## 1AC

### 1AC – Adv – Pandemics

#### COVID is getting worse and the upcoming ‘Twindemic’ disproves contrary models.

Roberts and Zimmerman 10/9 [Mark and Richard; 10/9/21; Mark S. Roberts is a distinguished professor of health policy and management at the University of Pittsburgh. Richard K. Zimmerman is a professor of family medicine at the University of Pittsburgh; “Opinion: Flu season could be worse this winter; paired with COVID, the U.S. risks a dangerous ‘twindemic’,” Market Watch, <https://www.marketwatch.com/story/flu-season-could-be-worse-this-winter-paired-with-covid-we-risk-a-dangerous-twindemic-11633708362>] Justin

No precedent exists for a ‘twindemic’ Given the limited spread of influenza in the general U.S. population last year, our research suggests that the U.S. could see a large epidemic of flu this season. Paired with the existing threat of the highly infectious delta variant, this could result in a dangerous combination of infectious diseases, or a “twindemic.” Models of COVID-19 and other infectious diseases have been at the forefront of predictions about the COVID-19 pandemic, and have often proved to be predictive of cases, hospitalizations and death. But there are no historical examples of this type of dual and simultaneous epidemics. As a result, traditional epidemiological and statistical methods are not well suited to project what may occur this season. Therefore, models that incorporate the mechanisms of how a virus spreads are better able to make predictions. We used two separate methods to forecast the potential impact from last year’s decrease in influenza cases on the current 2021-2022 flu season. In recent research of ours that has not yet been peer-reviewed, we applied a modeling system that simulates an actual population’s interactions at home and work, and in school and neighborhood settings. This model predicts that the U.S. could see a big spike in flu cases this season. In another preliminary study, we used a traditional infectious disease modeling tool that divides the population into people who are susceptible to infection, those infected, those recovered and those who have been hospitalized or have died. Based on our mathematical model, we predict that the U.S. could see as many as 102,000 additional hospitalizations above the hundreds of thousands that typically occur during flu season. Those numbers assume that there is no change from the usual flu vaccine uptake and effectiveness starting this fall and lasting through the flu season. Individual behaviors and vaccination matter A typical flu season usually produces 30 million to 40 million cases of symptomatic disease, between 400,000 and 800,000 hospitalizations and from 20,000 to 50,000 deaths. This prospect, paired with the ongoing battle against COVID-19, raises the possibility of a twindemic overwhelming the health care system as hospitals and ICUs in some parts of the country overflow with critically ill COVID-19 patients. Our research also highlighted how young children could be particularly at risk since they have lower exposure to previous seasons of influenza and thus haven’t yet developed broad immunity, compared with adults. In addition to the burden on children, childhood influenza is an important driver of influenza in the elderly as kids pass it on to grandparents and other elderly people. However, there is reason for optimism, since people’s behaviors can change these outcomes considerably. For instance, our simulation study incorporated people of all ages and found that increasing vaccination among children has the potential to cut infections in children by half. And we found that if only 25% more people than usual are vaccinated against influenza this year, that would be sufficient to reduce the infection rate to normal seasonal influenza levels. Across the U.S., there is a lot of variability in vaccination rates, adherence to social distancing recommendations and mask-wearing. So it is likely that the flu season will experience substantial variation state to state, just as we have seen with patterns of COVID-19 infection. All of this data suggests that although vaccination against influenza is important every year, it is of utmost importance this year to prevent a dramatic rise in influenza cases and to keep U.S. hospitals from becoming overwhelmed.

#### Only the plan can solve—every delay alters the trajectory of case numbers and causes uneven development.

Kelly 9/23 [Christine; 9/23/21; Infectious diseases doctor, clinical fellow in public health virology and founding member of Doctors for Vaccine Equity; “Government must support waiver of Covid vaccine patents,” The Irish Times, <https://www.irishtimes.com/opinion/government-must-support-waiver-of-covid-vaccine-patents-1.4682160>] Justin

The World Health Organisation (WHO) has set a global vaccination targets, starting with 10 per cent coverage by the end of September 2021. This is the level required to protect the most vulnerable people in populations – these groups that we worried about in Ireland at the start of the pandemic such as the elderly. In low-income countries alone, achieving even this first critical target requires the administration of about 52 million vaccine courses. In Ireland we have learned that delays can markedly alter the trajectory of virus case numbers and deaths. Those of us working in infection specialities have seen this before. Hesitancy in the rollout of HIV treatment to Africa in the early 2000s led to millions of extra infections and associated deaths, the legacy of which we are still dealing with today. History is repeating itself with Covid-19, where we now have an intervention that is extremely effective at preventing death but is not accessible in low-income countries. Healthcare workers – already a scarce resource in the Global South – are risking their own health going to work each day, in the knowledge that their colleagues in richer countries have long been afforded the protection of a vaccine. Leaving a large proportion of the world’s population unvaccinated, with ensuing viral replication and transmission, creates ideal circumstances for the generation of viral mutations. In a world which is increasingly interconnected economically, politically and socially, allowing transmissions and deaths to continue exacerbates the impact of the global pandemic for everyone. The opportunity to access vaccines has been unequal for countries in the Global South from the outset. Those wanting to buy vaccines were outcompeted by large Global North powers. Covax was set up with the aim of supporting equitable vaccine distribution, but donations from participating nations (who may have received vaccines from Covax themselves) have fallen markedly short of their pledges. Vaccine hoarding by wealthy nations is part of the problem; the British Medical Journal reported in August that just 10 countries could have an accumulated surplus of 3.8 billion doses of Covid-19 vaccines by the end of the year. Many countries have already begun to roll out booster doses to the general population, often with a perspective that neglects international priorities. Medical practitioners know that choosing not to act is a conscious decision. We call upon the Government to choose to act in this global health crisis. Current levels of donations will not provide the number of vaccines needed and will serve only to deepen a power imbalance between rich and poor countries built on paternalism and dependence; the foundations of colonialism. It is essential that booster programmes take into consideration the risk of diverting vaccines from global populations who have not already been vaccinated Strict international intellectual property rules are currently blocking vaccine production. The Trips waiver (trade-related aspects of intellectual property rights) is a temporary suspension of intellectual property designed for use in situations such as this, where global security is threatened and is already being backed by many countries including the United States. As highlighted in Nature in March: “Arguably the strongest argument for a temporary waiver is that patents were never designed for use during global emergencies such as wars or pandemics.”

#### Objections are wrong—expert models indicate a waiver would expand production within months.

Ravelo and Byatnal 10/7 [Jenny Lei and Amruta; 10/7/21; Jenny Lei Ravelo is a Devex Senior Reporter based in Manila. She covers global health, with a particular focus on the World Health Organization, and other development and humanitarian aid trends in Asia Pacific. Prior to Devex, she wrote for ABS-CBN, one of the largest broadcasting networks in the Philippines, and was a copy editor for various international scientific journals. She received her journalism degree from the University of Santo Tomas. Amruta Byatnal is an Associate Editor at Devex based in New Delhi. She reports on global health, gender and human rights. Previously, she worked for News Deeply and The Hindu. She is a graduate of Cornell University where she studied international development; “Devex CheckUp: Could an IP waiver have averted millions of deaths?,” Devex, <https://www.devex.com/news/devex-checkup-could-an-ip-waiver-have-averted-millions-of-deaths-101774>] Justin

A year has passed since India and South Africa submitted a proposal to the World Trade Organization to temporarily waive intellectual property protections for COVID-19 products. But despite the support of over 100 countries, including the United States, the proposal has yet to be adopted.

COVID-19 has caused 3.5 million deaths since the waiver was put forward at the WTO. We wondered: What might have happened if the proposal had been quickly approved?

• Some experts say additional investments — such as in the workforce — would still be needed in addition to IP. But others argue there are ways to address those. There are many potential manufacturing plants that can be retrofitted to produce COVID-19 vaccines, and there’s a retired corps of engineers globally that could provide expertise in the interim, Andrew Green reports.

• If facilities were in place, the production process for a messenger RNA vaccine could begin within three or four months, says Suhaib Siddiqi, former director of chemistry at Moderna. With a $127 million investment and some expansion, existing facilities for injectable medicines could be producing up to 100 million mRNA vaccine doses in a 10-month period, according to modeling by Médecins Sans Frontières and Imperial College London.

• These timelines are contingent on vaccine developers' willingness to share technology. But experts say there are ways to get companies to cooperate, such as tax breaks. Had steps been taken a year ago, “a lot of countries would be in a better spot,” Rachel Thrasher, a trade expert at Boston University’s Global Development Policy Center, tells Andrew.

• But persistent calls to increase local manufacturing of COVID-19 vaccines in Africa have started to bear fruit. Moderna says it will build an mRNA vaccine manufacturing plant in the continent.

#### Yes scale-up for COVID—hubs, quality control, collaboration.

Kavanagh 7/1 [Matthew, Lawrence, and Madhavi; 7/1/21; PhD, JD, JD, Georgetown University Law Center, Washington, DC, Department of International Health, Georgetown University, Washington, DC; “Sharing Technology and Vaccine Doses to Address Global Vaccine Inequity and End the COVID-19 Pandemic,” JAMA, <https://jamanetwork.com/journals/jama/article-abstract/2781756>] Justin

Sharing Technology and Expanding Manufacturing Capacity On June 21, South Africa, the World Health Organization (WHO), and the Africa Centers for Disease Control (CDC) announced an important new hub for producing mRNA vaccines for the African continent and asked the US and Europe to share the technology to make these vaccines. Waiving IP removes legal barriers, but sharing knowledge on how to make vaccines, including ingredients, methods, sourcing, and technologies, is a justice-oriented move that would help LMIC manufacturers move quickly. When Moderna needed added manufacturing capacity, it contracted Swiss company Lonza and transferred technology confidentially. Production started within a few months, showing that arguments suggesting local manufacturing will take too long are unfounded. But exclusive contract manufacturing agreements limit access. Sharing technology more openly could enable manufacturers in Africa, Asia, and Latin America to make vaccines for themselves. WHO created a platform for such technology transfer; however, US-based companies have thus far not shared vital information. The Biden administration has leverage to incentivize sharing, given extensive public funding. mRNA vaccines are a prime target for sharing because manufacturing advantages make them rapidly scalable.6 The Moderna mRNA vaccine was developed jointly with the National Institutes of Health, which also holds key patents. Operation Warp Speed allocated Moderna $2.5 billion, covering development and clinical trials. Public funding should come with ethical obligations to share knowledge for the global public good. If necessary, the Biden administration could use the Defense Production Act and government-owned patents to compel technology sharing or could pay companies to share technology. If technology is shared, Senegal’s Pasteur Institute has plans to make hundreds of millions of viral vector doses. Companies in South Africa, Vietnam, Brazil, India, and other countries could make mRNA vaccines with appropriate support for specialized processes involved. A Thai government-run manufacturer, which could be a model, is already working on mRNA vaccine production. A Chinese company will produce BioNTech’s vaccine, although only for Chinese markets. Far more is achievable. Quality control is critical, but arguments that LMIC producers cannot produce quality vaccines are misplaced. Many are global companies and government-run facilities with excellent records and strong oversight. WHO’s prequalification/emergency use process can help ensure quality. Sharing technologies openly could also allow scientists worldwide to collaborate on innovations; for example, on mRNA vaccine formulations stored at room temperature for lower-resource settings. The US, WHO, and partners could support hubs to teach manufacturers how to make approved vaccines and fund expanded production in Africa, Asia, and Latin America, learning from efforts after influenza A (H1N1) outbreaks. Imperial College researchers estimate a cost of $2.2 billion to retrofit factories to produce 8 billion doses of COVID-19 vaccine.7 Expanding production of components such as disposable bioreactor bags to speed sterile production will also be needed.

#### That escalates security threats—extinction.

---AT: Cooperation Thesis

RECNA et al. 21 [Research Center for Nuclear Weapon Abolition; Nagasaki, Japan; “Pandemic Futures and Nuclear Weapon Risks: The Nagasaki 75th Anniversary pandemic-nuclear nexus scenarios final report,” Journal for Peace and Nuclear Disarmament; 5/28/21; <https://www.tandfonline.com/doi/full/10.1080/25751654.2021.1890867>] Justin

The Challenge: Multiple Existential Threats The relationship between pandemics and war is as long as human history. Past pandemics have set the scene for wars by weakening societies, undermining resilience, and exacerbating civil and inter-state conflict. Other disease outbreaks have erupted during wars, in part due to the appalling public health and battlefield conditions resulting from war, in turn sowing the seeds for new conflicts. In the post-Cold War era, pandemics have spread with unprecedented speed due to increased mobility created by globalization, especially between urbanized areas. Although there are positive signs that scientific advances and rapid innovation can help us manage pandemics, it is likely that deadly infectious viruses will be a challenge for years to come. The COVID-19 is the most demonic pandemic threat in modern history. It has erupted at a juncture of other existential global threats, most importantly, accelerating climate change and resurgent nuclear threat-making. The most important issue, therefore, is how the coronavirus (and future pandemics) will increase or decrease the risks associated with these twin threats, climate change effects, and the next use of nuclear weapons in war.5 Today, the nine nuclear weapons arsenals not only can annihilate hundreds of cities, but also cause nuclear winter and mass starvation of a billion or more people, if not the entire human species. Concurrently, climate change is enveloping the planet with more frequent and intense storms, accelerating sea level rise, and advancing rapid ecological change, expressed in unprecedented forest fires across the world. Already stretched to a breaking point in many countries, the current pandemic may overcome resilience to the point of near or actual collapse of social, economic, and political order. In this extraordinary moment, it is timely to reflect on the existence and possible uses of weapons of mass destruction under pandemic conditions – most importantly, nuclear weapons, but also chemical and biological weapons. Moments of extreme crisis and vulnerability can prompt aggressive and counterintuitive actions that in turn may destabilize already precariously balanced threat systems, underpinned by conventional and nuclear weapons, as well as the threat of weaponized chemical and biological technologies. Consequently, the risk of the use of weapons of mass destruction (WMD), especially nuclear weapons, increases at such times, possibly sharply. The COVID-19 pandemic is clearly driving massive, rapid, and unpredictable changes that will redefine every aspect of the human condition, including WMD – just as the world wars of the first half of the 20th century led to a revolution in international affairs and entirely new ways of organizing societies, economies, and international relations, in part based on nuclear weapons and their threatened use. In a world reshaped by pandemics, nuclear weapons – as well as correlated non-nuclear WMD, nuclear alliances, “deterrence” doctrines, operational and declaratory policies, nuclear extended deterrence, organizational practices, and the **existential risks** posed by retaining these capabilities – are all up for redefinition. A pandemic has potential to destabilize a nuclear-prone conflict by incapacitating the supreme nuclear commander or commanders who have to issue nuclear strike orders, creating uncertainty as to who is in charge, how to handle nuclear mistakes (such as errors, accidents, technological failures, and entanglement with conventional operations gone awry), and opening a brief opportunity for a first strike at a time when the COVID-infected state may not be able to retaliate efficiently – or at all – due to leadership confusion. In some nuclear-laden conflicts, a state might use a pandemic as a cover for political or military provocations in the belief that the adversary is distracted and partly disabled by the pandemic, increasing the risk of war in a nuclear-prone conflict. At the same time, a pandemic may lead nuclear armed states to increase the isolation and sanctions against a nuclear adversary, making it even harder to stop the spread of the disease, in turn creating a pandemic reservoir and transmission risk back to the nuclear armed state or its allies. In principle, the common threat of the pandemic might induce nuclear-armed states to reduce the tension in a nuclear-prone conflict and thereby the risk of nuclear war. It may cause nuclear adversaries or their umbrella states to seek to resolve conflicts in a cooperative and collaborative manner by creating habits of communication, engagement, and mutual learning that come into play in the nuclear-military sphere. For example, militaries may cooperate to control pandemic transmission, including by working together against criminal-terrorist non-state actors that are trafficking people or by joining forces to ensure that a new pathogen is not developed as a bioweapon. To date, however, the COVID-19 pandemic has increased the isolation of some nuclear-armed states and provided a textbook case of the failure of states to cooperate to overcome the pandemic. Borders have slammed shut, trade shut down, and budgets blown out, creating enormous pressure to focus on immediate domestic priorities. Foreign policies have become markedly more nationalistic. Dependence on nuclear weapons may increase as states seek to buttress a global re-spatialization6 of all dimensions of human interaction at all levels to manage pandemics. The effect of nuclear threats on leaders may make it less likely – or even impossible – to achieve the kind of concert at a global level needed to respond to and administer an effective vaccine, making it harder and even impossible to revert to pre-pandemic international relations. The result is that some states may proliferate their own nuclear weapons, further reinforcing the spiral of conflicts contained by nuclear threat, with cascading effects on the risk of nuclear war.

#### Prefer our ev—your stats don’t evaluate long term consequences.

Ide 21 [Tobias; April 2021; School of Geography, The University of Melbourne, 221 Bouverie St, Carlton, VIC 3053, Australia Institute of International Relations, Brunswick University of Technology, Bienroder Weg 97, 38106 Brunswick, Germany; “COVID-19 and armed conflict,” Elsevier Public Health Emergency Collection, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7833329/>] Justin

4. Discussion and conclusion Besides its immediate health and economic effects, COVID-19 can also impact armed conflict risks, with these conflicts themselves being an important obstacle in dealing with the pandemic. This article provided an assessment of the impact of COVID-19 on armed conflict based on data from the first six months of 2020. Theoretically, the pandemic could affect conflict risks through increased grievances, possibilities to demonstrate solidarity, or modified opportunity structures for armed groups. Results show that in four of the nine countries under study, the number of armed conflict events declined after the onset of the COVID-19 crisis. These declines are mostly related to strategic decisions and less favourable opportunity structures for armed groups, such as logistical difficulties and attempts to increase popular support. They offer few prospects for health diplomacy and sustainable peacebuilding. In places like Afghanistan, where the Taliban restrained their military activities to gain local support, the initial decline might even set the stage for a later escalation of the armed conflict. Similar concerns exist regarding recruitment in Colombia and India. In five of the nine countries analysed, armed conflict prevalence increased in the face of the pandemic. This is further evidence that health diplomacy approaches demonstrating goodwill and reducing grievances have little impact during the pandemic (Polo, 2020). COVID-19 did not change the root causes or principal dynamics of the armed conflicts in any of these five countries, but it accelerated existing trends and provided strategic opportunities for armed groups to exploit. Two factors are particularly relevant here: The weakening of state institutions (providing incentives for rebels to intensify military pressure) and a lack of (international) public attention (allowing to extend military operations without backlashes). While short-term rises in armed conflict risks related to the pandemic are mostly driven by changed opportunity structures, grievances could play a more prominent role when longer time horizons are considered. The economic repercussions associated with the current global spike in infections could exceed the coping capacities of households that did relatively well during the first COVID-19 wave. In coincidence with ethnic or religious cleavages, this could raise discontent to a level at which armed conflicts erupt. However, grievances usually take time to translate into organised armed activities. Declining levels of democracy as states claim emergency powers to combat COVID-19 are also a risk factor. Countries with a medium level of democracy and highly repressive regimes are empirically much more likely to experience civil wars than consolidated democracies (Cederman & Vogt, 2017). Armed conflict can have tremendous negative effects on human security and health governance. It is therefore of crucial importance to monitor the impact of COVID-19 on armed conflict risks and to develop adequate policy responses, such as sanctioning armed groups trying to exploit the pandemic.

### 1AC – Plan

#### Plan text: The member nations of the World Trade Organization ought to reduce intellectual property protections for medicines during pandemics.

#### Enforcement through limited IP waivers solve – patent term extensions are normal means and solves innovation and scale-up.

Young and Potts-Szeliga 21 [Roberta; Counsel in Seyfarth’s Litigation department and Intellectual Property and Patent Litigation practice groups in Los Angeles; Jamaica Potts-Szeliga; Partner in Seyfarth’s Litigation department and Intellectual Property and Patent Litigation practice groups in Washington, DC. She also provides advice on FDA regulatory issues and is part of the firm’s Health Care, Life Sciences, and Pharmaceuticals team; “A Third Option: Limited IP Waiver Could Solve Our Pandemic Vaccine Problems,” IP Watch Dog; 7/21/21; <https://www.ipwatchdog.com/2021/07/21/third-option-limited-ip-waiver-solve-pandemic-vaccine-problems/id=135732/>] Justin

Limited Waiver Approach This article suggests a third option, between voluntary vaccine donation and the full IP waiver proposal, that may offer a way forward. The third proposed solution is incentivized limited IP waivers that could encourage (or require) private companies to engage in licensing agreements with nations to share some, but not all, of the knowledge and designs covering the COVID-19 vaccines to the developing world. The limited IP waivers could cover the minimum necessary portions of the technology to produce basic COVID-19 vaccines. The waivers could be limited in time to the duration of the pandemic, or another term agreed to by the WTO. The term could also be defined as ending when widespread vaccination and immunity goals are achieved. The incentive for pharmaceutical companies to support such limited IP waivers could be provided in the form of patent term extensions for the technology covered by the limited IP waivers. Extensions of patent term are already known and widely used. In the U.S., patent term adjustments are automatically added on to the patent lifespan to account for any delays by the USPTO in the patent prosecution process. In some cases, these mechanisms may extend the patent term for years. Patent term extensions also are available for regulatory delays (35 U.S.C. § 156). In particular, patents covering, inter alia, drug products approved by the United States Food & Drug Administration may be eligible for up to five years of additional patent term to give back time required to complete the regulatory review process. Both patent term adjustments and patent term extensions arise from activities beyond the control of the pharmaceutical companies. A pandemic patent term extension fashioned after such known extensions could be made used to compensate for the current pressing global health needs. This third proposal may be achievable at the WTO. Hurdles remain and it could be months or years before the WTO reaches an agreement on any waiver of IP protections, and years before countries build factories, gather materials, and gain the expertise to produce the vaccines. A steep hurdle is that mRNA is a new technology, with no machines or experts for hire. Nonetheless, the third solution offers hope to find a middle ground that may begin to be implemented before the end of the current pandemic and be in place for the future. The patent term extension could be provided for countries with patent offices and could be adapted based on laws and conditions in each country. Pandemic-related patent term extensions could be given for a period of time that the compulsory license is in force. With current pandemic projections of six months to two years for sufficient distribution, providing a patent term extension is reasonable and in line with the time period of many patent term extensions. Given that most pharmaceutical patents are prosecuted in multiple countries, this provides an incentive to participate in a limited waiver program. Let’s Not Repeat Past Mistakes It’s been a century since the last pandemic devastated the globe and the only certainty is that this will not be the last pandemic. Solutions created today lay a foundation for mitigation of the next pandemic. It’s been said that those who refuse to learn from history are doomed to repeat it, a thought too painful to contemplate with a pandemic. The industrial nations of the world have technology that others are literally dying to obtain—a high price to pay. Incentivized limited IP waivers may offer a compromise to bridge the gap between maintaining IP rights (and thus relying on charity alone) and arbitrary compulsory licensing that could deter the technological investment to create life-saving solutions in the future.

#### The plan is critical to boosting WTO legitimacy.

Navnit 21 [Brajendra; Ambassador and Permanent Representative of India to WTO; “Science has delivered, will the WTO deliver?” Helsinki Times; 1/18/21; <https://www.helsinkitimes.fi/columns/columns/viewpoint/18561-science-has-delivered-will-the-wto-deliver.html>] Justin

TRIPS waiver proposal from India, South Africa and other members A proposal by India, South Africa and eight other countries calls on the World Trade Organisation (WTO) to exempt member countries from enforcing some patents, and other Intellectual Property (IP) rights under the organization’s Agreement on Trade-Related Aspects of Intellectual Property Rights, known as TRIPS, for a limited period of time. It is to ensure that IPRs do not restrict the rapid scaling- up of manufacturing of COVID-19 vaccines and treatments. While a few members have raised concerns about the proposal, a large proportion of the WTO membership supports the proposal. It has also received the backing of various international organizations, multilateral agencies and global civil society. Unprecedented times call for unorthodox measures. We saw this in the efficacy of strict lockdowns for a limited period, as a policy intervention, in curtailing the spread of the pandemic.International Monetary Fund (IMF) in its October 2020 edition of World Economic Outlook states “…However, the risk of worse growth outcomes than projected remains sizable. If the virus resurges, progress on treatments and vaccines is slower than anticipated, or countries’ access to them remains unequal, economic activity could be lower than expected, with renewed social distancing and tighter lockdowns”. The situation appears to be grimmer than predicted, we have already lost 7% of economic output from the baseline scenario projected in 2019. It translates to a loss of more than USD 6 trillion of global GDP. Even a 1% improvement in global GDP from the baseline scenario will add more than USD 800 billion in global output, offsetting the loss certainly of a much lower order to a sector of economy on account of the Waiver. "While making the vaccines available was a test of science, making them accessible and affordable is going to be a test of humanity" Merely a signal to ensure timely and affordable access to vaccines and treatments will work as a big confidence booster for demand revival in the economy. With the emergence of successful vaccines, there appears to be some hope on the horizon. But how will these be made accessible and affordable to global population? The fundamental question is whether there will be enough of Covid-19 vaccines to go around. As things stand, even the most optimistic scenarios today cannot assure access to Covid-19 vaccines and therapeutics for the majority of the population, in rich as well as poor countries, by the end of 2021. All the members of the WTO have agreed on one account that there is an urgent need to scale-up the manufacturing capacity for vaccines and therapeutics to meet the massive global needs. The TRIPS Waiver Proposal seeks to fulfil this need by ensuring that IP barriers do not come in the way of such scaling up of manufacturing capacity. Why existing flexibilities under the TRIPS Agreement are not enough The existing flexibilities under the TRIPS Agreement are not adequate as these were not designed keeping pandemics in mind. Compulsory licenses are issued on a country by country, case by case and product by product basis, where every jurisdiction with an IP regime would have to issue separate compulsory licenses, practically making collaboration among countries extremely onerous. While we encourage the use of TRIPS flexibilities, the same are time-consuming and cumbersome to implement. Hence, only their use cannot ensure the timely access of affordable vaccines and treatments. Similarly, we have not seen a very encouraging progress on WHO’s Covid19-Technology Access Pool or the C-TAP initiative, which encourages voluntary contribution of IP, technology and data to support the global sharing and scale-up of the manufacturing of COVID- 19 medical products. Voluntary Licenses, even where they exist, are shrouded in secrecy. Their terms and conditions are not transparent. Their scope is limited to specific amounts or for a limited subset of countries, thereby encouraging nationalism rather than true international collaboration. Why is there a need to go beyond existing global cooperation initiatives? Global cooperation initiatives such as the COVAX Mechanism and the ACT-Accelerator are inadequate to meet the massive global needs of 7.8 billion people. The ACT-A initiative aims to procure 2 billion doses of vaccines by the end of next year and distribute them fairly around the world. With a two-dose regime, however, this will only cover 1 billion people. That means that even if ACT-A is fully financed and successful, which is not the case presently, there would not be enough vaccines for the majority of the global population. Past experience During the initial few months of the current pandemic, we have seen that shelves were emptied by those who had access to masks, PPEs, sanitizers, gloves and other essential Covid-19 items even without their immediate need. The same should not happen to vaccines. Eventually, the world was able to ramp up manufacturing of Covid-19 essentials as there were no IP barriers hindering that. At present, we need the same pooling of IP rights and know-how for scaling up the manufacturing of vaccines and treatments, which unfortunately has not been forthcoming, necessitating the need for the Waiver. It is the pandemic – an extraordinary, once in a lifetime event – that has mobilized the collaboration of multiple stakeholders. It is knowledge and skills held by scientists, researchers, public health experts and universities that have enabled the cross-country collaborations and enormous public funding that has facilitated the development of vaccines in record time – and not alone IP! Way forward The TRIPS waiver proposal is a targeted and proportionate response to the exceptional public health emergency that the world faces today. Such a Waiver is well-within the provisions of Article IX of the Marrakesh Agreement which established the WTO. It can help in ensuring that human lives are not lost for want of a timely and affordable access to vaccines. The adoption of the Waiver will also re-establish WTO’s credibility and show that multilateral trading system continues to be relevant and can deliver in times of a crisis. Now is the time for WTO members to act and adopt the Waiver to save lives and help in getting the economy back on the revival path quickly. While making the vaccines available was a test of science, making them accessible and affordable is going to be a test of humanity. History should remember us for the “AAA rating” i.e. for Availability, Accessibility and Affordability of Covid19 vaccines and treatments and not for a single “A rating” for Availability only. Our future generations deserve nothing less.

#### WTO cred solves wars that go nuclear.

Hamann 09 [Georgia; 2009; J.D. Candidate, Vanderbilt University Law School; “Replacing Slingshots with Swords: Implications of the Antigua-Gambling 22.6 Panel Report for Developing Countries and the World Trading System,” VANDERBILT JOURNAL OF TRANSNATIONAL LAW, http://www.jogoremoto.pt/docs/extra/duqJ53.pdf] Justin

Both Antigua and the U.S. claimed the resolution of the arbitration as a victory.99 In reality, the decision reached a midpoint between the respective countries’ positions, establishing a victory for the evolution of the international trading system itself. Voluntary compliance with WTO rules and procedures is of the utmost importance to the international trading system.100 Given the increasingly globalized market, the coming years will see an increase in the importance of the WTO as a cohesive force and arbiter of disputes that likely will become more frequent and injurious.101 The work of the WTO cannot be overstated in a nuclear-armed world, as the body continues to promote respect and even amity among nations with opposing philosophical goals or modes of governance.102 Demagogues in the Unites States may decry the rise of China as a geopolitical threat,103 and extremists in Russia may play dangerous games of brinksmanship with other great powers, but trade keeps politicians’ fingers off “the button.”104 The WTO offers an astounding rate of compliance for an organization with no standing army and no real power to enforce its decisions, suggesting that governments recognize the value of maintaining the international construct of the WTO.105 In order to promote voluntary compliance, the WTO must maintain a high level of credibility.106 Nations must perceive the WTO as the most reasonable option for dispute resolution or fear that the WTO wields enough influence to enforce sanctions.107 The arbitrators charged with performing the substantive work of the WTO by negotiating, compromising, and issuing judgments are keenly aware of the responsibility they have to uphold the organization’s credibility.108

#### The impact turn proves the need for more, not less WTO---it has increased quality of life broadly and key to food security.

Martin and Debucquet 18 [Will Martin, David Laborde Debucquet; 5/15/18; Will Martin is a senior research fellow at the International Food Policy Research Institute and current president of the International Association of Agricultural Economists, David Laborde Debucquet is a senior research fellow at International Food Policy Research Institute, where he is theme leader on macroeconomics and trade; “Opinion: Open trade is crucial for food security and development,” Devex, <https://www.devex.com/news/opinion-open-trade-is-crucial-for-food-security-and-development-92709>] Justin

What began as heated rhetoric over trade between the United States and China has evolved into a potential trade war, with both countries proposing tit-for-tat trade barriers. Our analysis shows that such policies will not only harm the two feuding nations but also have fallout among other countries in the global marketplace.

The conflict captures the central issue outlined in chapter three of the International Food Policy Research Institute’s Global Food Policy Report: Growing anti-globalization sentiments and moves toward protectionism threaten to undermine the substantial benefits of global trade — particularly for food systems and nutrition — while doing nothing to address the problems associated with it.

International trade has proven to be a critical mechanism for growth and development — helping to build stronger value chains, mitigating conflict, and providing access to higher quality and quantities of goods and services. In recent decades, it has played a role in rapidly falling levels of undernourishment, better nutrition, and dietary diversity, and contributed to improving economic fortunes in developing countries.

Over the past 40 years, the share of food calories crossing international borders worldwide rose from about 12 percent to more than 19 percent. During this period, developing countries played an increasing role in food trade as both exporters and importers. Ghana, for example, has increased the diversity of imported food products by 58 percent in the past 15 years.

How did these changes come about and what do they mean? The current open and inclusive international trade environment, fostered by the successful World Trade Organization Uruguay Round concluded in 1995, has contributed to improved global food security by addressing four key requirements: Availability, access, utilization, and stability of supply. In addition, trade in inputs, commodities, and ideas boost agricultural productivity and increase sustainability by facilitating the diffusion of technology and spurring innovation.

As populations have grown, food trade has helped meet increasing demand by relieving pressures on limited local natural resources: Countries with scarce arable land can obtain more diverse foods at lower prices, while farmers in countries with abundant land benefit by growing food for export, often seeing higher prices than in domestic markets. This not only improves food security but also facilitates year-long consumption of healthy seasonal products such as fruits and vegetables, as well as nontraditional food items, helping to diversify diets.

These achievements come at a cost, however. Open trade is often blamed as a source of many social problems, including rising inequality, environmental degradation, and the spread of unhealthy diets.

Current global trade systems remain distorted by unfair and inefficient policies in many countries, creating both winners and losers. Opportunities created by trade sometimes contribute to biodiversity loss and land degradation. Global trade and investment play a role in the rising consumption of unhealthy processed calorie-dense foods, and to related increases in health problems such as diabetes and heart disease.

Restricting trade in response, however, would primarily raise prices for consumers and limit market access for producers in the developing world, increasing pressures on food security.

Trade restrictions are indirect and frequently ineffective approaches to dealing with externality problems, such as land degradation and biodiversity loss. Instead of levying tariffs, political leaders and other decision makers must focus on implementing policies that target the root causes of the world’s social and environmental predicaments.

Tax and revenue transfer programs are a promising approach for tackling inequalities associated with free trade and open markets. WTO and other collaborative bodies are key players in mediating trade-related disputes and promoting better policy coordination.

Public goods such as education and research can also go a long way in addressing challenges related to diet and nutrition. They can empower consumers to make more informed dietary choices. Similarly, robust public-private conservation efforts can help preserve the environment and natural resources, as well as strengthening governance and policies on land management and biodiversity.

The world currently faces many serious challenges such as climate change and growing urban populations. Navigating this difficult landscape requires strong global institutions and governance based on cooperation.

China and the U.S. should take these lessons to heart. Rather than ramping up punitive trade restrictions, the two countries should be looking to reach an accommodation — and more broadly — to strengthen the rules and institutions that promote fair and open trade to their mutual benefit, and that of the other nations they trade with.

This approach will allow developing countries to share in the continued creation of wealth and reduction in poverty and malnutrition — and the world to make steady progress reaching a food-secure and sustainable future for all.

#### It’s a threat multiplier that causes extinction.

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Extinction and Ecological Collapse More than half of the large animals that once inhabited the Earth have been wiped from it by human action since 1970, according to the Worldwide Fund for Nature’s Living Planet Index.3 So, too, have half the fish in the sea on which humans rely for food.4 Humans are, in the words of the great biologist E. O. Wilson, ‘tearing down the biosphere’, demolishing the very home that keeps us alive.5 Extinction, it should be noted, is a part of life: 99.9 per cent of all species ever to evolve on this planet have disappeared, and new ones like ourselves have arisen to replace them. But extinction rates like today’s – a hundred to a thousand times faster than normal – are a freak occurrence that usually takes tens of millions of years, not mere decades. Animal, plant and marine species are presently vanishing so fast that scientists have dubbed our time “the Sixth Extinction” – the sixth such megadeath in the geological history of the Earth.6 By the end of the present century, Wilson says, it is possible that up to half of the eight million species thought to exist here will be gone. Furthermore, in all previous extinctions, natural events like asteroid strikes and vast volcanic outbursts have been to blame. This will be the only time in the Earth’s history when the wipe-out was caused by a single species. Us.7 [Ommited 178-180] Oxfam, illustrates how just one tenth of humanity consumes five times as much in the way of material resources (expressed here in the form of their carbon footprint) as the poorest half of the world population. The affluent are chiefly responsible for the destruction taking place on a global scale as they seek to sustain lifestyles that the planet can no longer afford or support. The significance of this blind spot around consumption for global food security is very great. As described in earlier chapters, the world food system depends critically on soil, water, nutrients and a stable climate, to supply humanity’s daily need for nutriment – and all of these essential resources are in increasingly short supply, chiefly because of our own mismanagement of them and our collective failure to appreciate that they are finite. On current trends, the existing food system will tend to break down, first regionally and then globally, owing to resource scarcity from the 2020s onward, and especially towards the mid century – unless there is radical change in the world diet and the means by which we feed ourselves. This will lead to increasing outbreaks of violence and war. Nobody, neither rich nor poor, will escape the consequences. It remains an open question whether panicking regimes in Russia, the USA or even France would be ruthless enough to deploy atomic weapons in an attempt to quell invasion by tens of millions of desperate refugees, fleeing famine and climate chaos in their own homelands – but the possibility ought not to be ignored. That nuclear war is at least a possible outcome of food and climate crises was first flagged in the report The Age of Consequences by Kurt Campbell and the US-based Centre for Strategic and International Studies, which stated ‘it is clear that even nuclear war cannot be excluded as a political consequence of global warming’. 15 Food insecurity is therefore a driver in the preconditions for the use of nuclear weapons, whether limited or unlimited. A global famine is a likely outcome of limited use of nuclear weapons by any country or countries – and would be unavoidable in the event of an unlimited nuclear war between America and Russia, making it unwinnable for either. And that, as the mute hands of the ‘Doomsday Clock’ so eloquently admonish, is also the most likely scenario for the premature termination of the human species. Such a grim scenario can be alleviated by two measures: the voluntary banning by the whole of humanity of nuclear weapons, their technology, materials and stocks – and by a global effort to secure food against future insecurity by diverting the funds now wasted on nuclear armaments into building the sustainable food and water systems of the future (see Chapters 8 and 9). Food Security Our demand for food is set to double by the 2060s – potentially the decade of ‘peak people’, the moment in history when the irresistible human population surge may top out at around 10 billion. However, as we have seen, many of the resources needed to supply it agriculturally could halve and the climate for the growing of food outdoors become far more hostile. Why food insecurity is an existential threat to humanity should, by now, be abundantly clear from the earlier chapters of this book: present systems are unsustainable and, as they fail, will pose risks both to civilization and, should these spiral into nuclear conflict, to the future of the human species. The important thing to note in this chapter is that food insecurity plays into many, if not all, of the other existential threats facing humanity. The food sector’s role in extinction, resource scarcity, global toxicity and potential nuclear war has already been explained. Its role in the suppression of conflict is discussed in the next chapter. Its role in securing the future of the megacities, and of a largely urbanised humanity, is covered in Chapter 8. And its role in sustaining humanity through the peak in population and into a sustainable world beyond is covered in Chapter 9. Food clearly has a pivotal role in the future of human population – both as a driver of population growth when supplies are abundant and as a potential driver of population decline, should food chains collapse. It is no exaggeration to state that the fate of civilisation depends on it. Food insecurity affects the progression of pandemic diseases, often in ways that are not entirely obvious. First, new pandemics of infectious disease tend to originate in developing regions where nutritional levels are poor or agricultural practices favour the evolution of novel pathogens such as, for example, the new flu strains seen every year – which arise mainly from places where people, pigs and poultry live side-by-side and shuffle viruses between them – and also novel diseases like SARS and MERS. Second, because totally unknown diseases tend to arise first in places where rainforests are being cut down for farming and viruses hitherto confined to wild animals and birds make an enforced transition into humans. Examples of novel human diseases escaping from the rainforest and tropical savannah in recent times include HIV/AIDS, Hendra, Nipah, Ebola, Marburg, Lassa and Hanta, Lujo, Junin, Machupo, Rift Valley, Congo and Zika.29 And thirdly, because the loss of vital micronutrients from heavily farmed soils and from food itself predisposes many populations to various deficiency diseases – for example, a lack of selenium in the diet has been linked with increased risk from both HIV/AIDS and bowel cancer.30 A key synergy is the way **hunger** and **malnourishment** **exacerbate** the **spread** **of** **disease**, classic examples being the 1918 Global Flu Pandemic which spread rapidly among war-starved populations, or the more recent cholera outbreak in war-torn Yemen. In a fresh twist, Dr Melinda Beck of North Carolina University has demonstrated that obesity – itself a form of malnutrition – may cause increased deaths from influenza by both aiding the virus and suppressing the patient’s immune response.31

### 1AC – FW

#### The standard is maximizing expected well-being—to clarify, saving lives. Calc indicts don’t link—pandemics are bad because as far as we know, it would cause death.

Paterson 1 – Department of Philosophy, Providence College, Rhode Island. (Craig, “A Life Not Worth Living?”, Studies in Christian Ethics, <http://sce.sagepub.com>)

Contrary to those accounts, I would argue that it is death per se that is really the objective evil for us, not because it deprives us of a prospective future of overall good judged better than the alter- native of non-being. It cannot be about harm to a former person who has ceased to exist, for no person actually suffers from the sub-sequent non-participation. Rather, death in itself is an evil to us because it ontologically destroys the current existent subject — it is the ultimate in metaphysical lightening strikes.80 The evil of death is truly an ontological evil borne by the person who already exists, independently of calculations about better or worse possible lives. Such an evil need not be consciously experienced in order to be an evil for the kind of being a human person is. Death is an evil because of the change in kind it brings about, a change that is destructive of the type of entity that we essentially are. Anything, whether caused naturally or caused by human intervention (intentional or unintentional) that drastically interferes in the process of maintaining the person in existence is an objective evil for the person. What is crucially at stake here, and is dialectically supportive of the self-evidency of the basic good of human life, is that death is a radical interference with the current life process of the kind of being that we are. In consequence, death itself can be credibly thought of as a ‘primitive evil’ for all persons, regardless of the extent to which they are currently or prospectively capable of participating in a full array of the goods of life.81  In conclusion, concerning willed human actions, it is justifiable to state that any intentional rejection of human life itself cannot therefore be warranted since it is an expression of an ultimate disvalue for the subject, namely, the destruction of the present person; a radical ontological good that we cannot begin to weigh objectively against the travails of life in a rational manner. To deal with the sources of disvalue (pain, suffering, etc.) we should not seek to irrationally destroy the person, the very source and condition of all human possibility.82

#### Prefer additionally:

#### 1] 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.

#### Impact calc –

#### 1] Extinction outweighs:

#### A] Structural violence- death causes suffering because people can’t get access to resources and basic necessities

#### B] Objectivity- body count is the most objective way to calculate impacts because comparing suffering is unethical

#### C] Mathematically outweighs.

MacAskill 14 [William, Oxford Philosopher and youngest tenured philosopher in the world, Normative Uncertainty, 2014]

The human race might go extinct from a number of causes: asteroids, supervolcanoes, runaway climate change, pandemics, nuclear war, and the development and use of dangerous new technologies such as synthetic biology, all pose risks (even if very small) to the continued survival of the human race.184 And different moral views give opposing answers to question of whether this would be a good or a bad thing. It might seem obvious that human extinction would be a very bad thing, both because of the loss of potential future lives, and because of the loss of the scientific and artistic progress that we would make in the future. But the issue is at least unclear. The continuation of the human race would be a mixed bag: inevitably, it would involve both upsides and downsides. And if one regards it as much more important to avoid bad things happening than to promote good things happening then one could plausibly regard human extinction as a good thing.For example, one might regard the prevention of bads as being in general more important that the promotion of goods, as defended historically by G. E. Moore,185 and more recently by Thomas Hurka.186 One could weight the prevention of suffering as being much more important that the promotion of happiness. Or one could weight the prevention of objective bads, such as war and genocide, as being much more important than the promotion of objective goods, such as scientific and artistic progress. If the human race continues its future will inevitably involve suffering as well as happiness, and objective bads as well as objective goods. So, if one weights the bads sufficiently heavily against the goods, or if one is sufficiently pessimistic about humanity’s ability to achieve good outcomes, then one will regard human extinction as a good thing.187 However, even if we believe in a moral view according to which human extinction would be a good thing, we still have strong reason to prevent near-term human extinction. To see this, we must note three points. First, we should note that the extinction of the human race is an extremely high stakes moral issue. Humanity could be around for a very long time: if humans survive as long as the median mammal species, we will last another two million years. On this estimate, the number of humans in existence in the The future, given that we don’t go extinct any time soon, would be 2×10^14. So if it is good to bring new people into existence, then it’s very good to prevent human extinction. Second, human extinction is by its nature an irreversible scenario. If we continue to exist, then we always have the option of letting ourselves go extinct in the future (or, perhaps more realistically, of considerably reducing population size). But if we go extinct, then we can’t magically bring ourselves back into existence at a later date. Third, we should expect ourselves to progress, morally, over the next few centuries, as we have progressed in the past. So we should expect that in a few centuries’ time we will have better evidence about how to evaluate human extinction than we currently have. Given these three factors, it would be better to prevent the near-term extinction of the human race, even if we thought that the extinction of the human race would actually be a very good thing. To make this concrete, I’ll give the following simple but illustrative model. Suppose that we have 0.8 credence that it is a bad thing to produce new people, and 0.2 certain that it’s a good thing to produce new people; and the degree to which it is good to produce new people, if it is good, is the same as the degree to which it is bad to produce new people, if it is bad. That is, I’m supposing, for simplicity, that we know that one new life has one unit of value; we just don’t know whether that unit is positive or negative. And let’s use our estimate of 2×10^14 people who would exist in the future, if we avoid near-term human extinction. Given our stipulated credences, the expected benefit of letting the human race go extinct now would be (.8-.2)×(2×10^14) = 1.2×(10^14). Suppose that, if we let the human race continue and did research for 300 years, we would know for certain whether or not additional people are of positive or negative value. If so, then with the credences above we should think it 80% likely that we will find out that it is a bad thing to produce new people, and 20% likely that we will find out that it’s a good thing to produce new people. So there’s an 80% chance of a loss of 3×(10^10) (because of the delay of letting the human race go extinct), the expected value of which is 2.4×(10^10). But there’s also a 20% chance of a gain of 2×(10^14), the expected value of which is 4×(10^13). That is, in expected value terms, the cost of waiting for a few hundred years is vanishingly small compared with the benefit of keeping one’s options open while one gains new information.

#### D] Comes before value-to-life.

Tännsjö 11 (Torbjörn, the Kristian Claëson Professor of Practical Philosophy at Stockholm University, “Shalt Thou Sometimes Murder? On the Ethics of Killing,” <http://people.su.se/~jolso/HS-texter/shaltthou.pdf>) //BS 1-27-2018

\*\*Bracketed to avoid triggers

I suppose it is correct to say that, if Schopenhauer is right, if life is never worth living, then according to utilitarianism we should all [die] commit suicide and put an end to humanity. But this does not mean that, each of us should commit suicide. I commented on this in chapter two when I presented the idea that utilitarianism should be applied, not only to individual actions, but to collective actions as well.¶ It is a well-known fact that people rarely commit suicide. Some even claim that no one who is mentally sound commits suicide. Could that be taken as evidence for the claim that people live lives worth living? That would be rash. Many people are not utilitarians. They may avoid suicide because they believe that it is morally wrong to kill oneself. It is also a possibility that, even if people lead lives not worth living, they believe they do. And even if some may believe that their lives, up to now, have not been worth living, their future lives will be better. They may be mistaken about this. They may hold false expectations about the future.¶ From the point of view of evolutionary biology, it is natural to assume that people should rarely commit suicide. If we set old age to one side, it has poor survival value (of one’s genes) to kill oneself. So it should be expected that it is difficult for ordinary people to kill themselves. But then theories about cognitive dissonance, known from psychology, should warn us that we may come to believe that we live better lives than we do.¶ My strong belief is that most of us live lives worth living. However, I do believe that our lives are close to the point where they stop being worth living. But then it is at least not very far-fetched to think that they may be worth not living, after all. My assessment may be too optimistic.¶ Let us just for the sake of the argument assume that our lives are not worth living, and let us accept that, if this is so, we should all kill ourselves. As I noted above, this does not answer the question what we should do, each one of us. My conjecture is that we should not [die] commit suicide. The explanation is simple. If I [die] kill myself, many people will suffer. Here is a rough explanation of how this will happen: ¶ ... suicide “survivors” confront a complex array of feelings. Various forms of guilt are quite common, such as that arising from (a) the belief that one contributed to the suicidal person's anguish, or (b) the failure to recognize that anguish, or (c) the inability to prevent the suicidal act itself. Suicide also leads to rage, loneliness, and awareness of vulnerability in those left behind. Indeed, the sense that suicide is an essentially selfish act dominates many popular perceptions of suicide. ¶ The fact that all our lives lack meaning, if they do, does not mean that others will follow my example. They will go on with their lives and their false expectations — at least for a while devastated because of my suicide. But then I have an obligation, for their sake, to go on with my life. It is highly likely that, by committing suicide, I create more suffering (in their lives) than I avoid (in my life).

### 1AC – Underview

#### 1AR theory is legit – anything else means infinite abuse – drop the debater, competing interps, and the highest layer – 1AR are too short to make up for the time trade-off – no RVIs – 6 min 2NR means they can brute force me every time.

#### Cap is sustainable.

McAfee 19, Andrew. More from Less: The Surprising Story of How We Learned to Prosper Using Fewer Resources—and What Happens Next. Scribner, 2019. Props to DML for this card. (cofounder and codirector of the MIT Initiative on the Digital Economy at the MIT Sloan School of Management, former professor at Harvard Business School)//Elmer

The decreases in resource use, pollution, and other exploitations of the earth cataloged in the preceding chapters are great news. But are they going to last? It could be that we're just living in a pleasant interlude between the Industrial Era and another rapacious period during which we massively increase our footprint on our planet and eventually cause a giant Malthusian crash. It could be, but I don't think so. Instead, I think we're going to take better care of our planet from now on. I'm confident that the Second Machine Age will mark the time in our history when we started to progressively and permanently tread more lightly on the earth, taking less from it and generally caring for it better, even as we humans continue to become more numerous and prosperous. The work of Paul Romer, who shared the 2018 Nobel Prize in economics, is one of the sources of this confidence. Growth Mindset Romer's largest contribution to economics was to show that it's best not to think of new technologies as something that companies buy and bring in from the outside, but instead as something they create themselves (the title of his most famous paper, published in 1990, is "Endogenous Technological Change"). These technologies are like designs or recipes; as Romer put it, they’re "the instructions that we follow for combining raw materials." This is close to the definitions of technology presented in chapter 7. Why do companies invent and improve technologies? Simply, to generate profits. They come up with instructions, recipes, and blueprints that will let them grow revenues or shrink costs. As we saw repeatedly in chapter 7, capitalism provides ample incentive for this kind of tech progress. So far, all this seems like a pretty standard argument for how the first two horsemen work together. Romer's brilliance was to highlight the importance of two key attributes of the technological ideas companies come up with as they pursue profits. The first is that they're nonrival, meaning that they can be used by more than one person or company at a time, and that they don't get used up. This is obviously not the case for most resources made out of atoms—I can't also use the pound of steel that you've just incorporated into the engine of a car—but it is the case for ideas and instructions. The Pythagorean theorem, a design for a steam engine, and a recipe for delicious chocolate chip cookies aren't ever going to get "used up" no matter how much they're used. The second important aspect of corporate technologies is that they're partially excludable. This means that companies can kind of prevent others from using them. They do this by keeping the technologies secret (such as the exact recipe for Coca-Cola), filing for patents and other intellectual-property protection, and so on. However, none of these measures is perfect (hence the words partially and kind of). Trade secrets leak. Patents expire, and even before they expire, they must describe the invention they're claiming and so let others study it. Partial excludability is a beautiful thing. It provides strong incentives for companies to create useful, profit-enhancing new technologies that they alone can benefit from for a time, yet it also ensures that the new techs will eventually "spill over"—that with time they’ll diffuse and get adopted by more and more companies, even if that's not what their originators want. Romer equated tech progress to the production by companies of nonrivalrous, partially excludable ideas and showed that these ideas cause an economy to grow. What's more, he also demonstrated that this idea-fueled growth doesn't have to slow down with time. It's not constrained by the size of the labor force, the amount of natural resources, or other such factors. Instead, economic growth is limited only by the idea-generating capacity of the people within a market. Romer called this capacity "human capital" and said at the end of his 1990 paper, "The most interesting positive implication of the model is that an economy with a larger total stock of human capital will experience faster growth." This notion, which has come to be called "increasing returns to scale," is as powerful as it is counterintuitive. Most formal models of economic growth, as well as the informal mental ones most of us walk around with, feature decreasing returns—growth slows down as the overall economy gets bigger. This makes intuitive sense; it just feels like it would be easier to experience 5 percent growth in a $1 billion economy than a $1 trillion one. But Romer showed that as long as that economy continued to add to its human capital—the overall ability of its people to come up with new technologies and put them to use—it could actually grow faster even as it grew bigger. This is because the stock of useful, nonrivalrous, nonexcludable ideas would keep growing. As Romer convincingly showed, economies run and grow on ideas. The Machinery of Prosperity Romer's ideas should leave us optimistic about the planetary benefits of digital tools—hardware, software, and networks—for three main reasons. First, countless examples show us how good these tools are at fulfilling the central role of technology, which is to provide "instructions that we follow for combining raw materials." Since raw materials cost money, profit-maximizing companies are particularly keen to find ways to use fewer of them. So they use digital tools to come up with beer cans that use less aluminum, car engines that use less steel and less gas, mapping software that removes the need for paper atlases, and so on and so on. None of this is done solely for the good of the earth—it's done for the pursuit of profit that's at the heart of capitalism—yet it benefits the planet by, as we've seen, causing us to take less from it. Digital tools are technologies for creating technologies, the most prolific and versatile ones we've ever come up with. They're machines for coming up with ideas. Lots of them. The same piece of computer-aided design software can be used to create a thinner aluminum can or a lighter and more fuel-efficient engine. A drone can be used to scan farmland to see if more irrigation is needed, or to substitute for a helicopter when filming a movie. A smartphone can be used to read the news, listen to music, and pay for things, all without consuming a single extra molecule. In the Second Machine Age, the global stock of digital tools is increasing much more quickly than ever before. It's being used in countless ways by profit-hungry companies to combine raw materials in ways that use fewer of them. In advanced economies such as America's, the cumulative impact of this combination of capitalism and tech progress is clear: absolute dematerialization of the economy and society, and thus a smaller footprint on our planet. The second way Romer's ideas about technology and growth are showing up at present is via decreased excludability. Pervasive digital tools are making it much easier for good designs and recipes to spread around the world. While this is often not what a company wants—it wants to exclude others from its great cost-saving idea— excludability is not as easy as it used to be. This isn't because of weaker patent protection, but instead because of stronger digital tools. Once one company shows what's possible, others use hardware, software, and networks to catch up to the leader. Even if they can't copy exactly because of intellectual-property restrictions, they can use digital tools to explore other means to the same end. So, many farmers learn to get higher yields while using less water and fertilizer, even though they combine these raw materials in different ways. Steve Jobs would certainly have preferred for Apple to be the only provider of smartphones after it developed the iPhone, but he couldn't maintain the monopoly no matter how many patents and lawsuits he filed. Other companies found ways to combine processors, memory, sensors, a touch screen, and software into phones that satisfied billions of customers around the world. The operating system that powers most non-Apple smartphones is Android, which is both free to use and freely modifiable. Google's parent company, Alphabet, developed and released Android without even trying to make it excludable; the explicit goal was to make it as widely imitable as possible. This is an example of the broad trend across digital industries of giving away valuable technologies for free. The Linux operating system, of which Android is a descendant, is probably the best-known example of free and open-source software, but there are many others. The online software repository GitHub maintains that it's "the largest open source community in the world" and hosts millions of projects. The Arduino community does something similar for electronic hardware, and the Instructables website contains detailed instructions for making equipment ranging from air-particle counters to machine tools, all with no intellectual-property protection. Contributors to efforts such as these have a range of motivations (Alphabet's goals with Android were far from purely altruistic—among other things, the parent of Google wanted to achieve a quantum leap in mobile phone users around the world, who would avail themselves of Google Search and services such as YouTube), but they're all part of the trend of technology without excludability, which is great news for growth. As we saw in chapter 10, smartphone use and access to the Internet are increasing quickly across the planet. This means that people no longer need to be near a decent library or school to gain knowledge and improve their abilities. Globally, people are taking advantage of the skill-building opportunities of new technologies. This is the third reason that the spread of digital tools should make us optimistic about future growth: these tools are helping human capital grow quickly. The free Duolingo app, for example, is now the world's most popular way to learn a second language. Of the nearly 15 billion Wikipedia page views during July of 2018, half were in languages other than English. Google's chief economist, Hal Varian, points out that hundreds of millions of how-to videos are viewed every day on YouTube, saying, "We never had a technology before that could educate such a broad group of people anytime on an as-needed basis for free." Romer's work leaves me hopeful because it shows that it's our ability to build human capital, rather than chop down forests, dig mines, or burn fossil fuels that drives growth and prosperity. His model of how economies grow also reinforces how well capitalism and tech progress work together, which is a central point of this book. The surest way to boost profits is to cut costs, and modern technologies, especially digital ones, offer unlimited ways to combine and recombine materials—to swap, slim, optimize, and evaporate—in cost-reducing ways. There's no reason to expect that the two horsemen of capitalism and tech progress will stop riding together anytime soon. Quite the contrary. Romer's insights reveal that they're likely to gallop faster and farther as economies grow. Our Brighter, Lighter Future The world still has billions of desperately poor people, but they won't remain that way. All available evidence strongly suggests that most will become much wealthier in the years and decades ahead. As they earn more and consume more, what will be the impact on the planet? The history and economics of the Industrial Era lead to pessimism on this important question. Resource use increased in lockstep with economic growth throughout the two centuries between James Watt's demonstration of his steam engine and the first Earth Day. Malthus and Jevons seemed to be right, and it was just a question of when, not if, we'd run up against the hard planetary limits to growth. But in America and other rich countries something strange, unexpected, and wonderful happened: we started getting more from less. We decoupled population and economic growth from resource consumption, pollution, and other environmental harms. Malthus's and Jevons's ideas gave way to Romer's, and the world will never be the same. This means that instead of worrying about the world's poor becoming richer, we should instead be helping them upgrade economically as much and as quickly as possible. Not only is it the morally correct thing to do, it's also the smart move for our planet. As today’s poor countries get richer, their institutions will improve and most will eventually go through what Ricardo Hausmann calls "the capitalist makeover of production." This makeover doesn't enslave people, nor does it befoul the earth. As today’s poor get richer, they'll consume more, but they'll also consume much differently from earlier generations. They won't read physical newspapers and magazines. They'll get a great deal of their power from renewables and (one hopes) nuclear because these energy sources will be the cheapest. They’ll live in cities, as we saw in chapter 12; in fact, they already are. They'll be less likely to own cars because a variety of transportation options will be only a few taps away. Most important, they'll come up with ideas that keep the growth going, and that benefit both humanity and the planet we live on. Predicting exactly how technological progress will unfold is much like predicting the weather: feasible in the short term, but impossible over a longer time. Great uncertainty and complexity prevent precise forecasts about, for example, the computing devices we’ll be using thirty years from now or the dominant types of artificial intelligence in 2050 and beyond. But even though we can't predict the weather long term, we can accurately forecast the climate. We know how much warmer and sunnier it will be on average in August than in January, for example, and we know that global average temperatures will rise as we keep adding greenhouse gases to the atmosphere. Similarly, we can predict the "climate" of future technological progress by starting from the knowledge that it will be heavily applied in the areas where it can affect capitalism the most. As we've seen over and over, tech progress supplies opportunities to trim costs (and improve performance) via dematerialization, and capitalism provides the motive to do so. As a result, the Second Enlightenment will continue as we move deeper into the twenty-first century. I'm confident that it will accelerate as digital technologies continue to improve and multiply and global competition continues to increase. We’ll see some of the most striking examples of slim, swap, evaporate, and optimize in exactly the places where the opportunities are biggest. Here are a few broad predictions, spanning humanity's biggest industries. Manufacturing. Complex parts will be made not by the techniques developed during the Industrial Era, but instead by three- dimensional printing. This is already the case for some rocket engines and other extremely expensive items. As 3-D printing improves and becomes cheaper, it will spread to automobile engine blocks, manifolds and other complicated arrangements of pipes, airplane struts and wings, and countless other parts. Because 3-D printing generates virtually no waste and doesn't require massive molds, it accelerates dematerialization.

#### Boundaries are false.

Shellenberger 12 Michael Shellenberger 6-11-2012 “Planetary Boundaries: A Review of the Evidence” <http://thebreakthrough.org/archive/planetary_boundaries_a_mislead> (environmental journalist)//Elmer

The planetary boundaries hypothesis - embraced by United Nations bodies and leading nongovernmental organizations like Oxfam and WWF - has serious scientific flaws and **is a misleading guide** to global environmental management, according to a new report by the Breakthrough Institute. The hypothesis, which will be debated this month at the UN Earth Summit in Brazil, posits that there are nine global biophysical limits to human development. But after an extensive literature review and informal peer review by leading experts, the Breakthrough Institute has found the concept of "planetary boundaries" to be a poor basis for policy and for understanding local and global environmental challenges. KEY FINDINGS - Six of **the "planetary boundaries**" -- land-use change, biodiversity loss, nitrogen levels, freshwater use, aerosol loading, and chemical pollution -- do not have planetary **biophysical boundaries** in themselves. Real, global biophysical threshold elements exist in the global climate system, and partly also for ocean acidification (same driver as climate change, carbon dioxide), ozone depletion (regional tipping point averted), and phosphorous levels (tipping point extremely far off). But for all the remaining "boundaries," **there are no global tipping points** beyond **which these ecological processes will begin to function in fundamentally different ways** than they do at present or have historically. Hence the setting of boundaries for these mechanisms is an arbitrary exercise. A lax boundary may result in more degradation. A strict boundary less. But there is no evidence that exceeding the boundary will result in a fundamentally different magnitude of impacts associated with human activities. - Aside from their impacts on the global climate, these non-threshold "boundaries" operate on local and regional, not global, levels. This means that no global boundary can be meaningfully determined. For example, freshwater use, land-use change, or nitrogen levels in one region are ecologically independent of these processes or their impacts in other regions. - There is little evidence to support the claim that transgressing any of the six non-threshold boundaries would have a net negative effect on human material welfare.

#### Solves climate.

McAfee 20 Andrew McAfee 10-6-2020 "Why Degrowth Is the Worst Idea on the Planet" <https://www.wired.com/story/opinion-why-degrowth-is-the-worst-idea-on-the-planet/> (a principal research scientist at MIT, is cofounder and codirector of the MIT Initiative on the Digital Economy at the MIT Sloan School of Management)//Elmer

Easing Pollution, Not Exporting It In some important areas, however, a very different pattern emerged after 1970: Growth continued, **but environmental harm decreased**. This decoupling occurred first with pollution, and first in the rich world. In the US, for example, aggregate levels of six common air pollutants have declined by 77 percent, even as gross domestic product **increased by 285 percent** and population by 60 percent. In the UK, annual tonnage of particulate emissions dropped by more than 75 percent between 1970 and 2016, and of the main polluting chemicals by about 85 percent. Similar gains are common across the highest-income countries. How were these reductions achieved? The two possibilities are cleanup and offshoring. Either rich countries figured out how to reduce their “air pollution per dollar” so much that overall pollution went down even as their economies grew, or they sent so much of their dirty production overseas that the air at home got cleaner. The first of these paths reduces the total burden of human-caused pollution; the second just rearranges it. The evidence is overwhelming that rich countries **cleaned up their air pollution** much more than they outsourced it. **For one, a great deal of air pollution comes from highway vehicles and power plants, and rich countries haven’t outsourced driving and generating electricity to low-income ones.** In fact, **high-income countries haven't even offshored most of their industry**. The US and UK both manufacture more than they did 50 years ago (at least until the Covid-19 pandemic sharply reduced output), and Germany has been a net exporter since 2000 while continuing to drive down air pollution. The rest of the world has been exporting its manufacturing pollution to Germany (to use degrowthers’ phrasing), yet Germans are breathing cleaner air than they were 20 years ago. Rich countries have reduced their air pollution not by embracing degrowth or offshoring, but instead by enacting and enforcing **smart regulation**. As economists Joseph Shapiro and Reed Walker concluded in a 2018 study about the US, “changes in environmental regulation, rather than changes in productivity and trade, account for most of the emissions reductions.” Research about the cleanup of US waters also concludes that well-designed and enforced regulations have successfully reduced pollution. It is true that the US and other rich countries now import lots of products from China and other nations with higher pollution levels. But if there were no international trade at all, and rich countries had to rely exclusively on their domestic industries to make everything they consume, they’d still have much cleaner air and water than they did 50 years ago. As a 2004 Advances in Economic Analysis and Policy study summarized: “We find no evidence that domestic production of pollution-intensive goods in the US is being replaced by imports from overseas.” The rich world’s success at decoupling growth from pollution is an inconvenient fact for degrowthers. Even more inconvenient is **China's recent success** at doing the same. China’s export-led, manufacturing-heavy economy has been growing at meteoric rates, but between 2013 and 2017 air pollution in densely populated areas declined by more than 30 percent. Here again the government mandated and monitored pollution declines and so decoupled growth from an important category of environmental harm. Prosperity Bends the Curve China's progress with air pollution is heartening, but it's not surprising to most economists. It's a clear example of the environmental **Kuznets curve** (EKC) in action. Named for the economist Simon Kuznets, EKC posits a relationship between a country's affluence and the condition of its environment. As GDP per capita rises from an initial low level, so too does environmental damage; but as affluence continues to increase, the harms level off and then start to decline. The EKC is clearly visible in the pollution histories of today's rich countries, and it's now taking shape in China and elsewhere. Also consider air pollution death rates around the world. As the invaluable website Our World in Data puts it, “Rates have typically fallen across high-income countries: almost everywhere in Europe, but also in Canada, the United States, Australia, New Zealand, Japan, Israel and South Korea and other countries. But rates have also fallen across upper-middle income countries too, including China and Brazil. In low and lower-middle income countries, rates have increased over this period.” The EKC is a direct refutation of a core idea of degrowth: that environmental harms must always rise as populations and economies do. It's not surprising that today's degrowth advocates rarely discuss the large reductions in air and water pollution that have accompanied higher prosperity in so many places around the world. Instead, **degrowthers now focus heavily on one kind of pollution: greenhouse gas emissions**. The claims made are familiar ones: that any apparent reductions in greenhouse gas emissions in rich countries are due to offshoring rather than actual decarbonization. Thanks to the Global Carbon Project, we can see if this is the case. GCP has calculated “consumption-based emissions” for many countries going back to 1990, taking into account imports and exports, yielding the greenhouse gas emissions embodied in all the goods and services consumed in each country each year. For several of the world's richest countries, including Germany, Italy, France, the UK, and the US, graphs of consumption-based carbon emissions **follow the familiar EKC**. The US, for example, has 22reduced its total (not per capita) consumption-based CO2 emissions by more than 13 percent since 2007. Most Popular face mask GEAR 22 Face Masks We Actually Like to Wear ADRIENNE SO Man, Poster, Brochure, Paper, Flyer, Human, Person, and Collage. These reductions are not mainly due to enhanced regulation. Instead, they've come about because of a combination of **tech progress and market forces**. Solar and wind power have become much cheaper in recent years and have displaced coal for electricity generation. Natural gas, which when burned emits fewer greenhouse gases per unit of energy than does coal (even after taking methane leakage into account), has also become much cheaper and more abundant in the US as a result of the fracking revolution. To ensure that these greenhouse gas declines continue to spread and accelerate, we should apply the lessons we've learned from previous pollution reduction success. In particular, we should make it expensive to emit carbon, then watch the emitters work hard to reduce this expense. The best way to do this is with a carbon dividend, which is a tax on carbon emissions where the revenues are not kept by the government but instead are rebated to people as a dividend. William Nordhaus won the 2018 Nobel Prize in economics in part for his work on the carbon dividend, and an open letter advocating its implementation in the US has been signed by more than 3,500 economists. It's an idea whose time has come.

#### Capitalism results in contractualism that solves War

Mousseau 19, Michael. "The end of war: How a robust marketplace and liberal hegemony are leading to perpetual world peace." International Security 44.1 (2019): 160-196. Props to DML for this card (Professor in the School of Politics, Security, and International Affairs at the University of Central Florida)//Elmer

If my argument is correct, the world is on the cusp of tremendous change: across the globe, contractualism is overtaking status-personalism and, in so doing, launching an era of peace and prosperity. This conclusion is reached without any monotonic or teleological assumptions: anything that collapses the contractualist economies for a generation or two would stop or reverse this trend.81 All else being equal, the contractualist hegemony has made the odds of unit-level change from a status to a contractualist economy more likely than the reverse. At the start of the twentieth century, only the United States had a contractualist economy; by the end, at least thirty-five states were contractualist.82 The Westphalian system has never been as conducive to transitions to contractualist economies as it has been under the contractualist hegemony, which prohibits states from starting wars for booty, debt collection, or territory. Nor has the world ever had such widespread access to capital, mobility, and equity in trade as it has had since the contractualist hegemony made it so with the signing of the Atlantic Charter and the implementation of the Bretton Woods agreements. The number of transitions also predictably increased after the Cold War, when the contractualist hegemony emerged as largely unchallenged. In this way, system change toward contractualist hegemony within the anarchic order, rooted in unit-level change, ultimately promotes more unit-level change toward a contractualist world. Reports of the Demise of the Liberal Order Are Greatly Exaggerated I have argued that the liberal global order is on the rise; yet, liberal values around the world seem to be in retreat. In recent years, two contractualist states with populist governments—Hungary and Poland—have begun to embrace anti-immigrant and anti-globalization positions. In the United States, President Donald Trump appears to favor status values such as power, rank, and loyalty over contractualist values such as equity and respect for the rule of law. In foreign policy, Trump does not seem to share contractualists' opposition to Russia's efforts to sow chaos, and he sees trade in terms of winners and losers. Reports of the demise of the liberal order, however, are greatly exaggerated. First, Hungary and Poland are newly contractualist states. The sociological nature of economic norms theory means that contractualist values should be more firmly rooted in older contractualist societies than in newer ones. This is corroborated with the natural experiment of Germany: in 1962 West Germany embraced contractualism (see table 1), but it was only after 1991 that East Germany could have become contractualist, when massive investments from the Federal Republic caused incomes in the marketplace to become higher than incomes obtainable from status relationships. Today, Germany's populist movement is concentrated in the eastern part of the country and is largely nonexistent in the western part,83 which corroborates the expectation that some newly contractualist societies retain some of their status values even after a generation of robust opportunity in the marketplace. Deeper changes in values may not occur until generational cohorts initially socialized into status or axial economies have passed on. Second, the electorates in most of the thirty-five contractualist states listed in table 1 in 2010 have not experienced substantial increases in populist sentiment. Italy's Five Star movement is often called populist but largely because of its anti-immigrant stance. Although an embrace of immigrants would seem consistent with contractualist values, opposition to large numbers of immigrants is arguably a rational response to what is essentially a huge external shock that has intensified in recent years. Britons voted to leave the European Union, but largely because they believed they were being treated unfairly in it. The rejection of unfair terms of trade, whether perceived correctly or not, is consistent with contractualist values. Third, the strength of institutions far exceeds that of any one person, including the president of the United States. Liberal values and institutions are rooted in contractualist economic norms and will not disappear simply because some leaders choose not to abide by them. For instance, although Trump may want the United States to withdraw from the North Atlantic alliance, this is not a view shared by Congress and the American people. Even members of Trump's administration have often restrained him in ways consistent with contractualist values and institutions.84 In economic norms theory, the only way the United States' contractualist values could shift to status or axial values would be through radical economic change. As mentioned above, economics is ultimately at the mercy of politics, as an influential coalition of rent-seekers could potentially collapse a contractualist economy by failing to sustain the highly inclusive marketplace or uphold the state's credibility in enforcing of contracts. In recent years, the U.S. economy has begun tilting toward rent-seekers, given the growing role of private money in electoral campaigns and the increasing sophistication of rent-seekers in masking their activities though the manipulation of public opinion, including through their concentrated ownership of media outlets. Such rentierism could precipitate a change in U.S. values if it results in a retraction of the market substantial enough that newer generations began to obtain higher wages in newfound status networks than in the marketplace. In this way, the Trump phenomenon may reflect a pathology in U.S. governing institutions; but at least so far, it arguably has not extended to the American people. Most of Trump's supporters seem to be drawn to him not for his expressions of status values, but for his pledges to fight a “rigged” system and create well-paying jobs. Whether or not Trump means what he says, many of his supporters saw a vote for him as an act of protest against the increasing corruption occurring in the United States, a clear contractualist expression.85 Although a collapse of the U.S. economy and transition to an axial or a status economy is always possible, the feedback loop of popular insistence on economic growth and a highly inclusive marketplace makes this unlikely. Aside from an external shock (such as nuclear war or climate devastation), such a transition could happen only if the rentiers somehow manage to remain in power long enough to institutionalize a permanently underemployed underclass. Fourth, even if the U.S. economy were to collapse and the United States became an axial or a status power, the combined economic might of all the other contractualist countries in the world is nearly twice that of the United States. The soft power of the United States in world politics lies not in its power to persuade, but in it being the largest of the contractualist states, and in its willingness to provide the public good of global security since the collapse of the pound sterling in late 1946. If the United States withdrew from its leadership role, the remaining contractualist powers would fill the vacuum. None of them has an economy relatively large enough to enable it to act as a natural leader and principal provider of global security, but it is the temperament of these states that they can easily form an international organization to coordinate and act on their shared security interests, even if some may choose to free ride. Fifth, current events need to be viewed within a larger context. Fernand Braudel pinpoints the rise of the modern world economy as starting around the year 1450 in northwestern Europe.86 The first contractualist economy emerged more than two centuries ago. Since then, contractualist states have confronted numerous shocks and threats to their systems, including the American Civil War, the Great Depression, two world wars, and the Cold War. The present populist mini-wave and pathologies in U.S. democracy are mere trifling episodes in a larger historical frame. Conclusion This article has introduced a new liberal theory of global politics and argues that global alignments are rooted in factors internal to states: status states want expansion and disorder wherever they lack control; contractualist states want universal stability and order based on the principle of self-determination for all states. As such, global patterns of war, peace, and cooperation can be explained without recourse to such external factors as trade interdependence, international institutions, interstate images, or intersubjective structure; economic norms theory can explain these patterns from states' internal conditions alone. If this argument is correct, then the relative power of states does determine the perception of threat, as realists have long maintained, but with an essential qualifi- cation: only among status states. In this way, internal conditions can explain why 2,400 years ago Sparta feared the rising power of Athens, and why today the distribution of power seems to be playing an ever reduced role in global politics. My analyses of most states from 1946 to 2010 corroborate the prediction of a liberal global hierarchy managed by a natural alliance of states with contractualist economies. States with contractualist and export-oriented economies tend to agree on issues voted on in the United Nations General Assembly, regardless of their power status or capability, because they have common interests in a global order based on self-determination. Among states with status and insular economies, in contrast, major powers and those with greater capability are more likely to balance the contractualist hegemony, which they fear. Meanwhile, minor powers and those with less capability are more likely to bandwagon with it, which they fear less than they do the status major powers. Additionally, the theory provides an explanation for a large number of observed facts in international politics. It can explain the decline of war. It can explain the United States' enduring soft power, and why its leadership continues utterly unchallenged by other market powers, despite its relative economic decline since the mid-twentieth century. It offers an account for why developing states with weak institutions tend to bandwagon with the Western powers;87 and why land powers tend to provoke counterbalancing coalitions, and sea powers, which tend to be trading powers, do not.88 It can account for the democratic peace; why democracies tend to win their wars; and why the probability of war among market democracies is practically zero. It can explain how states become prosperous; how democracy consolidates; the tenacity of corruption in developing countries; why Western powers reproach their clients for their corruption;89 and why states fail. It can explain global terrorism and anti-Americanism.90 If the theory is right, war is becoming obsolete, and not for reasons supposed in most international relations theorizing. There is no security dilemma in international politics, as realists contend there is: relative power reliably matters only to leaders of status states, which always consider all other states enemies. Yet, the trajectory of peace is not at all caused by democracy, trade, or international institutions, as liberals maintain. As argued here, democracy, trade, and institutions are epiphenomenal. Contractualist economies are not the only explanation for these factors, but they are a cause of democratic consolidation, foreign policy preferences for equitable trade, and international organization. Leaders of contractualist states assess threats based not on their images of other states' regime types, economic types, or their capabilities, but on their behavior. What economic norms theory cannot explain is the triggering environmental and political origins of economic change. Although the theory predicts systemic effects (contractualist hegemony) on unit-level change (national transitions toward contractualist economies), it cannot predict when and where leaders of status and axial states might seek to support the market; when and where contractualist economies will emerge; or when and where systemic effects will result in changes in the units. The theory treats economic change largely exogenously.91

#### Extinction’s inevitable – only growth can sustain colonization and solve extinction

**Skran 16** [Dale Skran is Executive Vice President of the National Space Society and a member of the Board of Directors of the Alliance for Space Development. “Settling space is the only sustainable reason for humans to be in space,” <http://www.thespacereview.com/article/2915/1>] Re-Cut Justin

As robotic and artificial intelligence technologies improve and enable increasingly robust exploration without a human presence, eventually there will be only one sustainable reason for humans to be in space: settlement. Research into the recycling technology required for long-term off-Earth settlements will directly benefit terrestrial sustainability. Actively working toward developing and settling space will make available mineral and energy resources for use on Earth on a vast scale. Finally, space settlement offers the hope of long-term species survival that remaining on Earth does not. There are more than seven billion people on the Earth today. No rational space settlement advocate suggests that any significant portion of that population, or even of those who are rich, will be moving to Mars or anywhere else in space. However, a recent essay by Astro Teller, head of Google X Labs, and his wife Danielle, a physician and researcher takes the bold position that “It’s completely ridiculous to think that humans could live on Mars.” This essay, published by Quartz, repeats with little examination some of the hoariest arguments against space settlement. To support this view, the Tellers quote their 12-year-old daughter: “I can’t stand that people think we’re all going to live on Mars after we destroy our own planet.” This quote contains two mischaracterizations that demand refutation: that “we are all” going to live in space and that we are going to live in space after we destroy Earth. Another canard that has long floated about was given form by the recent film Elysium starring Matt Damon: the rich will leave the poor on the Earth and escape to space settlements. Upon examination, all three of these ideas are strawmen. There are more than seven billion people on the Earth today. No rational space settlement advocate suggests that any significant portion of that population, or even of those who are rich, will be moving to Mars or anywhere else in space. Instead, we expect that relatively small numbers of highly qualified individuals, or those who are deeply dedicated to living in space, would form the first settlements. Over a significant period of time, thousands more from the Earth would join those settlements as they become increasingly self-sufficient. Over more time, various possible niches for settlement (Moon, Mars, asteroids, free space, etc.) will be occupied, and eventually the population in space will total many millions, most of whom will have been born in space. So why then do Elon Musk, Stephen Hawking, and many others, including organizations like the National Space Society (NSS) and Alliance for Space Development, believe strongly that space settlement is essential to human survival? Although this may seem surprising, the Earth is not a “safe space.” The destiny of virtually all species on Earth is extinction in a relatively short span of geologic time. The Tellers claim that “we live on a planet that is perfect for us.” This statement is both completely true and total nonsense. We fit well on the Earth because we have evolved over millions of years to become creatures that are both adapted to live here and to like living here. It is truer to say that we are perfect for the Earth than the reverse. In fact, the Earth is not such a commodious place. It is subject to periodic calamities of various sorts, ranging from massive asteroid and comet impacts to titanic volcanic eruptions, and from periodic ice ages to disastrous solar flares. In the short run, the Earth seems balmy and comfortable. Viewed from the perspective of deep time, it starts to look more like a death trap, bedeviled by regular mass extinctions. However, things are actually quite a bit worse. Although there are many potentially bad things that might happen to the human race on the Earth from natural sources, there are many more from unnatural sources. We have been dancing with nuclear disaster for a long time. An apocalyptic atomic war is not inevitable, but it is possible. Add to this scenario the genetically engineered killer virus, “gray goo,” a robot revolt, and other horrors as yet undreamt, and the odds against human survival get longer. Hence, the need to abandon the fiction of Earth as our eternal and unchanging perfect home and to appreciate both the need for, and promise of, space settlement. Not so the rich can escape to an Elysium in the sky, or so we can all leave behind a polluted and overheated Earth, but simply so that the human species and human culture has a chance at surviving and flourishing in the long term. The Tellers believe that sustainability on the Earth has no relationship to what we do in space, but the same technologies that enable deep space settlement will have a profound impact on terrestrial sustainability. The Tellers write, “We haven’t even colonized the Sahara desert, the bottom of the oceans… because it makes no economic sense.” This may be true, but it also makes no sense to settle the Sahara desert, the bottom of the oceans, or Antarctica since these locations are on the Earth, and humans living there will not increase the probability of species survival. Near-Earth free space settlements and lunar bases are just stepping stones to ones much further out that are quarantined from Earth by millions of kilometers of vacuum. Once the motivation of species survival is put front and center, it becomes clear that a settlement in low Earth orbit, on the Moon, at L5, or on the Martian surface is not nearly sufficient. What is needed is a large set of thriving communities distributed throughout the solar system, and even ultimately in the Oort Cloud surrounding the solar system proper. This vision is not a small thing. It will be the work of many generations, just as was the settling of the New World or, even earlier in history, the human diaspora out of Africa along the Asian coast to Australia and beyond. The Tellers believe that sustainability on the Earth has no relationship to what we do in space, but the same technologies that enable deep space settlement will have a profound impact on terrestrial sustainability. Space settlements, of necessity, push the limits of food production per square meter and per liter of water. Space settlement agricultural methods can also be applied to growing food in parched California or in vertical farms in crowded urban areas. Space settlements require humans and technology to co-exist in close proximity. This implies an absolute minimization of pollution and sustained recycling of all waste. Such technologies seem highly applicable to sustainability on Earth as well. We will need to provide the best possible medical care for remote space settlements, which will be far from hospitals on Earth. The technologies that make such medicine effective—“tricorders”, telemedicine, and so on—can also bring medical care to underdeveloped and underserved areas of the Earth. The Tellers raise the specter of “winter-over syndrome” in the Antarctic, writing that “living on Mars would be way, way more miserable than living in Antarctica,” and concluding, “Nobody wants to live there.” Although it is clear that the Tellers will not be going, the large numbers who signed up for Mars One’s sketchy settlement plans suggest that a lot of people do want to live on Mars. There are real challenges to constructing space settlements, but current Antarctic bases are not true settlements. Nobody lives there with their families, with the exception of the coastal Esperanza Base, where about ten families routinely winter over. No real effort is made to create any kind of human environment that is comfortable over a long period of time. Conditions in Antarctica might be better compared to living in a campground than a self-sustaining settlement. Additionally, the current Antarctic Treaty essentially prevents any extraction or use of the natural resources found there, thus making economically independent settlements infeasible. The Tellers think that, from an economic perspective, “Mars has nothing to offer in return.” Here, at least in the short run, they have a point. Let us not shy from the truth. Conditions in the early settlements in the New World were difficult at best, and the casualty rate was high. We should expect the same to hold true for early space settlements. However, Jamestown and Plymouth gave rise to vast cities and a tamed landscape on a scale of hundreds of years. We now bring to the table technological means that would seem magical to the Jamestown settlers. Even as difficult an environment as the Moon can be developed and settled using technology that either exists currently or is an engineering project, as one book suggests. The Tellers think that, from an economic perspective, “Mars has nothing to offer in return.” Here, at least in the short run, they have a point. Although Mars may have more of the natural resources a settlement will need than, say, the Moon, it is at the bottom of a fairly steep gravity well and, for the time being, it is not likely that there will be many Mars-to-Earth exports. However, this is like looking at the resources of the New World via a keyhole, seeing a swamp, and reporting back that there is no point in going there. It is worth keeping in mind the example of “Seward’s Folly.” The purchase of Alaska from Russia was mocked as “Seward’s icebox” and a “polar bear garden.” At the time, the oil and mineral riches of Alaska were undiscovered and undreamt of. Space itself teems with valuable resources, including continuous and abundant solar energy and mineral wealth on a scale beyond imagination just in the near Earth asteroids. Just as the Tellers were dismissing space resources as irrelevant, the US Congress was laying the legal groundwork for asteroid and lunar mining with the passage of the Commercial Space Launch Competitiveness Act, signed by President Obama on November 23, 2015. The Tellers also seem unaware that their leadership at Google, Larry Page and Eric Schmidt, are investors in the asteroid mining firm Planetary Resources. The Tellers say that “we won’t survive [on Earth] unless we learn to live in a resource neutral way.” This statement assumes that that Earth is a closed system, which it is not. The Earth is flooded daily with vast amounts of solar energy that, if exploited, could power just about any civilization we wish to maintain. There is no technical limitation to providing continuous, carbon-free power from space solar power satellites beaming power back to the surface of the Earth anywhere it might be needed. The main opposition to this idea derives from an unwillingness to consider centralized power systems on ideological grounds, combined with the unexpected reality of very cheap natural gas today. Even the most conservative consideration of near-Earth asteroid resources suggests that there is no reason to view the Earth as a closed system to which nothing can be added. The time for the settlement of Mars will come, but first we need to build on our success in developing the resources of Earth orbit, in the form of navigation, Earth observation, communication, and weather satellites, by fully developing the economic potential of the Earth-Moon system. Space settlements must flow out of the development of the economic resources of space if they are to be sustainable in the long term. The NSS has developed a complete description of milestones toward the development of space settlements. In view of the above, Astro Teller was probably right to turn down the “space cadet” who wanted Google X to spend money on Mars settlement. But wait—Google is doing exactly that. A key first step toward space settlement is ensuring a gapless transition from the existing International Space Station to commercially owned and operated LEO space stations as described in the NSS position paper “Next Generation Space Stations.” Next will come the development of the resources of the Moon and neaby asteroids leading to the creation of a self-sustaining Earth-Moon economy. Once we have established an asteroid-Earth-Moon economy that makes the resources found in this region fully available for projects ranging from the construction of solar power satellites to fueling future Mars missions, trips to Mars will be far less of a reach than they are today. In view of the above, Astro Teller was probably right to turn down the “space cadet” who wanted Google X to spend money on Mars settlement. Currently Google’s money would be better spent in low Earth orbit, among the asteroids, and on the Moon, joining forces with the growing number of entrepreneurs seeking their fortunes in space. But wait—Google is doing exactly that by sponsoring the Google Lunar X PRIZE to encourage private groups to send landers to the Moon, and investing $900 million in Elon Musk’s SpaceX. Given that corporate Google (now Alphabet) has just made a massive investment in a company founded to settle Mars, the Tellers’ essay sounds a bit like sour grapes. In any case, the Tellers are completely wrong in their disregard of the potential economic benefits of space development and the underlying motivation for space settlement.