## T - Reduce (1:00)

#### Interp: The aff must permanently reduce intellectual property protections on medicines.

#### Reduce implies permanency

**Reynolds 59** – Judge (In the Matter of Doris A. Montesani, Petitioner, v. Arthur Levitt, as Comptroller of the State of New York, et al., Respondents [NO NUMBER IN ORIGINAL] Supreme Court of New York, Appellate Division, Third Department 9 A.D.2d 51; 189 N.Y.S.2d 695; 1959 N.Y. App. Div. LEXIS 7391 August 13, 1959, lexis)

Section 83's counterpart with regard to nondisability pensioners, section 84, prescribes a reduction only if the pensioner should again take a public job. The disability pensioner is penalized if he takes any type of employment. The reason for the difference, of course, is that in one case the only reason pension benefits are available is because the pensioner is considered incapable of gainful employment, while in the other he has fully completed his "tour" and is considered as having earned his reward with almost no strings attached. It would be manifestly unfair to the ordinary retiree to accord the disability retiree the benefits of the System to which they both belong when the latter is otherwise capable of earning a living and had not fulfilled his service obligation. If it were to be held that withholdings under section 83 were payable whenever the pensioner died or stopped his other employment the whole purpose of the provision would be defeated, i.e., the System might just as well have continued payments during the other employment since it must later pay it anyway.  [\*\*\*13]  The section says "reduced", does not say that monthly payments shall be temporarily suspended; it says that the pension itself shall be reduced. The plain dictionary meaning of the word is to diminish, lower or degrade. The word "reduce" seems adequately to indicate permanency.

#### Viol: you don’t; TRIPS waivers just temporarily suspend IP protections

WTO 20

WTO Communication from India and South Africa, Oct. 2, 2020, No. 20-6725 IP/C/W/669 <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/IP/C/W669.pdf&Open=True> -CAT

WAIVER FROM CERTAIN PROVISIONS OF THE TRIPS AGREEMENT FOR THE PREVENTION, CONTAINMENT AND TREATMENT OF COVID-19 COMMUNICATION FROM INDIA AND SOUTH AFRICA 1. On 11 March 2020, the World Health Organization (WHO) declared the coronavirus disease 2019 (COVID-19) to be a global pandemic, after having announced a related public health emergency of international concern (PHEIC) on 30 January 2020. 2. The World Trade Organization (WTO) has cautioned that the "Pandemic represents an unprecedented disruption to the global economy and world trade, as production and consumption are scaled back across the globe".1 We have witnessed a break down in global supply chains coupled with growing supply-demand gaps. 3. Given this present context of global emergency, it is important for WTO Members to work together to ensure that intellectual property rights such as patents, industrial designs, copyright and protection of undisclosed information do not create barriers to the timely access to affordable medical products including vaccines and medicines or to scaling-up of research, development, manufacturing and supply of medical products essential to combat COVID-19. 4. The COVID-19 pandemic is now widespread, affecting most WTO Members. As at 1 October 2020, there were about 333,722,075 confirmed cases globally with 1,009,270 confirmed deaths.2 To date, there is no vaccine or medicine to effectively prevent or treat COVID-19. All WTO Members are struggling to contain the spread of the pandemic and provide health care services to those affected. Many developed, developing and least developed countries have declared a national emergency with the aim to curb the growing outbreak, and as advised by the WHO implemented social distancing measures with significant consequences for society and the economy. Notably, developing countries and least developed countries are especially disproportionately impacted. 5. An effective response to COVID-19 pandemic requires rapid access to affordable medical products including diagnostic kits, medical masks, other personal protective equipment and ventilators, as well as vaccines and medicines for the prevention and treatment of patients in dire need. 6. The outbreak has led to a swift increase in global demand with many countries facing acute shortages, constraining the ability to effectively respond to the outbreak. Shortages of these products has put the lives of health and other essential workers at risk and led to many avoidable deaths. It is also threatening to prolong the COVID-19 pandemic. The longer the current global crisis persist, the greater the socio-economic fallout, making it imperative and urgent to collaborate internationally to rapidly contain the outbreak. 7. As new diagnostics, therapeutics and vaccines for COVID-19 are developed, there are significant concerns, how these will be made available promptly, in sufficient quantities and at affordable price to meet global demand. Critical shortages in medical products have also put at grave risk patients suffering from other communicable and non-communicable diseases. 1 https://www.wto.org/english/tratop\_e/covid19\_e/covid19\_e.htm. 2 https://covid19.who.int. IP/C/W/669 - 2 - 8. To meet the growing supply-demand gap, several countries have initiated domestic production of medical products and/or are modifying existing medical products for the treatment of COVID-19 patients. The rapid scaling up of manufacturing globally is an obvious crucial solution to address the timely availability and affordability of medical products to all countries in need. 9. There are several reports about intellectual property rights hindering or potentially hindering timely provisioning of affordable medical products to the patients.3 It is also reported that some WTO Members have carried out urgent legal amendments to their national patent laws to expedite the process of issuing compulsory/government use licenses. 10. Beyond patents, other intellectual property rights may also pose a barrier, with limited options to overcome those barriers. In addition, many countries especially developing countries may face institutional and legal difficulties when using flexibilities available in the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement). A particular concern for countries with insufficient or no manufacturing capacity are the requirements of Article 31bis and consequently the cumbersome and lengthy process for the import and export of pharmaceutical products. 11. Internationally, there is an urgent call for global solidarity, and the unhindered global sharing of technology and know-how in order that rapid responses for the handling of COVID-19 can be put in place on a real time basis. 12. In these exceptional circumstances, we request that the Council for TRIPS recommends, as early as possible, to the General Council a waiver from the implementation, application and enforcement of Sections 1, 4, 5, and 7 of Part II of the TRIPS Agreement in relation to prevention, containment or treatment of COVID-19. 13. The waiver should continue until widespread vaccination is in place globally, and the majority of the world's population has developed immunity hence we propose an initial duration of [x] years from the date of the adoption of the waiver. 14. We request that the Council for TRIPS urgently recommends to the General Council adoption of the annexed decision text.

#### Standards

#### 1] Ground—lets affs de-link from core neg DA’s by justifying specific instances a] raises the bar for entry into debate, that independently kills debate b] losing core neg ground incentives a race to the margins—we don’t get depth of education

#### 2] predictability--the AC has infinite prep time, the NC has 4 minutes, unpredictable affs mean that NCs can’t utilize reactive positions—killing all neg ground

#### Paradigm issues

#### 1] DTD, the argument is the whole 1AC

#### 2] Competing interps—you were either topical or you weren’t

#### 3] jurisdiction—the judge can only vote on args that are about the resolution

#### 4] NO RVIs a] you don’t win by meeting a prima facie burden b] going for RVIs prove the 1AC is non-T; if you were T you could just beat back the shell with a legit competing interp and then win on case offense

#### 5] Fairness is a voter and comes first— a] debate is fundamentally a game – if it’s not fair, people won’t play; that controls the internal link to education. b] that O/Ws because every argument implicitly concedes to the validity of fairness, meaning if they win fairness bad vote neg because you have no obligation to fairly evaluate their arguments.

## Cap K vs. WTO (1:35)

#### The WTO is the primary mechanism imperialist western nations use to force neoliberalism on developing nations; the link is the 1AC advocacy for the WTO to set the rules and resolve disputes

Fukuda 10

Yasuo Fukuda, WTO REGIME AS A NEW STAGE OF IMPERIALISM: DECAYING CAPITALISM AND ITS ALTERNATIVE World Review of Political Economy (2010). Yasuo Fukuda, Professor of Graduate School of Economics at Hitotsubashi University, Tokyo, and author of Modern Market Economy and Inflation (1992), Commodification of Land and Urban Problems (1993), Distribution of Wealth and Income in Modern Japan (2002) and Corporate Globalization and Local Sovereignty (2010). <https://hermes-ir.lib.hit-u.ac.jp/hermes/ir/re/22161/0101106701.pdf> -CAT

Introduction The objectives of the World Trade Organization (WTO) regime are to liberalize trade in goods and services and force developing countries to introduce neo-liberal policies. The purpose is to advance deregulation, privatization, and free trade. T. Friedman (2006) characterized globalization after 2000 as the world becoming flat, whereby every company, organization, or individual can gain entry into a global marketplace, and where all people are free to start businesses which may benefit from a worldwide commercial network. However, this is just one side of globalization under the WTO regime. Multinational corporations as monopoly capital reap most of the benefits of the “flat” world economy. WTO Agreements have ushered in a new era of corporate globalization. The aim of this article is to show that corporate globalization represents a new stage of imperialism, whereby monopoly capital not only controls the world market, but writes the market rules as well. This new form of imperialism is nothing less than a decaying stage of capitalism in which, quite apart from people being guaranteed the chance to lead happy and stable lives, the very potential for doing so is undermined and destroyed. Finally, principles of localization are presented as an alternative to corporate globalization. A New Stage of Imperialism Studies on imperialism can be traced back to J. A. Hobson (1902) and R. Hilferding (1909). Based on their works, Lenin (1917) characterized imperialism as a regime of governance by monopoly capital, concluding that imperialism is a decaying stage of capitalism. Lenin outlined five pillars by which to define imperialism. The first is monopoly capital gaining control of the major industries of a country. The growth of monopoly capital is a consequence of market concentration caused by competition among firms. Once market concentration reaches a certain point, it becomes possible for a small number of winners to form collusions, such as cartels, which transform the nature of the economy, leading to the dominance of monopoly capital. The second pillar is the formation of business relationships between industrial and financial monopoly capital. Monopoly capital also forms cozy relationships with government through the financing of political campaigns and through revolving doors. In short, monopoly capital wields governing power over national economies through market concentration, collusions among large firms, and direct political influence. The third pillar is foreign investment. Drawing on its political influence, monopoly capital effects the transfer of wealth from workers, farmers, small to medium-sized businesses, and the self-employed to monopoly capital. The resulting distortion of income distribution causes disproportionate growth among industries—especially between manufacturing and farming—and suppresses consumption. This leads to over-accumulation, which forces monopoly capital to export merchandise and invest abroad. The fourth pillar is global divisions among monopoly capital through cartels. These divisions occur in the same way as those which take place at the national level; competition among large firms, and the market concentration which follows, leads to the formation of global cartel agreements. WRPE 1-3b text 486 27/10/2010 12:50 WTO REGIME AS A NEW STAGE OF IMPERIALISM 487 WRPE 1.3 Produced and distributed by Pluto Journals WRPE.plutojournals.org The fifth pillar is colonization of less-developed countries by the Great Powers, operating at the behest of monopoly capital. Such colonization is an outcome of global competition among opposing elements of monopoly capital. Monopoly capital takes advantage of colonization to monopolize control of natural resources and export markets, and as a means to protect capital invested in less-developed countries against appropriation. Figure 1 shows how the five pillars are related. The figure starts with monopoly capital as governing powers, from which follows a causal relationship down to the last outcome, competition for colonization. In other words, colonization is the final outcome of the governing power of monopoly capital. This is why Lenin considered monopoly capital to be the key to imperialism.1 monopoly capital as governing power ↓ distorted income distribution and unbalanced growth ↓ accumulation of redundant capital ↓ merchandise export and foreign investments ↓ global competition and global collusion ↓ struggles for colonization Figure 1 Lenin’s “Imperialism” Looking at contemporary capitalism from the viewpoint of Lenin’s “Imperialism,” it is clear that four of the five pillars (excepting the fifth) are still applicable to capitalism under the WTO regime. First, a small number of multinational corporations typically control more than half the market-share of major industries. For example, in the commercial seed market, the world’s top three corporations (Monsanto, DuPont, and Syngenta of Switzerland) control almost half of the world market. Cargill, along with its top four competitors, handle 85 percent of world grain trade. In the pharmaceutical industry, the top ten corporations hold a combined 54.8 percent share of the world market (ETC Group 2008). In banking, the world’s top 45 banks account for nearly 40 percent of the gross tier 1 capital of the top 1,000, and about 45 percent of the total assets (The Banker, June 24, 2009). It hardly needs saying that these companies enhance their power considerably through close relationships with governments, and through political contributions, lobbying, revolving doors, and the like. WRPE 1-3b text 487 27/10/2010 12:50 488 Yasuo Fukuda World Review of Political Economy Second, industrial and financial monopoly capital establish political action groups as a means to advance common political goals. The negotiation of the General Agreement on Trade in Services (GATS) represents a typical example of this sort of collusion between major companies of both the industrial and financial spheres. Third, no monopoly capital can survive without strategic foreign investment, including direct as well as portfolio investment. For instance, automobile companies will not survive without gaining access to Chinese and Indian markets. Fourth, in the course of intense competition over dominant market shares, large multinational corporations often collude to form price cartels (Connor 2001; Levenstein and Suslow 2001). The cartel-based character of monopoly capital culminated during GATT Uruguay Round negotiations, as large businesses cooperated to set market-rules specifically tailored to their own ends. There is no colonization occurring under the WTO regime. Modern capitalism lacks the fifth pillar of early 20th century imperialism. However, this does not mean that modern capitalism is without imperialism. Monopoly capital has gained new methods of obtaining the governing power over developing countries in place of colonization. First, major multinational corporations subcontract to firms in developing countries, thereby assimilating these firms into global business networks. For example, big food retailers such as Wal-Mart and Tesco have established global supply chain management networks which subcontract to farmers in developing countries, thereby bringing these farmers under centralized managerial control (South Centre and Traidcraft 2008). Here, prices fetched at farm gates are determined by monopolists at the top of the supply chain. Second, monopoly capital now dictates the rules of trade by directly involving itself in the crafting of trade policy. Big business coalitions took part in drafting the WTO Agreements. In the case of GATS, multinational corporations, including Citigroup, J. P. Morgan Chase, and Barclays Bank, drafted the proposal under the authorization of US and EU governments, and then used lobbying to push the agreement through at the time of negotiations (Balanyá et al. 2003). In the case of the negotiations for the agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), it was the US Intellectual Property Committee (USIPC), a US business group, which wrote the initial draft, at the request of the US Trade Representative (Weissman 1996). Those party to the USIPC include Monsanto, Pfizer, DuPont, and IBM. Market and trade rules amount to a form of infrastructure vis-à-vis the markets. The body which decides the rules of trade has a considerable advantage over other stakeholders. Under the current setting, it is large multinationals, especially the agents of US monopoly capital, which control the rules of trade, specifically through cozy relationships with the US government.

#### Thus, the ROB - vote for the debater who has the better liberatory strategy to free us from neoliberalism. The alt is to reject consumerism and embrace socialism.; millennials prove feasibility

Lynch 19

Conor Lynch, *The Week*, “Think Young People Are Hostile to Capitalism Now? Just wait for the next recession.” 10/17/2019. Conor Lynch is a freelance journalist living in New York City. He has written for The New Republic, Salon, and Alternet. <https://theweek.com/articles/871131/think-young-people-are-hostile-capitalism-now-just-wait-next-recession> CAT

Though the panic that erupted during the summer months about a potential recession has cooled somewhat since, especially with the impeachment drama taking up most of our collective attention, signs of a looming economic downturn nevertheless remain. Job growth has slowed, levels of corporate and consumer debt have both reached all-time highs (surpassing levels last seen before the Great Recession), and the yield curve measuring the difference between 10-year and 3-month Treasury bond yields has been "inverted" for months. The economist Campbell Harvey, whose research showed that the inverted yield curve accurately predicted the last seven recessions, recently said that the indicator is "flashing code red." "It's not normal. It's something that foreshadows bad times," observed Campbell. A downturn is probably on the horizon, then, and while it may not be as devastating as the 2008 recession, which threatened to undo the entire financial system, there's a good chance that the public will respond with even more anger and intensity than 10 years ago. The last economic crisis contributed directly to the rise of populism over the following decade, but the next crisis will come squarely within the age of populism. It will also come in an age of extreme inequality and polarization, where capitalism is being questioned and critiqued more than in any other period since the end of the Cold War, especially by the generation that came of age during the Great Recession. The rise of populism wasn't just a response to the financial crisis and its painful consequences, though. It was a response to the fact that nothing fundamentally changed in its aftermath. The big banks remained too big to fail, executives who had overseen rampant fraud remained free (with their generous bonuses intact), income and wealth inequality continued to grow out of control, and wages continued to stagnate as billionaires saw their wealth multiply. In other words, the economy "recovered" for those on top, while the recession lingered for everyone else. In his modern classic, Capital in the Twenty-First Century, the French economist Thomas Piketty suggested that growing inequality in America contributed directly to the country's financial instability. One consequence of increasing inequality, he wrote, "was virtual stagnation of the purchasing power of the lower and middle classes in the United States, which inevitably made it more likely that modest households would take on debt, especially since unscrupulous banks and financial institutions, freed from regulation and eager to earn good yields on the enormous savings injected into the system by the well-to-do, offered credit on increasingly generous terms." A decade after the crisis, income inequality is the highest it's been in America since the Census Bureau began tracking it over five decades ago. And disparities in wealth are even more extreme. Meanwhile, household debt has exceeded levels seen in 2008, reaching $14 trillion earlier this year. This number is driven largely by student loans and credit card debt, which steadily grow as wages stagnate and jobs become more precarious. These trends disproportionately affect young people, although that hasn't stopped the financial class from blaming them for the "sluggish economy." Millennials are reportedly consuming less and saving more, which is causing an "economic imbalance." "The higher savings rate, we believe, has had disinflationary impact, driving the relatively slow growth and low inflation in this recovery," wrote an analyst for Raymond James, observing that younger people are "saving instead of purchasing like last generation, limiting demand growth." The fact that millennials are consuming less than their Gen-X and baby boomer elders may indicate a slight cultural shift from the consumerist mindset of previous generations, but the more likely cause is that they simply have less disposable income to throw around. A recent study that surveyed 4,000 American consumers found that, since 1996, the average net worth of consumers under 35 has dropped by 35 percent. This, along with declining real wages, increasing cost of living (home ownership has substantially declined for millennials), and swelling levels of debt, makes the growing millennial hostility towards capitalism perfectly sensible. People "behave more like their income than their age," said one of the study's authors, and just as the American working class became the middle class in the mid-20th century and thus embraced capitalism, young people in the 21st century are being proletarianized (or precariatized) and thus embracing socialism. Coming of age in the midst of the financial crisis and entering the workforce during the rise of the gig economy has given millennials an intuitive understanding of the deep instability and unfairness of our economic (and political) system. A recent survey from Quinnipiac revealed just how divided older and younger Democrats are on capitalism. Forty-four percent of those aged 18-34 supported the "democratic socialist" Bernie Sanders, compared to 22 percent for Elizabeth Warren (who is progressive but "capitalist to her bones") and 9 percent for Joe Biden. On the other hand, 41 percent of those over 65 supported Biden, compared to 26 percent for Warren and an incredible 2 percent for Sanders. The socialist platform of Sanders repels older voters who grew up in the so-called "golden age" of capitalism, while it naturally appeals to younger voters who grew up in the age of neoliberalism and economic crisis. Of course, it's not just about one's personal income or wealth, but the impact that capitalism is having on the future of the planet as well. The 16-year old Greta Thunberg captured well in her UN speech last month: "We are in the beginning of a mass extinction, and all you can talk about is money and fairy tales of eternal economic growth." When the next recession comes, young people and the working class will no doubt be impacted the hardest, and this will only further radicalize their politics. The more they feel that the system is rigged against them, the more they will demand the system itself be overthrown. After the 2008 recession, President Obama and the Democrats effectively saved capitalism from itself; a more radical leadership would fight to replace it with a better system. This time around there may be far more pressure from below to do just that, especially with a more organized left and more class conscious young people. Politics is situational, and economic and political circumstances have changed drastically over the past few decades — especially since the financial crisis. The baby boomers grew up and spent their adult lives under very different conditions than most millennials today, and their contrasting worldviews reflect this reality. Millennials are set to overtake baby boomers this year as the largest generation in America, and after 10 years of tepid recovery, they will have a real say in how to respond to the next crisis. Don't expect them to take it quietly.

#### And, dismantling capitalism o/ws under under any framework -- it’s the greatest existential threat and the biggest affront to human rights and structural inequalities. The consensus of recent studies prove that transition is possible but that requires radical rejection of current neoliberal politics

Ahmed 20

Nafeez Ahmed -- Visiting Research Fellow at the Global Sustainability Institute at Anglia Ruskin University's Faculty of Science & Technology + M.A. in contemporary war & peace studies + DPhil (April 2009) in international relations from the School of Global Studies @ Sussex University, “Capitalism is Destroying ‘Safe Operating Space’ for Humanity, Warn Scientists”, https://www.resilience.org/stories/2020-06-24/capitalism-is-destroying-safe-operating-space-for-humanity-warn-scientists/, 24 June 2020, EmmieeM) -recut CAT

* The last paragraph shows that rapid peaceful transition is possible so put away that garbage Harris 02 transition wars card

The COVID19 pandemic has exposed a strange anomaly in the global economy. If it doesn’t keep growing endlessly, it just breaks. Grow, or die. But there’s a deeper problem. New scientific research confirms that capitalism’s structural obsession with endless growth is destroying the very conditions for human survival on planet Earth. A landmark study in the journal Nature Communications, “Scientists’ warning on affluence” — by scientists in Australia, Switzerland and the UK — concludes that the most fundamental driver of environmental destruction is the overconsumption of the super-rich. This factor lies over and above other factors like fossil fuel consumption, industrial agriculture and deforestation: because it is overconsumption by the super-rich which is the chief driver of these other factors breaching key planetary boundaries. The paper notes that the richest 10 percent of people are responsible for up to 43 percent of destructive global environmental impacts. In contrast, the poorest 10 percent in the world are responsible just around 5 percent of these environmental impacts: The new paper is authored by Thomas Wiedmann of UNSW Sydney’s School of Civil and Environmental Engineering, Manfred Lenzen of the University of Sydney’s School of Physics, Lorenz T. Keysser of ETH Zürich’s Department of Environmental Systems Science, and Julia K. Steinberger of Leeds University’s School of Earth and Environment. It confirms that global structural inequalities in the distribution of wealth are intimately related to an escalating environmental crisis threatening the very existence of human societies. Synthesising knowledge from across the scientific community, the paper identifies capitalism as the main cause behind “alarming trends of environmental degradation” which now pose “existential threats to natural systems, economies and societies.” The paper concludes: “It is clear that prevailing capitalist, growth-driven economic systems have not only increased affluence since World War II, but have led to enormous increases in inequality, financial instability, resource consumption and environmental pressures on vital earth support systems.” Capitalism and the pandemic Thanks to the way capitalism works, the paper shows, the super-rich are incentivised to keep getting richer — at the expense of the health of our societies and the planet overall. The research provides an important scientific context for how we can understand many earlier scientific studies revealing that industrial expansion has hugely increased the risks of new disease outbreaks. Just last April, a paper in Landscape Ecology found that deforestation driven by increased demand for consumption of agricultural commodities or beef have increased the probability of ‘zoonotic’ diseases (exotic diseases circulating amongst animals) jumping to humans. This is because industrial expansion, driven by capitalist pressures, has intensified the encroachment of human activities on wildlife and natural ecosystems. Two years ago, another study in Frontiers of Microbiology concluded presciently that accelerating deforestation due to “demographic growth” and the associated expansion of “farming, logging, and hunting”, is dangerously transforming rural environments. More bat species carrying exotic viruses have ended up next to human dwellings, the study said. This is increasing “the risk of transmission of viruses through direct contact, domestic animal infection, or contamination by urine or faeces.” It is difficult to avoid the conclusion that the COVID19 pandemic thus emerged directly from these rapidly growing impacts of human activities. As the new paper in Nature Communications confirms, these impacts have accelerated in the context of the fundamental operations of industrial capitalism. Eroding the ‘safe operating space’ The result is that capitalism is causing human societies to increasingly breach key planetary boundaries, such as land-use change, biosphere integrity and climate change. Remaining within these boundaries is essential to maintain what scientists describe as a “safe operating space” for human civilization. If those key ecosystems are disrupted, that “safe operating space” will begin to erode. The global impacts of the COVID19 pandemic are yet another clear indication that this process of erosion has already begun. “The evidence is clear,” write Weidmann and his co-authors. “Long-term and concurrent human and planetary wellbeing will not be achieved in the Anthropocene if affluent overconsumption continues, spurred by economic systems that exploit nature and humans. We find that, to a large extent, the affluent lifestyles of the world’s rich determine and drive global environmental and social impact. Moreover, international trade mechanisms allow the rich world to displace its impact to the global poor.” The new scientific research thus confirms that the normal functioning of capitalism is eroding the ‘safe space’ by which human civilisation is able to survive. The structures The paper also sets out how this is happening in some detail. The super-rich basically end up driving this destructive system forward in three key ways. Firstly, they are directly responsible for “biophysical resource use… through high consumption.” Secondly, they are “members of powerful factions of the capitalist class.” Thirdly, due to that positioning, they end up “driving consumption norms across the population.” But perhaps the most important insight of the paper is not that this is purely because the super-rich are especially evil or terrible compared to the rest of the population — but because of the systemic pressures produced by capitalist structures. The authors point out that: “Growth imperatives are active at multiple levels, making the pursuit of economic growth (net investment, i.e. investment above depreciation) a necessity for different actors and leading to social and economic instability in the absence of it.” At the core of capitalism, the paper observes, is a fundamental social relationship defining the way working people are systemically marginalised from access to the productive resources of the earth, along with the mechanisms used to extract these resources and produce goods and services. This means that to survive economically in this system, certain behavioural patterns become not just normalised, but seemingly entirely rational — at least from a limited perspective that ignores wider societal and environmental consequences. In the words of the authors: “In capitalism, workers are separated from the means of production, implying that they must compete in labour markets to sell their labour power to capitalists in order to earn a living.” Meanwhile, firms which own and control these means of production “need to compete in the market, leading to a necessity to reinvest profits into more efficient production processes to minimise costs (e.g. through replacing human labour power with machines and positive returns to scale), innovation of new products and/or advertising to convince consumers to buy more.” If a firm fails to remain competitive through such behaviours, “it either goes bankrupt or is taken over by a more successful business. Under normal economic conditions, this capitalist competition is expected to lead to aggregate growth dynamics.” The irony is that, as the paper also shows, the “affluence” accumulated by the super-rich isn’t correlated with happiness or well-being. Restructure The “hegemonic” dominance of global capitalism, then, is the principal obstacle to the systemic transformation needed to reduce overconsumption. So it’s not enough to simply try to “green” current consumption through technologies like renewable energy — we need to actually reduce our environmental impacts by changing our behaviours with a focus on cutting back our use of planetary resources: “Not only can a sufficient decoupling of environmental and detrimental social impacts from economic growth not be achieved by technological innovation alone, but also the profit-driven mechanism of prevailing economic systems prevents the necessary reduction of impacts and resource utilisation per se.” The good news is that it doesn’t have to be this way. The paper reviews a range of “bottom-up studies” showing that dramatic reductions in our material footprint are perfectly possible while still maintaining good material living standards. In India, Brazil and South Africa, “decent living standards” can be supported “with around 90 percent less per-capita energy use than currently consumed in affluent countries.” Similar possible reductions are feasible for modern industrial economies such as Australia and the US. By becoming aware of how the wider economic system incentivises behaviour that is destructive of human societies and planetary ecosystems critical for human survival, both ordinary workers and more wealthy sectors — including the super-rich — can work toward rewriting the global economic operating system. This can be done by restructuring ownership in firms, equalising relations with workers, and intentionally reorganising the way decisions are made about investment priorities. The paper points out that citizens and communities have a crucial role to play in getting organised, upgrading efforts for public education about these key issues, and experimenting with new ways to work together in bringing about “social tipping points” — points at which social action can catalyse mass change. While a sense of doom and apathy about the prospects for such change is understandable, mounting evidence based on systems science suggests that global capitalism as we know it is in a state of protracted crisis and collapse that began some decades ago. This research strongly supports the view that as industrial civilization reaches the last stages of its systemic life-cycle, there is unprecedented and increasing opportunity for small-scale actions and efforts to have large system-wide impacts. The new paper shows that the need for joined-up action is paramount: structural racism, environmental crisis, global inequalities are not really separate crises — but different facets of human civilization’s broken relationship with nature. Yet, of course, the biggest takeaway is that those who bear most responsibility for environmental destruction — those who hold the most wealth in our societies — urgently need to wake up to how their narrow models of life are, quite literally, destroying the foundations for human survival over the coming decades.

## China-Biotech DA v2 (1:45)

#### The US leads and will continue to dominate biotech unless we do something truly stupid, like give China our cutting-edge, dual-use mRNA research

Moore 21

(Scott Moore, Director of the Penn Global China Program@UPenn, Young Professional and Water Resources Management Specialist at the World Bank Group, Environment, Science, Technology, Health Officer for China at the U.S. Dept of State, Giorgio Ruffolo Post-Doctoral Research Fellow with the Belfer Center for Science and International Affairs@Harvard [BIODEFENSE](https://www.lawfareblog.com/tagged/biodefense) In Biotech, the Industry of the Future, the U.S. Is Way Ahead of China By [Scott Moore](https://www.lawfareblog.com/contributors/smoore) Wednesday, February 17, 2021, 8:01 AM LAWfare <https://www.lawfareblog.com/biotech-industry-future-us-way-ahead-china> -CAT

It was supposed to be China’s moment of technological triumph—one that would show the world Beijing had not only conquered the coronavirus but also emerged as a biotechnology superpower. But when clinical data on China’s flagship CoronaVac vaccine finally flowed in, they showed it was barely more than 50 percent effective—just clearing the minimum standard set by the World Health Organization. In contrast, not one but two vaccines developed by U.S. firms have been found to be upward of 95 percent effective, a standard no other country’s vaccines have yet met in rigorous clinical trials. The United States’s overall track record in responding to the pandemic has been awful. Yet the success of its vaccine development efforts shows that when it comes to biotechnology, the industry of the future, the U.S. is way ahead of China and most of its other rivals. A continuing refrain from Washington in recent years has been that the United States is falling behind China in the development of critical emerging technologies. In some fields, this may be true. But not in biotechnology. To be sure, China’s biotech sector is growing at a torrid pace, and some of its firms are becoming leaders in certain areas, such as cancer treatment. Yet the U.S. retains a dominant position in research, development and commercialization, accounting for almost half of all biotech patents filed from 1999 to 2013. The triumph of its biotechnology industry during the coronavirus pandemic, producing two highly effective vaccines using an entirely new approach based on messenger RNA, and in record time, shows that the U.S.’s competitive edge in biotechnology remains largely intact. And that has important implications as Washington gears up for a sustained period of geopolitical competition with Beijing. Biotech is such a critical area for technological competition between the U.S. and China because it is transforming fields from medicine to military power. The great advances of the 19th century, like chemical fertilizers, resulted from mastering chemistry. In the 20th century, mastery of physics led to nuclear energy—and, more ominously, nuclear weapons. In the 21st century, biology offers a similar mix of peril and promise. This was illustrated dramatically by the award of the 2020 Nobel Prize for the discovery of an enzyme system known as CRISPR-Cas9, which allows an organism’s genomes to be edited with high precision. It is a transformational breakthrough. But while CRISPR shows great promise in the development of new cures for long-untreatable diseases, it could also lead to a whole new generation of deadly bioweapons. That’s a prospect that increasingly alarms U.S. intelligence officials. In 2016, then-Director of National Intelligence James Clapper warned Congress that “[r]esearch in genome editing conducted by countries with different regulatory or ethical standards than those of western countries probably increases the risk of the creation of potentially harmful biological agents or products.” Although Clapper didn’t name specific countries, it soon became clear that he was referring mainly to China. Four years later, his successor, John Ratcliffe, issued a far more pointed warning that “China has even conducted human testing on members of the People’s Liberation Army in hope of developing soldiers with biologically enhanced capabilities. There are no ethical boundaries to Beijing’s pursuit of power.” Such capabilities are almost certainly only speculative—but they underscore why biotech leadership is so important for national security as well as economic competitiveness. Beijing has long envied the United States’s dominant position in biotechnology and spent heavily to overtake it. Biotech has been a priority sector for state investment since the 1980s, and by one estimate Beijing had poured some $100 billion into the sector by 2018. Nowhere did it lavish more attention or invest more of its propaganda power than in developing a coronavirus vaccine. State media have spent months crowing that “China is working around the clock for breakthroughs in COVID-19 vaccines.” Yet despite this push, China’s vaccine program quickly took on a Potemkin air. In February 2020, barely two months after the onset of the pandemic and after a supposedly crash vaccine effort, a military doctor stood in front of a Chinese flag to receive what was billed as an experimental vaccine dose but was widely suspected to be a staged photo op. Now, having spent months talking up its two primary vaccine candidates to developing countries like Brazil and Indonesia, both of which have entered into purchase agreements with Chinese biotech firms, Chinese officials face severe mistrust among their nation’s overseas partners. For China’s leaders, the disappointing returns on their big bet on biotechnology look likely to cause them more headaches at home as well as abroad—there are already signs that affluent Chinese place more trust in foreign-developed coronavirus vaccines than the homegrown ones produced at such great expense. For U.S. officials, though, China’s relative underperformance in vaccine development presents an opportunity to reassert the United States’s leadership in biotechnology and public health and bolster the nation’s depleted soft power in the process. The Biden administration has already signaled it will reengage in multilateral bodies such as the World Health Organization. Yet the U.S. shouldn’t stop there. Washington should begin thinking now about how to emulate the success of the President’s Emergency Plan for AIDS Relief (PEPFAR)—which, though imperfect, is widely regarded as one of the most successful single public health interventions in history—to address growing disparities in access to coronavirus vaccines between countries. At the moment, vaccine supplies are controlled largely by rich countries, creating the risk of moral and public health failure if the gap persists. While COVID-19, the respiratory disease caused by the novel coronavirus, differs in many respects from AIDS, PEPFAR combined research, prevention, and access to therapeutics. Developing a comparable institutional structure to close the coronavirus vaccine access gap is the right thing to do—but it would also go a long way to restoring America’s battered global reputation. At the same time, the United States can’t afford to rest on its laurels in biotechnology, or any other field. Aside from China, other nations like Singapore and Israel have also invested heavily to develop their biotechnology sectors, with Israel in particular giving rise to a thriving biotech industry. U.S. public investment in basic scientific research and development has meanwhile been on the decline for decades, and there are worrying signs that America’s once world-beating innovation ecosystem is less productive, and less entrepreneurial, than it once was. Despite strengths in translational research, moreover, the frontiers of biology increasingly sit at the intersection with other disciplines like computer science, meaning that funding agencies, universities and other organizations need to break down disciplinary silos. Boosting support for biotechnology research, while reforming how that money is used, will go a long way toward shoring up the United States’s leading position in the global biotech sector. The U.S. biotechnology sector also faces other threats, not least growing espionage and intellectual property theft by foreign actors, especially those linked to China. Several high-profile cases brought by the U.S. Department of Justice’s China Initiative have involved biotechnology researchers, and American biotech firms have been top targets for cyber theft and intrusion. Sustained outreach to researchers and research institutions is critical to preventing such theft. But efforts to clamp down on the threats posed by espionage and intellectual property theft can easily go too far and must preserve the researcher mobility and data-sharing that is essential to doing cutting-edge science. Beyond its shores, the United States should work with its partners and allies to enhance export controls on dual-use biotechnology—used for both peaceful and military gain—especially DNA templates. Many forms of genetic material and synthetic biology products are already subject to U.S. export controls, but gaps remain, and screening for genetic sequence orders relies primarily on voluntary regulation by biotech firms. Better coordinating export controls among major economies and U.S. allies can dramatically reduce the risk of sophisticated bioweapons development in the decades to come. When it comes to biotechnology, the industry of the future, the U.S. remains well ahead of its rivals, including China. That’s something Americans can, and should, take pride in. But the U.S. must make proactive investments and undertake significant reforms now to ensure that things stay that way.

#### WTO weakening IPR would give China our cutting-edge, dual-use mRNA research

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David Lawder, Andrea Shalal, Carl O’Donnell, Reuters, U.S. wants COVID vaccine patent waiver to benefit world, not boost China biotech. May 8, 2021. <https://www.reuters.com/world/china/us-wants-covid-vaccine-patent-waiver-benefit-world-not-boost-china-biotech-2021-05-08/> -CAT

The Biden administration is examining ways to ensure that a waiver of COVID-19 vaccine patents to aid poor countries will not hand sensitive U.S. biopharmaceutical technology to China and Russia, responding to a chorus of concerns, U.S. and industry officials say. President Joe Biden on Wednesday backed the U.S. entering negotiations at the World Trade Organization for the waiver of intellectual property rights as a means to boost vaccine supplies by allowing poorer countries to make their own. So far, vaccines have gone overwhelmingly to richer nations, which scooped up contracts for them earlier this year. COVID-19 infection rates in wealthy countries have dropped as vaccination rates increased this year, but infections are still rising in 36 countries, with India’s daily cases skyrocketing to nearly 400,000 a day. Western pharmaceutical companies, many of which have received government support to develop vaccines, strongly oppose the transfer of intellectual property to make them. They say poorer countries will be slow to set up manufacturing capacity and compete for scarce supplies, hitting production. Albert Bourla, CEO of Pfizer Inc, said on Friday that the proposed waiver would disrupt progress made so far in boosting vaccine supplies. “It will unleash a scramble for the critical inputs we require in order to make a safe and effective vaccine. Entities with little or no experience in manufacturing vaccines are likely to chase the very raw materials we require to scale our production, putting the safety and security of all at risk.” Many companies and now some U.S. officials fear the move would allow China to leapfrog years of research and erode the U.S. advantage in biopharmaceuticals. A senior Biden administration official said that while the priority is saving lives, the United States "would want to examine the effect of a waiver on China and Russia before it went into effect to ensure that it's fit for purpose." A question and answer document produced by the administration and shared with industry representatives also acknowledges concerns that intellectual property sharing could damage the United States's competitive advantage over China, an industry source familiar with the discussions told Reuters. The contents of the document read to a Reuters reporter by an industry representative said the Biden administration believes it can address those concerns through the WTO negotiations, but did not specify how. The source added that some agencies in the Biden administration have conflicting views of how to address the concerns in negotiations that are expected to take months. Spokespersons at the White House and U.S. Trade Representative's office had no immediate comment on the matter. Pfizer and Moderna spokespersons did not respond to requests for comment on technology transfer concerns, while a Novavax spokesperson referred Reuters to the company's statement opposing the waiver on Friday, which said proposals to "weaken intellectual property protections would not achieve equitable vaccine access." Enforcing limits on use of the technology could be very difficult, once handed over, some analysts say. Messenger RNA, used in COVID-19 vaccines by leaders Pfizer/BioNTech and Moderna, is a newly developed biotechnology that holds promise for treatments far beyond vaccines. China and Russia have their own vaccines that do not use this biotechnology. "It took Pfizer and Moderna years and years of research to develop these vaccines," said Gary Locke a former U.S. ambassador to China and U.S. Commerce Secretary. "China, Russia, India, South Africa and others want to gain access. Their intention is to get the underlying know-how so they can use it to develop further vaccines," Locke said. China's Fosun Pharma has struck a deal with BioNTech on COVID-19 vaccine product development, which would potentially give it access to some of the technology. China has high ambitions for its pharma industry and already is developing its own mRNA vaccine. Patents themselves are publicly accessible, noted James Pooley, intellectual property attorney and former deputy director general of the United Nations' World Intellectual Property Organization. But trade secrets developed by Pfizer/BioNTech, Moderna and others, "cook books" of manufacturing processes such as temperature and growing conditions, have not been made public. That may ultimately be a dual problem for negotiators. Before they protect the knowledge, U.S. officials would have to ensure access to it. Those companies would need to be persuaded to come to the bargaining table to give up such trade secrets. “What happens when it turns out that the U.S. can’t actually deliver the information that is critically important to implementing the inventions?” Pooley asked. “This will be seen as another failure by the U.S. and other rich countries to keep their promises.”

#### China already has a terrifying biosurveillance infrastructure that could supply the raw data for novel bioweapons

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The certainty that China will play an increasingly important role in the global biotechnology sector poses several issues for U.S. policymakers. The gravest of these pertain to national security. Though there is presently no sign that China’s capabilities exceed those of the United States, some researchers have noted that biotechnology is a focus of increasing attention GLOBAL CHINA CHINA’S ROLE IN THE GLOBAL BIOTECHNOLOGY SECTOR AND IMPLICATIONS FOR U.S. POLICY TECHNOLOGY 5 by the People’s Liberation Army.42 U.S. policymakers and security analysts have also raised concerns that the dominant market position of Chinese firms in producing active pharmaceutical ingredients might allow Beijing to disrupt U.S. access to lifesaving drugs in the event of a conflict.43 On the other hand, the use of tools like CRISPR, which is increasingly inexpensive and easy to use, by terrorists and non-state actors to potentially create novel bioweapons poses severe security threats to both the United States and China. It would seem to be in the interest of all states, including China, to strengthen efforts, currently led mostly by the private sector, to prevent dangerous actors from gaining access to DNA templates and other relevant materials.44 Though these prospects are alarming, the theft and use of biomedical data presents more immediate policy concerns. American life sciences research institutions have been subject to what U.S. officials characterize as prolific intellectual property theft and non-traditional intelligence collection by Chinese actors.45 At home, Beijing has already incorporated biometric data on certain populations, such as the Uighur minority group, into its already-formidable social control and surveillance apparatus.46 Chinese actors also appear to have targeted foreign citizens for covert biomedical data collection.47 Last year, the U.S. government forced a Chinese firm to sell its majority stake in an American social network that aggregates health care data from users, primarily over worries this information could be used to persuade Americans with access to sensitive information to spy for China.48 Such added U.S. government scrutiny has contributed to a sharp decline in Chinese investment in the U.S. biotechnology sector. Though small overall, such investment had been growing rapidly, and in 2018 the biotechnology sector constituted the single largest source of Chinese investment in the U.S. overall, surpassing real estate.49 As this impact suggests, access to and control over biomedical data also has profound implications for the economic competitiveness of the U.S. biotechnology sector. Many frontier areas of biotechnology, including the use of artificial intelligence for biomedical applications, depend on access to large quantities of individual patient data. Chinese biotechnology firms are likely to have access to larger quantities of such data than their competitors elsewhere thanks to the size of China’s population and relatively weak rules governing data collection and sharing. An existing biomedical database of patients from China’s national health care system, for example, allegedly covers some 600 million patients.50 The Chinese government is moreover increasingly aggressive about preventing foreign firms and organizations from accessing such data. In 2016, biomedical data was proclaimed a “national strategic resource,”51 and the export of such data is strictly controlled. Rules specifically bar any foreign use of Chinese biomedical data that “may jeopardize national security, national interests, or public security,” and in 2018 these were used to shut down several high-profile scientific collaborations including one involving Peking University and the University of Oxford.52 It should be noted, however, that while data quantity is important, so is data quality, and a combination of poor and inconsistent record-keeping and limited population diversity may diminish the utility of biomedical data produced in China for key applications like therapeutics development.53 In any case, the availability of biomedical datasets will be a key determinant of the relative competitiveness of the U.S. and Chinese biotechnology industries going forward. A final, and more hopeful, policy implication of China’s growing role in biotechnology is its potential to help address shared global challenges like infectious disease prevention and biodiversity protection. In the near term, the COVID-19 crisis has highlighted the need for expanded international cooperation on epidemiological data collection and analysis, vaccine development, and other areas related to biotechnology. While China’s openness to such cooperation at the moment is unclear, there are likely to be future opportunities to engage China in COVID-19 tracing, vaccine development, and deployment initiatives in third countries, especially in the less-developed world. In the longer term, synthetic biology, especially the use of gene drives to rapidly spread genetic modifications throughout a population, offers great promise to eliminate insect-borne diseases like malaria, and could also help endangered species adapt to climate change effects. As the 21st century advances, advanced biotechnology will both demand new forms GLOBAL CHINA CHINA’S ROLE IN THE GLOBAL BIOTECHNOLOGY SECTOR AND IMPLICATIONS FOR U.S. POLICY TECHNOLOGY 6 of global governance and present new arenas for both competition and cooperation between researchers, business leaders, and policymakers.

#### State-created bioweapons uniquely risk extinction in the hands of bioterrorists.

Millett & Snyder-Beattie ‘17. Millett, Ph.D., Senior Research Fellow, Future of Humanity Institute, University of Oxford; and Snyder-Beattie, M.S., Director of Research, Future of Humanity Institute, University of Oxford. 08-01-2017. “Existential Risk and Cost-Effective Biosecurity,” Health Security, 15(4), PubMed -CAT

In the decades to come, advanced bioweapons could threaten human existence. Although the probability of human extinction from bioweapons may be low, the expected value of reducing the risk could still be large, since such risks jeopardize the existence of all future generations. We provide an overview of biotechnological extinction risk, make some rough initial estimates for how severe the risks might be, and compare the cost-effectiveness of reducing these extinction-level risks with existing biosecurity work. We find that reducing human extinction risk can be more cost-effective than reducing smaller-scale risks, even when using conservative estimates. This suggests that the risks are not low enough to ignore and that more ought to be done to prevent the worst-case scenarios. How worthwhile is it spending resources to study and mitigate the chance of human extinction from biological risks? The risks of such a catastrophe are presumably low, so a skeptic might argue that addressing such risks would be a waste of scarce resources. In this article, we investigate this position using a cost-effectiveness approach and ultimately conclude that the expected value of reducing these risks is large, especially since such risks jeopardize the existence of all futu­­r­e human lives. Historically, disease events have been responsible for the greatest death tolls on humanity. The 1918 flu was responsible for more than 50 million deaths,1 while smallpox killed perhaps 10 times that many in the 20th century alone.2 The Black Death was responsible for killing over 25% of the European population,3 while other pandemics, such as the plague of Justinian, are thought to have killed 25 million in the 6th century—constituting over 10% of the world's population at the time.4 It is an open question whether a future pandemic could result in outright human extinction or the irreversible collapse of civilization. A skeptic would have many good reasons to think that existential risk from disease is unlikely. Such a disease would need to spread worldwide to remote populations, overcome rare genetic resistances, and evade detection, cures, and countermeasures. Even evolution itself may work in humanity's favor: Virulence and transmission is often a trade-off, and so evolutionary pressures could push against maximally lethal wild-type pathogens.5,6 While these arguments point to a very small risk of human extinction, they do not rule the possibility out entirely. Although rare, there are recorded instances of species going extinct due to disease—primarily in amphibians, but also in 1 mammalian species of rat on Christmas Island.7,8 There are also historical examples of large human populations being almost entirely wiped out by disease, especially when multiple diseases were simultaneously introduced into a population without immunity. The most striking examples of total population collapse include native American tribes exposed to European diseases, such as the Massachusett (86% loss of population), Quiripi-Unquachog (95% loss of population), and the Western Abenaki (which suffered a staggering 98% loss of population).9 In the modern context, no single disease currently exists that combines the worst-case levels of transmissibility, lethality, resistance to countermeasures, and global reach. But many diseases are proof of principle that each worst-case attribute can be realized independently. For example, some diseases exhibit nearly a 100% case fatality ratio in the absence of treatment, such as **rabies** or **septicemic plague**. Other diseases have a track record of spreading to virtually every human community worldwide, such as **the 1918 flu**,10 and seroprevalence studies indicate that other pathogens, such as chickenpox and HSV-1, can successfully reach over 95% of a population.11,12 Under optimal virulence theory, natural evolution would be an unlikely source for pathogens with the highest possible levels of transmissibility, virulence, and global reach. But advances in biotechnology might allow the creation of diseases that combine such traits. Recent controversy has already emerged over a number of scientific experiments that resulted in viruses with enhanced transmissibility, lethality, and/or the ability to overcome therapeutics.13-17 Other experiments demonstrated that mousepox could be modified to have a 100% case fatality rate and render a vaccine ineffective.18 In addition to transmissibility and lethality, studies have shown that other disease traits, such as incubation time, environmental survival, and available vectors, could be modified as well.19-21 Although these experiments had scientific merit and were not conducted with malicious intent, their implications are still worrying. This is especially true given that there is also a long historical track record of state-run bioweapon research applying cutting-edge science and technology to design agents not previously seen in nature. The Soviet bioweapons program developed agents with traits such as enhanced virulence, resistance to therapies, greater environmental resilience, increased difficulty to diagnose or treat, and which caused unexpected disease presentations and outcomes.22 Delivery capabilities have also been subject to the cutting edge of technical development, with Canadian, US, and UK bioweapon efforts playing a critical role in developing the discipline of aerobiology.23,24 While there is no evidence of state-run bioweapons programs directly **attempting** to develop or deploy bioweapons that would pose an existential risk, the logic of deterrence and mutually assured destruction could create such incentives in more unstable political environments or following a breakdown of the Biological Weapons Convention.25 The possibility of a war between great powers could also increase the pressure to use such weapons—during the World Wars, bioweapons were used across multiple continents, with Germany targeting animals in WWI,26 and Japan using plague to cause an epidemic in China during WWII.27 Non-state actors may also pose a risk, especially those with explicitly omnicidal aims. While rare, there are examples. The Aum Shinrikyo cult in Japan sought biological weapons for the express purpose of causing extinction.28 Environmental groups, such as the Gaia Liberation Front, have argued that “we can ensure Gaia's survival only through the extinction of the Humans as a species … we now have the specific technology for doing the job … several different [genetically engineered] viruses could be released”(quoted in ref. 29). Groups such as R.I.S.E. also sought to protect nature by destroying most of humanity with bioweapons.30 Fortunately, to date, non-state actors have lacked the capabilities needed to pose a catastrophic bioweapons threat, but this could change in future decades as biotechnology becomes more accessible and the pool of experienced users grows.31,32 What is the appropriate response to these speculative extinction threats? A balanced biosecurity portfolio might include investments that reduce a mix of proven and speculative risks, but striking this balance is still difficult given the massive uncertainties around the low-probability, high-consequence risks. In this article, we examine the traditional spectrum of biosecurity risks (ie, biocrimes, bioterrorism, and biowarfare) to categorize biothreats by likelihood and impact, expanding the historical analysis to consider even lower-probability, higher-consequence events (catastrophic risks and existential risks). In order to produce reasoned estimates of the likelihood of different categories of biothreats, we bring together relevant data and theory and produce some first-guess estimates of the likelihood of different categories of biothreat, and we use these initial estimates to compare the cost-effectiveness of reducing existential risks with more traditional biosecurity measures. We emphasize that these models are highly uncertain, and their utility lies more in enabling order-of-magnitude comparisons rather than as a precise measure of the true risk. However, even with the most conservative models, we find that reduction of low-probability, high-consequence risks can be more cost-effective, as measured by quality-adjusted life year per dollar, especially when we account for the lives of future generations. This suggests that despite the low probability of such events, society still ought to invest more in preventing the most extreme possible biosecurity catastrophes.