# Teacher aff

### Advantage

#### Current quality of education is sharply decreasing through teacher shortages

**Boyce 19** Paul Boyce, 9-17-2019, "The Teacher Shortage Is Real and about to Get Much Worse. Here's Why," No Publication, https://fee.org/articles/the-teacher-shortage-is-real-and-about-to-get-much-worse-heres-why/

Teacher Shortage According to research by the Economic Policy Institute (EPI), the teacher shortage could reach 200,000 by 2025, up from 110,000 in 2018. This shortage of workers is due to a number of factors. Among them are pay, working conditions, lack of support, lack of autonomy, and the changing curriculum. The shortage of teachers will inevitably cause a decline in educational standards. The shortage is crucially important to educational outcomes. Class sizes are rising, causing a detrimental effect on these outcomes. As the number of available teachers declines, class sizes have to increase to compensate. Having more kids in a class can also affect teacher performance—more books to mark, more children to monitor, more children's behavior that needs managing. The pressure on teachers to obtain high test scores amps up stress further. It creates a vicious cycle, and it is starting to snowball. The shortage is only set to increase unless something changes. Impact on Quality The shortage of teachers will inevitably cause a decline in educational standards. Principals face a shortage of highly qualified teachers. The natural response for them is to hire less qualified teachers, hire teachers trained in another field or grade, or make use of unqualified substitute teachers. This means students are being taught by teachers who lack sufficient skills and knowledge. According to the National Commission on Teaching and America's Future: Studies discover again and again that teacher expertise is one of the most important factors in determining student achievement, followed by the smaller but generally positive influences of small schools and small class sizes. That is, teachers who know a lot about teaching and learning who work in environments that allow them to know students well are the critical elements of successful learning. Teachers matter more to student achievement than any other factor. In fact, research by Chlotfelter, Ladd, & Vigdor states that teacher qualifications predict more of the difference in educational gains than race and parent education combined.

#### Status Quo policies make the opportunity cost for teacher strikes too high

**Casey 20** Leo Casey, 12-2-2020, "The Teacher Strike: Conditions for Success," Dissent Magazine, <https://www.dissentmagazine.org/online_articles/the-teacher-strike-conditions-for-success>

The most essential organizational task is winning and keeping the allegiance of teachers to the strike. Teachers are knowledgeable and discerning political actors. They understand full well that strikes are a high-intensity and high-risk tactic, with the potential both to deliver advances and victories that could not be otherwise obtained and to end in major setbacks and defeats. The risk side of this equation is particularly acute in the three-quarters of all states where teacher strikes are illegal; in these states, striking becomes an act of civil disobedience and can result in severe penalties to teachers and their unions. To be willing to go on strike and stay out until a settlement is won, therefore, teachers need to be convinced on a number of different counts: first, that they are fighting for important, worthwhile objectives; second, that those objectives cannot be achieved through other means that are not as high-intensity and high-risk as a strike; third, that the strike has reasonable prospects of success; fourth, that the strike objectives have strong support in the community; and fifth, that the solidarity among teachers, which is essential to a strike’s success, is strong and will hold. In significant measure, the last of these points is dependent not simply on the organization and mobilization of the strike, but also on the four antecedent conditions. If teachers become doubtful on any of these points, it will become difficult to mount or sustain a successful strike.

#### That causes teachers uproot and quitting through unsatisfaction

**Carpenter 17** Jennifer Carpenter., 05-17-21, "Opinion: Protect local control for schools," Burlington Free Press, https://www.burlingtonfreepress.com/story/opinion/my-turn/2017/05/17/opinion-protect-local-control-schools/101726614/

The most crucial part of the proposal put forward by House Speaker Mitzi Johnson and President Pro Tem Tim Ashe is that it protects local control of schools. Statewide health insurance negotiations for teachers is the first step towards a statewide teachers’ contract, kneecapping school boards and paving the way towards a single, statewide school district. That is unacceptable, but it is the hill Gov. Scott and his Republican allies have decided to make their stand on. It is telling that Sen. Degree, one of Gov. Scott’s strongest supporters, included in his proposed amendment a clause that would have removed teachers’ right to strike. That shows their true intentions. When teachers’ needs are not met, students’ needs will not be met, and we will be unable to retain and attract a workforce of young families which is critical to the revitalization of our state’s economy. There will be no incentive for the teaching profession to attract and retain new teachers to the field if our state government teaches our community that teachers have no say over their working conditions and therefore are not valued. Schools need teachers and we need enrollment of students. Teachers and families of school age children will simply uproot and go elsewhere to have their needs met, jeopardizing our educational system, our school-age population and workforce. A “one-size-fits-all” approach from our state government cannot possibly work across the board for every school. Having worked in four different school districts in the state, I have been exposed to potential consequences of centralized control. I recall an emergency meeting at one of those districts in 2016 between administration and teachers where there were very tense discussions on what the initial proposal of Act 46 per-pupil spending cap would have meant for the school. Had the administration and teachers not pulled together to discuss and demand more for their programs and allowed a reckless centralized decision to go forth, to paraphrase one of the teachers present at this meeting, the initial Act 46 proposal would have destroyed the institution, as it would have meant dismantling most aspects of the curriculum that would render the students to be competitive for college and in the workforce, as the cuts were too severe of an impact on the school programs to justify sending anyone there. As a result, several teachers said they would have been prepared to pull their own children from the school and move out of the area. This is only one example of how allowing the state to have centralized control, which has proved to be an approach lacking in carefully frontloaded research and detailed examination of impact on programs and teachers, would have devastating consequences on local communities.

#### Strikes empower unions and are successful achieving bargaining power, which keeps them in education.

**LawInfo 20** [Peter Serdyukov, National University, La Jolla, California. 05/18/20, Teachers Unions & Collective Bargaining. <https://www.lawinfo.com/resources/labor-law/teachers-unions-collective-bargaining.html>] // SC SD

A **teachers' union** is a special type of labor union designed to fight for the rights of educators. With roots dating back more than 150 years in the U.S., these organizations **play critical roles not only in securing benefits for teachers but also shaping the way education works. For instance, thanks to lobbying by the National Education Association, or NEA, in the late 1860s, Congress created the Department of Education.**

What Teachers' Unions Bargain For

**Like other types of**[**trade unions**](https://www.lawinfo.com/resources/employment-law-employee/unions/)**, teachers' unions use collective bargaining agreements, or CBAs, to protect their members. Over the years, collective bargaining has helped educators gain many rights, such as:**

**Fair working conditions, compensation, and pay equality**

**Tenure mechanisms that prevented qualified educators from being punished for their personal biases, political beliefs, or other unfair reasons**

**Access to various benefits**

When it comes to education policy, teachers' unions also work to ensure that educators can fulfill their job duties in the face of tough odds. For instance, the NEA played a critical role in shifting the focus from federal policies like the Elementary and Secondary Education Act, which included 2001's No Child Left Behind Act, towards alternatives like the Every Student Succeeds Act of 2015. At the same time, education policy is a very politicized issue, and not every lawmaker is onboard with the kinds of changes that teachers seek. These differences of opinion mean that individual educators may be subject to a variety of laws depending on where they are in their careers.

State Laws and the NLRA

**Some states prohibit certain types of collective bargaining for certain workers. For teachers, such restrictions usually come into effect in public schools, where educators are classified as public employees.**

**In Texas, Georgia, North Carolina, Virginia, and South Carolina, collective bargaining was entirely prohibited for public employees as of 2014. Only 11 states explicitly give teachers the right to do things like going on strike, and many states make it completely illegal for public employees to strike. In some right-to-work states, these employees may be allowed to strike, but the power of unions to compel them to join is often significantly limited**. As major walkouts and strikes over low pay have shown, these rules aren't always successful at stopping collective action, and public opinion may be evolving about educators' rights as employees.

How are states allowed to prohibit teachers from doing something that many workers view as a fundamental freedom? **The right to form unions, strike, bargain collectively, and take other actions are laid out in the National Labor Relations Act of 1935, or NLRA. This federal legislation also prohibits actions like unions trying to force people to join and stops employers from retaliating against workers who exercise their union rights. Although the NLRA can take precedence over many state laws, its protections exclude employees in the public sector, such as teachers.**

Teachers' Unions and the U.S. Constitution

Labor unions aren't mentioned anywhere in the U.S. Constitution. At the same time, however, **Article I of the Constitution grants Congress the power to regulate various forms of commerce among the states. The Constitution also protects people's right to assemble and speak freely, both of which are critical to common union activities, such as meeting, discussing employment conditions, promoting union membership, and collective bargaining.**

Bargaining Units

Bargaining units are groups of workers who are represented by a common labor union when it comes to collective bargaining and negotiation. Employers or official bodies, such as the Indiana Education Employment Relations Board, recognize bargaining unit groups as being represented by labor unions. **States that allow teachers to participate in collective bargaining may also mandate that schools clearly specify to which bargaining units they belong so that employees can take advantage of their rights.**

**Bargaining unit positions are jobs that receive labor union representation. Although all employees can hold these jobs regardless of their union membership status, only those who hold bargaining unit jobs gain the full benefits of being in unions.**

Being in a bargaining unit position generally makes it easier to file complaints and appeals because unions outline specific grievance procedures. At the same time, all teachers can exercise non-union complaint rights and appeals. For example, the Equal Employment Opportunity Commission protects current employees and would-be workers from discrimination based on certain protected classes, such as race, sexual orientation, gender identity, age, national origin, or religion.

Teachers' Unions and Charter Schools

As in many other labor fields, unions sometimes clash with employers, such as schools. Notably, these disputes have come into the public eye as certain states move towards voucher and charter school education models.

One key distinction in such battles is the fact that although charter schools receive funds from the government, they're often treated and operated as independent entities. According to the Emory Law Journal, charter school efforts to secure funding while retaining their independence has led to significant uncertainty. For instance, almost half of all states exempt charter schools from the collective bargaining agreements that public schools in the same districts must follow, and only around an eighth of charter schools have labor unions. Some charter schools have even argued that as “political subdivisions,” they don't count as employers under the NLRA.

Other Teachers’ Union Benefits

**Joining a union might give certain teachers more control over their futures. Since the benefits they receive go above and beyond what many school districts would provide of their own accord, these teachers may enjoy heightened access to vital resources that make it easier to focus on their career development**. Union members may receive:

Prescription medication benefits

Consumer discounts

Dental and vision health benefits

Pension plans

For teachers, the decision whether to join a union is a personal matter. Those who want to keep their options open, however, may benefit from learning about what kinds of allowances they enjoy in different states and distinct employment positions.

#### The pandemic slowed growth, but it’s not irreversible – education improvement can turn the tide.

Hanushek and Woessmann 20 (Eric, award-winning economist and PhD Economics @ MIT, and Ludger, Prof. Economics @ Ludwig Maximillian University of Munich, September 2021, "The Economic Impact of Learning Losses,” https://www.oecd.org/education/The-economic-impacts-of-coronavirus-covid-19-learning-losses.pdf) AG

As a result of the schools being closed due to the COVID-19 pandemic, classes were almost universally disrupted for months in the first half of 2020. As pupils gradually return to school, the high costs of not learning should be taken into account. The future impact of past and future learning losses need to be considered when it comes to the design of mixed in-person and home learning and when classes are potentially cancelled again locally or regionally due to newly occurring infections. Roughly speaking, research in the economics of education shows that each additional year of schooling increases life income by an average of 7.5-10%. In other words, a loss of one third of a school year’s worth of learning would reduce the subsequent earned income of the pupils concerned by about 3%. Beyond crudely measured school attainment, the loss in cognitive skills resulting from school closures and the untested ways of re-opening is the larger issue. The different ways of estimating the economic costs of the pandemic for current students provide consistent estimates of today’s learning challenges. The costs of school closure and the associated learning losses go beyond the lower incomes that this cohort of students can expect. A less skilled work force also implies lower rates of national economic growth. A loss of one-third of a year in effective learning for just the students affected by the closures of early 2020 The Economic Impacts of Learning Losses | © OECD 2020 13 will, by historical data, lower a country’s GDP by an average of 1.5% over the remainder of the century. If the re-opened schools (which also involve new students) are not up to the same standard as before the pandemic, the impacts on future economic well-being will be proportionately larger. In addition to the economic effects of the cognitive skill losses emphasised here, there are other potentially important costs due to losses in social-emotional development of children, although neither the magnitude nor the economic impact of these are currently known. There is considerable anecdotal evidence that children from disadvantaged backgrounds and pupils with learning difficulties have a particularly difficult time coping with the home-learning phase. Due to the very different pressures, school closures threaten to become a major burden on the equality of educational opportunities and lead to increased inequality in society. Immediate concrete measures need to be taken to provide effective learning for all age groups, albeit in an adapted format – from improving distance learning to developing constructive ways to re-open schools to all children and adolescents. Because school attendance will likely remain disrupted for some time to come, the serious costs of not learning must be considered and comprehensive measures must be taken to ensure that learning takes place everywhere again. Indeed, as described, it is possible and important to build upon the new organisation of schools to ensure that the schools are actually superior to the pre-COVID schools. Unless schools get better, the current students will be significantly harmed. Moreover, the harm will disproportionately fall on disadvantaged students. Substantial learning differences across countries, closely related to institutional structures of their school systems, indicate that improvements are possible (Hanushek and Woessmann, 2011[12]; Woessmann, 2016[11]). Therefore, permanent learning losses are not inevitable if countries improve the learning gains of their students in the future.

#### COVID put education funding on the brink. Kills growth and democracy.

Goczek et al 21 (Lukasz, Professor of Macroeconomics @ University of Warsaw, Ewa Witkowska, and Bartosz Witkowski, 6/5/21, "How Does Education Quality Affect Economic Growth?" <https://www.mdpi.com/2071-1050/13/11/6437>) AG

It is common knowledge that education is important, and there is overwhelming evidence that better education gives great returns to individuals. Oreopoulos and Salvanes [53] suggest that better education might lead individuals to make better decisions about health, marriage, and parenting style. It is also believed that schooling improves patience, making individuals more goal-oriented and less likely to engage in risky behavior. Yet, at the macroeconomic level, there is little empirical evidence that better education in a given country translates into better economic results. This can be mostly attributed to the quantitative, not qualitative, data on education available across countries. While Hanushek and Woessmann [6] published evidence of the importance of education quality as a factor of GDP growth, their results might cause some doubts, mostly because they investigated the contemporaneous relationship between the two—or, to be more accurate, the correlation between the 1960–2010 GDP growth and the available PISA scores (from the beginning of the current century). As a result, their research confirms the existence of the relation itself; however, its direction is most likely opposite to the claim of the authors—or at least it is difficult to identify the direction of the relation. A possible solution would be to use properly lagged PISA results and include them in the GDP growth regression. An obvious problem is the lack of the lagged PISA results given that the tests started at the beginning of the current century. As a partial solution to this problem, we suggested estimating a model that explains the results of PISA as a function of educational expenditures. The model would then been used to provide backward predictions of PISA scores, and the final model of GDP growth could be estimated with the use of adequately lagged PISA scores in the role of input. The resulting model seems to be rational from the economic and the educational point of view. Although the results are in line with earlier claims by the cited authors, it provides stronger evidence for the relevance of the quality of education as it is statistically more robust, and the properties of the applied estimator are generally better. As a result, applying the alternative technique should be viewed as an important value-add of this research. Justifying the value of a good education is of double importance. In practical Sustainability 2021, 13, 6437 18 of 22 terms, it is an important voice in the discussion and provides an additional argument for directing a stream of investment in education, which is particularly important while governments might start searching for savings if global markets fall into the recession phase of the economic cycle. One might wonder why the different types of skills have such a similar influence on the performance of the economies. Certainly, a few reasons could be given. Firstly, each of them should be viewed as a proxy for the general quality of education in a given school, district, or even country—probably more than the indicator of the level of teaching of a particular class. Secondly, the final PISA scores in different areas are in some cases constructed with the use of their values (or actually, their components) in various areas. As a result, the distributions of different PISA scores are not fully independent, which can be partly reflected in the above-described similarities between the three different models presented in Table 2. In any case, it can be believed that the methodology discussed here should be viewed as a formal confirmation that expenditures on education, which result in higher education quality, just pay back. The return is not immediate, but some years after the graduates enter the labor market, the quality of the education that they attained at the age of 15 begins to matter. Several elements are crucial for the properly constructed model and for trustworthy conclusions. An important question is how long after graduation the employees have the greatest impact on the total productivity in the economy and contribute the most to the GDP growth. While answering this question would suggest the adequate lag length for the models analyzed in the study, it is not simple to do so. It seems rational to assume that the employees of crucial significance should obtain better remuneration. This process, however, exhibits little stability: while in 1975 they were the 29-year-olds who had the highest average wages, recently, the peak is observed in the cohort of 40-year-olds. That could be attributed to the increasing professionalization and an increasing role of knowledge and experience in the labor market, which suggests that the significance of the quality of education has increased and might be expected to further increase in the future. However, such a result makes it more challenging to properly lag the regressors in the model equations. Still, the robustness analysis partly described in this paper and delivered by Witkowska and Witkowski [54] leaves no doubts: while the results are observed most clearly with lags of 15 years, which means considering the education quality of today’s 30-year-olds, the figures are very similar for the 25- as well as the 40-year-olds. The transmission channel in the analyzed phenomenon is interesting. While in the theoretical model we concentrated on the economic aspects of education quality, those are not limited to these. Authors in [4,55] have pointed out that, on the individual level, expenditures on education as well health will develop adequate competencies and improve the state of health so that the productivity and income of that person will increase in the future. These two factors, education and health, have an impact on human productivity, which has an impact on production, and with an increase in production, economic growth will also increase. Therefore, education and health, which are important components of human capital, have an impact on economic growth. A study on economic growth in Korea and Japan by Han and Lee [56] provides empirical arguments that there is strong cointegration between health services and education in improving the quality of human resources and economic growth. Yet another transmission channel to be taken into consideration is the democracy– education nexus. While most of the highest-developed countries in the world are adult democracies, there is a clear relationship between education and democracy across countries [57,58]; however, the reason for this remains unclear. In their study [59], they proposed the explanation hinging on the connection between education and the costs and benefits of political engagement. Schools not only educate but also socialize young people, and political involvement is a form of the latter. There is numerous evidence showing a positive connection between education and civic engagement. Ref. [59] models education as raising the benefits of political action when individuals choose to support a more or less democratic Sustainability 2021, 13, 6437 19 of 22 regime. In this model, democratic regimes offer weak incentives to a wide base of potential supporters, whereas dictatorships offer strong incentives to a narrower base. Education increases the society-wide support for democracy because democracy relies on people with high participation benefits for its support. The authors showed that better-educated nations are more likely both to protect democracy and to undertake effective efforts to prevent coups. The performed analysis additionally raised two broader questions. First, whereas the model itself focused on the effects of education on participation, the analysis applied to 32 all social glues that encourage collective action; so, perhaps the analysis suggests a solution to Olson’s free-rider problem in all organizations, and not just in political regimes—namely, human capital or other kinds of social glue as a motivation to participate. Secondly, the results shed a light on the problem of why some dictators invest in education that might be a threat to them. One of the possible answers is that many dictators face an external threat and, therefore, must grow their economies and their armies (including investing in human capital) to counter these threats even if this raises the risk of democratization. A second answer is that, even with a lack of external threats, dictators might benefit from economic growth, and, therefore, they might promote education to become richer. A third idea is that all dictators face significant ouster risks and that it is much better for the dictator’s life for him to be replaced by democracy in an educated country than by another dictator in an uneducated one. Fortunato & Panizza [57] in their study on the interaction between democracy and education and its impact on the quality of government, draw three important conclusions. Firstly, the interaction between democracy and education is always positively and significantly correlated with the quality of government. Secondly, the correlation between democracy and quality of government is statistically significant only in countries with high levels of education. Thirdly, the marginal effect of education is positive and statistically significant in countries with high levels of democracy. In their model [57], they synthesized, in one framework, the stance emphasizing the importance of political institutions as a fundamental factor explaining cross-country differences in income per capita with the stance that institutional improvements and development is driven by social and human capital. The most important empirical finding from this work is the conclusion that democratic institutions and education complement each other, but they argue that democracy leads to the election of better candidates only in the situation where the level of education is above a certain threshold. Simultaneously, amelioration of education can affect the quality of the elected officials but only if the cost of entry into politics is not prohibitive. The authors ran a set of Monte Carlo simulations to show that these results were not driven by reverse causality. By looking explicitly at the interaction between democracy and education, they demonstrated how these two variables complement each other in the selection of high-quality policymakers, which guarantees good governance. In addition, we should bear in mind that economic growth is an important facet, but just one of many, of country development. We can expect societies with higher education quality to be more democratic and politically stable, to exhibit less violence, poverty and inequality, and to enjoy a higher quality of governance. All of these additional factors associated clearly with higher education quality can have a noteworthy positive impact on both economic growth and society’s welfare, going far beyond simple economic calculation. The development of a knowledgeable population does not only contribute to economic growth itself but also might contribute to such aspects of national well-being as welfare and poverty reduction [3]. The authors in [58] also agree that the development of economic growth analysis provides a basis for the role of human capital as an important part of increasing economic growth. Wensley and Evans [60] are convincing that the higher the quality of human capital, the higher its effect on economic growth, and there are numerous studies stating that education is of particular importance for growth in developing countries [2,61–63]. Sustainability 2021, 13, 6437 20 of 22 The above results seem to be an important confirmation of the role of education not just for the well-being of individuals but also for the well-being of entire societies. Of course, the milestone study [6] and the earlier analysis of Hanushek and Woessmann suggested the existence of such a relation. However, we believe that this study is the first to confirm them with the use of modern econometric tools that include not just the dynamic panel data models but also the BMA approach. Its strength consists in the elimination of a vast amount of subjectivity that accompanies the construction of a single model. Instead, a number of models were analyzed and averaged, confirming the validity of the results. They seem vital, especially in the pandemic era when numerous governments will be looking for various areas in which the costs can be cut to compensate for the recent excessive expenditures on healthcare and lockdown support. The decision of where to cut costs will be challenging; however, the conclusions of this study are clear: saving on the quality of education in the middle and long time horizon will not pay off in terms of economic growth and should not be considered as a profitable solution. On the other hand, our study has natural limitations. The crucial one is the limited number of lagged PISA scores due to the relatively short history of this tool. Secondly, although the number of countries that participate is quite large today, initially, it was notably lower. These shortcomings simply require more time. Secondly, while we believe that the PISA scores are the most adequate measure of quality of education, they are not perfect either. Providing high-quality education for humankind is of crucial importance and, as such, has been listed as one of the priorities on various global development agendas, such as the United Nations’ Sustainable Development Goals (SDGs) of the 2030 Agenda for Sustainable Development [64]. Education is crucial for individual and social development given that it allows for the transmission of knowledge and facilitates the ability to understand and cope with the surrounding world in addition to inspiring innovation [65]. Good education reduces poverty and promotes prosperity.

#### Growth solves extinction.

Aschenbrenner 20 [Leopold Aschenbrenner; Student in economics at Columbia University and research affiliate at the University of Oxford’s Global Priorities Institute; "Securing posterity," Works in Progress; 10/19/20; <https://worksinprogress.co/issue/securing-posterity/>] julian // Re-Cut Justin

I argue that the opposite is the case. It is not safe stagnation and risky growth that we must choose between; rather, it is stagnation that is risky and it is growth that leads to safety. We might indeed be in “time of perils”: we might be advanced enough to have developed the means for our destruction, but not advanced enough to care sufficiently about safety. But stagnation does not solve the problem: we would simply stagnate at this high level of risk. Eventually, a nuclear war or environmental catastrophe would doom humanity regardless. Faster economic growth could initially increase risk, as feared. But it will also help us get past this time of perils more quickly. When people are poor, they can’t focus on much beyond ensuring their own livelihoods. But as people grow richer, they start caring more about things like the environment and protecting against risks to life. And so, as economic growth makes people richer, they will invest more in safety, protecting against existential catastrophes. As technological innovation and our growing wealth has allowed us to conquer past threats to human life like smallpox, so can faster economic growth, in the long run, increase the overall chances of humanity’s survival. This argument is based on a recent paper of mine, in which I use the tools of economic theory—in particular, the standard models economists use to analyze economic growth—to examine the interaction between economic growth and the risks engendered by human activity. In this model, society must choose how much of its resources to allocate to consumption and how much to safety efforts. Consumption makes us happy, but also creates risks of catastrophe. Investing in safety can in turn help mitigate that risk. For example, consuming fossil fuels can engender great prosperity, but also increases the risk of tail-end climate change. We can spend money on carbon abatement to reduce this risk. Or consider air travel. It’s very useful as well, but also facilitates the spread of infectious diseases, including potentially a pandemic that could wipe out the human race. We can spend money on pandemic preparedness to mitigate that risk. Crucially, society is impatient; it discounts the future. People generally care most about their more immediate well-being. Although they may care about their kids and grandkids, they are certainly not particularly concerned about the trillions of potential lives billions of years in the future that the aforementioned philosophers appeal to. However, an impatient society does care about not getting wiped out. Therefore, what fraction of its resources this impatient society will allocate to safety depends on how much the people in this society value their own lives. As it turns out, under the standard preferences used in economic theory, people value life more and more as they grow richer. This is because of the diminishing marginal returns of consumption. As you grow richer, using an extra dollar to purchase more consumption goods gives you less and less additional utility; meanwhile, as your life becomes better and better, you stand to lose more and more if you die. As a result, the richer people are, the greater the fraction of their income they are willing to sacrifice to protect their lives. Comparing the current pandemic to the 1918 pandemic illustrates this phenomenon. Today, we are putting much of life on hold to minimize deaths. By contrast, in 1918, nonpharmaceutical interventions were milder and went on only for a month on average in the U.S., even though the Spanish Flu was arguably deadlier and claimed younger victims. We are willing to sacrifice much more today than a hundred years ago to prevent deaths because we are richer and thus value life much more. What does this mean for our model? Initially, a poor society will start out by allocating nearly all of its resources to consumption. And so as the economy grows, so does risk. However, as people grow richer, they start valuing life more. They start investing in safety to mitigate risk, shifting more and more resources from consumption to safety. At this point, as the economy grows, risk begins to fall. The risk of a existential catastrophe then looks like an inverted U-shape over time: The dot represents where we might be right now. Over the past centuries, as we have grown out of poverty, we have overwhelmingly focused on consumption. As a result, risk is growing. But as we are growing richer, we are beginning to value life more, and are slowly investing more in safety. Eventually, we will have shifted enough resources to safety such that risk begins to fall—fall exponentially to zero, in fact, such that there is a positive probability of humanity surviving to reach a grand future. And all of this occurs despite our society’s impatience. There is an analog to this in environmental economics, called the “environmental Kuznets curve.” It was theorized that pollution initially rises as countries develop, but, as people grow richer and begin to value a clean environment more, they will work to reduce pollution again. That theory has arguably been vindicated by the path that Western countries have taken with regard to water and air pollution, for example, over the past century. The idea that we are in a unique time in history in which we are facing an elevated risk of existential catastrophe is not new either. Carl Sagan was the one who coined the term “time of perils.” Derek Parfit called it the “hinge of history.” They argue that the discoveries of the last centuries have granted humanity immense power, and so we are in a most “dangerous and decisive” period. But if we manage to survive, our descendants will be able to spread throughout the galaxy, making us much less vulnerable. They will have mastered new technologies that make us immune to bioengineered pathogens, neutralize the threat from atomic bombs, provide plentiful energy without destroying the environment, and keep artificial intelligence in check so it faithfully serves human needs. With their technology and wisdom, our descendants will be able to secure a long and safe future. Our challenge, then, is to make it through this unique perilous period. Seeing the rising levels of existential risk over the past centuries, some might call for an end to economic growth. They might argue, rightfully so, that economic growth has only led to rising risk in the past. Indeed, a period of accelerated economic growth would initially also accelerate the rise in risk. The level of risk might look something like this, where the lighter line is the path with accelerated growth: Even a few hundred years later, the critics of growth would seem to be vindicated! Faster growth just increased the risk! Except that they are missing the whole picture: The accelerated economic growth also accelerated our path along the inverted-U shape of risk. Faster growth means people are richer sooner, so they value life more sooner, so society shifts resources to safety sooner—and ultimately we will begin the decline in risk sooner. As a result, the overall probability of an existential catastrophe—the area under the risk curve—declines! Faster growth means we get through the “time of perils” more quickly. Indeed, stagnation would be the most dangerous choice of all: we would be stuck at an elevated level of risk, meaning an eventual existential catastrophe would be inevitable.

#### DPT is empirically robust. Every counterexample crumbles under better historical analysis.

Miller, PhD in IR, 19

(Paul D., Georgetown, Professor of the Practice of International Affairs at Georgetown, <https://networks.h-net.org/node/28443/discussions/4846080/h-diploissf-state-field-essay-unreality-realism-international>) BW

That, of course, is anathema to the foreign policy that realists prefer. The idea that liberalism might lead to world peace is a cornerstone of liberalism, one of its strongest selling points to scholars and practitioners, and a potential death-blow to realism. The idea of a liberal or democratic peace is almost as old as liberalism itself, having first been outlined by Immanuel Kant in Perpetual Peace: A Philosophical Sketch (1795). Kant argued with remarkable prescience that a confederation of republican governments could be the anchor of world peace. Two centuries later, Jack Levy famously would observe that “the absence of war between democracies comes as close as anything we have to an empirical law in international relations.”[14] Despite the initial failure of the Wilsonian project, subsequent decades have gradually vindicated much of it through the spread of democracy and international cooperation. If it is true that liberal democracies do not fight each other, then a foreign policy that champions and encourages democracy abroad holds out the promise of spreading peace, stability, and prosperity—and to do so on grounds antithetical to realism. If the democratic peace theory is true, realism is not only false, it is basically immoral for leading humanity away from its best hope for peace. Given the challenge that the democratic peace theory presents to realism, it is striking how rarely realists engage with it. In research for my last book, I found almost no effort to rebut it in the major recent works advocating for restraint or retrenchment. Mearsheimer commendably tries to fill the gap. He argues that for the democratic peace theory to be relevant, it has to trump concerns about survival. Clearly it does not; states and people care more about survival than about freedom, Mearsheimer claims, and so the theory is of limited applicability. Mearsheimer seemingly argues that this scope condition is a weakness of the democratic peace theory: “These conditions do not always exist. The world has never been populated with democracies alone, which significantly restricts the scope of democratic peace theory” (3579). Democracies will always have to live by realist logic, like the balance of power, when dealing with non-democratic powers. He later notes that democracies can backslide, making the democratic peace not apply to them anymore. Mearsheimer’s argument is a non-sequitur; he is refuting an argument no one makes. Advocates of the democratic peace theory do not argue that democracy is or will be global, or that it must become global for the democratic peace theory to be relevant. We do not claim that democracy is more important than survival or that it exempts democracies from acting according to realist logic in relation to non-democratic powers. (In my book I specifically argue that the two logics operate in tandem). We claim that the question of survival does not arise in the first place between two liberal democracies, and thus does not have to be trumped. And I was taught in graduate school that specifying your theory’s scope conditions strengthens your case; it does not weaken it. By contrast, Mearsheimer claims “Realism is a timeless theory,” (2551) which is simply false, arising as it did in the unique conditions of post-Westphalian Europe to explain the era’s new interpretation of sovereignty. In any case, if it were timeless, realists would be unable to explain variance across history. Mearsheimer is not engaging with a fair version of his critics’ arguments. This is particularly on display with his treatment of Francis Fukuyama, whose arguments he repeatedly mischaracterizes. Fukuyama’s “End of History” essay is essentially a restatement of the democratic peace theory, resting as it does on the potent idea that liberal democracy and capitalism are superior to their alternatives and that their spread will also spread peace, liberty, and human flourishing. But in his critique of liberalism, Mearsheimer returns several times to Fukuyama and uses a caricatured version of it as a foil for himself. “According to Fukuyama, [democratic] nations would have virtually no meaningful disputes, and wars between great powers would cease,” Mearsheimer argues (165). In his reading, Fukuyama believed “liberal democracy would steadily sweep across the globe, spreading peace everywhere” (3635). What Fukuyama actually wrote was very different from what Mearsheimer recounts. Fukuyama wrote in his original essay that the ‘end of history’ does not mean “there will no longer be events to fill the pages of Foreign Affairs' yearly summaries of international relations.” Fukuyama did not suggest that every state would immediately convert to liberal democracy. “At the end of history, it is not necessary that all societies become successful liberal societies, merely that they end their ideological pretensions of representing different and higher forms of human society.” Nor does the End of History mean the end of war: “This does not by any means imply the end of international conflict per se… terrorism and wars of national liberation will continue to be an important item on the international agenda.” Conflict would continue and many states would remain within “History” for the foreseeable future. “Russia and China are not likely to join the developed nations of the West as liberal societies any time in the foreseeable future,” he wrote.[15] More positively, in contrast to his discussion of nationalism and liberalism, Mearsheimer’s treatment of the democratic peace theory does engage with some of the empirical data. Mearsheimer argues there are four clear-cut cases of democracies fighting against each other: Germany against the Allies in World War I; the Boer War (1899-1902); the Spanish-American War of 1898; and the Kargil War between India and Pakistan in 1999. Along the same lines, he also claims that the United States “has a rich history of toppling democratically elected governments,” further disproving the democratic peace theory. He cites Guatemala in 1954, Iran in 1953, Brazil in 1964, and Chile in 1973 as examples. None of these cases hold up. Mearsheimer gives prominent place to his claim that Wilhelmine Germany was a liberal democracy, and thus that World War I falsifies the democratic peace theory. (Christopher Layne makes the same argument in Peace of Illusions).[16] The claim is false. The Polity IV project gives Germany in 1914 a score of 2 on its scale of -10 (full autocracy) to 10 (full democracy). Like many hybrid, transitional, or incomplete democracies, Wilhelmine Germany blended traits of democracy and autocracy. It held elections and had a parliament; it also censored the press and established a military dictatorship over foreign and defense policy with no democratic checks on war-making powers. This is not the kind of regime that scholars of the democratic peace have in mind. The Boer War and Spanish-American War and coups in Guatemala, Iran, and Brazil fail by the same measures. One or the other party in the war or coup simply were not full democracies. As importantly, Mearsheimer does not engage with more recent historiography on these cases; he is recycling old talking points by critics of U.S. foreign policy.[17] Suffice to say, the coups are more complicated than Mearsheimer’s single sentence makes them out to be. (Chile, in particular, was emphatically not a U.S.-sponsored coup, despite what your college professor told you). If these cases are to be used to disprove the democratic peace theory, more is needed. Mearsheimer’s discussion of the democratic peace theory has more problems. “Perhaps the most damning evidence against the case for liberal democratic norms is found in Christopher Layne’s careful examination of four cases where a pair of liberal democracies marched to the brink of war, but one side pulled back and ended the crisis,” (3772) he writes. No, in fact these cases are not evidence against the democratic peace theory; if anything, they could be seen as evidence for it because the democracies in question did not go to war. Whatever the causal mechanism at work, the cases simply do not comment on the democratic peace theory because they do not include examples of democracies going to war against each other. The Kargil War is perhaps the single case of a militarized crisis between two democracies (Pervez Musharraf overthrew the Pakistani democracy months later), though one that was so small and brief, and killed so few people, that the Uppsala Data Conflict Program (UDCP) codes it as falling below the conventional threshold of 1,000 battle deaths that political scientists use to define “war” (UDCP estimates 886 battle deaths).[18] That is a technicality, however, and the case does raise a potential problem for the democratic peace theory. But not a large one. As I often tell my students, the fact that scholars have spent so much time debating the marginal cases proves that the democratic peace theory is true the rest of the time—which is to say, it is true for the other 99.9 percent of cases. It is true enough for policymaking: scholars can reliably trust that democracies virtually never go to war against each other. And if it is true, realism is not just a faulty guide; it is a treacherous one, leading us in exactly the opposite direction we should go.

#### High-quality education solves sustainable development.

WEF 15 (World Economic Forum, world-renowned economic/leadership organization, 5-19-2015, "Why education is the key to sustainable development," World Economic Forum, <https://www.weforum.org/agenda/2015/05/why-education-is-the-key-to-sustainable-development/>) AG

A strong education system broadens access to opportunities, improves health, and bolsters the resilience of communities – all while fueling economic growth in a way that can reinforce and accelerate these processes. Moreover, education provides the skills people need to thrive in the new sustainable economy, working in areas such as renewable energy, smart agriculture, forest rehabilitation, the design of resource-efficient cities, and sound management of healthy ecosystems.

Perhaps most important, education can bring about a fundamental shift in how we think, act, and discharge our responsibilities toward one another and the planet. After all, while financial incentives, targeted policies, and technological innovation are needed to catalyze new ways of producing and consuming, they cannot reshape people’s value systems so that they willingly uphold and advance the principles of sustainable development. Schools, however, can nurture a new generation of environmentally savvy citizens to support the transition to a prosperous and sustainable future.

Some schools are already becoming learning labs for sustainable development, where young students are being prepared to adapt to and help mitigate the consequences of climate change. Guided by the UNFCCC – as well as related initiatives like the UN Alliance on Climate Change Education, Training, and Public Awareness – governments are increasingly integrating education strategies, tools, and targets into national development policies. The UNESCO-led UN Decade of Education for Sustainable Development, which began in 2005, was explicitly intended to instill in every human being “the knowledge, skills, attitudes, and values necessary to shape a sustainable future.”

Together, UNESCO and the UNFCCC are not only promoting climate-change education in schools; they are also giving teachers the tools and knowledge they need to provide that education through online courses. Already, more than 14 million students and 1.2 million teachers in 58 countries have been engaged in such learning, and 550 business schools have signed on to the Principles for Responsible Management Education, developed by the UN Global Compact.

This progress, though important, is just the beginning. What is needed now is a global movement, with every student in every country learning about sustainable development from well-trained teachers, equipped with the appropriate curricula and resources. An ambitious sustainable development agenda, together with a legally binding global climate deal, could go a long way toward catalyzing such a movement.

Of course, we cannot secure a sustainable future in a matter of months. But, with a well-designed set of commitments and targets, we can move onto the right path. And, with effective educational programs that instill in future generations the importance of restoring Earth’s balance and delivering a prosperous future for the many, rather than the few, we can stay on that path.

#### Solves a laundry list of existential threats.

Tom Cernev & Richard Fenner 20, Australian National University; Centre for Sustainable Development, Cambridge University Engineering Department, "The importance of achieving foundational Sustainable Development Goals in reducing global risk," Futures, Vol. 115, January 2020, Elsevier. Recut Justin

4.1. Cascading failures Fig. 3 demonstrates that cascade failures can be transmitted through the complex inter-relationships that link the Sustainable Development Goals. Randers, Rockstrom, Stoknes, Goluke, Collste, Cornell, Donges et al. (2018) have suggested that where meeting some SDGs impact negatively on others, this may lead to “crisis and conflict accelerators” and “threat multipliers” resulting in conflicts, instability and migrations. Ecosystem stresses are likely to disproportionately affect the security and social cohesion of fragile and poor communities, amplifying latent tensions which lead to political instabilities that spread far beyond their regions. The resulting “bad fate of the poor will end up affecting the whole global system"(Mastrojeni, 2018). Such possibilities are likely to go beyond incremental damage and lead to runaway collapse. The World Economic Forums’ Global Risks Report for 2018 shows the top five global risks in terms of likelihood and impact have changed from being economic and social in 2008 to environmental and technological in 2018, and are closely aligned with many SDGs (World Economic Forum, 2018). The report notes “that we are much less competent when it comes to dealing with complex risks in systems characterised by feedback loops, tipping points and opaque cause-and-effect relationships that can make intervention problematic”. The most likely risks expected to have the greatest impact currently include extreme weather events natural disasters, cyber attacks, data fraud or theft, failure of climate change mitigation and water crises. These are represented in Fig. 3 by the following exogenous variables. “Climate change” drives the need for Climate Action (SDG 13), “Cyber threat” may adversely impact technology implementation and advancement which will disrupt Sustainable Cities and Communities (SDG 11); Decent Work and Economic Growth (SDG 8) and the rate of introduction of Affordable and Clean Energy (SDG 7), with reductions in these goals having direct consequences in also reducing progress in the other goals which they are closely linked to. “Data Fraud or Threat” has the capacity to inhibit innovation and Industrial Performance (SDG 9), reducing competitiveness (and having the potential to erode societal confidence in governance processes). “Water Crises” (linked with climate change) have a direct impact on Human Health and Well Being (SDG 3) as well as reducing access to Clean Water and Sanitation (SDG 6) and reducing agricultural production which increases Hunger (SDG 2). The causal loop diagram also highlights “Conflict” as a variable (driven by multiple environmental-socio-economic factors) which together with regions most impacted by climate degradation will lead to an increase in migrant refugees enhancing the spread of disease and global pandemic risk, thus impacting directly on Human Health and Well Being (SDG 3) 4.2. Existential and catastrophic risk The level and consequences of these risks may be severe. Existential Risks (ER) have a wide scope, with extreme danger, and are “a risk that threatens the premature extinction of humanity or the permanent and drastic destruction of its potential for desirable future development” (Farquhar et al., 2017,) essentially being an event or scenario that is “transgenerational in scope and terminal in intensity” (Baum & Handoh, 2014). With a smaller scope, and lower level of severity, global catastrophic risk is defined as a scenario or event that results in at least 10 million fatalities, or $10 trillion in damages (Bostrom & Ćirković, 2008). Global Catastrophic Risk (GCR) events are those which are global, but they are durable in that humanity is able to recover from them (Bostrom & Ćirković, 2008; Cotton-Barratt, Farquhar, Halstead, Schubert, & Snyder-Beattie, 2016) but which still have a long-term impact (Turchin & Denkenberger, 2018b). Achieving the Sustainable Development Goals can be considered to be a means of reducing the long-term global catastrophic and existential risks for humanity. Conversely if the targets represented across the SDGs remain unachieved there is the potential for these forms of risk to develop. This association combined with the likely emergence of new challenges over the next decades (Cook, Inayatullah, Burgman, Sutherland, & Wintle, 2014) means that it is of great value to identify points within the systems representations of the Sustainable Development Goals that could both lead to global catastrophic risk and existential risk, and conversely that could act as prevention, or leverage points in order to avoid such outcomes. This identification in turn enables sensible policy responses to be constructed (Sutherland & Woodroof, 2009). Whilst existential threats are unlikely, there is extensive peril in global catastrophic risks. Despite being lesser in severity than existential risks, they increase the likelihood of human extinction (Turchin & Denkenberger, 2018a) through chain reactions (Turchin & Denkenberger, 2018a), and inhibiting humanity’s response to other risks (Farquhar et al., 2017). It is necessary to consider risks that may seem small, as when acting together, they can have extensive consequences (Tonn, 2009). Furthermore, the high adaptability potential of humans, and society, means that for humanity to become extinct, it is most likely that there would be a series of events that culminate in extinction as opposed to one large scale event (Tonn & MacGregor, 2009; Tonn, 2009). Whilst the prospect of existential risk, or global catastrophic risk can seem distant, the Stern Review on the Economics of Climate Change estimated the risk of extinction for humanity as 0.1 % annually, which accumulates to provide the risk of extinction over the next century as 9.5 % (Cotton-Barratt et al., 2016). With respect to identifying these risks, it is known that in particular, “positive feedback loops… represent the gravest existential risks” (Kareiva & Carranza, 2018), with pollution also having the potential to pose an existential risk. With respect to reinforcing feedback loops, there is particular concern about the effects of time delay, and the level of uncertainty when feedback loops interact (Kareiva & Carranza, 2018). It is difficult to identify the exact thresholds that are associated with tipping points (Moore, 2018), which leads to global catastrophic risk or existential risk, and thus it is necessary to understand the events that can lead to existential risks (Kareiva & Carranza, 2018). Table 1 identifies possible global catastrophic risks and existential risks as reported in the literature and from Fig. 3 these are aligned to the Sustainable Development Goals they impact on the most. 4.3. Linking risks with progress in the SDGs Generally it is the Outcome/Foundational and Human input SDGs that are most directly related. For example as the movement of refugees increases pandemic risk, poverty levels in low and middle income countries increase reducing the health of the population, and so restricting access to education which further enhances poverty and birth rates rise as family sizes increases generating unsustainable population growth which furthers the migration of refugees (Fig. 5). Fig. 3 shows that leverage points to reduce refugees lies in SDG 16 (Peace Justice and Strong Institutions), reducing malnutrition through alleviating SDG 2 (Zero Hunger) and taking SDG 13 (Climate Action) to avoid the mass movement of people to avoid the impacts of global warming. Global warming itself will drive disruptive changes in both terrestial and aquatic ecosystems affecting SDG 15 (Life on Land) and SDG 14 (Life Below Water) adding to their vulnerability to increases in pollution driven by a growing economy. Loop B (in Fig. 4)shows the constraints associated with SDG 13 (Climate Action) may slow the economic investment in industry and infrastructure reducing the pollution generated, encouraging adoption of SDG 7 (Affordable and Clean Energy) whilst stimulating carbon reduction and measures such as afforestation, which will also improve the foundational environmental goals. Depletion of resources and biodiversity are strongly linked to SDG 12 (Responsible Consumption and Production) through measures such as halving global waste, reducing waste generation through recycling reuse and reduction schemes, and striving for more efficient industrial processes. The more resources that are used, the less responsible is Consumption and Production which may thus reduce biodiversity (Fig. 3) and increase the amounts of wastes accumulating in the environment. The final driver of Global Catastrophic Risk is an agricultural shortfall which will increase global Hunger (SDG 2) and widen the Inequality (SDG 10) between rich and poor nations and individuals. Quality Education (SDG 4) is important as a key leverage point to stimulate the generation and adoption of new technologies to improve energy (SDG 7) and water supplies (6) which can enhance agricultural production. Such linkages are convincingly examined and demonstrated in the recent film “The Boy Who Harnessed the Wind” (2019), based on a factual story of water shortages in Malawi in the mid 2000s. These examples may appear self evident, but it is the connections between the goals and how they adjust together that is important to consider so the consequence of policy actions in one area can be fully understood. Because of the underlying system structures global threats can quickly transmit through the system. Water Crises will limit the water available for agriculture and basic needs which in turn will stimulate a decline in Gender Equality (SDG 5). Technology disruption from cyber attacks will restrict the ability to operate Sustainable Cities and Communities (SDG 11) and potentially expose populations to extreme events by disrupting transport, health services, and the ability to pay for adaptation and mitigation of climate related threats from a weakened economy. Conflict (in all forms) will increase refugees and climate change provides the backdrop against which all these interactions will play out.

### Solvency

#### Plan text: A just government ought to recognize an unconditional right of teachers to strike.

#### Definition of unconditional right to strike:

NLRB 85 [National Labor Relations Board; “Legislative History of the Labor Management Relations Act, 1947: Volume 1,” Jan 1985; <https://play.google.com/store/books/details?id=7o1tA__v4xwC&rdid=book-7o1tA__v4xwC&rdot=1>] Justin

\*\*Edited for gendered language

As for the so-called absolute or unconditional right to strike—there are no absolute rights that do not have their corresponding responsibilities. Under our American Anglo-Saxon system, each individual is entitled to the maximum of freedom, provided however (and this provision is of first importance), his [their] freedom has due regard for the rights and freedoms of others. The very safeguard of our freedoms is the recognition of this fundamental principle. I take issue very definitely with the suggestion that there is an absolute and unconditional right to concerted action (which after all is what the strike is) which endangers the health and welfare of our people in order to attain a selfish end.

#### Amendment is normal means

Brudney 20 Brudney, J. J. (2020). The Right to Strike is Recognised as Customary International Law. *Yale Law*, 10–11. https://doi.org/10.5040/9781509933587.ch-011/SJKS

Recognition of the right to strike as fundamental by two key ILO supervisory bodies is reinforced by affirmation of the right within a broad framework of international covenants, transnational conventions and judicial decisions, and national constitutions. The right to strike is recognized in the International Covenant on Economic, Social and Cultural Rights of the United Nations (ICESCR).47 It has been incorporated into the International Covenant on Civil and Political Rights (ICCPR) by that Covenant’s Human Rights Committee, which supervises the Covenant’s implementation.48 Although these two treaties are more familiar starting points for international human rights analysis than the ILO Conventions, the Article focuses primarily on the Convention 87 applications because of their extensive in-depth nature. In this regard, it is notable that the two U.N. Covenants declare a specific commitment to Convention 87, which is the only other international convention they even mention, and the two treaty bodies regularly apply their relevant articles in terms that are consistent with ILO application of that convention.49

### Framing

#### The standard is maximizing expected well-being, or hedonistic act utilitarianism.

#### 1] Neuroscience- pleasure and pain *are* intrinsic value and disvalue – everything else regresses.

Blum et al. 18 [Kenneth Blum, 1Department of Psychiatry, Boonshoft School of Medicine, Dayton VA Medical Center, Wright State University, Dayton, OH, USA 2Department of Psychiatry, McKnight Brain Institute, University of Florida College of Medicine, Gainesville, FL, USA 3Department of Psychiatry and Behavioral Sciences, Keck Medicine University of Southern California, Los Angeles, CA, USA 4Division of Applied Clinical Research & Education, Dominion Diagnostics, LLC, North Kingstown, RI, USA 5Department of Precision Medicine, Geneus Health LLC, San Antonio, TX, USA 6Department of Addiction Research & Therapy, Nupathways Inc., Innsbrook, MO, USA 7Department of Clinical Neurology, Path Foundation, New York, NY, USA 8Division of Neuroscience-Based Addiction Therapy, The Shores Treatment & Recovery Center, Port Saint Lucie, FL, USA 9Institute of Psychology, Eötvös Loránd University, Budapest, Hungary 10Division of Addiction Research, Dominion Diagnostics, LLC. North Kingston, RI, USA 11Victory Nutrition International, Lederach, PA., USA 12National Human Genome Center at Howard University, Washington, DC., USA, Marjorie Gondré-Lewis, 12National Human Genome Center at Howard University, Washington, DC., USA 13Departments of Anatomy and Psychiatry, Howard University College of Medicine, Washington, DC US, Bruce Steinberg, 4Division of Applied Clinical Research & Education, Dominion Diagnostics, LLC, North Kingstown, RI, USA, Igor Elman, 15Department Psychiatry, Cooper University School of Medicine, Camden, NJ, USA, David Baron, 3Department of Psychiatry and Behavioral Sciences, Keck Medicine University of Southern California, Los Angeles, CA, USA, Edward J Modestino, 14Department of Psychology, Curry College, Milton, MA, USA, Rajendra D Badgaiyan, 15Department Psychiatry, Cooper University School of Medicine, Camden, NJ, USA, Mark S Gold 16Department of Psychiatry, Washington University, St. Louis, MO, USA, “Our evolved unique pleasure circuit makes humans different from apes: Reconsideration of data derived from animal studies”, U.S. Department of Veterans Affairs, 28 February 2018, accessed: 19 August 2020, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6446569/>] R.S.

**Pleasure** is not only one of the three primary reward functions but it also **defines reward.** As homeostasis explains the functions of only a limited number of rewards, the principal reason why particular stimuli, objects, events, situations, and activities are rewarding may be due to pleasure. This applies first of all to sex and to the primary homeostatic rewards of food and liquid and extends to money, taste, beauty, social encounters and nonmaterial, internally set, and intrinsic rewards. Pleasure, as the primary effect of rewards, drives the prime reward functions of learning, approach behavior, and decision making and provides the **basis for hedonic theories** of reward function. We are attracted by most rewards and exert intense efforts to obtain them, just because they are enjoyable [10].

Pleasure is a passive reaction that derives from the experience or prediction of reward and may lead to a long-lasting state of happiness. The word happiness is difficult to define. In fact, just obtaining physical pleasure may not be enough. One key to happiness involves a network of good friends. However, it is not obvious how the higher forms of satisfaction and pleasure are related to an ice cream cone, or to your team winning a sporting event. Recent multidisciplinary research, using both humans and detailed invasive brain analysis of animals has discovered some critical ways that the brain processes pleasure [14].

Pleasure as a hallmark of reward is sufficient for defining a reward, but it may not be necessary. A reward may generate positive learning and approach behavior simply because it contains substances that are essential for body function. When we are hungry, we may eat bad and unpleasant meals. A monkey who receives hundreds of small drops of water every morning in the laboratory is unlikely to feel a rush of pleasure every time it gets the 0.1 ml. Nevertheless, with these precautions in mind, we may define any stimulus, object, event, activity, or situation that has the potential to produce pleasure as a reward. In the context of reward deficiency or for disorders of addiction, homeostasis pursues pharmacological treatments: drugs to treat drug addiction, obesity, and other compulsive behaviors. The theory of allostasis suggests broader approaches - such as re-expanding the range of possible pleasures and providing opportunities to expend effort in their pursuit. [15]. It is noteworthy, the first animal studies eliciting approach behavior by electrical brain stimulation interpreted their findings as a discovery of the brain’s pleasure centers [16] which were later partly associated with midbrain dopamine neurons [17–19] despite the notorious difficulties of identifying emotions in animals.

Evolutionary theories of pleasure: The love connection BO:D

Charles Darwin and other biological scientists that have examined the biological evolution and its basic principles found various mechanisms that steer behavior and biological development. Besides their theory on natural selection, it was particularly the sexual selection process that gained significance in the latter context over the last century, especially when it comes to the question of what makes us “what we are,” i.e., human. However, the capacity to sexually select and evolve is not at all a human accomplishment alone or a sign of our uniqueness; yet, we humans, as it seems, are ingenious in fooling ourselves and others–when we are in love or desperately search for it.

It is well established that modern biological theory conjectures that **organisms are** the **result of evolutionary competition.** In fact, Richard Dawkins stresses gene survival and propagation as the basic mechanism of life [20]. Only genes that lead to the fittest phenotype will make it. It is noteworthy that the phenotype is selected based on behavior that maximizes gene propagation. To do so, the phenotype must survive and generate offspring, and be better at it than its competitors. Thus, the ultimate, distal function of rewards is to increase evolutionary fitness by ensuring the survival of the organism and reproduction. It is agreed that learning, approach, economic decisions, and positive emotions are the proximal functions through which phenotypes obtain other necessary nutrients for survival, mating, and care for offspring.

Behavioral reward functions have evolved to help individuals to survive and propagate their genes. Apparently, people need to live well and long enough to reproduce. Most would agree that homo-sapiens do so by ingesting the substances that make their bodies function properly. For this reason, foods and drinks are rewards. Additional rewards, including those used for economic exchanges, ensure sufficient palatable food and drink supply. Mating and gene propagation is supported by powerful sexual attraction. Additional properties, like body form, augment the chance to mate and nourish and defend offspring and are therefore also rewards. Care for offspring until they can reproduce themselves helps gene propagation and is rewarding; otherwise, many believe mating is useless. According to David E Comings, as any small edge will ultimately result in evolutionary advantage [21], additional reward mechanisms like novelty seeking and exploration widen the spectrum of available rewards and thus enhance the chance for survival, reproduction, and ultimate gene propagation. These functions may help us to obtain the benefits of distant rewards that are determined by our own interests and not immediately available in the environment. Thus the distal reward function in gene propagation and evolutionary fitness defines the proximal reward functions that we see in everyday behavior. That is why foods, drinks, mates, and offspring are rewarding.

There have been theories linking pleasure as a required component of health benefits salutogenesis, (salugenesis). In essence, under these terms, pleasure is described as a state or feeling of happiness and satisfaction resulting from an experience that one enjoys. Regarding pleasure, it is a double-edged sword, on the one hand, it promotes positive feelings (like mindfulness) and even better cognition, possibly through the release of dopamine [22]. But on the other hand, pleasure simultaneously encourages addiction and other negative behaviors, i.e., motivational toxicity. It is a complex neurobiological phenomenon, relying on reward circuitry or limbic activity. It is important to realize that through the “Brain Reward Cascade” (BRC) endorphin and endogenous morphinergic mechanisms may play a role [23]. While natural rewards are essential for survival and appetitive motivation leading to beneficial biological behaviors like eating, sex, and reproduction, crucial social interactions seem to further facilitate the positive effects exerted by pleasurable experiences. Indeed, experimentation with addictive drugs is capable of directly acting on reward pathways and causing deterioration of these systems promoting hypodopaminergia [24]. Most would agree that pleasurable activities can stimulate personal growth and may help to induce healthy behavioral changes, including stress management [25]. The work of Esch and Stefano [26] concerning the link between compassion and love implicate the brain reward system, and pleasure induction suggests that social contact in general, i.e., love, attachment, and compassion, can be highly effective in stress reduction, survival, and overall health.

Understanding the role of neurotransmission and pleasurable states both positive and negative have been adequately studied over many decades [26–37], but comparative anatomical and neurobiological function between animals and homo sapiens appear to be required and seem to be in an infancy stage.

Finding happiness is different between apes and humans

As stated earlier in this expert opinion one key to happiness involves a network of good friends [38]. However, it is not entirely clear exactly how the higher forms of satisfaction and pleasure are related to a sugar rush, winning a sports event or even sky diving, all of which augment dopamine release at the reward brain site. Recent multidisciplinary research, using both humans and detailed invasive brain analysis of animals has discovered some critical ways that the brain processes pleasure.

Remarkably, there are pathways for ordinary liking and pleasure, which are limited in scope as described above in this commentary. However, there are **many brain regions**, often termed hot and cold spots, that significantly **modulate** (increase or decrease) our **pleasure or** even produce **the opposite** of pleasure— that is disgust and fear [39]. One specific region of the nucleus accumbens is organized like a computer keyboard, with particular stimulus triggers in rows— producing an increase and decrease of pleasure and disgust. Moreover, the cortex has unique roles in the cognitive evaluation of our feelings of pleasure [40]. Importantly, the interplay of these multiple triggers and the higher brain centers in the prefrontal cortex are very intricate and are just being uncovered.

Desire and reward centers

It is surprising that many different sources of pleasure activate the same circuits between the mesocorticolimbic regions (Figure 1). Reward and desire are two aspects pleasure induction and have a very widespread, large circuit. Some part of this circuit distinguishes between desire and dread. The so-called pleasure circuitry called “REWARD” involves a well-known dopamine pathway in the mesolimbic system that can influence both pleasure and motivation.

In simplest terms, the well-established mesolimbic system is a dopamine circuit for reward. It starts in the ventral tegmental area (VTA) of the midbrain and travels to the nucleus accumbens (Figure 2). It is the cornerstone target to all addictions. The VTA is encompassed with neurons using glutamate, GABA, and dopamine. The nucleus accumbens (NAc) is located within the ventral striatum and is divided into two sub-regions—the motor and limbic regions associated with its core and shell, respectively. The NAc has spiny neurons that receive dopamine from the VTA and glutamate (a dopamine driver) from the hippocampus, amygdala and medial prefrontal cortex. Subsequently, the NAc projects GABA signals to an area termed the ventral pallidum (VP). The region is a relay station in the limbic loop of the basal ganglia, critical for motivation, behavior, emotions and the “Feel Good” response. This defined system of the brain is involved in all addictions –substance, and non –substance related. In 1995, our laboratory coined the term “Reward Deficiency Syndrome” (RDS) to describe genetic and epigenetic induced hypodopaminergia in the “Brain Reward Cascade” that contribute to addiction and compulsive behaviors [3,6,41].

Furthermore, ordinary “liking” of something, or pure pleasure, is represented by small regions mainly in the limbic system (old reptilian part of the brain). These may be part of larger neural circuits. In Latin, hedus is the term for “sweet”; and in Greek, hodone is the term for “pleasure.” Thus, the word Hedonic is now referring to various subcomponents of pleasure: some associated with purely sensory and others with more complex emotions involving morals, aesthetics, and social interactions. The capacity to have pleasure is part of being healthy and may even extend life, especially if linked to optimism as a dopaminergic response [42].

Psychiatric illness often includes symptoms of an abnormal inability to experience pleasure, referred to as anhedonia. A negative feeling state is called dysphoria, which can consist of many emotions such as pain, depression, anxiety, fear, and disgust. Previously many scientists used animal research to uncover the complex mechanisms of pleasure, liking, motivation and even emotions like panic and fear, as discussed above [43]. However, as a significant amount of related research about the specific brain regions of pleasure/reward circuitry has been derived from invasive studies of animals, these cannot be directly compared with subjective states experienced by humans.

In an attempt to resolve the controversy regarding the causal contributions of mesolimbic dopamine systems to reward, we have previously evaluated the three-main competing explanatory categories: “liking,” “learning,” and “wanting” [3]. That is, dopamine may mediate (a) liking: the hedonic impact of reward, (b) learning: learned predictions about rewarding effects, or (c) wanting: the pursuit of rewards by attributing incentive salience to reward-related stimuli [44]. We have evaluated these hypotheses, especially as they relate to the RDS, and we find that the incentive salience or “wanting” hypothesis of dopaminergic functioning is supported by a majority of the scientific evidence. Various neuroimaging studies have shown that anticipated behaviors such as sex and gaming, delicious foods and drugs of abuse all affect brain regions associated with reward networks, and may not be unidirectional. Drugs of abuse enhance dopamine signaling which sensitizes mesolimbic brain mechanisms that apparently evolved explicitly to attribute incentive salience to various rewards [45].

Addictive substances are voluntarily self-administered, and they enhance (directly or indirectly) dopaminergic synaptic function in the NAc. This activation of the brain reward networks (producing the ecstatic “high” that users seek). Although these circuits were initially thought to encode a set point of hedonic tone, it is now being considered to be far more complicated in function, also encoding attention, reward expectancy, disconfirmation of reward expectancy, and incentive motivation [46]. The argument about addiction as a disease may be confused with a predisposition to substance and nonsubstance rewards relative to the extreme effect of drugs of abuse on brain neurochemistry. The former sets up an individual to be at high risk through both genetic polymorphisms in reward genes as well as harmful epigenetic insult. Some Psychologists, even with all the data, still infer that addiction is not a disease [47]. Elevated stress levels, together with polymorphisms (genetic variations) of various dopaminergic genes and the genes related to other neurotransmitters (and their genetic variants), and may have an additive effect on vulnerability to various addictions [48]. In this regard, Vanyukov, et al. [48] suggested based on review that whereas the gateway hypothesis does not specify mechanistic connections between “stages,” and does not extend to the risks for addictions the concept of common liability to addictions may be more parsimonious. The latter theory is grounded in genetic theory and supported by data identifying common sources of variation in the risk for specific addictions (e.g., RDS). This commonality has identifiable neurobiological substrate and plausible evolutionary explanations.

Over many years the controversy of dopamine involvement in especially “pleasure” has led to confusion concerning separating motivation from actual pleasure (wanting versus liking) [49]. We take the position that animal studies cannot provide real clinical information as described by self-reports in humans. As mentioned earlier and in the abstract, on November 23rd, 2017, evidence for our concerns was discovered [50]

In essence, although nonhuman primate brains are similar to our own, the disparity between other primates and those of human cognitive abilities tells us that surface similarity is not the whole story. Sousa et al. [50] small case found various differentially expressed genes, to associate with pleasure related systems. Furthermore, the dopaminergic interneurons located in the human neocortex were absent from the neocortex of nonhuman African apes. Such differences in neuronal transcriptional programs may underlie a variety of neurodevelopmental disorders.

In simpler terms, the system controls the production of dopamine, a chemical messenger that plays a significant role in pleasure and rewards. The senior author, Dr. Nenad Sestan from Yale, stated: “Humans have evolved a dopamine system that is different than the one in chimpanzees.” This may explain why the behavior of humans is so unique from that of non-human primates, even though our brains are so surprisingly similar, Sestan said: “It might also shed light on why people are vulnerable to mental disorders such as autism (possibly even addiction).” Remarkably, this research finding emerged from an extensive, multicenter collaboration to compare the brains across several species. These researchers examined 247 specimens of neural tissue from six humans, five chimpanzees, and five macaque monkeys. Moreover, these investigators analyzed which genes were turned on or off in 16 regions of the brain. While the differences among species were subtle, **there was** a **remarkable contrast in** the **neocortices**, specifically in an area of the brain that is much more developed in humans than in chimpanzees. In fact, these researchers found that a gene called tyrosine hydroxylase (TH) for the enzyme, responsible for the production of dopamine, was expressed in the neocortex of humans, but not chimpanzees. As discussed earlier, dopamine is best known for its essential role within the brain’s reward system; the very system that responds to everything from sex, to gambling, to food, and to addictive drugs. However, dopamine also assists in regulating emotional responses, memory, and movement. Notably, abnormal dopamine levels have been linked to disorders including Parkinson’s, schizophrenia and spectrum disorders such as autism and addiction or RDS.

Nora Volkow, the director of NIDA, pointed out that one alluring possibility is that the neurotransmitter dopamine plays a substantial role in humans’ ability to pursue various rewards that are perhaps months or even years away in the future. This same idea has been suggested by Dr. Robert Sapolsky, a professor of biology and neurology at Stanford University. Dr. Sapolsky cited evidence that dopamine levels rise dramatically in humans when we anticipate potential rewards that are uncertain and even far off in our futures, such as retirement or even the possible alterlife. This may explain what often motivates people to work for things that have no apparent short-term benefit [51]. In similar work, Volkow and Bale [52] proposed a model in which dopamine can favor NOW processes through phasic signaling in reward circuits or LATER processes through tonic signaling in control circuits. Specifically, they suggest that through its modulation of the orbitofrontal cortex, which processes salience attribution, dopamine also enables shilting from NOW to LATER, while its modulation of the insula, which processes interoceptive information, influences the probability of selecting NOW versus LATER actions based on an individual’s physiological state. This hypothesis further supports the concept that disruptions along these circuits contribute to diverse pathologies, including obesity and addiction or RDS.

#### 2] Actor spec—governments must use util because they don’t have intentions and are constantly dealing with tradeoffs—outweighs since different agents have different obligations—takes out calc indicts since they are empirically denied.

#### 3] Extinction is a distinct phenomenon that requires prior consideration

**Burke et al 16** Associate Professor of International and Political Studies @ UNSW, Australia, 2016 (Anthony, Stefanie Fishel is Assistant Professor, Department of Gender and Race Studies at the University of Alabama, Audra Mitchell is CIGI Chair in Global Governance and Ethics at the Balsillie School of International Affairs, Simon Dalby is CIGI Chair in the Political Economy of Climate Change at the Balsillie School of International Affairs, and, Daniel J. Levine is Assistant Professor of Political Science at the University of Alabama, “Planet Politics: Manifesto from the End of IR,” Millennium: Journal of International Studies 1–25)

8. Global ethics must respond to mass extinction. In late 2014, the Worldwide Fund for Nature reported a startling statistic: according to their global study, 52% of species had gone extinct between 1970 and 2010.60 This is not news: for three decades, conservation biologists have been warning of a ‘sixth mass extinction’, which, by definition, could eliminate more than three quarters of currently existing life forms in just a few centuries.61 In other words, it could threaten the practical possibility of the survival of earthly life. Mass extinction is not simply extinction (or death) writ large: **it is a qualitatively different phenomena that demands its own ethical categories.** It cannot be grasped by aggregating species extinctions, let alone the deaths of individual organisms. Not only does it erase diverse, irreplaceable life forms, their **unique histories** and **open-ended possibilities**, but it **threatens the ontological conditions of Earthly life**.

IR is one of few disciplines that is explicitly devoted to the pursuit of survival, yet it has almost nothing to say in the face of a possible mass extinction event.62 It utterly lacks the conceptual and ethical frameworks necessary to foster diverse, meaningful responses to this phenomenon. As mentioned above, Cold-War era concepts such as ‘nuclear winter’ and ‘omnicide’ gesture towards harms massive in their scale and moral horror. However, they are asymptotic: they imagine nightmares of a severely denuded planet, yet they do not contemplate the **comprehensive negation** that a mass extinction event entails. In contemporary IR discourses, where it appears at all, extinction is treated as a problem of scientific management and biopolitical control aimed at securing existing human lifestyles.63 Once again, this approach fails to recognise the reality of extinction, which is a **matter of being and nonbeing**, not one of life and death processes.

Confronting the enormity of a possible mass extinction event requires a total overhaul of human perceptions of what is at stake in the disruption of the conditions of Earthly life. The question of what is ‘lost’ in extinction has, since the inception of the concept of ‘conservation’, been addressed in terms of financial cost and economic liabilities.64 Beyond reducing life to forms to capital, currencies and financial instruments, the dominant neoliberal political economy of conservation imposes a homogenising, Western secular worldview on a planetary phenomenon. Yet the **enormity, complexity, and scale** of mass extinction is so huge that humans need to **draw on every possible resource in order to find ways of responding**. This means that they need to mobilise multiple worldviews and lifeways – including those emerging from indigenous and marginalised cosmologies. Above all, it is crucial and urgent to realise that extinction is a **matter of global ethics**. It is not simply an issue of management or security, or even of particular visions of the good life. Instead, it is about staking a claim as to the goodness of life itself. If it does not fit within the existing parameters of global ethics, then it is these boundaries that need to change.

9. An Earth-worldly politics. Humans are worldly – that is, we are fundamentally worldforming and embedded in multiple worlds that traverse the Earth. However, the Earth is not ‘our’ world, as the grand theories of IR, and some accounts of the Anthropocene have it – an object and possession to be appropriated, circumnavigated, instrumentalised and englobed.65 Rather, it is a complex of worlds that we share, co-constitute, create, destroy and inhabit with countless other life forms and beings.

The formation of the Anthropocene reflects a particular type of worlding, one in which the Earth is treated as raw material for the creation of a world tailored to human needs. Heidegger famously framed ‘earth’ and ‘world’ as two countervailing, conflicting forces that constrain and shape one another. We contend that existing political, economic and social conditions have pushed human worlding so far to one extreme that it has become almost entirely detached from the conditions of the Earth. Planet Politics calls, instead, for a mode of worlding that is responsive to, and grounded in, the Earth. One of these ways of being Earth-worldly is to embrace the condition of being entangled. We can interpret this term in the way that Heidegger66 did, as the condition of being mired in everyday human concerns, worries, and anxiety, to prolong existence. But, in contrast, we can and should reframe it as authors like Karen Barad67 and Donna Haraway68 have done. To them and many others, ‘entanglement’ is a radical, indeed fundamental condition of being-with, or, as Jean-Luc Nancy puts it, ‘being singular plural’.69 This means that no being is truly autonomous or separate, whether at the scale of international politics or of quantum physics. World itself is singular plural: what humans tend to refer to as ‘the’ world is actually a multiplicity of worlds at various scales that intersect, overlap, conflict, emerge as they surge across the Earth. World emerges from the poetics of existence, the collision of energy and matter, the tumult of agencies, the fusion and diffusion of bonds.

Worlds erupt from, and consist in, the intersection of **diverse forms of being** – material and intangible, organic and inorganic, ‘living’ and ‘nonliving’. Because of the tumultuousness of the Earth with which they are entangled, ‘**worlds’ are not static, rigid or permanent. They are permeable and fluid**. They can be **created**, **modified** – and, of course, destroyed. Concepts of violence, harm and (in)security that focus only on humans ignore at their peril the destruction and severance of worlds,70 **which undermines the conditions of plurality that enables life on Earth to thrive.**

#### 4] That is the only egalitarian metric---anything else collapses cooperation on collective action crises and makes extinction inevitable

Khan 18 (Risalat, activist and entrepreneur from Bangladesh passionate about addressing climate change, biodiversity loss, and other existential challenges. He was featured by The Guardian as one of the “young climate campaigners to watch” (2015). As a campaigner with the global civic movement Avaaz (2014-17), Risalat was part of a small core team that spearheaded the largest climate marches in history with a turnout of over 800,000 across 2,000 cities. After fighting for the Paris Agreement, Risalat led a campaign joined by over a million people to stop the Rampal coal plant in Bangladesh to protect the Sundarbans World Heritage forest, and elicited criticism of the plant from Crédit Agricolé through targeted advocacy. Currently, Risalat is pursuing an MPA in Environmental Science and Policy at Columbia University as a SIPA Environmental Fellow, “5 reasons why we need to start talking about existential risks,” https://www.weforum.org/agenda/2018/01/5-reasons-start-talking-existential-risks-extinction-moriori/)

Infinite future possibilities I find the story of the Moriori profound. It teaches me two lessons. Firstly, that human culture is far from immutable. That we can struggle against our baser instincts. That we can master them and rise to unprecedented challenges. Secondly, that even this does not make us masters of our own destiny. We can make visionary choices, but the future can still surprise us. This is a humbling realization. Because faced with an uncertain future, the only wise thing we can do is prepare for possibilities. Standing at the launch pad of the Fourth Industrial Revolution, the possibilities seem endless. They range from an era of abundance to the end of humanity, and everything in between. How do we navigate such a wide and divergent spectrum? I am an optimist. From my bubble of privilege, life feels like a rollercoaster ride full of ever more impressive wonders, even as I try to fight the many social injustices that still blight us. However, the accelerating pace of change amid uncertainty elicits one fundamental observation. Among the infinite future possibilities, only one outcome is truly irreversible: extinction. Concerns about extinction are often dismissed as apocalyptic alarmism. Sometimes, they are. But repeating that mankind is still here after 70 years of existential warning about nuclear warfare is a straw man argument. The fact that a 1000-year flood has not happened does not negate its possibility. And there have been far too many nuclear near-misses to rest easy. As the World Economic Forum’s Annual Meeting in Davos discusses how to create a shared future in a fractured world, here are five reasons why the possibility of existential risks should raise the stakes of conversation: 1. Extinction is the rule, not the exception More than 99.9% of all the species that ever existed are gone. Deep time is unfathomable to the human brain. But if one cares to take a tour of the billions of years of life’s history, we find a litany of forgotten species. And we have only discovered a mere fraction of the extinct species that once roamed the planet. In the speck of time since the first humans evolved, more than 99.9% of all the distinct human cultures that have ever existed are extinct. Each hunter-gatherer tribe had its own mythologies, traditions and norms. They wiped each other out, or coalesced into larger formations following the agricultural revolution. However, as major civilizations emerged, even those that reached incredible heights, such as the Egyptians and the Romans, eventually collapsed. It is only in the very recent past that we became a truly global civilization. Our interconnectedness continues to grow rapidly. “Stand or fall, we are the last civilization”, as Ricken Patel, the founder of the global civic movement Avaaz, put it. 2. Environmental pressures can drive extinction More than 15,000 scientists just issued a ‘warning to humanity’. They called on us to reduce our impact on the biosphere, 25 years after their first such appeal. The warning notes that we are far outstripping the capacity of our planet in all but one measure of ozone depletion, including emissions, biodiversity, freshwater availability and more. The scientists, not a crowd known to overstate facts, conclude: “soon it will be too late to shift course away from our failing trajectory, and time is running out”. In his 2005 book Collapse, Jared Diamond charts the history of past societies. He makes the case that overpopulation and resource use beyond the carrying capacity have often been important, if not the only, drivers of collapse. Even though we are making important incremental progress in battles such as climate change, we must still achieve tremendous step changes in our response to several major environmental crises. We must do this even while the world’s population continues to grow. These pressures are bound to exert great stress on our global civilization. 3. Superintelligence: unplanned obsolescence? Imagine a monkey society that foresaw the ascendance of humans. Fearing a loss of status and power, it decided to kill the proverbial Adam and Eve. It crafted the most ingenious plan it could: starve the humans by taking away all their bananas. Foolproof plan, right? This story describes the fundamental difficulty with superintelligence. A superintelligent being may always do something entirely different from what we, with our mere mortal intelligence, can foresee. In his 2014 book Superintelligence, Swedish philosopher Nick Bostrom presents the challenge in thought-provoking detail, and advises caution. Bostrom cites a survey of industry experts that projected a 50% chance of the development of artificial superintelligence by 2050, and a 90% chance by 2075. The latter date is within the life expectancy of many alive today. Visionaries like Stephen Hawking and Elon Musk have warned of the existential risks from artificial superintelligence. Their opposite camp includes Larry Page and Mark Zuckerberg. But on an issue that concerns the future of humanity, is it really wise to ignore the guy who explained the nature of space to us and another guy who just put a reusable rocket in it? 4. Technology: known knowns and unknown unknowns Many fundamentally disruptive technologies are coming of age, from bioengineering to quantum computing, 3-D printing, robotics, nanotechnology and more. Lord Martin Rees describes potential existential challenges from some of these technologies, such as a bioengineered pandemic, in his book Our Final Century. Imagine if North Korea, feeling secure in its isolation, could release a virulent strain of Ebola, engineered to be airborne. Would it do it? Would ISIS? Projecting decades forward, we will likely develop capabilities that are unthinkable even now. The unknown unknowns of our technological path are profoundly humbling. 5. 'The Trump Factor' Despite our scientific ingenuity, we are still a confused and confusing species. Think back to two years ago, and how you thought the world worked then. Has that not been upended by the election of Donald Trump as US President, and everything that has happened since? The mix of billions of messy humans will forever be unpredictable. When the combustible forces described above are added to this melee, we find ourselves on a tightrope. What choices must we now make now to create a shared future, in which we are not at perpetual risk of destroying ourselves? Common enemy to common cause Throughout history, we have rallied against the ‘other’. Tribes have overpowered tribes, empires have conquered rivals. Even today, our fiercest displays of unity typically happen at wartime. We give our lives for our motherland and defend nationalistic pride like a wounded lion. But like the early Morioris, we 21st-century citizens find ourselves on an increasingly unstable island. We may have a violent past, but we have no more dangerous enemy than ourselves. Our task is to find our own Nunuku’s Law. Our own shared contract, based on equity, would help us navigate safely.