# R3 – NDCA

### 1NC – DA

#### Xi’s regime is stable now, but its success depends on strong growth and private sector development.

**Mitter and Johnson 21** [Rana Mitter and Elsbeth Johnson, [Rana Mitter](https://hbr.org/search?term=rana%20mitter&search_type=search-all) is a professor of the history and politics of modern China at Oxford. [Elsbeth Johnson](https://hbr.org/search?term=elsbeth%20johnson&search_type=search-all), formerly the strategy director for Prudential PLC’s Asian business, is a senior lecturer at MIT’s Sloan School of Management and the founder of SystemShift, a consulting firm. May-June 2021, "What the West Gets Wrong About China," Harvard Business Review, [https://hbr.org/2021/05/what-the-west-gets-wrong-about-china accessed 12/14/21](https://hbr.org/2021/05/what-the-west-gets-wrong-about-china%20accessed%2012/14/21)] Adam

In China, however, growth has come in the context of stable communist rule, suggesting that democracy and growth are not inevitably mutually dependent. In fact, many Chinese believe that the country’s recent economic achievements—large-scale poverty reduction, huge infrastructure investment, and development as a world-class tech innovator—have come about because of, not despite, China’s authoritarian form of government. Its aggressive handling of Covid-19—in sharp contrast to that of many Western countries with higher death rates and later, less-stringent lockdowns—has, if anything, reinforced that view.

China has also defied predictions that its authoritarianism would inhibit its capacity to [innovate](https://hbr.org/2011/06/what-the-west-doesnt-get-about-china). It is a global leader in AI, biotech, and space exploration. Some of its technological successes have been driven by market forces: People wanted to buy goods or communicate more easily, and the likes of Alibaba and Tencent have helped them do just that. But much of the technological progress has come from a highly innovative and well-funded military that has invested heavily in China’s burgeoning new industries. This, of course, mirrors the role of U.S. defense and intelligence spending in the development of Silicon Valley. But in China the consumer applications have come faster, making more obvious the link between government investment and products and services that benefit individuals. That’s why ordinary Chinese people see Chinese companies such as Alibaba, Huawei, and TikTok as sources of national pride—international vanguards of Chinese success—rather than simply sources of jobs or GDP, as they might be viewed in the West.

Thus July 2020 polling data from the Ash Center at Harvard’s Kennedy School of Government revealed 95% satisfaction with the Beijing government among Chinese citizens. Our own experiences on the ground in China confirm this. Most ordinary people we meet don’t feel that the authoritarian state is solely oppressive, although it can be that; for them it also provides opportunity. A cleaner in Chongqing now owns several apartments because the CCP reformed property laws. A Shanghai journalist is paid by her state-controlled magazine to fly around the world for stories on global lifestyle trends. A young student in Nanjing can study propulsion physics at Beijing’s Tsinghua University thanks to social mobility and the party’s significant investment in scientific research.

#### Xi has committed to the commercial space industry as the linchpin of China’s rise – the plan is seen as a complete 180

**Patel 21** [Neel V. Patel, Neel is a space reporter for MIT Technology Review. 1-21-2021, "China’s surging private space industry is out to challenge the US," MIT Technology Review, <https://www.technologyreview.com/2021/01/21/1016513/china-private-commercial-space-industry-dominance/> accessed 12/14/21] Adam

Until recently, China’s space activity has been overwhelmingly dominated by two state-owned enterprises: the China Aerospace Science & Industry Corporation Limited (CASIC) and the China Aerospace Science and Technology Corporation (CASC). A few private space firms have been allowed to operate in the country for a while: for example, there’s the China Great Wall Industry Corporation Limited (in reality a subsidiary of CASC), which has provided commercial launches since it was established in 1980. But for the most part, China’s commercial space industry has been nonexistent. Satellites were expensive to build and launch, and they were too heavy and large for anything but the biggest rockets to actually deliver to orbit. The costs involved were too much for anything but national budgets to handle.

That all changed this past decade as the costs of making satellites and launching rockets plunged. In 2014, a year after Xi Jinping took over as the new leader of China, the Chinese government decided to treat civil space development as a key area of innovation, as it had already begun doing with AI and solar power. It issued a policy directive called [Document 60](https://archive.md/o/bc9l4/www.cpppc.org/en/zy/994006.jhtml) that year to enable large private investment in companies interested in participating in the space industry.

“Xi’s goal was that if China has to become a critical player in technology, including in civil space and aerospace, it was critical to develop a space ecosystem that includes the private sector,” says Namrata Goswami, a geopolitics expert based in Montgomery, Alabama, who’s been studying China’s space program for many years. “He was taking a cue from the American private sector to encourage innovation from a talent pool that extended beyond state-funded organizations.”

As a result, there are now 78 commercial space companies operating in China, according to a[2019 report by the Institute for Defense Analyses](https://archive.md/o/bc9l4/https:/www.ida.org/-/media/feature/publications/e/ev/evaluation-of-chinas-commercial-space-sector/d-10873.ashx). More than half have been founded since 2014, and the vast majority focus on satellite manufacturing and launch services.

For example, Galactic Energy, founded in February 2018, is building its Ceres rocket to offer rapid launch service for single payloads, while its Pallas rocket is being built to deploy entire constellations. Rival company i-Space, formed in 2016, became the first commercial Chinese company to make it to space with its Hyperbola-1 in July 2019. It wants to pursue reusable first-stage boosters that can land vertically, like those from SpaceX. So does LinkSpace (founded in 2014), although it also hopes to use rockets to deliver packages from one terrestrial location to another.

Spacety, founded in 2016, wants to turn around customer orders to build and launch its small satellites in just six months. In December it launched a miniaturized version of a satellite that uses 2D radar images to build 3D reconstructions of terrestrial landscapes. Weeks later, it [released the first images taken by the satellite](https://archive.md/o/bc9l4/https:/spacenews.com/spacety-releases-first-sar-images/), Hisea-1, featuring three-meter resolution. Spacety wants to launch a constellation of these satellites to offer high-quality imaging at low cost.

To a large extent, China is following the same blueprint drawn up by the US: using government contracts and subsidies to give these companies a foot up. US firms like SpaceX benefited greatly from NASA contracts that paid out millions to build and test rockets and space vehicles for delivering cargo to the International Space Station. With that experience under its belt, SpaceX was able to attract more customers with greater confidence.

Venture capital is another tried-and-true route. The IDA report estimates that VC funding for Chinese space companies was up to $516 million in 2018—far shy of the $2.2 billion American companies raised, but nothing to scoff at for an industry that really only began seven years ago. At least 42 companies had no known government funding.

And much of the government support these companies do receive doesn’t have a federal origin, but a provincial one. “[These companies] are drawing high-tech development to these local communities,” says Hines. “And in return, they’re given more autonomy by the local government.” While most have headquarters in Beijing, many keep facilities in Shenzhen, Chongqing, and other areas that might draw talent from local universities.

There’s also one advantage specific to China: manufacturing. “What is the best country to trust for manufacturing needs?” asks James Zheng, the CEO of Spacety’s Luxembourg headquarters. “It’s China. It’s the manufacturing center of the world.” Zheng believes the country is in a better position than any other to take advantage of the space industry’s new need for mass production of satellites and rockets alike.

Making friends

The most critical strategic reason to encourage a private space sector is to create opportunities for international collaboration—particularly to attract customers wary of being seen to mix with the Chinese government. (US agencies and government contractors, for example, are barred from working with any groups the regime funds.) Document 60 and others issued by China’s National Development and Reform Commission were aimed not just at promoting technological innovation, but also at drawing in foreign investment and maximizing a customer base beyond Chinese borders.

“China realizes there are certain things they cannot get on their own,” says Frans von der Dunk, a space policy expert at the University of Nebraska–Lincoln. Chinese companies like LandSpace and MinoSpace have worked to accrue funding through foreign investment, escaping dependence on state subsidies. And by avoiding state funding, a company can also avoid an array of restrictions on what it can and can’t do (such as constraints on talking with the media). Foreign investment also makes it easier to compete on a global scale: you’re taking on clients around the world, launching from other countries, and bringing talent from outside China.

Although China is taking inspiration from the US in building out its private industry, the nature of the Chinese state also means these new companies face obstacles that their rivals in the West don’t have to worry about. While Chinese companies may look private on paper, they must still submit to government guidance and control, and accept some level of interference. It may be difficult for them to make a case to potential overseas customers that they are independent. The distinction between companies that are truly private and those that are more or less state actors is still quite fuzzy, especially if the government is a frequent customer. “That could still lead to a lack of trust from other partners,” says Goswami. It doesn’t help that the government itself is often [very cagey about what its national program is even up to](https://archive.md/o/bc9l4/https:/www.bbc.com/news/science-environment-54076895).

And Hines adds that it’s not always clear exactly how separate these companies are from, say, the People’s Liberation Army, given the historical ties between the space and defense sectors. “Some of these things will pose significant hurdles for the commercial space sector as it tries to expand,” he says.

#### Shifts in regime perception threatens CCP’s legitimacy from nationalist hardliners

Weiss 19 Jessica Weiss 1-29-2019 “Authoritarian Audiences, Rhetoric, and Propaganda in International Crises: Evidence from China” <http://www.jessicachenweiss.com/uploads/3/0/6/3/30636001/19-01-24-elite-statements-isq-ca.pdf> (Associate Professor of Government at Cornell University)//Elmer

Public support—or the appearance of it—matters to many autocracies. As Ithiel de Sola Pool writes, modern dictatorships are “highly conscious of public opinion and make major efforts to affect it.”6 Mao Zedong told his comrades: “When you make revolution, you must first manage public opinion.”7 Because autocracies often rely on **nationalist mythmaking**,8 success or failure in defending the national honor in international crises could burnish the leadership’s patriotic credentials or spark opposition. **Shared outrage at the regime’s foreign policy failures could galvanize street protests or elite fissures, creating intraparty upheaval** or inviting military officers to step in to restore order. Fearing a domestic backlash, authoritarian leaders may feel compelled to take a tough international stance. Although authoritarian leaders are rarely held accountable to public opinion through free and fair elections, fears of popular unrest and irregular ouster often weigh heavily on autocrats seeking to maximize their tenure in office. Considering the harsh consequences that authoritarian elites face if pushed out of office, even a small increase in the probability of ouster could alter authoritarian incentives in international crises.9 A history of nationalist uprisings make Chinese citizens and leaders especially aware of the linkage between international disputes and domestic unrest. The weakness of the PRC’s predecessor in defending Chinese sovereignty at the Paris Peace Conference in 1919 galvanized protests and a general strike, forcing the government to sack three officials and reject the Treaty of Versailles, which awarded territories in China to Japan. These precedents have made Chinese officials particularly sensitive to the appearance of hewing to public opinion. As the People’s Daily chief editor wrote: “History and reality have shown us that public opinion and regime safety are inseparable.”10 One Chinese scholar even claimed: “the Chinese government probably knows the public’s opinion better and reacts to it more directly than even the U.S. government.”11

#### Xi will launch diversionary war to domestic backlash – escalates in multiple hotspots

Norris 17, William J. Geostrategic Implications of China’s Twin Economic Challenges. CFR Discussion Paper, 2017. (Associate professor of Chinese foreign and security policy at Texas A&M University’s Bush School of Government and Public Service)//Elmer

Populist pressures might tempt the **party leadership** to encourage **diversionary nationalism**. The logic of this concern is straightforward: the Communist Party might seek to **distract a restless domestic population** with **adventurism abroad**.19 The **Xi** administration wants to **appear tough** in its **defense of foreign encroachments** against China’s interests. This need stems from a long-running narrative about how a weak Qing dynasty was unable to defend China in the face of European imperial expansion, epitomized by the Opium Wars and the subsequent treaties imposed on China in the nineteenth century. The party is **particularly sensitive** to **perceptions of weakness** because much of its **claim to legitimacy**—manifested in **Xi’s Chinese Dream** campaign today—stems from the party’s claims of leading the **restoration of Chinese greatness**. For example, the May Fourth Movement, a popular protest in 1919 that helped catalyze the CPC, called into question the legitimacy of the Republic of China government running the country at that time because the regime was seen as not having effectively defended China’s territorial and sovereignty interests at the Versailles Peace Conference. **Diversionary nationalist frictions** would likely occur if the Chinese leadership portrayed a foreign adversary as having made the first move, thus forcing Xi to stand up for China’s interests. An example is the 2012 attempt by the nationalist governor of Tokyo, Shintaro Ishihara, to buy the Senkaku/Diaoyu Islands from a private owner.20 Although the Japanese central government sought to avert a crisis by stepping in to purchase the islands—having them bought and administered by Ishihara’s Tokyo metropolitan government would have dragged Japan into a confrontation with China—China saw this move as part of a deliberate orchestration by Japan to nationalize the islands. Xi seemingly had no choice but to defend China’s claims against an attempt by Japan to consolidate its position on the dispute.21 This issue touched off a period of heated tensions between China and Japan, lasting more than two years.22 Such dynamics are not limited to Japan. Other possible areas of conflict include, but are not necessarily limited to, **Taiwan**, **India**, and the **South China Sea** (especially with the **Philippines** and **Vietnam**). The Chinese government will use such tactics if it believes that the costs are relatively low. Ideally, China would like to appear tough while avoiding material repercussions or a serious diplomatic breakdown. Standing up against foreign encroachment—without facing much blowback—could provide Xi’s administration with a tempting source of noneconomic legitimacy. However, over the next few years, Xi will probably not be actively looking to get embroiled abroad. Cushioning the fallout from slower growth while managing a structural economic transition will be difficult enough. Courting potential international crises that distract the central leadership would make this task even more daunting. Even if the top leadership did not wish to provoke conflict, a smaller budgetary allotment for security could cause **military interests** in China to **deliberately instigate trouble** to **justify** their **claims over increasingly scarce resources**. For example, an air force interested in ensuring its funding for a midair tanker program might find the existence of far-flung territorial disputes to be useful in making its case. Such a case would be made even stronger by a pattern of recent frictions that highlights the necessity of greater air power projection. Budgetary pressures may be partly behind a recent People’s Liberation Army reorganization and headcount reduction. A slowing economy might cause a further deceleration in China’s military spending, thus increasing such pressures as budgetary belts tighten. Challenges to Xi’s Leadership Xi Jinping’s efforts to address economic challenges could fail, unleashing consequences that extend well beyond China’s economic health. For example, an **economic collapse** could give rise to a Vladimir **Putin–like redemption figure** in China. Xi’s approach of centralizing authority over a diverse, complex, and massive social, political, and economic system is a **recipe for brittleness**. Rather than designing a resilient, decentralized governance structure that can gracefully cope with localized failures at particular nodes in a network, a highly centralized architecture **risks catastrophic**, **system-level failure**. Although centralized authority offers the tantalizing chimera of stronger control from the center, it also puts all the responsibility squarely on Xi’s shoulders. With China’s ascension to great power status, the consequences of internecine domestic political battles are increasingly playing out on the world stage. The international significance of China’s domestic politics is a new paradigm for the Chinese leadership, and one can expect an adjustment period during which the outcome of what had previously been relatively insulated domestic political frictions will likely generate **unintended international repercussions**. Such dynamics will influence Chinese foreign policy and security behavior. Domestic arguments over ideology, bureaucratic power struggles, and strategic direction could all have **ripple effects abroad**. Many of China’s party heavyweights still employ a narrow and exclusively domestic political calculus. Such behavior increases the possibility of international implications that are not fully anticipated, **raising the risks** of **strategic miscalculation** on the world stage. For example, the factional power struggles that animated the Cultural Revolution were largely driven by domestic concerns, yet manifested themselves in Chinese foreign policy for more than a decade. During this period, China was not the world’s second largest economy and, for much of this time, did not even have formal representation at the United Nations. If today’s globally interconnected China became engulfed in similar domestic chaos, the effects would be felt worldwide.23 Weakened Fetters of Economic Interdependence If China successfully transitioned away from its export-driven growth model toward a consumption-driven economic engine over the next four or five years, it could no longer feel as constrained by economic interdependence. To the extent that such constraints are loosened, the U.S.-China relationship will be more prone to conflict and friction.24 While China has never been the archetypal liberal economic power bent on benign integration with the global economy, its export-driven growth model produced a strong strategic preference for stability. Although past behavior is not necessarily indicative of future strategic calculus, China’s “economic circuit breaker” logic seems to have held its most aggressive nationalism below the threshold of war since 1979. A China that is both comparatively strong and less dependent on the global economy would be a novel development in modern geopolitics. As China changes the composition of its international economic linkages, global integration could place fewer constraints on it. Whereas China has been highly reliant on the import of raw materials and semifinished goods for reexport, a consumption-driven China could have a different international trade profile. China could still rely on imported goods, but their centrality to the country’s overall economic growth would be altered. Imports of luxury goods, consumer products, international brands, and services may not exert a significant constraining influence, since loss of access to such items may not be seen as strategically vital. If these flows were interrupted or jeopardized, the result would be more akin to an inconvenience than a strategic setback for China’s rise. That said, China is likely to continue to highly depend on imported oil even if the economic end to which that energy resource is directed shifts away from industrial and export production toward domestic consumption.

#### US–China war goes nuclear – crisis mis-management ensures conventional escalation - extinction

Kulacki 20 [Dr. Gregory Kulacki focuses on cross-cultural communication between the United States and China on nuclear and space arms control and is the China Project Manager for the Global Security Program at the Union of Concerned Scientists, 2020. Would China Use Nuclear Weapons First In A War With The United States?, Thediplomat.com, https://thediplomat.com/2020/04/would-china-use-nuclear-weapons-first-in-a-war-with-the-united-states/] srey

Admiral Charles A. Richard, the head of the U.S. Strategic Command, recently told the Senate Armed Service Committee he “could drive a truck” through the holes in China’s no first use policy. But when Senator John Hawley (R-MO) asked him why he said that, Commander Richard backtracked, described China’s policy as “very opaque” and said his assessment was based on “very little” information. That’s surprising. **China** has been exceptionally **clear** **about** its **intentions** **on** the possible **first** **use** **of** **nuclear** **weapons**. On the day of its first nuclear test on October 16, 1964, China declared it “will never at any time or under any circumstances be the first to use nuclear weapons.” That **unambiguous** **statement** **has** **been** a **cornerstone** **of** **Chinese** **nuclear** **weapons** policy for 56 years and has been repeated frequently in authoritative Chinese publications for domestic and international audiences, including a highly classified training manual for the operators of China’s nuclear forces. Richard should know about those publications, particularly the training manual. A U.S. Department of Defense translation has been circulating within the U.S. nuclear weapons policy community for more than a decade. The commander’s comments to the committee indicate a familiarity with the most controversial section of the manual, which, in the eyes of some U.S. analysts, indicates there may be some circumstances where **China** **would** **use** **nuclear** **weapons** **first** **in** a **war** **with** **the** **U**nited **S**tates. This U.S. misperception is understandable, especially given the difficulties the Defense Department encountered translating the text into English. The language, carefully considered in the context of the entire book, articulates a strong reaffirmation of China’s no first use policy. But it also reveals **Chinese** military planners are **struggling** **with** **crisis** **management** **and** **considering** **steps** **that** could **create** **ambiguity** **with** **disastrous** **consequences**. Towards the end of the 405-page text on the operations of China’s strategic rocket forces, in a chapter entitled, “Second Artillery Deterrence Operations,” the authors explain what China’s nuclear forces train to do if **“**a strong military power possessing nuclear‐armed missiles and an absolute advantage in high‐tech conventional weapons is carrying out intense and continuous attacks against our major strategic targets and we have no good military strategy to resist the enemy.**”** The military power they’re talking about is the United States. The authors indicate China’s nuclear missile forces train to take specific steps, including increasing readiness and conducting launch exercises, to “dissuade the continuation of the strong enemy’s conventional attacks.” The manual refers to these steps as an “adjustment” to China’s nuclear policy and a “lowering” of China’s threshold for brandishing its nuclear forces. Chinese leaders would only take these steps in extreme circumstances. The text highlights several triggers such as U.S. conventional bombing of China’s nuclear and hydroelectric power plants, heavy conventional bombing of large cities like Beijing and Shanghai, or other acts of **conventional** **warfare** **that** “**seriously** **threatened**” the “safety and **survival**” of the nation. U.S. Misunderstanding Richard seems to believe this planned adjustment in China’s nuclear posture means China is **preparing** **to** **use** **nuclear** **weapons** first under these circumstances. He told Hawley that there are a “number of situations where they may conclude that first use has occurred that do not meet our definition of first use.” The head of the U.S. Strategic Command appears to assume, as do other U.S. analysts, that the **Chinese** would **interpret** **these** types of U.S. conventional **attacks** **as** **equivalent** **to** a **U.S. first use** **of** **nuclear** **weapons** against China. But that’s not what the text says. “Lowering the threshold” refers to China putting its nuclear weapons on alert — it does not indicate Chinese leaders might lower their threshold for deciding to use nuclear weapons in a crisis. Nor does the text indicate Chinese nuclear forces are training to launch nuclear weapons first in a war with the United States. China, unlike the United States, keeps its nuclear forces off-alert. Its warheads are not mated to its missiles. China’s nuclear-armed submarines are not continuously at sea on armed patrols. The manual describes how China’s nuclear warheads and the missiles that deliver them are controlled by two separate chains of command. Chinese missileers train to bring them together and launch them after China has been attacked with nuclear weapons. All of these behaviors are consistent with a no first use policy. The “adjustment” Chinese nuclear forces are preparing to make if the United States is bombing China with impunity is to place China’s nuclear forces in a state of readiness similar to the state the nuclear forces of the United States are in all the time. This step is intended not only to end the bombing, but also to convince U.S. decision-makers they cannot expect to destroy China’s nuclear retaliatory capability if the crisis escalates. Chinese Miscalculation Unfortunately, alerting Chinese nuclear forces at such a moment could have terrifying consequences. Given the relatively small size of China’s nuclear force, a U.S. president might be tempted to try to limit the possible damage from a Chinese nuclear attack by destroying as many of China’s nuclear weapons as possible before they’re launched, especially if the head of the U.S. Strategic Command told the president China was preparing to strike first. One study concluded that if the United States used nuclear weapons to attempt to knock out a small fraction of the Chinese ICBMs that could reach the United States it may kill tens of millions of Chinese civilians. The authors of the text assume alerting China’s nuclear forces would “create a great shock in the enemy’s psyche.” That’s a fair assumption. But they also assume this shock could “dissuade the continuation of the strong enemy’s conventional attacks against our major strategic targets.” That’s highly questionable. There is a **substantial** **risk** **the** **U**nited **S**tates **would** **respond** **to** this implicit **Chinese** **threat** **to** **use** **nuclear** **weapons** **by** **escalating**, rather than halting, its **conventional** **attacks**. If China’s nuclear forces were targeted, it would put even greater strain on the operators of China’s nuclear forces. A **slippery** **slope** **to** **nuclear** **war** Chinese military planners are aware that attempting to coerce the United States into halting conventional bombardment by alerting their nuclear forces could fail. They also know it might trigger a nuclear war. But if it does, they are equally clear China won’t be the one to start it. Nuclear attack is often preceded by nuclear coercion. Because of this, in the midst of the process of a high, strong degree of nuclear coercion we should prepare well for a nuclear retaliatory attack. The more complete the preparation, the higher the credibility of nuclear coercion, the easier it is to accomplish the objective of nuclear coercion, and the lower the possibility that the nuclear missile forces will be used in actual fighting. They assume if China demonstrates it is well prepared to retaliate the United States would not risk a damage limitation strike using nuclear weapons. And even if the United States were to attack China’s nuclear forces with conventional weapons, China still would not strike first. In the opening section of the next chapter on “nuclear retaliatory attack operations” the manual instructs, as it does on numerous occasions throughout the entire text: According to our country’s principle, its stand of no first use of nuclear weapons, the Second Artillery will carry out a nuclear missile attack against the enemy’s important strategic targets, according to the combat orders of the Supreme Command, only after the enemy has carried out a nuclear attack against our country. Richard is wrong. There are no holes in China’s no first use policy. But the worse-case planning articulated in this highly classified military text is a significant and deeply troubling departure from China’s traditional thinking about the role of nuclear weapons. Mao Zedong famously called nuclear weapons “a paper tiger.” Many assumed he was being cavalier about the consequences of nuclear war. But what he meant is that they would not be used to fight and win wars. U.S. nuclear threats during the Korean War and the Taiwan Strait Crisis in the 1950s – threats not followed by an actual nuclear attack – validated Mao’s intuition that nuclear weapons were primarily psychological weapons. Chinese leaders decided to acquire nuclear weapons to free their minds from what Mao’s generation called “**nuclear** **blackmail**.” A former director of China’s nuclear weapons laboratories told me China developed them so its leaders could “sit up with a straight spine.” Countering nuclear blackmail – along with compelling other nuclear weapons states to negotiate their elimination – were the only two purposes Chinese nuclear weapons were meant to serve. Contemporary Chinese military planners appear to have added a new purpose: compelling the United States to halt a conventional attack. Even though it only applies in extreme circumstances, it **increases** the **risk** **that** a **war** between the United States and China **will** **end** **in** a nuclear exchange with unpredictable and **catastrophic** **consequences**. Adding this new purpose could also be the first step on a slippery slope to an incremental broadening the role of nuclear weapons in Chinese national security policy. Americans would be a lot safer if we could avoid that. The United States government should applaud China’s no first use policy instead of repeatedly calling it into question. And it would be wise to adopt the same policy for the United States. If both countries declared they would never use nuclear weapons first it may not guarantee they can avoid a nuclear exchange during a military crisis, but it would make one far less likely.

## Framework

### Util

#### Extinction first --- moral uncertainty.

**Bostrom 12** [(Nick Bostrom, Faculty of Philosophy & Oxford Martin School University of Oxford) “Existential Risk Prevention as Global Priority.” Global Policy, 2012] TDI

These reflections on moral uncertainty suggest an alternative, complementary way of looking at existential risk; they also suggest a new way of thinking about the ideal of sustainability. Let me elaborate. **Our** present **understanding** of axiology **might** well **be confused**. We may not now know — at least not in concrete detail — what outcomes would count as a big win for humanity; we might not even yet be able to imagine the best ends of our journey. **If we are** indeed profoundly **uncertain about our** ultimate aims, **then we should** recognize that there is a great option **value** in preserving — and ideally improving — **our ability to** recognize value and to **steer the future accordingly. Ensuring** that there will be **a future** version **of humanity** with great powers and a propensity to use them wisely is plausibly the best way available to us to increase the probability that the future will contain a lot of value. To do this, **we must prevent any existential catastrophe**.

**Pleasure and pain are intrinsically valuable.**

Moen 16 [Ole Martin Moen, Research Fellow in Philosophy at University of Oslo “An Argument for Hedonism” Journal of Value Inquiry (Springer), 50 (2) 2016: 267–281] TDI

Let us start by observing, empirically, that a widely shared judgment about intrinsic value and disvalue is that **pleasure is intrinsically valuable and pain is intrinsically disvaluable**. On virtually any proposed list of intrinsic values and disvalues (we will look at some of them below), pleasure is included among the intrinsic values and pain among the intrinsic disvalues. This inclusion makes intuitive sense, moreover, for **there is something undeniably good about the way pleasure feels and something undeniably bad about the way pain feels**, and neither the goodness of pleasure nor the badness of pain seems to be exhausted by the further effects that these experiences might have. “Pleasure” and “pain” are here understood inclusively, as encompassing anything hedonically positive and anything hedonically negative.2 **The special value statuses of pleasure and pain are manifested in how we treat these experiences in our everyday reasoning about values.** If you tell me that you are heading for the convenience store, I might ask: “What for?” This is a reasonable question, for when you go to the convenience store you usually do so, not merely for the sake of going to the convenience store, but for the sake of achieving something further that you deem to be valuable. You might answer, for example: “To buy soda.” This answer makes sense, for soda is a nice thing and you can get it at the convenience store. I might further inquire, however: “What is buying the soda good for?” This further question can also be a reasonable one, for it need not be obvious why you want the soda. You might answer: “Well, I want it for the pleasure of drinking it.” If I then proceed by asking “But what is the pleasure of drinking the soda good for?” the discussion is likely to reach an awkward end. The reason is that the **pleasure is not good for anything further**; it is simply that for which going to the convenience store and buying the soda is good.3 As Aristotle observes: “We never ask [a man] what his end is in being pleased, because we assume that pleasure is choice worthy in itself.”4 Presumably, a similar story can be told in the case of pains, for if someone says “This is painful!” we never respond by asking: “And why is that a problem?” We take for granted that if something is painful, we have a sufficient explanation of why it is bad. If we are onto something in our everyday reasoning about values, it seems that **pleasure and pain are both places where we reach the end of the line in matters of value.**

### Kant

#### Contention –

#### 1] Libertarianism mandates a market-oriented approach to space—that negates

Broker 20 [(Tyler, work has been published in the Gonzaga Law Review, the Albany Law Review and the University of Memphis Law Review.) “Space Law Can Only Be Libertarian Minded,” Above the Law, 1-14-20, <https://abovethelaw.com/2020/01/space-law-can-only-be-libertarian-minded/>] TDI

The impact on human daily life from a transition to the virtually unlimited resource reality of space cannot be overstated. However, when it comes to the law, a minimalist, dare I say libertarian, approach appears as the only applicable system. In the words of NASA, “2020 promises to be a big year for space exploration.” Yet, as Rand Simberg points out in Reason magazine, it is actually private American investment that is currently moving space exploration to “a pace unseen since the 1960s.” According to Simberg, due to this increase in private investment “We are now on the verge of getting affordable private access to orbit for large masses of payload and people.” The impact of that type of affordable travel into space might sound sensational to some, but in reality the benefits that space can offer are far greater than any benefit currently attributed to any major policy proposal being discussed at the national level. The sheer amount of resources available within our current reach/capabilities simply speaks for itself. However, although those new realities will, as Simberg says, “bring to the fore a lot of ideological issues that up to now were just theoretical,” I believe it will also eliminate many economic and legal distinctions we currently utilize today. For example, the sheer number of resources we can already obtain in space means that in the rapidly near future, the distinction between a nonpublic good or a public good will be rendered meaningless. In other words, because the resources available within our solar system exist in such quantities, all goods will become nonrivalrous in their consumption and nonexcludable in their distribution. This would mean government engagement in the public provision of a nonpublic good, even at the trivial level, or what Kevin Williamson defines as socialism, is rendered meaningless or impossible. In fact, in space, I fail to see how any government could even try to legally compel collectivism in the way Simberg fears. Similar to many economic distinctions, however, it appears that many laws, both the good and the bad, will also be rendered meaningless as soon as we begin to utilize the resources within our solar system. For example, if every human being is given access to the resources that allows them to replicate anything anyone else has, or replace anything “taken” from them instantly, what would be the point of theft laws? If you had virtually infinite space in which you can build what we would now call luxurious livable quarters, all without exploiting human labor or fragile Earth ecosystems when you do it, what sense would most property, employment, or commercial law make? Again, this is not a pipe dream, no matter how much our population grows for the next several millennia, the amount of resources within our solar system can sustain such an existence for every human being. Rather than panicking about the future, we should try embracing it, or at least meaningfully preparing for it. Currently, the Outer Space Treaty, or as some call it “the Magna Carta of Space,” is silent on the issue of whether private individuals or corporate entities can own territory in space. Regardless of whether governments allow it, however, private citizens are currently obtaining the ability to travel there, and if human history is any indicator, private homesteading will follow, flag or no flag. We Americans know this is how a Wild West starts, where most regulation becomes the impractical pipe dream. But again, this would be a Wild West where the exploitation of human labor and fragile Earth ecosystem makes no economic sense, where every single human can be granted access to resources that even the wealthiest among us now would envy, and where innovation and imagination become the only things we would recognize as currency. Only a libertarian-type system, that guarantees basic individual rights to life, liberty, and the pursuit of happiness could be valued and therefore human fidelity to a set of laws made possible, in such an existence.

#### 2] Property rights in space can be consistent with international law

Simberg 12 [(Rand, MSE in technical management from West Coast University, recognized as an expert in space transportation by the Office of Technology Assessment) “Homesteading the Final Frontier A Practical Proposal for Securing Property Rights in Space,” Competitive Enterprise Institute, April 2012, <https://cei.org/wp-content/uploads/2012/04/Rand-Simberg-Homesteading-the-Final-Frontier.pdf>] TDI

But is it true that any recognition of off-planet property claims is de facto a violation of the Outer Space Treaty? Not necessarily. For instance, one could argue that the existence of the Moon Treaty is in and of itself a refutation of the notion that the Outer Space Treaty outlaws private property in space, or else there would be no need for another treaty that essentially explicitly does so. And there is at least one potential loophole that could be exploited by appropriately worded legislation. There are two key assumptions in the legal argument used by opponents of off-planet property claims: 1) that the recognition by a government would only recognize claims by its own citizens; and 2) that it would defend them by force. That need not necessarily be so. Under the treaty, it would in fact be possible for a government, or group of governments, to recognize the property claims of anyone who met specified conditions, regardless of their citizenship or nationality. Such cooperation would obviate the need for physical force to defend claims. The argument that the treaty permits individual property rights was actually made from the very beginning. In 1969, two years after the treaty went into force, the late distinguished space-law professor, Stephen Gorove, noted that under it, “[A]n individual acting on his own behalf or on behalf of another individual or a private association or an international organization could lawfully appropriate any part of outer space, including the [M]oon and other celestial bodies.”32 This clearly provides support for the concept of individual claims off planet under Article II.

#### 3] Space appropriation and exploration originates from private companies such as Space X and Blue Origin. Preventing such is a restriction on the ability of companies to set and pursue their ends and these companies gain contracts with the government for projects which turns promise breaking offense.

#### 4) we have literally never met an ET or a living organism on space, which means there is no agent that has exercised their property rights. C) homesteading principle – it’s the only non-arbitrary mechanism to determine who has property rights – *even on Earth*. There’s no clear reason why space is different from any undiscovered island on Earth, which might even have living organisms.

#### 5] their evidence never isolates a clear and binding promise between private entities and OST, it’s talking about *national* appropriation. and if anything, it’s a loophole which actually negates. Also proves that private entities aren’t violating any laws Recut we read yellow

1AC Wisaeus 17 Per Wisaeus JURM02 Graduate Thesis Graduate Thesis, Master of Laws program 30 higher education credits Supervisor: Moa De Lucia Dahlbeck Semester of graduation: Period 1 Autumn semester 2017 “Our future march on Mars – a walk on a well-known path” FACULTY OF LAW Lund University [https://lup.lub.lu.se/student-papers/record/8930484/file/8933833.pdf SJMS //Recut Nato //](https://lup.lub.lu.se/student-papers/record/8930484/file/8933833.pdf%20SJMS%20//Recut%20Nato%20//) recut again

3.5 Appropriation of space The word appropriation is used in Article II OST but it does not exist consensus nor an exact definition of its meaning. Traditionally, appropriation have had the meaning of taking control over an area to use it exclusively and with a long-term intention.129 As mentioned above it is clear that the difference between use and appropriation is not entirely clear. I will in the following use the meaning of appropriation as defined in Definition of terms in this thesis, and present aspects of it below 3.5.1 Physical appropriation of parts of space Whether something is even possible to appropriate is due to if it is possible to control and possess. The possibility to appropriate outer space has the problem of the difficulty of defining outer space due to the lack of landmarks. Article II OST and its prohibition of national appropriation is regarding outer space and celestial bodies. As an example of the difficulties of defining areas in space are the different opinions on the limits of air space contra outer space. In simple terms: where does the sky end and outer space start? Therefore, it is difficult to envisage an appropriation of parts of outer space. A celestial body has the advantage of being tangible and possible to locate. 130 Another aspect of the problem is the fact that space law is not clear on what constitutes a celestial body, which opens up for the possibility of circumventing the prohibition of Article II OST by appropriating asteroids or meteorites. This is, as much else in space law, not completely clear.131 As mentioned earlier, it can be said that the UN claimed jurisdiction of the whole outer space with its declarations adopted in 1961 and 1963. One of the main objections to this relies on the fact that the whole outer space is enormous and ever-expanding and human jurisdiction and legal regulation cannot be applicable to the whole universe due to the absurdity of the claim. 132 Therefore, it is only reasonable to limit the jurisdiction to our solar system.133 Even this is a liberal limitation since the furthest a human made space object has travelled is outside our planet system.134 Therefore a starting point for appropriation would be to actually be able to physically access the object. In order to appropriate a celestial body in space one would have to be able to control it. In order to control a celestial body a starting point is to be able to reach it. The conclusion is that if one is able to both reach a part of outer space or a celestial body and define it and maintain a presence, one would be able to theoretically appropriate it. 3.5.2 The legality of appropriation of space Whether it is possible to legally appropriate anything in space has been and is under discussion. Within the field of space law there is an ongoing discussion on Article II of OST. The relevant Article prohibits national appropriation. The wording of the Article has opened up for a vivid discussion about its precise meaning. There are mainly three standpoints regarding appropriation in space. These are: OST allows appropriation, OST prohibits appropriation and appropriation is not legally enforceable. I will examine each three in order in the following sections. 3.5.2.1 Private and international appropriation Whether one can decide if appropriation is allowed by OST is depending on what type of appropriation it is. National appropriation refers to when a state claims and takes control over a celestial body, which is clearly prohibited by Article II OST. This option will not be further discussed due to the clear language of OST. Private appropriation has the meaning of a private entity taking control over a celestial body. The third possibility is international appropriation which has not been thoroughly discussed within doctrine. The meaning of international appropriation means the appropriation of a celestial body by an international organization representing mankind. The conclusion that it is acceptable to appropriate an object in space based on this argument can be reached through an e contrario reading of Article II OST: Outer space, including the Moon and other celestial bodies, is not subjected to national appropriation by claim of sovereignty, by means of use or occupation or by any means. [Emphasis added] Of interest is the word ‘national’, implying that appropriation is allowed if it is not conducted under national cover. This interpretation has been supported by various authors but also contested by others. The supporters of this theory put emphasis on the notion that the word ‘national’ is used. It is seen as a way of narrowing down the applicability of the Article. Because the interpretation has made the Article’s applicability exclusive to national appropriation it would be possible to appropriate parts of space as a nonstate. Since Article II does neither mention explicitly private individuals or enterprises nor international organizations, it opens up for the possibility of appropriation.135 3.5.2.1.1 Private appropriation Those who favor private appropriation, such as Stephen Gorove, come to the frank conclusion that a private entity could lawfully appropriate parts of space because of the lack of explicit prohibition.136 This loophole theory is rejected by most authors, however. 137 One major flaw in Gorove’s argumentation is the overlooking of Article VI OST. Article VI OST prescribes that states have the responsibility for activities in outer space and other celestial bodies, including the Moon. Activities include both activities made by governmental as well as non-governmental organizations. Activities are not necessarily appropriation but it could be, see discussion in 3.4 Freedom of exploration, use and access. As mentioned earlier, the OST does not bind private entities per se, but private entities are forced to obey the OST due to the fact that a private entity is entitled to the freedoms set out in the OST via its supervising government. In theory, a private entity could appropriate i.e. a celestial body but its supervising state would be responsible for it and would most probably prevent the appropriation. However, it would be too easy for states to circumvent the state-prohibition by licensing private companies to appropriate space. Those arguing in favor of this position refer to Articles VI and VII of OST since these Articles proclaim that states are responsible for national activities in space. 138 Even if OST should not be regarded as prohibiting private appropriation and a private appropriation took place an appropriation wouldn’t be able to stand for itself without any support of a state. Private property cannot exist without a state endorsing it. Since at least one state would have to endorse the appropriation, Article II OST would once again be an obstacle for the appropriation.139

### Debris

#### Non UQ – squo debris thumps –

Orwig 16 [(Jessica, MS in science and tech journalism from Texas A&M, BS in astronomy and physics from Ohio State) “Russia says a growing problem in space could be enough to spark a war,” Insider,’ January 26, 2016, <https://www.businessinsider.com/russia-says-space-junk-could-spark-war-2016-1>] TDI

NASA has already [warned that](https://www.businessinsider.com/space-junk-at-critical-density-2015-9) the large amount of space junk around our planet is growing beyond our control, but now a team of Russian scientists has cited another potentially unforeseen consequence of that debris: War.

Scientists estimate that anywhere from 500,000 to 600,000 pieces of human-made space debris between 0.4 and 4 inches in size are currently orbiting the Earth and traveling at speeds over [17,000 miles per hour](https://www.nasa.gov/mission_pages/station/news/orbital_debris.html).

If one of those pieces smashed into a military satellite it "may provoke political or even armed conflict between space-faring nations," Vitaly Adushkin, a researcher for the Institute of Geosphere Dynamics at the Russian Academy of Sciences, reported in a paper set to be published in the peer-reviewed journal [Acta Astronautica](https://www.sciencedirect.com/science/article/pii/S0094576515303416), which is sponsored by the International Academy of Astronautics.

#### Space debris creates existential deterrence and a taboo

Bowen 18 [(Bleddyn, lecturer in International Relations at the University of Leicester) “The Art of Space Deterrence,” European Leadership Network, February 20, 2018, <https://www.europeanleadershipnetwork.org/commentary/the-art-of-space-deterrence/>] TDI

Fourth, the ubiquity of space infrastructure and the fragility of the space environment may create a degree of existential deterrence. As space is so useful to modern economies and military forces, a large-scale disruption of space infrastructure may be so intuitively escalatory to decision-makers that there may be a natural caution against a wholesale assault on a state’s entire space capabilities because the consequences of doing so approach the mentalities of total war, or nuclear responses if a society begins tearing itself apart because of the collapse of optimised energy grids and just-in-time supply chains. In addition, the problem of space debris and the [political-legal hurdles to conducting debris clean-up](https://doi.org/10.1080/14777622.2014.890489) operations mean that even a handful of explosive events in space can render a region of Earth orbit unusable for everyone. This could caution a country like China from excessive kinetic intercept missions because its own military and economy is increasingly reliant on outer space, but perhaps not a country like North Korea which does not rely on space. The usefulness, sensitivity, and fragility of space may have some existential deterrent effect. [China’s catastrophic anti-satellite weapons test in 2007](https://defenceindepth.co/2017/01/11/chinas-space-weapons-test-ten-years-on-behemoth-pulls-the-peasants-plough/) is a valuable lesson for all on the potentially devastating effect of kinetic warfare in orbit.

**No space war. Insurmountable barriers and common interests**

Bohumil **Doboš**, scholar at the Institute of Political Studies, Faculty of Social Sciences, Charles University in Prague, Czech Republic, and a coordinator of the Geopolitical Studies Research Centre, **’19**, Geopolitics of the Outer Space, Chapter 3: Outer Space as a Military-Diplomatic Field, Pgs. 48-49)

Despite the theorized potential for the achievement of the terrestrial dominance throughout the utilization of the ultimate high ground and the ease of destruction of space-based assets by the potential space weaponry, the utilization of space weapons is with current technology and no effective means to protect them far from fulfilling this potential (Steinberg 2012, p. 255). **In current global international political and technological setting, the utility of space weapons is very limited**, even if we accept that the ultimate high ground presents the potential to get a decisive tangible military advantage (which is unclear). This stands among the reasons for the lack of their utilization so far. Last but not the least, it must be pointed out that the states also develop passive defense systems designed to protect the satellites on orbit or critical capabilities they provide. These **further decrease the utility of space weapons**. These systems include larger maneuvering capacities, launching of decoys, preparation of spare satellites that are ready for launch in case of ASAT attack on its twin on orbit, or attempts to decrease the visibility of satellites using paint or materials less visible from radars (Moltz 2014, p. 31). Finally, we must look at the main obstacles of connection of the outer space and warfare. The first set of barriers is comprised of **physical obstructions**. As has been presented in the previous chapter, the outer space is very challenging domain to operate in. Environmental factors still present the largest threat to any space military capabilities if compared to any man-made threats (Rendleman 2013, p. 79). A following issue that hinders military operations in the outer space is the predictability of orbital movement. If the reconnaissance satellite's orbit is known, the terrestrial actor might attempt to hide some critical capabilities-an option that is countered by new surveillance techniques (spectrometers, etc.) (Norris 2010, p. 196)-but the hide-and-seek game is on. This same principle is, however, in place for any other space asset-any nation with basic tracking capabilities may quickly detect whether the military asset or weapon is located above its territory or on the other side of the planet and thus mitigate the possible strategic impact of space weapons not aiming at mass destruction. Another possibility is to attempt to destroy the weapon in orbit. Given the level of development for the ASAT technology, it seems that they will prevail over any possible weapon system for the time to come. Next issue, directly connected to the first one, is the utilization of weak physical protection of space objects that need to be as light as possible to reach the orbit and to be able to withstand harsh conditions of the domain. This means that their protection against ASAT weapons is very limited, and, whereas some avoidance techniques are being discussed, they are of limited use in case of ASAT attack. We can thus add to the issue of predictability also the issue of easy destructibility of space weapons and other military hardware (Dolman 2005, p. 40; Anantatmula 2013, p. 137; Steinberg 2012, p. 255). Even if the high ground was effectively achieved and other nations could not attack the space assets directly, there is still a need for communication with those assets from Earth. There are also ground facilities that support and control such weapons located on the surface. Electromagnetic communication with satellites might be jammed or hacked and the ground facilities infiltrated or destroyed thus rendering the possible space weapons useless (Klein 2006, p. 105; Rendleman 2013, p. 81). This issue might be overcome by the establishment of a base controlling these assets outside the Earth-on Moon or lunar orbit, at lunar L-points, etc.-but this perspective remains, for now, unrealistic. Furthermore, **no contemporary actor will risk full space weaponization in the face of possible competition and the possibility of rendering the outer space useless.** No actor is dominant enough to prevent others to challenge any possible attempts to dominate the domain by military means. To quote 2016 Stratfor analysis, "(a) war in space would be devastating to all, and preventing it, rather than finding ways to fight it, will likely remain the goal" (Larnrani 20 16). This stands true unless some space actor finds a utility in disrupting the arena for others.

**Doesn't escalate – vulnerability leads to restraint.**

**Pavur 19** [James, DPhil Researcher at the Cybersecurity Centre for Doctoral Training at Oxford University, and Ivan Martinovic, Professor of Computer Science in the Department of Computer Science at Oxford University, “The Cyber-ASAT: On the Impact of Cyber Weapons in Outer Space”, 2019 11th International Conference on Cyber Conflict: Silent Battle, <https://ccdcoe.org/uploads/2019/06/Art_12_The-Cyber-ASAT.pdf>]

Limited Accessibility Space is difficult. Over 60 years have passed since the first Sputnik launch and only nine countries (ten including the EU) have orbital launch capabilities. Moreover, a launch programme alone does not guarantee the **resources** and **precision required** to **operate a meaningful ASAT capability**. Given this, one possible reason why **space wars have not broken out** is simply because only the US has ever had the ability to fight one [21, p. 402], [22, pp. 419–420]. Although launch technology may become cheaper and easier, it is unclear to what extent these advances will be distributed among presently non-spacefaring nations. **Limited access to orbit** necessarily reduces the scenarios which could plausibly escalate to ASAT usage. Only major conflicts between the handful of states with ‘space club’ membership could be considered possible flashpoints. Even then, the **fragility of an attacker’s own space assets** creates **de-escalatory pressures** due to the **deterrent effect of retaliation**. Since the earliest days of the space race, dominant powers have recognized this dynamic and demonstrated an inclination **towards de-escalatory space strategies** [23]. B. Attributable Norms There also exists a **long-standing normative framework** favouring the **peaceful use of space**. The effectiveness of this regime, centred around the Outer Space Treaty (**OST**), is highly contentious and many have pointed out its serious legal and political shortcomings [24]–[26]. Nevertheless, this status quo framework has somehow supported over **six decades of relative peace** in orbit. Over these six decades, **norms have become deeply ingrained** into the way states describe and perceive space weaponization. This de facto codification was dramatically demonstrated in 2005 when the US found itself on the short end of a 160-1 UN vote after opposing a non-binding resolution on space weaponization. Although states have occasionally pushed the boundaries of these norms, this has typically occurred through incremental legal re-interpretation rather than outright opposition [27]. Even the most notable incidents, such as the 2007-2008 US and Chinese ASAT demonstrations, were couched in rhetoric from both the norm violators and defenders, depicting space as a peaceful global commons [27, p. 56]. Altogether, this suggests that **states perceive real costs** to breaking this normative tradition and may even **moderate their behaviours** accordingly. One further factor supporting this norms regime is the **high degree of attributability** surrounding ASAT weapons. For kinetic ASAT technology, **plausible deniability** and **stealth** are essentially **impossible**. The literally explosive act of launching a rocket cannot evade detection and, if used offensively, retaliation. This imposes **high diplomatic costs** on ASAT usage and testing, particularly during peacetime. C. Environmental Interdependence A third stabilizing force relates to the **orbital debris consequences** of ASATs. China’s 2007 ASAT demonstration was the largest debris-generating event in history, as the targeted satellite dissipated into thousands of dangerous debris particles [28, p. 4]. Since debris particles are indiscriminate and unpredictable, they often threaten the attacker’s own space assets [22, p. 420]. This is compounded by Kessler syndrome, a phenomenon whereby orbital debris ‘breeds’ as large pieces of debris collide and disintegrate. As space debris remains in orbit for hundreds of years, the **cascade effect** of an ASAT attack can constrain the attacker’s long-term use of space [29, pp. 295– 296]. Any state with kinetic ASAT capabilities will likely also operate satellites of its own, and they are necessarily exposed to this collateral damage threat. Space debris thus acts as a strong strategic deterrent to ASAT usage.

#### No debris risk - 0.1% chance of a collision.

Alexander William **Salter**, **Economics Professor at Texas Tech**, **’16**, “SPACE DEBRIS: A LAW AND ECONOMICS ANALYSIS OF THE ORBITAL COMMONS” 19 STAN. TECH. L. REV. 221 \*numbers replaced with English words

The probability of a collision is currently low. Bradley and Wein estimate that the maximum probability in LEO of a collision over the lifetime of a spacecraft remains below one in one thousand, conditional on continued compliance with NASA’s deorbiting guidelines.3 However, the possibility of a future “snowballing” effect, whereby debris collides with other objects, further congesting orbit space, remains a significant concern.4 Levin and Carroll estimate the average immediate destruction of wealth created by a collision to be approximately $30 million, with an additional $200 million in damages to all currently existing space assets from the debris created by the initial collision.5 The expected value of destroyed wealth because of collisions, currently small because of the low probability of a collision, can quickly become significant if future collisions result in runaway debris growth.

Russians switched to ground based radar

Hans M. Kristensen et al, director of the Nuclear Information Project at the Federation of American Scientists, Matthew McKinzie, director of the Nuclear Program of the Natural Resources Defense Council (NRDC), &Theodore A. Postol, rofessor emeritus of Science, Technology, and International Security at the Massachusetts Institute of Technology, ’17, “How US Nuclear Force Modernization Is Undermining Strategic Stability: The BurstHeight Compensating Super-Fuze” http://futurefastforward.com/wp-content/uploads/2017/05/How-US-Nuclear-Force-Modernization-Is-Undermining-Strategic-Stability.pdf

Detailed analyses, initially stimulated by questions about why the alert went on for so long, showed that a specialized space-based Russian early warning system called Prognoz was then under development. Analysis of the Prognoz satellite constellation and of available Russian infrared sensor technologies indicated that even if the satellite system had been working, it would not have been able to provide surveillance of the North Atlantic. Today, Russia has stopped launching satellites into this constellation and has instead focused enormous resources exclusively into building a highly robust and redundant network of ground-based radars. It is now very clear that Russia’s extreme de-emphasis on satellite early warning systems and its extreme focus on building numerous, technologically varied ground-based radar warning systems is due to the lack of critical technologies needed to implement a spacebased ballistic missile warning system.

US switched to ground based radar - no miscalc

Tech Sergeant Robbie Arp, 4-25-2018, "Air Force Tech Report: Ground Based Radar Early Warning System," https://www.af.mil/News/Article-Display/Article/1503094/air-force-tech-report-ground-based-radar-early-warning-system/, video transcribed by Raam.

The United States Air force maintains seven ground based early warning radar systems to monitor the skies for any potential threats. These systems, located in seven separate locations around the globe are capable of detecting attacks and conducting general space surveillance as well as satellite tracking. The unique aspect of the radars is their phased array antenna technology. Phased array antenna aiming, or beam steering, is done in millionths of a second by electronically controlling the timing, or phase, of the incoming and outgoing signals. Controlling the phase allows the beam to be rapidly projected in different directions, allowing tracking of multiple targets while maintaining the surveillance responsibility. The ground based early warning radar system helps U-S forces stand ready to respond in a moments notice.

#### Kessler syndrome is far off – no impact to space debris

Corrinne **Burns 13**. Staff writer, citing NASA astrophysicist Donald Kessler. "Space junk apocalypse: just like Gravity?," 11-15-2013, The Guardian, https://www.theguardian.com/science/blog/2013/nov/15/space-junk-apocalypse-gravity.

What Cuarón is showing us is a phenomenon called Kessler syndrome – a chain reaction of collisions between orbital technology. Under Kessler conditions, each collision generates a swarm of debris fragments, and each of those fragments then goes on to trigger further collisions. In the hypothetical doomsday scenario, this runaway cascade continues until all satellites in an orbit have been destroyed. That would dramatically impact our way of life back on Earth – no mobile phones, no GPS, no accurate weather forecasting, no satellite broadcasting. It makes for a good movie sequence, but is **Kessler syndrome** **a genuine threat?** I asked Donald Kessler himself. A former Nasa astrophysicist, it was Kessler who, in 1978, first proposed that a runaway cascade of collisions was a possibility. He'd been studying meteorite collisions and, out of personal curiosity, decided to apply his algorithm to satellites, too. "The results of those calculations surprised me – I didn't realise it could be that bad," he tells me over a crackly telephone line. (Through the wonder of satellite technology, he is speaking to me from the deck of a boat charting the waters of eastern Europe.) "But it's building up as I expected. The cascade is happening right now – the Kosmos-Iridum collision was the start of the process. It has already begun." Now? **Are we in trouble?** **Not yet.** Kessler syndrome **isn't an acute** **phenomenon,** as depicted in the movie – it's a **slow**, **decades-long process**. "It'll happen throughout the **next 100 years** – **we have time to deal with it,"** Kessler says. "The time between collisions will become shorter – it's around 10 years at the moment. In 20 years' time, the time between collisions could be reduced to five years." Fortunately, communications satellites are, in the main, situated high up in geosynchronous orbit (GEO), whereas the risk of collisions lies mainly in the much lower, and more crowded, low Earth orbit (LEO).

**No food wars---the countries that matter their impact are resilient and institutional responses prevent escalation**

Sarah **Cliffe 16**, Director of the Center on International Cooperation at New York University, 3/29/16, “Food Security, Nutrition, and Peace,” http://cic.nyu.edu/news\_commentary/food-security-nutrition-and-peace

However, current research **does not** yet indicate a clear link between climate change, food insecurity and conflict, except perhaps where rapidly deteriorating water availability cuts across existing tensions and weak institutions. But a series of interlinked problems – changing global patterns of consumption of energy and scarce resources, increasing demands for food imports (which draw on land, water, and energy inputs) can create pressure on fragile situations. Food security – and food prices – are a highly political issue, being a very immediate and visible source of popular welfare or popular uncertainty. But their **link to conflict** (and the wider links between climate change and conflict) is indirect rather than direct. What makes some countries more resilient than others? **Many** countries face food price or natural resource shocks **without falling into conflict**. Essentially, the two important factors in determining their resilience are: First, whether food insecurity is combined with **other stresses** – issues such as unemployment, but most fundamentally issues such as political exclusion or human rights abuses. We sometimes read nowadays that the 2006-2009 drought was a factor in the Syrian conflict, by driving rural-urban migration that caused societal stresses. It may of course have been one factor amongst many but it would be **too simplistic** to suggest that it was the primary driver of the Syrian conflict. Second, whether countries have strong enough institutions to fulfill a social compact with their citizens, providing help quickly to citizens affected by food insecurity, with or without international assistance. During the 2007-2008 food crisis, developing countries with low institutional strength experienced more food price protests than those with higher institutional strengths, and more than half these protests turned violent. This for example, is the difference in the events in Haiti versus those in **Mexico or the Philippines** where far greater institutional strength existed to deal with the food price shocks and **protests did not spur deteriorating national security** or widespread violence.

#### Empirics prove food shortages don’t cause war. However, they ensure trade and globalization.

James 21 — Harold James; Professor of History and International Affairs at Princeton University. [Published: 4-20-2021; "Globalization’s Coming Golden Age"; *Foreign Affairs* “Trade Wars” May/June 2021; Accessed: 5-10-2021; [https://www.foreignaffairs.com/articles/united-states/2021-04-20/globalizations-coming-golden-age]//KL](https://www.foreignaffairs.com/articles/united-states/2021-04-20/globalizations-coming-golden-age%5d//KL)

THE FIRST TIME AROUND

The 1840s were a disaster. Crops failed, people went hungry, disease spread, and financial markets collapsed. The best-known catastrophe was the Irish potato famine, which began in 1845 and led to the deaths of nearly one million people, mostly from diseases caused by malnutrition. The same weather that made potatoes vulnerable to fungal rot also led to widespread crop failures and famine across Europe. In The Communist Manifesto, published in 1848, Karl Marx and Friedrich Engels articulated how global integration was driving the world toward social and political upheaval. “The development of Modern Industry,” they argued, “cuts from under its feet the very foundation on which the bourgeoisie produces and appropriates products.”

Europe was a tinderbox. In 1848, it ignited in an inferno of nationalist revolution, with populations rising up in France, Italy, and central Europe. But the economic shock of the 1840s did not reverse the course of global integration. Instead, trade expanded, governments reduced tariff barriers, capital mobility surged, and people moved across continents. Migration was not only a response to social and political immiseration; it also reflected the promise of new prosperity.

Historians now think of the second half of the nineteenth century as the first age of globalization. Food shortages highlighted the need for broad and diversified supply chains, and leaders realized that a modern state needed reliable access to supplies from beyond its borders. In the United Kingdom, the British government initially responded to the Irish famine by importing corn from outside Europe. At the time, The Economist argued that “except Russia, Egypt, and the United States, there are no countries in the world able to spare any quantity of grain worthy of mention.”

Historic ruptures often generate and accelerate new global links.

Imports, however, failed catastrophically. This was in part because the new food was unfamiliar, but above all, it was because London couldn’t work out how to pay for the goods. Trade deficits generated currency shortages, which pushed up interest rates in the United Kingdom and France. This intensified a manufacturing crisis—itself the result of a decline in purchasing power caused by surging food prices. Although the best solution was to sell more goods abroad, that would have required governments to lower trade barriers and open up their markets.

These shortages generated popular demands for more competent governments. Although it was only in 1981 that the economist Amartya Sen’s pioneering work on the 1943 great Bengal famine definitively showed that famines are often manmade, that intuition was already widely shared in the 1840s. John Mitchel, an Irish nationalist who emigrated to the United States, concluded, “No sack of Magdeburg, or ravage of the Palatinate, ever approached in horror and desolation to the slaughters done in Ireland by mere official red tape and stationery, and the principles of political economy.”

Governments everywhere eventually responded to these demands. That meant learning from successful efforts elsewhere. The United Kingdom enacted a series of civil service reforms, adopting a competitive examination process in place of arcane patronage. The most striking extension of state capacity, however, occurred across the English Channel, where Louis-Napoléon, the nephew of the emperor, was elected president of France in 1848. After a coup and a series of plebiscites advertising his competence and activism, Napoleon made himself president for life and, eventually, emperor—Napoleon III. His policies were designed to show the benefits of an efficient autocrat over divided liberal regimes. He initiated large-scale public works projects—including railroad expansions and Baron Haussmann’s famous rebuilding of Paris.

Napoleon also demonstrated his competence by negotiating the Anglo-French tariff agreement of 1860, which reduced duties on important goods traded across the channel. Other countries quickly followed suit and negotiated bilateral trade deals of their own across Europe. But even before 1860, improved communication and transportation meant commerce was surging: global trade in goods accounted for just 4.5 percent of output in 1846 but shot up to 8.9 percent in 1860.

The events of the 1840s also laid the foundation for a wave of institutional changes to address the proliferation of small states with a limited ability to deal with migration. The creation of new nation-states with novel currencies and banking systems, notably Germany and Italy, and administrative reform in the Habsburg empire—ending internal customs duties and serf labor—were all designed to push economic growth. In this context, the American Civil War and the Meiji Restoration in Japan were also nation-building efforts meant to maximize the effectiveness and capacity of institutions. The abolition of slavery in the United States and feudalism in Japan were profound social and economic transformations. Both upheavals, moreover, led to monetary and banking reforms.

Business competence was also newly in demand. In 1851, the United Kingdom celebrated its industrial strength with the Great Exhibition—an international fair intended to display British ingeniousness and mechanical superiority, as well as the virtues of peaceful commerce. Some of the most stunning products, however, were neither British nor particularly peaceful—among them, the steel cannon, invented by a German, Alfred Krupp, and the revolver, developed by an American, Samuel Colt. British observers saw continental Europeans catching up and overtaking their own country. To the British scientist Lyon Playfair, the exhibition showed “very clearly and distinctly that the rate of industrial advance of many European nations, even of those who were obviously in our rear, was at a greater rate than our own.” He went on: “In a long race the fastest sailing ship will win, even though they are for a time behind.” The event taught world leaders a powerful lesson: international trade was vital for enhancing national performance. Competition was central to generating competence.

The result was an abrupt psychological shift from catastrophism to optimism, and from despair to self-confidence. This new mood initiated the first wave of globalization—its so-called golden age, in which international trade and finance expanded rapidly. Eventually, however, this optimism gave way to complacency, then doubts about the benefits of globalization and increasing disillusion among those left behind (notably European farmers). The upswing came to an end with World War I. That conflict prompted a massive international rebuilding effort that faltered bloodily with the rise of fascism in the 1930s and the advent of World War II.

A SHOCK TO THE SYSTEM

The makers of the postwar settlement in 1945 had learned a great deal from the mistakes of the last century. They created an extensive framework of international institutions but left substantial economic control in the hands of national authorities. As a result, the end of World War II did not immediately unleash waves of capital mobility like those that had characterized the nineteenth century. Nearly three decades later, however, the dilemmas raised by shortages and scarcity that had led to earlier versions of integration finally returned—setting the stage for the current era of globalization.

In the 1970s, after two large oil price hikes, the industrialized world saw its way of life threatened. Oil prices had been stable in the 1960s, but a surge in demand taught producers that they could exploit control over the world’s most important commodity. Adding to the crunch, the first oil shock, in 1973–74, was accompanied by a 30 percent rise in wheat prices, after the Soviet Union experienced poor harvests and bought up U.S. grain to compensate. Shortages reappeared. Some oil-importing countries imposed “car-free days” as a way of rationing gasoline consumption. As states spent more on oil, grain, and other commodities, they found their balance of payments squeezed. Unable to afford vital goods from abroad, governments had to make hard choices. Many floundered as they tried to ration scarce goods: mandating who could drive cars when or struggling over whether they should pay nurses more than teachers, police officers, or civil servants.

The immediate and instinctual response to scarcity was protectionism. In the United Kingdom, where the balance-of-payments problem appeared earlier than elsewhere, the government tried a domestic purchasing campaign, supported by all the major political parties. Leaders encouraged citizens to wear stickers and badges with the Union Jack and the message “I’m backing Britain.” (The press magnate Robert Maxwell distributed T-shirts with a similar slogan, but they turned out to be made in Portugal.) In the mid-1970s, after the first oil shock, the government briefly flirted with what the Labour Party’s left flank called a “siege economy,” including extensive import restrictions. In the United States, there was acute anxiety about Japanese competition, and in 1981, Washington pressured Tokyo to sign an agreement that limited Japanese car exports. The move backfired, however. Because of the new restrictions, Japanese producers merely shifted their focus away from cheap, fuel-efficient cars and toward luxury vehicles.

Despite these gestures at economic nationalism, the oil shock—paradoxically at first—created more globalization. In conjunction with price increases, a financial revolution driven by the emergence of large international banks transferred huge surpluses accumulated by oil producers into lendable funds. The new availability of money made resources easily accessible for governments all over the world that wanted to push development and growth. International demand thus surged. In contrast, in the United Kingdom, Labour’s siege economy looked like it would cut off access to markets and prosperity.

Familiar historical forces will drive post-pandemic reglobalization.

Thus, crises in the 1970s led to the same realization as in the 1840s: openness produced resilience, and financing needed to be available for trade to expand. The eventual impact was obvious: trade in goods and services, which in 1970 had amounted to 12.1 percent of global GDP, increased to 18.2 percent by 1980. The cycle swung back to globalization once again.

Protectionism in the 1970s also triggered a discussion of whether governments were handling the crisis competently. At first, the debate was personalized and highly caricatured: in the United States, it centered on Richard Nixon’s crookery, Gerald Ford’s supposed inability to chew gum and walk, or Jimmy Carter’s micromanagement. In the United Kingdom, commentators focused on the detached bachelor existence of Prime Minister Edward Heath and then on allegations of cronyism against his successor, Harold Wilson. France went into the oil shock under the very sick President Georges Pompidou, who died of cancer in 1974. In West Germany, the revelation that Chancellor Willy Brandt’s closest assistant was an East German spy undermined the country’s reputation for competence. His successor, Helmut Schmidt, believed that Germany was returning to the chaos of the interwar Weimar Republic.

The many examples of personal incompetence in rich industrial democracies generated the thesis that such countries had become ungovernable. The political theorist Jean-François Revel concluded that democracies were perishing and that the Soviet Union was winning the Cold War. Autocracies such as Chile under Augusto Pinochet and Iran under Mohammad Reza Shah Pahlavi appeared better suited to handle modern global challenges. The autocrats lectured others about their superiority. In reality, however, they were bloody, corrupt, and, in many cases, spectacularly unsuccessful.

The real insight of the debate over administrative effectiveness was that governments could overstretch themselves by taking on too many tasks. That realization inspired a key tenet of what was later widely derided as “neoliberalism”: the belief that if governments took on microdecisions, such as determining wage and price levels (a central part of both Nixon’s and the British government’s bids to contain inflation), they risked their legitimacy and reputation for competence. Official decisions would appear both arbitrary and unenforceable because powerful groups would quickly make sure that new settlements favored their interests.

INFLATION NATION

The shortages of the 1840s and the 1970s both seemed to have an apparent cure: inflation. Inflation can help accommodate shocks, often painlessly. Because people have more cash or bank credit, monetary abundance generates the impression that they can have everything they want. Only gradually do consumers realize that prices are rising and that their money buys less.

In the 1850s, inflation may have been partially unintended. It was largely the result of the 1849 California Gold Rush, which vastly increased the world’s gold stock. Price increases were also driven by financial innovation, primarily Europe’s adoption of new types of banking that drove money creation, such as the so-called crédits mobiliers, which developed industrial lending in France and central Europe. By giving people apparently greater wealth, this increase in the supply of money (and the resulting mild inflation) helped governments appear more competent and made businesses and consumers more confident. It prompted a genuine global surge in production, which generated greater prosperity and security.

After 1971, when Nixon finally severed the link between the dollar and gold, monetary policy was no longer constrained by a metallic standard. In times of crisis, governments could now print more money to drive growth. In many countries, the immediate response to oil price increases was therefore to accommodate the shock through expansive fiscal and monetary stimulus: people could still go on buying. That reaction spurred inflation, which by 1974 had risen to 11 percent in the United States and beyond that in some other countries: in 1975, the United Kingdom’s inflation rate reached 24 percent.

Although inflation initially seemed to be the solution to the scarcity problem, it soon appeared in diagnoses of government incompetence. The economist Arthur Okun developed a popular “misery index” by simply adding inflation and unemployment. The metric became an important political weapon. The Democratic presidential challenger George McGovern used it against Nixon in 1972, Carter used it against Ford in 1976, and Ronald Reagan used it against Carter in 1980.

High inflation at first superficially stabilizes societies, but over time, it becomes a threat. Inflation often pushes interest groups—internationally, producer cartels such as OPEC, and domestically, labor unions—to mobilize, organize, and lobby in the hope of acquiring a greater share of monetary and fiscal resources. Depending on the extent of that mobilization, it can pull societies apart, as unions leapfrog each other with aggressive wage demands and inflation erodes the pay and pensions of the nonunionized and the retired. By demonstrating that governments are vulnerable to organized pressure, inflation is thus a destabilizing force in the long term. Indeed, analysts have argued that it was at least in part generalized international inflation in the 1960s that pushed oil producers to organize—leading to the price hikes of the 1970s.

Monetary experiments of this sort created demands for new ordering frameworks. After the surge in economic growth of the mid-nineteenth century, the world internationalized the gold standard to create a common framework for international payments. Although policymakers went a different route after the inflation and liberalization of the 1970s, they were also looking for a return to stability. To end the monetary disorder, central banks targeted a low inflation rate, and governments engaged in new patterns of cooperation abroad—creating the G-5 and then the G-7 and the G-20 as forums for discussing collective responses to global economic challenges. The quest for stability was also aided by the steady march of globalization. Greater global integration lowered production costs and thus helped correct the inflationary surge that initially accompanied the shortage economy. Inflation, which first fueled globalization in the 1850s, was, by the end of the twentieth century, eventually tamed by it.

PAST AS PROLOGUE

Today, the COVID-19 pandemic has produced a deep economic crisis, but it is different from many past ones. The shock is not a demand-driven downturn, like the Great Depression or the 2008 recession. Although lockdowns have interrupted supply and caused unemployment to soar, there is no overall shortage of demand. Large rescue and stimulus packages in rich countries have generated a financial buffer, and savings have shot up as people spend less. The best estimate is that in 2020, the United States piled up $1.6 trillion in excess savings, equivalent to seven percent of GDP. People are waiting to unleash their pent-up purchasing power. On top of that, finance ministers and international institutions are listening to U.S. Treasury Secretary Janet Yellen’s demand that “the time to go big is now” when it comes to fiscal relief.

Yet the current crisis does share key characteristics with the crises of the 1840s and the 1970s. The world of scarcity, for one thing, is already here. The pandemic has led to shortages of medical supplies such as face masks and glass vials for vaccine storage. Food prices have soared to their highest level since 2014—the result of a combination of dry weather in South America that has hurt wheat and soybean crops and pandemic-induced shipping disruptions. In the initial stages of the pandemic, laptops became scarce as employees scrambled to update their work-from-home setups. There is also a worldwide chip shortage, as the demand for microprocessors in medical, managerial, and leisure use has increased. Freight rates between China and Europe quadrupled at points in 2020. Steel, too, is in short supply.

Much as the crises in the 1840s and the 1970s did, the pandemic has also raised questions of government competence. At first, China seemed able to deal with the crisis better than its Western competitors—its cover-up of the severity of the pandemic notwithstanding—which prompted many observers to question whether democracies were capable of swift, effective action. Donald Trump’s presidency collapsed because of his chaotic handling of the crisis. British Prime Minister Boris Johnson faced a revolt among conservative members of Parliament because of his complex, contradictory, and constantly shifting lockdown rules. The European Commission lost credibility because of its poor management of vaccine purchases. As in the past, citizens personalized the incompetence. Americans debated, for example, how much blame to put on Trump’s son-in-law, Jared Kushner, who led part of the response. In the United Kingdom, much of the outrage focused on Dominic Cummings, the prime minister’s policy adviser, who had violated the country’s lockdown rules.

The challenge of the new upswing in the cycle of globalization will be to find ways to learn and adapt.

For other observers, the unifying theme behind the mismanagement was populism, with Trump, Johnson, Brazilian President Jair Bolsonaro, Indian Prime Minister Narendra Modi, and Philippine President Rodrigo Duterte all botching the response. But even in countries where the crisis has been handled relatively well, there have been surges of protests against the way governments have reacted to the pandemic. In Germany, “alternative thinkers” protesting new lockdown measures attacked the parliament building in August 2020. Even in Japan, where there is a long tradition of the use of face masks as a hygiene measure, a movement calling itself the Popular Sovereignty Party organized “cluster protests” again mask wearing.

Given these challenges, it’s easy to assume that governments and citizens alike would prioritize nationalization—cultivating supposedly resilient domestic supply chains to hedge against the next crisis. But that’s unlikely to happen. Instead, people are desperately looking for new leadership and new visions. As was true during previous supply shocks, leaders can make a good case for the importance of foreign models: some countries have done much better than others in dealing with the health and economic consequences of COVID-19. Although some of these countries are small or relatively isolated, by most metrics, the country with the most competent response was the biggest: China. That is not without irony, to put it mildly: the country responsible for unleashing the virus has also been a major beneficiary—with some states now looking to Beijing for leadership. But instead of condemning China’s response or demanding reparations for the pandemic’s costs, other countries should consider how to use Beijing’s example, just as the United Kingdom in the 1850s realized that it could learn from foreign producers.

NO SURPRISES

Familiar historical forces will drive post-pandemic reglobalization. In a world facing enormous challenges, not just the pandemic but also climate change, solutions are global public goods. In 1945, the architects of the postwar order believed that peace and prosperity were indivisible and could not be the property of one nation. Now, health and happiness are the same. Both are impossible for individual states or regions to enjoy alone.

Technology is also transforming a globalizing planet, as it did in the 1840s and the 1970s. In the mid-nineteenth century, the drivers were the steamship, the undersea cable, and the railroad. In the last quarter of the twentieth century, it was computing power: the first widely available personal computers appeared in the early 1980s. Today, data occupies the same position—linking the world and offering solutions to major problems, including government incompetence. New types of information might help leaders attack some of the inequalities and injustices highlighted by the COVID-19 pandemic. More automation might mean that machines can take on some of the repetitive and dangerous tasks performed by low-paid essential workers. Telemedicine and data-driven public health can trigger faster and more precisely targeted pharmaceutical or medical interventions.

As in past crises, there is also an immediate and powerful global demand for cheap and reliable products. In the mid-nineteenth century, it was foodstuffs, and in the 1970s, it was oil and commodities. In the 2020s, it is medical supplies, data chips, and rare-earth metals. To be resilient to new shocks, these commodities need to be produced and traded internationally, by a multiplicity of suppliers.

Governments and businesses also need to continuously innovate. As it did in the 1840s, isolationism today would mean cutting off opportunities to learn from different experiments. No single country, or its particular culture of science and innovation, was responsible for the development of an effective COVID-19 vaccine—one of the miracles of 2020. Success was the product of intense international collaboration. This story of innovation also applies to government competence. No state can succeed alone. Even if one particular decision is by chance spectacularly successful—say, Germany’s impressive testing record or the United Kingdom’s fast vaccine rollout—it is usually difficult to repeat that success in other policy areas. Policymakers may stride confidently past their first victory, only to slip on a banana peel.

The United States, in particular, may find this a hard pill to swallow. Americans have long been attached to the idea of their country’s superiority, akin to the belief held by the British in the mid-nineteenth century. COVID-19, like the 1840s famines and the 1970s oil shocks, presents both a crisis and a learning opportunity. The United States has coasted on the idea that the world needs the English language and the U.S. dollar. Neither of those assumptions can hold forever. Just as automatic translation technology is increasing linguistic accessibility, a different currency could become a new international standard. The dollar is not an adequate insurance policy or a viable basis for Washington to reject the need for change.

The challenge of the new upswing in the cycle of globalization will be to find ways to learn and adapt—increasing the effectiveness of government and business—without compromising fundamental values. As in the 1840s and the 1970s, financial and monetary innovation, or the tonic of inflation, will drive transformational change. Memories of crisis will push countries and governments to adapt in 2021 and beyond, just as they have before.

#### Innovation solves everything and saves billions of lives — including resource shortages in the long run.

* Solves warming, resource shortages, and natural disasters.

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The course of human history has been shaped by many different forces, from kings and empires, to wars and treaties, to science and technology. Frequently, however, the world has been changed—or, better yet, improved—by a single idea.

Over the past 150 years alone, the invention of toilets, synthetic fertilizers, blood transfusions, and vaccines are all credited with saving more than a billion lives each1, while countless other innovations—from pasteurization to water chlorination to bifurcated needles—have saved tens of millions more. In most cases, these breakthroughs have been the result of meticulous, single-minded research to solve a specific problem, but many of the world’s most important life-saving inventions have been stumbled upon by accident, or developed for a completely different purpose than that which they would ultimately fulfill.

The laminated safety glass most commonly used in car windshields, for example, was invented when French scientist Edouard Benedictus carelessly dropped a glass flask containing cellulose nitrate, a liquid plastic that not only stopped the glass from shattering but enabled it to retain its original shape. Penicillin, meanwhile, was discovered when Scottish researcher Alexander Fleming accidentally contaminated a petri dish of bacteria he was working on, and noticed that the mold that formed prevented the bacteria culture from growing. And X-rays were a fortuitous byproduct of German physics professor Wilhelm Röntgen’s experiments with cathode ray tubes.

As science and technology have grown more sophisticated, world-changing discoveries—both deliberate and inadvertent—have become more and more frequent, with new innovations that enhance, protect or even save people’s lives appearing at astoundingly regular intervals. But just as our ability to advance or safeguard our species has grown and evolved, so too have the problems we face. For all our ingenuity, Covid-19 brought the world to a virtual standstill in the past year, highlighting the need for innovative solutions that can respond quickly to emergency situations, while the challenges posed by climate change, dwindling resources, and natural disaster events continue to loom large.

#### Rising populism and decline in trade causes nuclear war.

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Similarly, seventy years after World War II, millions of people in the U.S. and Europe have forgotten the lessons learned from that war and from the peace that followed. Nascent nationalist and popular movements converged in Britain to produce a vote to leave the European Union. Similar coalitions heavily influence the American political scene today, as they do in Poland, Hungary and even the Netherlands. White House communications that appear to realign foreign policy put in place over the last half-century are beginning to concern America’s allies.

I understand why the “America First” movement propagated by Donald Trump sounds patriotic to many voters, as do other movements that favor isolationism. It is natural to blame others for our failure to adjust to new technologies, to immigration and to competition from countries whose growth rates are higher than our own. But the truth is that the “America First” movement runs the risk that it could trigger a global decline in productivity. Free trade has benefitted the U.S, Europe and much of the rest of the world. Many new businesses, particularly in information technology, can now start with a global footprint on Day One instead of being confined to a local market. NATO has preserved the freedom of the Western World from Communism. It has recently become more relevant again in view of the Russia’s efforts to disrupt it.

Perhaps most worrisome is the apparent cooling of relations between European NATO allies and the United States, which has compelled German Chancellor Angela Merkel to say, “The times when we could fully rely on others are to some extent over… We Europeans must really take our fate into our own hands.”

Problems arise when we start classifying our own and other countries as “winners” or “losers.” Free trade, immigration and the treatment of refugees will never be perfect — far from it. But the alternatives of walling off people, as well as trade, are worse. Appealing to ultra-nationalist and xenophobic feelings is playing with fire. With easy access to weapons of mass destruction, the danger is greater than ever.

Growing up in Germany, I saw the dangers of fascism and nationalism. I saw leaders who only made matters worse by appealing to the majority of voters who feared minorities and foreigners. Anyone who appreciates history would know better than to make even casual references to the possibility of nuclear war.

#### High food prices thwart opium production in Afghanistan---key to defeating the Taliban.

Griffin W. Huschke 11, Mayme and Herb Frank Fund Research Fellow at the Streit Council, 1/10/2011, “ISAF Loves High Grocery Bills: The Silver Lining in the Upcoming Food Riots,” available on the Wayback Machine at [http://web.archive.org/web/20190708020423/http://blog.streitcouncil.org/2011/01/10/isaf-loves-high-grocery-bills-the-silver-lining-in-the-upcoming-food-riots/](http://web.archive.org/web/20190708020423/http:/blog.streitcouncil.org/2011/01/10/isaf-loves-high-grocery-bills-the-silver-lining-in-the-upcoming-food-riots/), cc

Trying to put a positive spin on higher food prices takes us to the southern poppy fields of Afghanistan. As mentioned below, the Islamic Republic of Afghanistan cultivates more poppy than all other countries combined (they’re pretty good at growing pot, too), and has the highest relative rates of opium addiction in the world. Poppy cultivation, production, refinement, and trafficking all provide a major sources of funding for the Taliban and Afghan warlords, and the UN Office of Drugs and Crime has linked high areas of insecurity with the densest areas of opium cultivation. In some of the poorest places in the south, poppy has become a kind of currency of its own.

The thing is, a lot of poppy farmers don’t actually want to grow poppy. Most devout farmers follow an interpretation of the Koran that prohibits opiates, and have seen the lives of their friends and family devastated by addiction. They also understand its illegal, and don’t want to run afoul of ISAF and Afghan forces. But for some, it’s the only living they can make–much like Wallace from The Wire . Others are simply terrorized into growing drugs for the Taliban. In other places, the soil is too poor and barren to support any other crop but the sand-loving poppy or that bushels of poppy are used for interest payments on loans.

NATO officials have long been frustrated by a number of obstacles to successfully combating poppy growth. Poppy cultivation was initially dismissed by Defense Secretary Donald Rumsfeld in the aftermath of the ISAF invasion (which kept the Secretary’s record of pithily dismissing really important things intact). When poppy cultivation and heroin production became too large to ignore, ISAF officials tried a number of tactics to halt the massive increase in growth, including alternative livelihoods, interdiction, eradication, increased law enforcement, and better education.\

It didn’t really work.

In fact, the major determent to poppy cultivation rates since the U.S.-led invasion in 2001, was the spike in food prices in 2007-2008. For the first time in a long time, desperately poor Afghan farmers could get more at market for growing grains than poppy, and planted their crops accordingly. Where the ISAF program failed, the invisible hand succeeded.

The ghost of Adam Smith was also present in supply factors contributing to poppy reduction. The Taliban had grown so much poppy in the previous years that they had exceeded world demand for heroin. Yes, that’s right, the Taliban had made more heroin, the most addictive drug on the planet, than world demand. And while the Taliban doesn’t really get women’s rights or the innate human desire for music, they sure understand basic economics. The oversupply of heroin caused prices to fall, and it was cutting into the insurgents’ bottom line. So in 2007, instead of intimidating, terrorizing, and forcing farmers to grow poppy, which would drive prices even lower, the Taliban let people grow grains and pay off debts in other ways.

Since then, opium production has declined, and several of the ISAF’s tactics, especially peer-pressure from local shuras (local governing religious councils), has played a role in keeping opium production down. There’s also simply more areas under government control, which makes it easier to enforce the domestic poppy ban. In the end though, the UN concludes that market factors play the largest part in discouraging farmers from poppy cultivation. And for hundreds of service men and women working to fight opium production in Afghanistan right now, higher food prices probably sound pretty good.