### T – Neg Action

#### 1] Interp – Unjust refers to a negative action – it means contrary.

Black Laws No Date "What is Unjust?" <https://thelawdictionary.org/unjust/> //Elmer

Contrary to right and justice, or to the enjoyment of his rights by another, or to the standards of conduct furnished by the laws.

#### 2] “Appropriation” includes claims to natural resources, not just real property.

Amanda M. Leon, Associate\*, Caplin & Drysdale, Chtd., ’18, Virginia Law Review [“MINING FOR MEANING: AN EXAMINATION OF THE LEGALITY OF PROPERTY RIGHTS IN SPACE RESOURCES” Vol. 104:497 2018]

Appropriation. The term “appropriation” also remains ambiguous. Webster’s defines the verb “appropriate” as “to take to oneself in exclusion of others; to claim or use as by an exclusive or pre-eminent right; as, let no man appropriate a common benefit.”165 Similarly, Black’s Law Dictionary describes “appropriate” as an act “[t]o make a thing one’s own; to make a thing the subject of property; to exercise dominion over an object to the extent, and for the purpose, of making it subserve one’s own proper use or pleasure.”166 Oftentimes, appropriation refers to the setting aside of government funds, the taking of land for public purposes, or a tort of wrongfully taking another’s property as one’s own. The term appropriation is often used not only with respect to real property but also with water. According to U.S. case law, a person completes an appropriation of water by diversion of the water and an application of the water to beneficial use.167 This common use of the term “appropriation” with respect to water illustrates two key points: (1) the term applies to natural resources—e.g., water or minerals—not just real property, and (2) mining space resources and putting them to beneficial use—e.g., selling or manufacturing the mined resources— could reasonably be interpreted as an “appropriation” of outer space. While the ordinary meaning of “appropriation” reasonably includes the taking of natural resources as well as land, whether the drafters and parties to the OST envisioned such a broad meaning of the term remains difficult to determine with any certainty. The prohibition against appropriation “by any other means” supports such a reading, though, by expanding the prohibition to other types not explicitly described.168 As illustrated by this analysis, considerable ambiguity remains after this ordinary-meaning analysis and thus, the question of Treaty obligations and property rights remains unresolved. In order to resolve these ambiguities, an analysis of preparatory materials, historical context, and state practice follows.

#### 3] Violation – The Aff is a positive action – it creates a new concept for Space i.e. the treating of Space as a “Global Commons”.

#### 4] Standards –

#### a] Limits – making the topic bi-directional explodes predictability – it means that Aff’s can both increase non-exist property regimes in space AND decrease appropriation by private actors – makes the topic untenable.

#### b] Ground – wrecks Neg Generics – we can’t say appropriation good since the 1AC can create new views on Outer Space Property Rights that circumvent our Links since they can say “Global Commons” approach solves. Our das are reliant on links to how space isn’t appropriated under the aff so it circumvents the link.

#### Independently - the Plan is both Extra-T - since it establishes a new property rights regime AND Effects-T - since the Global Commons ISNT INTRINSICALLY a reduction on Private Property in Space, it involves actions like creating a governance system AND redistribution/cooperation which is the I/L to their Colonialism Advantage - both of which are voters for Limits and Predictability

#### b] Use Competing Interps – 1] Topicality is a yes/no question, you can’t be reasonably topical and 2] Reasonability invites arbitrary judge intervention and a race to the bottom of questionable argumentation.

### Xi DA

#### Xi is consolidating unprecedented political power – that’s only possible with strong PLA support

Chang 21 [(Gordon, columnist, author and lawyer, has given briefings at the National Intelligence Council, the CIA, and the State Department, JD from Cornell Law School) “China Is Becoming a Military State,” Newsweek, 1/14/2021] JL

At this moment, the Communist Party is taking back power from all others in society, including the State Council, and the military is gaining influence inside Party circles.

Why is the People's Liberation Army making a comeback? The answer lies in succession politics.

Xi Jinping was selected the top leader because he was not identified with any of the main factional groupings—like the Communist Youth League of Hu Jintao or the Shanghai Gang of Jiang—that dominated Party politics. Xi, in short, was the least unacceptable choice to the Party's squabbling factional elders.

Xi, once chosen, apparently decided that in order to rule, he needed a base, so he made certain officers the core of his support. As longtime China watcher Willy Lam told Reuters in 2013, Xi Jinping's faction is the military.

And with the help of the military, Xi has accumulated almost unprecedented political power, ending the Party's two-decade-old consensus-driven system and replacing it with one-man rule.

As Wang, a professor at the Georgia Institute of Technology, notes, Xi, with the amendments to the National Defense Law, is demonstrating his power of "leading everything and everyone." He is wrapping that effort in a "rule by law" move that is formalizing his perch at the top of the Chinese political system.

How is Xi using his newfound power? There is a hint in the National Defense Law amendments. These changes, Fisher tells us, "increase the powers of the CMC to mobilize the civilian sector for wartime and to better authorize the CMC to engage in foreign military exercises to defend China's 'development interests.'" As such, the changes "point to China's ambition to achieve 'whole nation' levels of military mobilization to fight wars, and give the CMC formal power to control the future Chinese capabilities for global military intervention."

"The revised National Defense Law also embodies the concept that everyone should be involved in national defense," reports the Communist Party's *Global Times*, summarizing the words of an unnamed CMC official. "All national organizations, armed forces, political parties, civil groups, enterprises, social organizations and other organizations should support and take part in the development of national defense, fulfill national defense duties and carry out national defense missions according to the law."

That sounds like Xi is getting ready to pick even more fights with neighbors—and perhaps the United States. On January 5, he ordered People's Liberation Army generals and admirals to be prepared to "act at any second."

Why would Xi want to start a war? "This is really indicative of there being instability in China, and Mr. Xi seeking to consolidate power around himself. ...The new National Defense Law essentially removes the alternative power base of the premier of the State Council, in this case Li Keqiang, from interfering with Mr. Xi's own power ambitions," said Charles Burton of the Ottawa-based Macdonald-Laurier Institute to John Batchelor, the radio host, earlier this month. As Burton noted, the amendments to the National Defense Law undermine Premier Li Keqiang, the head of the State Council and long-standing rival to Xi.

"I think this really gives the green light for him to dispatch the military on any pretext that he feels is necessary to defend his power," Burton says. "China is becoming a military state."

#### The plan alienates the PLA – they view space dominance as the linchpin of China’s legitimacy – specifically, public-private tech development is key

Economic Times 20 [(Economic Times, Indian daily newspaper, internally cites Dean Cheng, Senior Research Fellow at the Heritage Foundation and the Davis Institute for National Security and Foreign Policy, former analyst in the International Security and Space Program at the Office of Technology Assessment, BA in Politics from Princeton University) “China attempting to militarize space as it seeks to modernize its military power,” 8/31/2020] JL

The Jamestown Foundation, a US think-tank, hosted a webinar on August 19 entitled "China's Space Ambitions: Emerging Dimensions of Competition." One presenter, Dean Cheng, Senior Research Fellow at The Heritage Foundation, noted that Beijing's space programme is linked to China's central concept of comprehensive national power. "This is basically how the Chinese think about how they rack and stack, how they compare with other countries."

China recognises that military power is important, but it is not the only factor in being a great power. Cheng drew a parallel with the former USSR, where military power alone did not ensure survival of that communist state. Other comprehensive national power factors are political unity, economic power, diplomatic strength, science and technology, and even culture. "Space touches every one of these aspects in comprehensive national power, and that is a part of why Chinese see space as so important."

Indeed, a strong space industrial complex will generate benefits that ripple through the rest of China's economy. Furthermore, he said space achievements "promote pride within China, especially for the Chinese Communist Party (CCP) ... It's symbolic of how far China has come," he said, and "it gives the CCP legitimacy".

China is pushing into space services, including satellite launches, satellite applications and Earth observation/satellite imagery for others. Satellite customers include Belarus, Laos, Pakistan and Venezuela, for example, attracting hard currency and influence. Cheng said most underestimate the impact this has, as such countries grow almost totally dependent on Chinese equipment, assets and training over time. Incidentally, China could have manufactured back doors into these systems for foreigners to allow it access.

Mark Stokes, Executive Director at the US-based Project 2049 Institute think-tank, said in the same webinar that PLA requirements have always been fundamental to development of Chinese space capabilities. Potential PLA space missions in support of joint warfighting in a crisis include targeting (battlefield surveillance, electronic reconnaissance and ocean surveillance), communications, PNT services (obtaining target data, navigation information, navigation support and timing services), space jamming (encompassing space communications, radar, electro-optical and PNT) and space protection.

Stokes said the end of 2015 was "significant" for Chinese space efforts because consolidation of end-users under the PLA's Strategic Support Force (PLASSF) occurred, specifically within the Space Systems Department. In terms of developing and meeting requirements, the PLASSF is now "much more efficient," the American analyst posited.

Indeed, China created its space force in 2015, just a few months after Russia. After formally establishing its Space Force in December 2019, the US is still getting its equivalent off the ground. Cheng said both China and Russia have been pushing to militarise space, even though such a term is probably meaningless given that 95 per cent of space technology has dual applications for both military and civilian use. Certainly, outer space can no longer be viewed as a sanctuary.

Stokes said that "not much has changed really in terms of the space launch infrastructure and the launch, tracking and control of space ... but they are now integrated with end-users, and that is going to have an effect on making the whole system more efficient."

China has freedom of action in space, and the creation of the PLASSF and consolidation of space/counter-space research, development and acquisition, as well as training and operations, have benefitted from a single integrated command. The PLA's ability to interfere with American military operations in places like Taiwan will continue to grow yearly.

Cheng said, "The Chinese see future war as revolving around joint operations, which are not just land, air and sea forces." They also include the outer space and electronic warfare domains, which are necessary for information dominance." China, therefore, wishes to deny an adversary like the US the use of space, plus it needs to give the Chinese military every advantage.

China has therefore developed the ability to target hostile space-based assets (from the ground or space) and their all-important data-links. Indeed, jamming and electronic warfare complement anti-satellite weapons (which China has already tested), any of which can achieve effective mission kills against US and allied satellites. Stokes has not yet ascertained which agency is responsible for satellite kinetic kills, but it could well be the PLA Rocket Force, which is traditionally very tightly controlled by the Central Military Commission.

A detailed report entitled China's Space and Counter-space Capabilities and Activities, prepared for the US-China Economic and Security Review Commission, was published on March 30. Its authors, Mark Stokes, Gabriel Alvarado, Emily Weinstein and Ian Easton, summarised China's counter-space capabilities as follows.

"China has an operational counter-space capability that will evolve through 2020 and out to 2035. These capabilities include anti-satellite kinetic kill vehicles (KKV) and space electronic countermeasures ... On the non-kinetic side, the PLA has an operational ground-based satellite electronic countermeasures capability designed to disrupt adversary use of satellite communications, navigation, search and rescue, missile early warning and other satellites through use of jamming."

China obtained its first ground-based satellite jammers from Ukraine in the late 1990s, but it has developed its own solutions since then. "The PLA is capable of carrying out electronic countermeasures to disrupt, deny, deceive or degrade space services. Jamming prevents users from receiving intended signals and can be accomplished by attacking uplinks and downlinks.

The PLA and defence industry are developing and deploying jammers capable of targeting satellite communications over a large range of frequencies, including dedicated military communication bands. The PLASSF also has advanced cyber capabilities that could be applied in parallel with counter-space operations."

Nonetheless, the report asserted that the US still assumed a technological lead in space.

"China also is carrying out research, development and testing on potential space-based counter-space systems. The PLASSF and defense industry have carried out advanced satellite maneuvers and are likely testing orbital technologies that could be applied to counter-space operations." The PLASSF Network Systems Department probably oversees satellite jamming operations.

#### That factionalizes the CCP and emboldens challenges to Xi – the PLA is increasingly powerful and not unconditionally subservient

Simpson 16 [(Kurtis, Centre Director with Defence Research and Development Canada, has been conducting research on China’s leadership, Communist Party politics, the People’s Liberation Army and foreign policy for over 30 years,Master’s Degree and a Ph.D from York University, previously served as an intelligence analyst at the Privy Council Office and leader of the Asia Research Section at the Department of National Defence’s Chief Defence Intelligence (CDI) organization) “China’s Re-Emergence: Assessing Civilian-Military Relations In Contemporary Era – Analysis,” Eurasia Review, 12/21/2016] JL

Paralleling divided loyalties between Chinese Party, military and government bodies, one must also recognize that within each, factions exist, based upon generational, personal, professional, geographic, or institutional allegiances.19 These minor fault lines are most pronounced during crises, and they continue independent of professionalization.20 As was demonstrated by the civil-military dynamics of the Chinese government’s suppression of student demonstrators, both divisions and allegiances of interests emerged with respect to how to contain this situation and factional interests largely determined which troops would carry out the orders, who commanded them, what civilian Party leaders supported the actions, and who would be sanctioned following the mêlée. A consequence of factionalism within the PLA is that the Party’s control mechanisms (particularly because rule of law and constitutional restraints on the military are weak) needs to be robust to control not only a single military chain of command but (particularly during crises) perhaps more than one. This is not likely the case. A review of the evidence indicates the military’s influence, on the whole, is increasing, and the Party’s control decreasing.

On one level, the Party clearly controls the military as the Central Military Commission or CMC (the highest military oversight body in the PRC) is chaired by a civilian, President Xi Jinping. Moreover, the PLAs representation on formal political decision-making bodies (such as the Politburo Standing Committee, the Politburo, the Central Committee, and the NPC) has decreased over the years, but this does not necessary equate to a reduced level of influence. For example, the two Vice-Chairman of the CMC are now military generals, as are the remaining other eight members. Irrespective of institutional membership, military leaders retain considerable say. Personal interactions and informal meetings with senior party elites provide venues to sway decisions. They do, also, hold important places on leading small groups dedicated to issues like Taiwan and other security questions, such as the South China Seas.21

In a similar vein, other methods of Party influence, as exercised through political commissars, party committees, and discipline inspection commissions are no longer empowered to enforce the ideological dictates of a paramount leader. In the face of diffuse reporting chains, competing allegiances, and often effective socialization by the military units they are supposed to be watching over, most do not provide the Party guardian and guidance function once so pervasive.

While perhaps overstated, Paltiel’s observation that “…China’s energies over the past century and half have given the military a prominent and even dominant role in the state, preempting civilian control and inhibiting the exercise of constitutional authority” is likely now truer than ever before in history.22 While still loyal to the party as an institution, the PLA is not unconditionally subservient to a particular leader and retains the resources to enter the political arena if (at the highest levels) a decision is made to do so.

The civilian-military trend lines evident in China since the end of the Cultural Revolution affirm that the symbiotic nature of the Party-PLA relationship has morphed in important respects since the late 1960s. The promotion of professionalism, a reduced role for ideological indoctrination, an increasing bifurcation of civil-military elites, and growing state powers (complete with divided loyalties and continued factionalism) has complicated the political landscape informing how the CCP interacts with the PLA. If, as postulated, we have moved from a fused, ‘dual role elite’ model to one of ‘conditional compliance’ in which the military actually holds a preponderance of the power capabilities and where its interests are satisfied through concessions, bargaining, and pay-offs, empirical evidence should reflect this. A review of China’s three major leadership changes since the transition from the revolutionary ‘Old Guard’ to the modern technocrats confirms this.

Formally anointed and legitimized by Deng in 1989, Jiang assumed leadership without military credentials and few allies, viewed by many as a ‘caretaker’ Party Secretary in the wake of the Tiananmen Massacre. Despite his limitations, Jiang was well versed in the vicissitudes of palace politics. Informed by a high political acumen, he immediately promoted an image as an involved Commander-in-Chief, personally visiting all seven military regions, a sign of commitment not made by either the likes of Mao or Deng. Symbolic gestures like this were bolstered by his providing incentives to the PLA, such as: consistent raises in the defence budget; funds for military modernization; as well as equipment, logistics, and augmented R&D.23

Referred to as the ‘silk-wrapped needle,’ Jiang marshalled Party resources to not only reward, but to punish.24 His institutional authority over appointments enabled him to manipulate factions, dismiss those who opposed him, enforce new rigid retirement standards, and promote loyalists. A delicate equilibrium was established during the early-1990s until his semi-retirement in 2004,25 where Jiang guaranteed military priorities such as supporting ‘mechanization’ and an ‘information-based military’ (promoting the concept of RMA with Chinese characteristics) in exchange for the PLA backing of his legacy contributions to Marxist Leninist Mao Zedong thought with the enshrinement of his “Three Represents” doctrine.

Like Jiang, Hu Jintao’s succession was the product of negotiation, compromise, and concessions. While neither opposed by the PLA, nor supported by the military ‘brass,’ Hu was a known commodity, having served as Vice-President (1998) and CMC Vice-Chairman since 1999. He was deemed acceptable until proven otherwise. In the shadow of Jiang (who retained the position of CMC Chair until 2004), Hu did not exert the same kind of influence in, nor engender the same kind of deference from, China’s military, but equally proved capable of fostering a pragmatic relationship with the army which ensured its interests, and in so doing, legitimized his leadership position.

Ceding much of the military planning and operational decisions to the PLA directly, Hu played to his strengths and focused upon national security issues (such as the successful resolution of SARs in China), which bolstered his credibility as a populist leader among the masses, indirectly increasing his power within both the military and the Party. Additionally, he focused upon foreign military security affairs (most notably, North Korea-US negotiations), which enabled him to link his personal political agenda with the military’s latest ambitions.

In according the military a distinct place in China’s national development plan, supporting China’s rise, and ensuring its vital interests, Hu recognized the military’s evolving requirement to ‘go global’ and its worldwide interests in non-combat operations, such as peacekeeping and disaster relief, as well as stakes in the open seas, outer space, and cyberspace as interest frontiers with no geographic boundaries.26 Under the slogan of ‘China’s historical mission in the new phase of the new century’ and his acquiescence to the PLA’s stated requirements ‘to win local wars under modern conditions’ by funding new technology acquisition, Hu received the army’s formal recognition for his contributions to military thought based upon “scientific development” which informed a “strategic guiding theory,” resulting in a new operational orientation for China’s military. Emulating his predecessor, Hu won ‘conditional compliance’ from the PLA by successfully bartering military needs and wants for the army’s support and endorsement of his political tenure. This was not done outside of self-interest. Hu, as did Jiang, skillfully coopted, fired, and promoted select Generals to serve his greater ends, and he did this through varied means. Ultimately, however, it was done in a manner acceptable to the military.

Xi Jinping’s rise to power in 2012, while replicating the ‘horse-trading’ of Jiang and Hu, marks a fundamental departure in leadership style. Often described as a transformative leader, Xi is openly critical of his predecessors and rails against earlier periods where reform stalled and corruption grew.27 An advocate of ‘top-level design,’ incrementalism is being supplanted by a massive attempt to centralize all aspects of the CCP’s power, which includes a major restructuring of the economy, government, administration, and military.

Nicknamed “the gun and the knife” as a slight for his attempts to simultaneously control the army, police, spies, and the ‘graft busters,’ Xi’s power appears uncontested at present. Nevertheless, he is also viewed as ‘pushing the envelope too far’ and endangering the equilibrium which has been established between the Party and PLA over the past 25 years. For example, only two years into his mandate, he fostered a Cult of Personality, “the Spirit of Xi Jinping” which was officially elevated to the same standing as that of Mao and Deng, by comparison, foundational figures in Chinese history. His open attacks of political ‘enemies’ (most notably Zhou Yongkang, a Politburo Standing Committee member and former security czar) breeds fear among almost every senior official, all of whom are vulnerable on some point. Equally true, an unprecedented anti-corruption campaign is inciting comrades to turn on comrades, not unlike a massive game of prisoner’s dilemma.

Nowhere is the pressure for reform greater than in the PLA. Xi advocates administering the army with strictness and austerity, promoting frugality and obedience. At his direction, “mass-line educational campaigns” designed to “rectify work style” through criticism and self-criticism are being implemented.28 Ideological and political building is now equated with army building, as a means of ensuring the Party’s uncontested grip over the troops ideologically, politically, and organizationally. Select military regions (those opposite Taiwan and adjacent to the South China Seas) and commanders from those regions are witnessing favoritism and promotion at the expense of others. Moreover, a new “CMC Chairmanship Responsibility System” has been instituted, which directly calls into question the support of some of Xi’s senior-most generals.

A ‘hardliner’ by nature, Xi recognizes that he must earn the support of the PLA. New military priorities he supports include: accelerating modernization; Joint Command and C4ISR; training; talent management, as well as equipment and force modernization. That said, his goal of achieving the Chinese dream of building a “wealthy, powerful, democratic, civilized, and harmonious socialist modernized nation” by 2021, the 100th anniversary of the founding of the CCP, is exceptionally ambitious. It will require endless commitments to competing interests in a period of economic stagnation and global economic downturn. Should the PLA come to believe they are not first in line for government largess, support for Xi could erode very quickly.29

#### CCP instability collapses the international order – extinction

Perkinson 12 [(Jessica, MA in international affairs from American University) “The Potential for Instability in the PRC: How the Doomsday Theory Misses the Mark,” American University School of International Service, 2012] JL

Should the CCP undergo some sort of dramatic transformation – whether that be significant reform or complete collapse, as some radical China scholars predict2 – the implications for international and US national security are vast. Not only does China and the stability of the CCP play a significant role in the maintenance of peace in the East Asian region, but China is also relied upon by many members of the international community for foreign direct investment, economic stability and trade. China plays a key role in maintaining stability on the Korean Peninsula as one of North Korea’s only allies, and it is argued that instability within the Chinese government could also lead to instability in the already sensitive military and political situation across the Taiwan Strait. For the United States, the effect of instability within the CCP would be widespread and dramatic. As the United States’ largest holder of US treasury securities, instability or collapse of the CCP could threaten the stability of the already volatile economic situation in the US. In addition, China is the largest trading partner of a number of countries, including the US, and the US is reliant upon its market of inexpensive goods to feed demand within the US.

It is with this in mind that China scholars within the United States and around the world should be studying this phenomenon, because the potential for reform, instability or even collapse of the CCP is of critical importance to the stability of the international order as a whole. For the United States specifically, the potential - or lack thereof - forreform of the CCP should dictate its foreign policy toward China. If the body of knowledge on the stability of the Chinese government reveals that the Chinese market is not a stable one, it is in the best interests of the United States to look for investors and trade markets elsewhere to lessen its serious dependence on China for its economic stability, particularly in a time of such uncertain economic conditions within the US.

#### Independently, Xi will lash out to preserve cred in the SCS – US draw-in ensures extinction

Mastro 20 [(Oriana Skylar, Assistant Professor of Security Studies at Georgetown University's Edmund A. Walsh School of Foreign Service, Resident Scholar at the American Enterprise Institute) “Military Confrontation in the South China Sea,” Council on Foreign Relations, 5/21/2020] JL

The risk of a military confrontation in the South China Sea involving the United States and China could rise significantly in the next eighteen months, particularly if their relationship continues to deteriorate as a result of ongoing trade frictions and recriminations over the novel coronavirus pandemic. Since 2009, China has advanced its territorial claims in this region through a variety of tactics—such as reclaiming land, militarizing islands it controls, and using legal arguments and diplomatic influence—without triggering a serious confrontation with the United States or causing a regional backlash. Most recently, China announced the creation of two new municipal districts that govern the Paracel and Spratly Islands, an attempt to strengthen its claims in the South China Sea by projecting an image of administrative control. It would be wrong to assume that China is satisfied with the gains it has made or that it would refrain from using more aggressive tactics in the future. Plausible changes to China’s domestic situation or to the international environment could create incentives for China’s leadership to adopt a more provocative strategy in the South China Sea that would increase the risk of a military confrontation.

The United States has a strong interest in preventing China from asserting control over the South China Sea. Maintaining free and open access to this waterway is not only important for economic reasons, but also to uphold the global norm of freedom of navigation. The United States is also at risk of being drawn into a military conflict with China in this region as a result of U.S. defense treaty obligations to at least one of the claimants to the contested territory, the Philippines. China’s ability to control this waterway would be a significant step toward displacing the United States from the Indo-Pacific region, expanding its economic influence, and generally reordering the region in its favor. Preventing China from doing so is the central objective of the U.S. National Security Strategy and the reason the Indo-Pacific is the U.S. military’s main theater of operations. For these reasons, the United States should seek ways to prevent Chinese expansion, ideally while avoiding a dangerous confrontation and being prepared to deftly manage any crises should they arise.

China considers the majority of the South China Sea to be an inalienable part of its territory. Exercising full sovereignty over this area is a core component of President Xi Jinping’s “China Dream.” China does not accept or respect the sovereignty claims of Brunei, Indonesia, Malaysia, the Philippines, Taiwan, or Vietnam in this region. Although China has been cautious in pressing its claims thus far, three developments could convince Xi that China should be more assertive.

Xi could feel compelled to accelerate his timeline in the South China Sea to maintain his consolidated position within the Chinese Communist Party (CCP), particularly if the political situation in Hong Kong worsens, peaceful reunification with Taiwan becomes less likely, or domestic criticism of his management of the novel coronavirus outbreak increases. With China’s economic growth for 2020 projected to hit only 1.2 percent—the lowest since the mid-1970s—Xi could find it necessary to demonstrate strength while Beijing deals with internal fallout from the pandemic. China has already declared two new administrative districts in the South China Sea in April 2020 and has escalated its criticism of U.S. freedom of navigation operations (FONOPs) in the area. Moreover, with expectations that the first stage of China’s military modernization efforts will be completed in 2020, Xi could become more confident that China would succeed in pressing its claims militarily, especially if the United States is distracted internally with managing the coronavirus pandemic or its aftermath.

### Debris

#### **Plan can’t solve for 1mm pieces of debris that can’t be tracked**

**Garcia 21** (Mark Garcia, National Aeronautic and Space Administration. May 27, 2021. https://www.nasa.gov/mission\_pages/station/news/orbital\_debris.html)//cz

More than 27,000 pieces of orbital debris, or “space junk,” are tracked by the Department of Defense’s global Space Surveillance Network (SSN) sensors. Much more debris -- too small to be tracked, but large enough to threaten human spaceflight and robotic missions -- exists in the near-Earth space environment. Since both the debris and spacecraft are traveling at extremely high speeds (approximately 15,700 mph in low Earth orbit), an impact of even a tiny piece of orbital debris with a spacecraft could create big problems.

The rising population of space debris increases the potential danger to all space vehicles, including to the International Space Station and other spacecraft with humans aboard, such as SpaceX’s Crew Dragon.

NASA takes the threat of collisions with space debris seriously and has a long-standing set of guidelines on how to deal with each potential collision threat to the space station. These guidelines, part of a larger body of decision-making aids known as flight rules, specify when the expected proximity of a piece of debris increases the probability of a collision enough that evasive action or other precautions to ensure the safety of the crew are needed.

Orbital Debris

Space debris encompasses both natural meteoroid and artificial (human-made) orbital debris. Meteoroids are in orbit about the sun, while most artificial debris is in orbit about the Earth (hence the term “orbital” debris).

Orbital debris is any human-made object in orbit about the Earth that no longer serves a useful function. Such debris includes nonfunctional spacecraft, abandoned launch vehicle stages, mission-related debris, and fragmentation debris.

There are approximately 23,000 pieces of debris larger than a softball orbiting the Earth. They travel at speeds up to 17,500 mph, fast enough for a relatively small piece of orbital debris to damage a satellite or a spacecraft.

There are half a million pieces of debris the size of a marble or larger (up to 0.4 inches, or 1 centimeter) or larger, and approximately 100 million pieces of debris about .04 inches (or one millimeter) and larger. There is even more smaller micrometer-sized (0.000039 of an inch in diameter) debris.

Even tiny paint flecks can damage a spacecraft when traveling at these velocities. A number of space shuttle windows were replaced because of damage caused by material that was analyzed and shown to be paint flecks. In fact, millimeter-sized orbital debris represents the highest mission-ending risk to most robotic spacecraft operating in low Earth orbit.In 1996, a French satellite was hit and damaged by debris from a French rocket that had exploded a decade earlier.

On Feb. 10, 2009, a defunct Russian spacecraft collided with and destroyed a functioning U.S. Iridium commercial spacecraft. The collision added more than 2,300 pieces of large, trackable debris and many more smaller debris to the inventory of space junk.

China's 2007 anti-satellite test, which used a missile to destroy an old weather satellite, added more than 3,500 pieces of large, trackable debris and many more smaller debris to the debris problem.

#### Squo debris thumps

**Wall 21** [Mike Wall, Michael Wall is a Senior Space Writer with [Space.com](http://space.com/) and joined the team in 2010. He primarily covers exoplanets, spaceflight and military space. He has a Ph.D. in evolutionary biology from the University of Sydney, Australia, a bachelor's degree from the University of Arizona, and a graduate certificate in science writing from the University of California, Santa Cruz. 11/15/21, "Kessler Syndrome and the space debris problem," Space, [https://www.space.com/kessler-syndrome-space-debris accessed 12/10/21](https://www.space.com/kessler-syndrome-space-debris%20accessed%2012/10/21)] Adam

Earth orbit is getting more and more crowded as the years go by. Humanity has launched about 12,170 satellites since the dawn of the space age in 1957, [according to the European Space Agency](https://www.esa.int/Safety_Security/Space_Debris/Space_debris_by_the_numbers) (ESA), and 7,630 of them remain in orbit today — but only about 4,700 are still operational. That means there are nearly 3,000 defunct spacecraft zooming around Earth at tremendous speeds, along with other big, dangerous pieces of debris like upper-stage rocket bodies. For example, orbital velocity at 250 miles (400 kilometers) up, the altitude at which the ISS flies, is about 17,100 mph (27,500 kph). At such speeds, even a tiny shard of debris can do serious damage to a spacecraft — and there are huge numbers of such fragmentary bullets zipping around our planet. ESA estimates that Earth orbit harbors at least 36,500 debris objects that are more than 4 inches (10 centimeters) wide, 1 million between 0.4 inches and 4 inches (1 to 10 cm) across, and a staggering 330 million that are smaller than 0.4 inches

#### Untrackable debris thumps

Gourav Namta 19. Mechanical engineer. “Let's talk about space debris”, Sat Search, March 26th 2019, https://blog.satsearch.co/2019-03-26-lets-talk-about-space-debris.html

As harmless as those 128 million tiny objects ranging from 1 mm to 1 cm might seem, many of them are present in Low Earth Orbit traveling at speeds of approximately 17,500 mph (20x faster than a bullet). When even the smallest objects travelling at this speed collide with satellites or other technology, the results can be very serious. In 2016 for example a tiny object (likely a paint flake or small metal fragment) no bigger than few thousandths of a millimeter across caused a 7 mm diameter circular chip in the cupola window of the International Space Station (ISS).

#### Collision risk is infinitesimally small

Fange 17 Daniel Von Fange 17, Web Application Engineer, Founder and Owner of LeanCoder, Full Stack, Polyglot Web Developer, “Kessler Syndrome is Over Hyped”, 5/21/2017, http://braino.org/essays/kessler\_syndrome\_is\_over\_hyped/

The orbital area around earth can be broken down into four regions. Low LEO - Up to about 400km. Things that orbit here burn up in the earth’s atmosphere quickly - between a few months to two years. The space station operates at the high end of this range. It loses about a kilometer of altitude a month and if not pushed higher every few months, would soon burn up. For all practical purposes, Low LEO doesn’t matter for Kessler Syndrome. If Low LEO was ever full of space junk, we’d just wait a year and a half, and the problem would be over. High LEO - 400km to 2000km. This where most heavy satellites and most space junk orbits. The air is thin enough here that satellites only go down slowly, and they have a much farther distance to fall. It can take 50 years for stuff here to get down. This is where Kessler Syndrome could be an issue. Mid Orbit - GPS satellites and other navigation satellites travel here in lonely, long lives. The volume of space is so huge, and the number of satellites so few, that we don’t need to worry about Kessler here. GEO - If you put a satellite far enough out from earth, the speed that the satellite travels around the earth will match the speed of the surface of the earth rotating under it. From the ground, the satellite will appear to hang motionless. Usually the geostationary orbit is used by big weather satellites and big TV broadcasting satellites. (This apparent motionlessness is why satellite TV dishes can be mounted pointing in a fixed direction. You can find approximate south just by looking around at the dishes in your northern hemisphere neighborhood.) For Kessler purposes, GEO orbit is roughly a ring 384,400 km around. However, all the satellites here are moving the same direction at the same speed - debris doesn’t get free velocity from the speed of the satellites. Also, it’s quite expensive to get a satellite here, and so there aren’t many, only about one satellite per 1000km of the ring. Kessler is not a problem here. How bad could Kessler Syndrome in High LEO be? Let’s imagine a worst case scenario. An evil alien intelligence chops up everything in High LEO, turning it into 1cm cubes of death orbiting at 1000km, spread as evenly across the surface of this sphere as orbital mechanics would allow. Is humanity cut off from space? I’m guessing the world has launched about 10,000 tons of satellites total. For guessing purposes, I’ll assume 2,500 tons of satellites and junk currently in High LEO. If satellites are made of aluminum, with a density of 2.70 g/cm3, then that’s 839,985,870 1cm cubes. A sphere for an orbit of 1,000km has a surface area of 682,752,000 square KM. So there would be one cube of junk per .81 square KM. If a rocket traveled through that, its odds of hitting that cube are tiny - less than 1 in 10,000.

#### Disruptions to satellites don’t escalate.

Zarybnisky 18 [Eric J. Zarybnisky, MA in National Security Studies from the Naval War College, PhD in Operations Research from the MIT Sloan School of Management, Lt Col, USAF. Celestial Deterrence: Deterring Aggression in the Global Commons of Space. March 28, 2018. <https://apps.dtic.mil/dtic/tr/fulltext/u2/1062004.pdf>]

PREVENTING AGGRESSION IN SPACE

While deterrence and the Cold War are strongly linked in the public’s mind through the nuclear standoff between the United States and the Soviet Union, the fundamentals of deterrence date back millennia and deterrence remains relevant. Thucydides alludes to the concept of deterrence in his telling of the Peloponnesian War when he describes rivals seeking advantages, such as recruiting allies, to dissuade an adversary from starting or expanding a conflict.6F 6 Aggression in space was successfully avoided during the Cold War because both sides viewed an attack on military satellites as highly escalatory, and such an action would likely result in general nuclear war.7F 7 In today’s more nuanced world, attacking satellites, including military satellites, does not necessarily result in nuclear war. For instance, foreign countries have used highpowered lasers against American intelligence-gathering satellites8F 8 and the United States has been reluctant to respond, let alone retaliate with nuclear weapons. This shift in policy is a result of the broader use of gray zone operations, to which countries struggle to respond while limiting escalation. Beginning with the fundamentals of deterrence illuminates how it applies to prevention of aggression in space

### Neolib Good

#### Cap sustainable---profit motive drives tech innovation and makes resources infinite---only way to solve environmental collapse and extinction.

McAfee 19—cofounder and codirector of the MIT Initiative on the Digital Economy at the MIT Sloan School of Management, former professor at Harvard Business School and fellow at Harvard’s Berkman Center for Internet and Society (Andrew, “Looking Ahead: The World Cleanses Itself This Way,” *More from Less: The Surprising Story of How We Learned to Prosper Using Fewer Resources—and What Happens Next*, Chapter 14, pg 278-292, Kindle, dml)

As today’s poor countries get richer, their institutions will improve and most will eventually go through what Ricardo Hausmann calls "the capitalist makeover of production." This makeover doesn't enslave people, nor does it befoul the earth. As today’s poor get richer, they'll consume more, but they'll also consume much differently from earlier generations. They won't read physical newspapers and magazines. They'll get a great deal of their power from renewables and (one hopes) nuclear because these energy sources will be the cheapest. They’ll live in cities, as we saw in chapter 12; in fact, they already are. They'll be less likely to own cars because a variety of transportation options will be only a few taps away. Most important, they'll come up with ideas that keep the growth going, and that benefit both humanity and the planet we live on. Predicting exactly how technological progress will unfold is much like predicting the weather: feasible in the short term, but impossible over a longer time. Great uncertainty and complexity prevent precise forecasts about, for example, the computing devices we’ll be using thirty years from now or the dominant types of artificial intelligence in 2050 and beyond. But even though we can't predict the weather long term, we can accurately forecast the climate. We know how much warmer and sunnier it will be on average in August than in January, for example, and we know that global average temperatures will rise as we keep adding greenhouse gases to the atmosphere. Similarly, we can predict the "climate" of future technological progress by starting from the knowledge that it will be heavily applied in the areas where it can affect capitalism the most. As we've seen over and over, tech progress supplies opportunities to trim costs (and improve performance) via dematerialization, and capitalism provides the motive to do so. As a result, the Second Enlightenment will continue as we move deeper into the twenty-first century. I'm confident that it will accelerate as digital technologies continue to improve and multiply and global competition continues to increase. We’ll see some of the most striking examples of slim, swap, evaporate, and optimize in exactly the places where the opportunities are biggest. Here are a few broad predictions, spanning humanity's biggest industries. Manufacturing. Complex parts will be made not by the techniques developed during the Industrial Era, but instead by three- dimensional printing. This is already the case for some rocket engines and other extremely expensive items. As 3-D printing improves and becomes cheaper, it will spread to automobile engine blocks, manifolds and other complicated arrangements of pipes, airplane struts and wings, and countless other parts. Because 3-D printing generates virtually no waste and doesn't require massive molds, it accelerates dematerialization. We'll also be building things out of very different materials from what we're using today. We're rapidly improving our ability to use machine learning and massive amounts of computing power to screen the huge number of molecules available in the world. Well use this ability to determine which substances would be best for making flexible solar panels, more efficient batteries, and other important equipment. Our search for the right materials to use has so far been slow and laborious. That's about to change. So is our ability to understand nature's proteins, and to generate new ones. All living things are made out of the large biomolecules known as proteins, as are wondrous materials such as spiders' silk. The cells in our bodies are assembly lines for proteins, but we currently understand little about how these assembly lines work—how they fold a two-dimensional string of amino acids into a complicated 3-D protein. But thanks to digital tools, we're learning quickly. In 2018, as part of a contest, the AlphaFold software developed by Google DeepMind correctly guessed the structure of twenty-five out of forty-three proteins it was shown; the second-place finisher guessed correctly three times. DeepMind cofounder Demis Hassabis says, "We [haven't] solved the protein-folding problem, this is just a first step... but we have a good system and we have a ton of ideas we haven't implemented yet." As these good ideas accumulate, they might well let us make spider-strength materials. Energy. One of humanity's most urgent tasks in the twenty-first century is to reduce greenhouse gas emissions. Two ways to do this are to become more efficient in using energy and, when generating it, to shift away from carbon-emitting fossil fuels. Digital tools will help greatly with both. Several groups have recently shown that they can combine machine learning and other techniques to increase the energy efficiency of data centers by as much as 30 percent. This large improvement matters for two reasons. First, data centers are heavy users of energy, accounting for about 1 percent of global electricity demand. So efficiencies in these facilities help. Second, and more important, these gains indicate how much the energy use of all our other complicated infrastructures— everything from electricity grids to chemical plants to steel mills—can be trimmed. All are a great deal less energy efficient than they could be. We have both ample opportunity and ample incentive now to improve them. Both wind and solar power are becoming much cheaper, so much so that in many parts of the world they're now the most cost-effective options, even without government subsidies, for new electrical generators. These energy sources use virtually no resources once they're up and running and generate no greenhouse gases; they're among the world champions of dematerialization. In the decades to come they might well be joined by nuclear fusion, the astonishingly powerful process that takes place inside the sun and other stars. Harnessing fusion has been tantalizingly out of reach for more than half a century—the old joke is that it's twenty years away and always will be. A big part of the problem is that it's hard to control the fusion reaction inside any human- made vessel, but massive improvements in sensors and computing power are boosting hope that fusion power might truly be only a generation away.

#### ---Physical limits aren’t absolute---laundry list of warrants.

Bailey 18 [Ronald; February 16; B.A. in Economics from the University of Virginia, member of the Society of Environmental Journalists and the American Society for Bioethics and Humanities, citing a compilation of interdisciplinary research; Reason, “Is Degrowth the Only Way to Save the World?” https://reason.com/2018/02/16/is-degrowth-the-only-way-to-save-the-wor; RP]

Unless us folks in rich countries drastically reduce our material living standards and distribute most of what we have to people living in poor countries, the world will come to an end. Or at least that's the stark conclusion of a study published earlier this month in the journal Nature Sustainability. The researchers who wrote it, led by the Leeds University ecological economist Dan O'Neill, think the way to prevent the apocalypse is "degrowth."

Vice, pestilence, war, and "gigantic inevitable famine" were the planetary boundaries set on human population by the 18th-century economist Robert Thomas Malthus. The new study gussies up old-fashioned Malthusianism by devising a set of seven biophysical indicators of national environmental pressure, which they then link to 11 indicators of social outcomes. The aim of the exercise is to concoct a "safe and just space" for humanity.

Using data from 2011, the researchers calculate that the annual per capita boundaries for the world's 7 billion people consist of the emission of 1.6 tons of carbon dioxide per year and the annual consumption of 0.9 kilograms of phosphorus, 8.9 kilograms of nitrogen, 574 cubic meters of water, 2.6 tons of biomass (crops and wood), plus the ecological services of 1.7 hectares of land and 7.2 tons of material per person.

On the social side, meanwhile, the researchers say that life satisfaction in each country should exceed 6.5 on the 10-point Cantril scale, that healthy life expectancy should average at least 65 years, and that nutrition should be over 2,700 calories per day. At least 95 percent of each country's citizens must have access to good sanitation, earn more than $1.90 per day, and pass through secondary school. Ninety percent of citizens must have friends and family they can depend on. The threshold for democratic quality must exceed 0.8 on an index scale stretching from -1 to +1, while the threshold for equality is set at no higher than 70 on a Gini Index where 0 represents perfect equality and 100 implies perfect inequality. They set the threshold for percent of labor force employed at 94 percent.

So how does the U.S. do with regard to their biophysical boundaries and social outcomes measures? We Americans transgress all seven of the biophysical boundaries. Carbon dioxide emissions stand at 21.2 tons per person; we each use an average of 7 kilograms of phosphorus, 59.1 kilograms of nitrogen, 611 cubic meters of water, and 3.7 tons of biomass; we rely on the ecological services of 6.8 hectares of land and 27.2 tons of material. Although the researchers urge us to move "beyond the pursuit of GDP growth to embrace new measures of progress," it is worth noting that U.S. GDP is $59,609 per capita.

On the other hand, those transgressions have provided a pretty good life for Americans. For example, life satisfaction is 7.1; healthy life expectancy is 69.7 years; and democratic quality stands at 0.8 points. The only two social indicators we just missed on were employment (91 percent) and secondary education (94.7 percent).

On the other hand, our hemisphere is home to one paragon of sustainability—Haiti. Haitians breach none of the researchers' biophysical boundaries. But the Caribbean country performs abysmally on all 11 social indicators. Life satisfaction scores at 4.8; healthy life expectancy is 52.3 years; and Haitians average 2,105 calories per day. The country tallies -0.9 on the democratic quality index. Haiti's GDP is $719 per capita.

Other near-sustainability champions include Malawi, Nepal, Myanmar, and Nicaragua. All of them score dismally on the social indicators, and their GDPs per capita are $322, $799, $1,375, and $2,208, respectively.

The country that currently comes closest to the researchers' ideal of remaining within its biophysical boundaries while sufficient social indicators is…Vietnam. For the record, Vietnam's per capita GDP is $2,306.

"Countries with higher levels of life satisfaction and healthy life expectancy also tend to transgress more biophysical boundaries," the researchers note. A better way to put this relationship is that more wealth and technology tend to make people happier, healthier, and freer.

O'Neill and his unhappy team fail drastically to understand how human ingenuity unleashed in markets is already well on the way toward making their supposed planetary boundaries irrelevant. Take carbon dioxide emissions: Supporters of renewable energy technologies say that their costs are already or will soon be lower than those of fossil fuels. Boosters of advanced nuclear reactors similarly argue that they can supply all of the carbon-free energy the world will need. There's a good chance that fleets of battery-powered self-driving vehicles will largely replace private cars and mass transit later in this century.

Are we about to run out of phosphorous to fertilize our crops? Peak phosphorus is not at hand. The U.S. Geological Survey (USGS) reports that at current rates of mining, the world's known reserves will last 266 years. The estimated total resources of phosphate rock would last over 1,140 years. "There are no imminent shortages of phosphate rock," notes the USGS. With respect to the deleterious effects that using phosphorus to fertilize crops might have outside of farm fields, researchers are working on ways to endow crops with traits that enable them to use less while maintaining yields.

O'Neill and his colleagues are also concerned that farmers are using too much nitrogen fertilizer, which runs off fields into the natural environment and contributes to deoxygenated dead zones in the oceans, among other ill effects. This is a problem, but one that plant breeders are already working to solve. For example, researchers at Arcadia Biosciences have used biotechnology to create nitrogen-efficient varieties of staples like rice and wheat that enable farmers to increase yields while significantly reducing fertilizer use. Meanwhile, other researchers are moving on projects to engineer the nitrogen fixation trait from legumes into cereal crops. In other words, the crops would make their own fertilizer from air.

Water? Most water is devoted to the irrigation of crops; the ongoing development of drought-resistant and saline-tolerant crops will help with that. Hectares per capita? Humanity has probably already reached peak farmland, and nearly 400 million hectares will be restored to nature by 2060—an area almost double the size of the United States east of the Mississippi River. In fact, it is entirely possible that most animal farming will be replaced by resource-sparing lab-grown steaks, chops, and milk. Such developments in food production undermine the researchers' worries about overconsumption of biomass.

And humanity's material footprint is likely to get smaller too as trends toward further dematerialization take hold. The price system is a superb mechanism for encouraging innovators to find ways to wring ever more value out less and less stuff. Rockefeller University researcher Jesse Ausubel has shown that this process of absolute dematerialization has already taken off for many commodities.

After cranking their way through their models of doom, O'Neill and his colleagues lugubriously conclude: "If all people are to lead a good life within planetary boundaries, then the level of resource use associated with meeting basic needs must be dramatically reduced." They are right, but they are entirely backward with regard to how to achieve those goals. Economic growth provides the wealth and technologies needed to lift people from poverty while simultaneously lightening humanity's footprint on the natural world. Rather than degrowth, the planet—and especially its poor people—need more and faster economic growth.

#### Neolib solves---

#### 1---War.

Mousseau 19—Professor in the School of Politics, Security, and International Affairs at the University of Central Florida (Michael, “The End of War: How a Robust Marketplace and Liberal Hegemony Are Leading to Perpetual World Peace,” International Security, Volume 44, Issue 1, Summer 2019, p.160-196, dml)

Is war becoming obsolete? There is wide agreement among scholars that war has been in sharp decline since the defeat of the Axis powers in 1945, even as there is little agreement as to its cause.1 Realists reject the idea that this trend will continue, citing states' concerns with the “security dilemma”: that is, in anarchy states must assume that any state that can attack will; therefore, power equals threat, and changes in relative power result in conflict and war.2 Discussing the rise of China, Graham Allison calls this condition “Thucydides's Trap,” a reference to the ancient Greek's claim that Sparta's fear of Athens' growing power led to the Peloponnesian War.3

This article argues that there is no Thucydides Trap in international politics. Rather, the world is moving rapidly toward permanent peace, possibly in our lifetime. Drawing on economic norms theory,4 I show that what sometimes appears to be a Thucydides Trap may instead be a function of factors strictly internal to states and that these factors vary among them. In brief, leaders of states with advanced market-oriented economies have foremost interests in the principle of self-determination for all states, large and small, as the foundation for a robust global marketplace. War among these states, even making preparations for war, is not possible, because they are in a natural alliance to preserve and protect the global order. In contrast, leaders of states with weak internal markets have little interest in the global marketplace; they pursue wealth not through commerce, but through wars of expansion and demands for tribute. For these states, power equals threat, and therefore they tend to balance against the power of all states. Fearing stronger states, however, minor powers with weak internal markets tend to constrain their expansionist inclinations and, for security reasons, bandwagon with the relatively benign market-oriented powers.

I argue that this liberal global hierarchy is unwittingly but systematically buttressing states' embrace of market norms and values that, if left uninterrupted, is likely to culminate in permanent world peace, perhaps even something close to harmony. My argument challenges the realist assertion that great powers are engaged in a timeless competition over global leadership, because hegemony cannot exist among great powers with weak markets; these inherently expansionist states live in constant fear and therefore normally balance against the strongest state and its allies.5 Hegemony can exist only among market-oriented powers, because only they care about global order. Yet, there can be no competition for leadership among market powers, because they always agree with the goal of their strongest member (currently the United States) to preserve and protect the global order based on the principle of self-determination. If another commercial power, such as a rising China, were to overtake the United States, the world would take little notice, because the new leading power would largely agree with the global rules promoted and enforced by its predecessor. Vladimir Putin's Russia, on the other hand, seeks to create chaos around the world. Most other powers, having market-oriented economies, continue to abide by the hegemony of the United States despite its relative economic decline since the end of World War II.6

To support my theory that domestic factors determine states' alignment decisions, I analyze the voting preferences of members of the United Nations General Assembly from 1946 to 2010. I find that states with weak internal markets tend to disagree with the foreign policy preferences of the largest market power (i.e., the United States), but more so if they are major powers or have stronger rather than weaker military and economic capabilities. The power of states with robust internal markets, in contrast, appears to have no effect on their foreign policy preferences, as market-oriented states align with the market leader regardless of their power status or capabilities. I corroborate that this pattern may be a consequence of states' interest in the global market order by finding that states with higher levels of exports per capita are more likely than other states to have preferences aligned with those of the United States; those with lower levels of exports are more likely to have interests that do not align with the United States, but again more so if they are stronger rather than weaker.

Liberal scholars of international politics have long offered explanations for why the incidence of war may decline, generally beginning with the assumption that although the security dilemma exists, it can be overcome with the help of factors external to states.7 Neoliberal institutionalists treat states as like units and international organization as an external condition.8 Trade interdependence is dyadic and thus an external condition.9 Democracy is an internal factor, but theories of democratic peace have an external dimension: peace is the result of the expectations of states' behavior informed by the images that leaders create of each other's regime types.10 In contrast, I show that the security dilemma may not exist at all and how peace can emerge in anarchy with states pursuing their interests determined entirely by internal factors.11

#### 2---Inequality and Poverty.

Teixeira and Judis 17—senior fellow at both The Century Foundation and American Progress AND editor-at-large at Talking Points Memo, former senior writer at The National Journal and a former senior editor at The New Republic (Ruy and John, “Why The Left Will (Eventually) Triumph: An Interview With Ruy Teixeira,” <http://talkingpointsmemo.com/cafe/why-left-will-eventually-win-ruy-teixeira>, dml)

Judis: In your book, you explain at several points that you are no longer a socialist and instead support a reformed capitalism. When we met many years ago, we were in a socialist organization. When did this transformation occur? Teixeira: What happened is that I began to think a lot about how economies actually work. When I was a socialist, I **didn’t think very carefully** and **long** about what **actually** a socialist economy would look like. I had this **general idea** that the capitalist system was **inefficient** and **prone to crisis** and that one should **somehow tamp down the profit motive** and limit the freedom of action of capitalists. But **the more I thought** about how economies worked, it was **hard to gainsay** that the market was **absolutely essential** for the efficient delivery of goods and services. And the more I read, the more I realized my viewpoint was closer to social democrats than to socialists. Capitalism needs to be **regulated**, it needs to be **pointed in the right direction**, you **need to have a big safety net**, but you **can’t replace it**. Judis: Was there something that happened, a book you read, that changed your mind? Teixeira: I would say it was an obscure book by Alec Nove called “The Economics of Feasible Socialism.” Judis: That’s amazing. I was deeply influenced by the same book. Teixeira: Nove was a historian of the Soviet Union. He came from a Menshevik family, and he basically laid out the way the standard conceptions of socialism that a lot of people on the left had couldn’t work. If you wanted to **think rationally about what’s feasible**, the way economies and people tend to work, you **had to have a market**. The goal as I see it is a mixed economy that works as well as possible, and of course you have not gotten that in the West for the last several decades. The mixed economy just needs improvement and modification. Judis: And what kind of improvements would that be? Teixeira; I favor what economists are calling a model of **equitable growth**. It would mean **substantial government investment** in creating new opportunities for the middle and aspirational classes. It could include a dramatic expansion of the educational system and a Manhattan-style investment in bringing down the price of clean energy and building the infrastructure to match. Granted, these kind of proposals would not get through Congress now, but it is the kind of agenda that I am optimistic that the Democrats will endorse and that the country will **eventually embrace**. The Left Prospers in Prosperity Judis: Your book is titled “The Optimistic Leftist,” but if you look at the terrain of politics today, the center-left or left of center parties are decimated. The Democrats haven’t been in such bad shape nationally and in the states since the 1920s. The Dutch Labor Party got less than 10 percent in the recent election. Jeremy Corbyn and British Labor may be routed in June. The French Socialist candidate came in fifth with 6 percent. Why is this happening? And given that this is happening, what grounds do you have for thinking that the left will suddenly find itself on top? Teixeira: The way I look at it we are going through a **long transition** from an industrial capitalist system to a **post-industrial services-based capitalist system**. So far this transition has **not gone well**. It hasn’t had the outcomes that people want. We have **slow productivity growth** and **rising inequality**. The central point I’d make is that **by and large**, **poor economic times** are **not good for the left**. They **make people reactive**, **pessimistic**, **trying to hold onto their own**, and **not supportive of collective endeavors** to help the way society functions. And we’ve seen all that in spades in the last decade. Really that kind of situation is **best for the right**, and the left has had a very difficult time figuring out a way forward. The Democrats have their problems, but in Europe, you see the problems crystallized. Europe’s mainstream left was based in the industrial working class and has had a terrible time adjusting to the transition to post-industrial capitalism and figuring out what a new model of capitalism and capitalist growth would look like. They have thrown in their lot with a much more right-wing approach, beginning with the Third Way in the ’90s. The idea behind it was that capitalism can pretty well function on its own and we just have to let it rip. We’re still coming out of that phase, and I think the mainstream social democrats with their collaboration with austerity in places like France and the Netherlands are reaping the whirlwind. But if you look at other parts of the left, they are actually doing relatively well. If you look at the Netherlands election, the green left did very well, and if you add up the votes of the Socialist Party (a left-socialist party), the greens, Democrats 66 (a left social-liberal party) and the social democrats, the left **hasn’t been totally decimated**. What has really been decimated is the Party of Labor, as the social democrats in the Netherlands are called. We are seeing the same thing in France where the Socialist Party (the French social democrats) candidate did terribly, but [independent socialist Jean-Luc] Melenchon did quite well. The left **still has strength**, but it is **divided up among different political tendencies**. It is going to have to **reorganize itself around an economic program** that is going to deliver what people want, which is **better growth** and **better distribution**. Until that happens, the left will be **in a quagmire**. Judis: I want to look more closely at your argument that the left does better in good times and the right in bad times. Bill Clinton got elected in the wake of a recession in 1992, Barack Obama might not have won the presidency in 2008 if the financial crash hadn’t happened that September. The Populists came out of the farm crisis in 1880s and early 1890s; the New Deal out of the Great Depression. I am not saying that bad times is better for the left, but only that there isn’t a necessary connection in either case and that you are making too facile an assumption about which times promote which politics. Teixeira: Bad times do propel people into motion and produce protest and reaction, but looked at from when you can accomplish the goals of the left of **making society better** and **implementing important reforms**, I think it is **typically easier** when the economy is **expanding fairly rapidly** and **living standards are going up** than when the reverse is true. It is **not a perfect relationship**, but **by and large** I think it’s true. So yeah, Obama can get elected in a situation where he was aided by an economic downturn, but his ability to **put together a progressive coalition** that could **stick together for a long time** and continue to implement reforms was **very much undermined by the economic situation**. Judis: Let’s turn it around and look at the connection between the right and good and bad times. In America, the 1920s were relatively good times, and the Republicans controlled the government the whole decade. Teixeira: The 1920s were not nearly as good a time people think it was. It was a time of relatively slow per capita income growth. It was very unequally distributed, the industrial working class did somewhat well, but the rural areas did poorly, and there were four recessions between 1918 and 1929. It was not such a great time. It was relatively poor compared to the Progressive Era. Judis: So the Republicans did well in the 1920s because they were really bad times? Teixeira: There was a sense of real uncertainty, real economic paranoia. Judis: I don’t think you could call the 1920s bad times. You could call it uneven times. “Bad times” is stretching it. In addition, you have the real bad times of the Depression staring you in your face which is the time of the greatest advance in terms of a left and social democracy in our history. Teixeira: Desperate times make for desperate measure sometimes. There is **no guarantee they will help the left rather than the right**. I think that’s what we saw in the U.S. Obviously it didn’t work out so well in Europe. When I make the general analysis that the left is better off in a period of economic expansion and rising living standards, it doesn’t correspond exactly to the political outcomes you’ll have in those different periods. I am saying that **in a general sense**, the left has the **easiest time making advances** and **improving society** when things are going well **rather than when are going poorly**. Judis: Let’s look at Europe. In some of the countries in Northern Europe that are doing well, the center-right parties are in charge. Teixeira: Yes, but I think you can make the case the center-right parties aren’t exactly in charge in Europe. They also have their problems. The rise of populism in Europe is blowing apart the party system. Judis: You have got Holland, Denmark, Germany, and Austria. Those are all countries that are doing pretty well compared to the rest of the EU and that have center-right governments. Teixeira: The Netherlands is not doing that well. It’s all relative. Their recovery has been somewhat better. Their employment level has been high compared to other European countries, but there are a number of cuts in social services, wages haven’t been going up much, there is a lot more insecurity. Judis: Isn’t Germany doing well? Teixeira:. Germany is doing relatively well, but it hasn’t been a period of expansive growth for them either. There is a lot of wage stagnation and compression there. I **never meant to imply** that you can **perfectly predict social reform from economic outcomes**. But I think it **provides an important lens** on when the left does well and when the left does poorly. By and large when you look at Europe, you see the ~~straitjacket~~ [**dilemma**] that the Eurozone has created in the economies. People are **fearful**, they are **pessimistic**, they are **passive**. This is **very bad for the left**. Until you **break out** of that [dilemma] ~~straitjacket~~, the left is **not going to be able to do that well**, and the right is **going to continue to do relatively well** compared to them, and you’ll see the **continued rise in populism** because people have no faith in the system. So what I am trying to do is to get the left to focus on **getting to a new stage of capitalist growth** and **being able actually to deliver rising incomes**. There is No Alternative to the Left Judis: So let’s talk about how this political change will come about. What I took from your book is that we are currently suffering from secular stagnation, and that to get to a new stage of growth, we will have to implement the kind of left program that you describe. I worry that this argument contains a contradiction. On the one hand, the left can’t get its program enacted as long as times are bad. On the other hand, the only way to get out of bad times is for the left to get its program enacted. Teixeira: I see what you are asking. I think it is going to be **two steps forward**, **one step back**. We are sort of **slouching** toward the next stage of capitalism. I **don’t think it’s going to be pretty**. Political and economic factors are going to propel us in that direction. Ultimately, people want things to work better, they want their problems to be solved. And the **only way** we are going to get there is along the road I have described. I think this **equitable growth** approach that the Democrats united around is the future. The level of growth is going to vary over time, but I think the Democrats are the ones who are going to put us there and I think they are going to be rewarded for it. Judis:. But how does that happen? Isn’t there a crisis scenario implicit in your account? At some time, the current Third Way or neoliberal approach results in another Great Recession and at that point people will buy into a left-wing approach, the left-wing approach will create prosperity and at that time we will have an enduring left-wing or Democratic majority. Isn’t a step like this missing from your argument? Teixeira:. That certainly could be the way it goes down, but it’s **not clear we are required to have a recession** on the level we did in 2007 and 2008, or whether this sort of rolling crisis we have combined with other political events might do it. I don’t know, it’s hard to predict, but I think the great economist Herbert Stein said, if something cannot go on forever, it will stop. Judis: The great socialist Rosa Luxembourg said the choice was socialism or barbarism. I am not saying we are heading toward barbarism, but I think there is a determinism in your argument. I think you are saying that people will eventually choose a politics that will best help them. Reason will prevail. And I am not sure if that holds up historically. When you talk about the EU, you say eventually they will consolidate into a fiscal monetary union. I am not sure that is going to happen. It’s also possible that the Eurozone could break up and that there could be a lot of chaos. We have periods in history where things don’t happen in the best of all possible ways. Teixeira: The trajectory is **ultimately going to take us** to a **different** and **better place**. I think **eventually we will adapt** and we will **get something better** than we have because it is the **only solution to the ongoing problems**. **There is no alternative**. Judis: Countries are sometime structurally unable to do what is in their best interest. In the U.S., we have this strong anti-statist tradition going back to the revolution that seems to get in the way every time we want to do something like what you are proposing. It is possible that contrary to Hegel, the rational won’t turn out to be the real. Teixeira: Of course it is possible, but if you look at the history of the United States, **despite the anti-statist bias** and **despite all the other political problems**, the way the country has evolved over time is toward a **larger government** that **does more** and **provides more for people**. And we **obviously have evolved tremendously** in the social realm as well. Governments don’t do what is rational in the short term, at least rational in the sense you are describing it, but political systems **evolve over time** in a way that is consistent with the values and priorities of the left, and I expect that to continue over time. The 2016 Election Judis: Let’s talk about the 2016 election. Why did Clinton lose to such a weak opponent? Teixeira: The Democrats have an evolving majority that consists of groups like minorities, professionals, young people, single women and what have you, and that’s a true fact. It’s growing over time and it will continue to grow, but it was always mathematically true that if you take the declining group, the white non-college voters, and they move sufficiently in the direction of the other party, that will be enough to undermine your coalition. You won’t win. That’s exactly what happened in 2016. These voters moved rapidly away from the Democrats both in local and state races and in the presidential election. Judis: Why did they move? Teixeira: They do not have any faith that the Democrats share their values and are going to deliver a better life for them and their kids, and I think Hillary Clinton was a very efficient bearer of that meme. Whether she wanted to or not, the message she sent to these voters is that you are really not that important and I don’t take your problems seriously, and frankly I don’t have much to offer you. And that’s despite the fact that her economic program and policies would have actually been very good for these people. There was a study of campaign advertising in 2016 that showed Hillary outspent Trump significantly and that almost none of her advertising was about what she would actually do. Almost all of it was about how he was a bad dude. Voters were **fed up with stagnation** and with the Democrats and they **turned to someone who thought could blow up the system**. The way the Democrats and the left could **mitigate that problem** is to show these voters that they **take their problems seriously** and have their interests in mind, and could improve their lives. I **don’t think there is any way of doing that** without a **new model of economic growth**.

#### 3---Climate.

Fickling 20 (David, Bloomberg Opinion columnist covering commodities, as well as industrial and consumer companies, citing a report from the International Energy Agency, “Capitalism Caused Climate Change; It Must Also Be the Solution,” Bloomberg, 10/14/20, <https://www.bloomberg.com/opinion/articles/2020-10-14/capitalism-caused-climate-change-it-must-also-be-the-solution>, ccm)

After that, though, things fall apart. Thanks to ongoing economic weakness, governments and businesses lose the capacity to carry out the spending needed to remake the world’s energy system. Investment in fossil fuels falls by 10% relative to expectations under current policies, but spending on renewables and nuclear drops by 5% as well, so that $2.2 trillion less is spent by 2030.

Rather than investing to replace our power plants and appliances with lower-carbon alternatives, we eke out their polluting lives a little bit longer. By 2030, annual emissions are about 29% higher than they would be under Sustainable Development.

This desktop model of how the world could develop reflects a profound truth. The atmosphere can accommodate about 500 billion metric tons more carbon dioxide to give an even chance of keeping warming below 1.5 degrees — but the world’s current industrial base is currently pumping out roughly 33 billion tons a year, and will continue to do so unless we can replace it.

Retrofitting the world’s energy systems is going to require vast sums of money. Renewable power alone will need an average $569 billion of investment every year over the coming decade under the IEA’s Sustainable Development Scenario. That’s almost twice the rate seen over the past five years, and not far behind what the entire oil and gas sector would spend under the same settings. If anything, the world needs a target that’s more ambitious still.

If we can get up to speed, that volume of spending will create

its own momentum. One justified complaint of anti-capitalist climate activists is that our political systems frequently put their thumbs on the scale to favor powerful incumbent businesses, which at present are mostly the polluting ones. But a system where investment dollars are flowing away from fossil fuels and toward decarbonization is one where power, too, is shifting away from the carbon economy.

Even under the IEA’s less ambitious Stated Policies Scenario, the $15.14 trillion that gets spent globally on fossil fuel generation and production by 2040 is smaller than the $15.97 trillion spent on renewables and nuclear — and doesn’t include the amounts that go to energy efficiency and grid networks.

Under the Sustainable Development Scenario, which has historically often been a better guide to the path of the energy transition, low-carbon power ends up with $2.70 of spending for every $1 going to fossil fuel extraction and generation. That’s a world in which renewables will increasingly set the rules of the game, encouraging governments to remove the remaining subsidies that support oil, gas and coal.

Since the industrial revolution, the fossil-fueled engine of capitalist growth has conspired to put the world in its current climate crisis. Harnessing that power to drive the carbon transition is now our best hope of turning that disaster around.

#### Red innovation is an oxymoron---central planning decks innovation and Western capital influxes were the only reason the USSR launched a space program

Vander Elst 18 [Philip Vander Elst is a freelance writer and lecturer who has spent nearly 30 years in politics and journalism and now works with Areopagus Ministries, “Soviet Communism Was Dependent on Western Technology,” 3/11/18, https://fee.org/articles/soviet-communism-was-dependent-on-western-technology/]kiihnl

The "Brain Drain" and the **Problem with Central Planning**

Far from Soviet Communism never having “had the chance to develop” because of interference from the West as Fiona Lali believes, the endemic economic failure and oppressive character of the Soviet Union flowed inevitably from its Marxist model of economic and social development. **A society in which the State owns and controls every sector of the economy**, and is the sole landlord, employer, doctor, educator, and welfare provider, **cannot fail to be destructive of** freedom, **personal incentives, creativity**, and entrepreneurship, while monopolistic government central planning, reflecting the limited knowledge and political priorities of the ruling bureaucracy, **inevitably stifles innovation** and technical progress. That is why the negative experience of Soviet Communism was repeated in every other Communist revolution and country during the last century.f

Given these truths, the idea that Western interference hindered the outworking and therefore the success of the Communist experiment in the Soviet Union is absurd. As will be shown below, the exact opposite was the case. In one form or another, **Western capital**, “know-how,” **and technology actually pulled Soviet Communism’s chestnuts out of the fire in nearly every decade** of the Soviet Union’s existence, principally by compensating it for its above-mentioned systemic inability to generate significant levels of indigenous technological innovation.

While there was nothing inherently lacking in the quality of Soviet scientific research, the **limitations of central planning** **and the absence of market mechanisms and incentives prevented the systematic testing of the fruits of research against competing alternatives.** Instead of allowing the dispersed knowledge, opinions, and talents of millions of individuals freely co-operating in the marketplace to determine the success or failure of new ideas and discoveries, nearly all economic activity in the Soviet Union was narrowly constrained within the developmental straitjacket imposed by its all-powerful Communist rulers; hence the need to import skilled personnel, know-how, and technology from the freer and more dynamic societies of Western Europe and North America.

And this need, moreover, was all the greater, given the entrepreneurial and skills gap created by the physical liquidation of so many of pre-revolutionary Russia’s most productive and educated citizens, and by the “brain drain” of all those who, by fleeing abroad, managed to escape imprisonment and execution at the hands of Lenin’s killer squads and secret police.

The incredible but little-known story of the manner and extent to which Western Capitalism came to the rescue of Soviet Communism was told in abundant and fascinating detail half a century ago by American scholar Dr. Anthony Sutton, a former Research Fellow of the prestigious Hoover Institution in California, in his massive three-volume study, Western Technology and Soviet Economic Development 1917-1965.

Technological Nursing by the West

The key finding of this exhaustively documented historical survey, based on literally hundreds of official and unofficial Western and Soviet sources and abounding in statistical charts, tables, footnotes, and appendices **was that 90 percent of all Soviet technology was of Western origin.**

To explain this finding in more detail, Dr. Sutton examined 75 major technological processes in such crucial and diverse sectors as mining, oil, chemicals, machine building, aircraft, communications, agricultural equipment, etc. and estimated the percentage that originated in Russia. The startling results were: between 1917 and 1930, 0 percent; between 1930 and 1945, only 10 percent; and between 1945 and 1965, a mere 11 percent.

While there were some indigenous Soviet advances between 1930 and 1945 in the development of machine guns (!), synthetic rubber, oil drilling techniques, and boilers, such advances were temporary and later abandoned in favor of foreign designs and processes. Between 1946 and 1965 **most of the progress of Soviet innovation depended on the “scaling up” of existing plants and technologies imported and copied from the West.** This was particularly the case in iron and steel making, electricity generation and rocket technology.

Western capitalism’s breastfeeding of Soviet Communism began in the 1920s during the period of Lenin’s “New Economic Policy” when more than 350 foreign concessions were employed within all sections of the Russian economy except furniture and fittings. Among the foreign firms that flocked to the Soviet Union with their technicians, machinery, and capital were famous names like General Electric, Westinghouse, Singer, Du Pont, Ford, Standard Oil, Siemens, International Harvester, Alcoa, Singer, Krupp, Otto Wolf, and many others, including important British, French, Swedish, Danish, and Austrian companies. And their beneficial impact on the Soviet economy was dramatic.

Thus, for example, by the end of the 1920s, 80 percent of Soviet oil drilling was conducted by the American rotary technique and all refineries were built by foreign corporations. As a result of this transfusion of Western capital and expertise, there was a recovery of Soviet production from almost zero in 1922 in the wake of the civil war provoked by the Bolshevik seizure of power in October 1917 to pre-First World War figures in 1928.

The same pattern carried over into the decade and a half of 1930 to 1945. During these years, the huge industrial plants built for the machine-tool, automobile, aircraft, and tube mill industries were erected by foreign companies, and 300,000 high-quality foreign machine-tools were imported between 1929 and 1940. Throughout the Second World War, moreover, the Soviets (despite their previous treachery in cementing the 1939 Nazi-Soviet Pact) received $11 billion of resources and equipment from the United States under Lend-Lease.

The defeat of Hitler subsequently enabled the Soviet Union to plunder Eastern Europe for her post-war needs. Two-thirds of the German aircraft industry, the major part of her rocket production industry, about two-thirds of her electrical industry, and tons of military equipment were seized by Stalin. The German rocket installations acquired by the Russians, moreover, included the huge underground V-2 plant at Nordhausen, and laid the foundation of the Soviet "Sputnik" program—so **even the much-heralded Soviet space effort owed much of its success to the forcible acquisition of Western technology.** As an added bonus, the Russians received plants dismantled in the American zone, including such strategic goodies as aircraft plants, ball-bearing facilities, and munition plants.

The technological breastfeeding of Soviet Communism by Western capitalism continued even during the period of the Cold War. From 1959 to 1963, for example, the Soviet Union bought at least 50 complete chemical plants for chemicals not previously produced in the Soviet Union, and Soviet imports increased ten-fold between 1946 and 1966—from 692 million roubles to 7,122 million. In addition to all this, two-thirds of the Soviet merchant fleet had been constructed in the West by 1967.

Not Because, but Despite

The evidence, then, is overwhelming. Soviet Communism did not fail because it wasn’t given enough time to pursue its totalitarian and murderous objectives free of “Western interference.” It failed precisely because of those objectives and despite repeated infusions of Western capital, know-how, and technology, spanning at least five decades.

#### Green tech is thriving

Smith 21 (Noah, was an assistant professor of finance at Stony Brook University, “Clean-Tech Investment Isn't Just a Bubble This Time,” Bloomberg Opinion, 3/18/21, <https://www.bloomberg.com/opinion/articles/2021-03-18/clean-tech-investment-isn-t-just-a-bubble-this-time>, ccm)

Green energy investment is hot again in the U.S. To some, the new boom will raise the specter of the clean-tech bust that followed a streak of exuberance a decade ago. But there are reasons to believe that this time the trend is no bubble or mirage.

In the late 2000s and early 2010s, there was an explosion of investment in clean technology — renewable energy, plus other technologies to reduce carbon emissions. At first the money came largely from venture capitalists, but then the federal government stepped in and began providing cheap loans and subsidies. Then in 2011, solar manufacturer Solyndra spectacularly failed, causing an immense political backlash. And that was only the most prominent failure; overall, investors lost about $25 billion when the sector crashed. Money dried up fast. For years, "clean tech" was a dirty word in venture capitalists’ conversations.

But the worm turns, and clean tech is back.

A venture fund led by billionaire philanthropist Bill Gates (in which Michael R. Bloomberg, founder of Bloomberg News, also invests) is committing billions of dollars. Funding for battery companies and electric-vehicle companies has skyrocketed. And investment in solar and wind energy dwarfs everything else.

This raises fear of another bubble for some — of history repeating itself. My colleague Liam Denning believes that the rapid rise in valuations is a clear indicator of overpricing, which he expects to collapse when interest rates rise. Others see investors repeating the mistakes of a decade ago.

I’m more optimistic. Although investors will certainly experience some ups and downs — already the Wilderhill Clean Energy Index has had a major correction since early February — I’m pretty confident that the clean-tech industry as a whole won’t experience the kind of bust it did last time.

The most basic reason is that the fundamental underlying technology has matured in a way it simply hadn’t a decade ago. In 2009, the levelized cost of solar photovoltaic electricity was $359 per megawatt-hour — more than four times as expensive as electricity from a natural gas plant. By 2019, solar PV had fallen in price to $40 per megawatt-hour, 28% cheaper than gas. That’s an 89% decline in 10 years, with more cost drops yet to come. Meanwhile, lithium-ion batteries have experienced a similar drop in prices.

That order-of-magnitude drop in costs makes all the difference. First of all, it means that solar and wind aren’t risky new technologies. Solyndra failed because it was trying to market an innovative new kind of solar cell, which ended up being too expensive when the tried-and-true design came down in cost. Future investments in solar won’t have to bet on any difficult technological breakthroughs. Batteries might be a different story — lots of money is being thrown at startups trying to create solid-state batteries, which would be a true breakthrough. But Tesla Inc. is doing just fine with the old kind, so that sector is probably going to do OK as well. Venture investing does well when it doesn’t have to bet on “hard tech”, and much of clean tech is no longer hard.

Second, cost drops in clean energy mean that success doesn’t depend on government intervention. In the earlier boom, fickle government subsidies were often necessary for capital-intensive energy companies to succeed. Now, even though President Joe Biden is planning a big push into clean-energy investment, the market is investing quite a lot in renewables all on its own.

Finally, investors have probably learned their lesson. Clean energy itself was never a good fit for venture. It’s capital intensive, since buying solar panels and wind turbines entails a lot of money up front; venture capital tends to focus on cheap, small investments that scale. And instead of companies creating highly differentiated products and new markets, as in software, clean electricity companies are basically all trying to provide the same commodified product.

This time around, venture capitalists are letting bigger investors handle the build out of solar and wind, and finding other niches where low-cost, differentiated startups can add value — such as solar services and financing, lab-grown meat and electric vehicles. Some of those bets are certainly going to fail, but that’s always the case in private equity. The success of Tesla — now with a market cap of almost $700 billion, or 28 times the amount that was lost in the clean-tech bust — demonstrates the time-honored principle that a few big hits can compensate for a lot of little failures.

In other words, clean tech is entering the final stage of the famous Gartner Hype Cycle — a pattern that describes the progression of emerging technologies and business models, starting with an innovation that sees expectations climb and then crash, before they finally rise again to sustained productivity.