have pursued an energy transition at enormous financial expense in the last 20 years (Germany). The decisive factor is technological innovation and not centrally controlled, political paternalism based on the advice of scientists that claim moral-normative knowledge to control society. Again, the danger is that the political steering to supposedly save the world's climate in fact prevents a targeted, local fight against those concrete environmental problems that actually cause a large number of deaths every year here and now.

It is no coincidence that it is largely the same group of experts and their organizations such as academies, together with some politicians and some business leaders, who use the corona and the climate crisis as an opportunity to lead us from an open into a closed society. The spread of the coronavirus apparently serves as a dress rehearsal for the following: to define negative externalities so comprehensively by deliberately stirring up fear that every exercise of freedom comes under suspicion, in order to then be able to impose a control of freedom through conditions formulated by alleged experts.

Why does this happen? For many scientists and intellectuals, the idea that the knowledge that they generate can be employed to guide society ("social engineering") remains attractive. They thereby succumb to the temptation that Popper (1945) already identified in the intellectuals and scientists he criticized. For politicians, it is not attractive to simply let people's lives take their course. Hence, they welcome the opportunity to talk up old challenges that arise in a new form into existential crises. Then, scientists can put themselves in the limelight with political demands that have no legal limits due to the alleged emergency. This scientific legitimacy then provides politicians with a power to interfere in people's lives that they could never obtain through democratic, constitutional means. They are willingly joined by those business people who profit from this policy – or who, in general call for a "great reset" as do Schwab and Malleret (2020) that implies comprehensive social control.¹¹

In 1979, the German-American philosopher Hans Jonas published a very influential book entitled *The imperative of responsibility* (English edition 1984). Jonas argued that responsibility in science consists in systematically privileging data and model simulations that highlight possible pessimistic scenarios. Society and politics should then take coordinated action to prevent these scenarios from materializing. Hence, Jonas (1984) lays the foundation for privileging the choice of initial values of the relevant parameters that lead to the most pessimistic outcomes in simulating possible future scenarios, and doing so by rendering certain moral values absolute. Of course, Jonas (1984) is only one source of this trend, but an influential and impressive one: Jonas (1984) in fact provides the guideline for leading us from an open to a closed society. His recommendations are unacceptable for at least the following three reasons: (i) it is bad science not to communicate the facts as they are, but to distort them in deliberately setting the model calculations up in such a way that they are biased towards the worst-case predictions. (ii) It is a confusion of scientific knowledge with moral values to render certain moral values absolute and to shape science in the light of them. One thereby undermines science. (iii) One neglects the scarcity of resources in seeking to steer the whole

¹¹ See Roth (2021) for an assessment.

society towards one particular value. As mentioned above, one thereby destroys not only other values, but eventually achieves also a bad outcome with respect to the value thus rendered absolute.

6. *How to solve the problem of negative externalities*

The problem that comes to light here is an old one. It is also inherent in the purely protective state: in order to protect everyone effectively from violence, the whereabouts of everyone at all times would have to be verifiable; in order to protect everyone's health effectively from infection by viruses, the physical contacts of everyone at all times would have to be controllable. The problem is the arbitrary definition of negative externalities, against which Enlightenment liberalism and even libertarianism is not as such immune. The reason is that it is not simply obvious what counts and what does not count as a negative externality. Thus, one can derive negative externalities from the spread of viruses or the change in the world's climate that ultimately occur in all human actions and call for regulation, be it state regulation or market regulation via the expansion of property rights. For example, one could grant each person property rights to the air around them, so that this air must not be contaminated by viruses that are spread by human bodies or must meet certain climatic conditions that are influenced by human actions, etc.

Consequently, the opposition is not that between the state and free markets. Thinking in these terms falls short of addressing the underlying problem of the arbitrary extension of negative externalities. Control can be exercised by state or private entities. The certificates that cleanse people of producing negative externalities and that allow them to participate in social and economic life can be issued by private or state agencies. There can be competition with regard to them and their concrete design. All this is ultimately irrelevant. The point is the totalitarianism of all-encompassing control, into which even liberally conceived states and societies can slide if one allows negative externalities to be defined so arbitrarily that in the end everyone with all their actions comes under general suspicion of harming others.

This totalitarianism can only be countered by a substantial conception of persons that is based on their freedom and their dignity. Such a conception recognizes fundamental rights that apply unconditionally in the following sense: their validity cannot be subordinated to a higher goal. This is the foundation of the open society in Popper's sense, which, as mentioned above, is laid by natural law, the demand for the political enforcement of universal human rights in the Enlightenment, and so on. The open society includes a science that is as open in its research and teaching as society is as well as freedom of contract and the economic freedom associated with it. The latter, however, does not exist on its own, but only on the mentioned foundation; for it is only from this foundation, which absolutely grants everyone the right to live freely, that one can delimit negative externalities in the guise of concrete and significant damage to the freedom of others, which indeed call for external interventions in the way people conduct their lives.

To put it differently: The axiom is the above mentioned freedom of every person in thought and action; to recognize a being as a person means to grant her or him this freedom and thus to respect her or his dignity. This dignity includes the right to shape one's own life. There is no moral value that stands above this dignity and in view of which it could be justified to define negative externalities that place the actions of every human being under the general suspicion of harming others in view of this value (such as health protection or climate

protection). In philosophy, such a reasoning is called a transcendental argument that applies *a priori*. It can be traced back to Kant rather than to Popper. However, the Popperian open society arguably requires this Kantian background in order to be able to cope with the challenge of negative externalities. Empirically, from history as well as from the experience that we currently make again, it is also well-established that when one abandons this basis, great harm is done to the vast majority of people and benefit only to the elite of those who profit from the conditions that regulate access to the closed society. This empirical argument complements the transcendental one.

As after the Second World War, we face today again a choice that could shape our society for decades to come, because it could set a trend that encompasses all major social groups and political parties. It is high time that we become aware of the crossroads at which we stand. Doing so requires a sober attitude that does not allow itself to be clouded by regarding worst case model simulations as actual predictions and that takes into account the spontaneity of human beings in adapting their behaviour to meet new challenges instead of pretending that an elite of some scientists, politicians and business people has the knowledge to micromanage society.

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