# 1NC vs Notre Dame AG

## OFF

### 1NC - OFF

T-Appropriation

#### Interp: Appropriation means permanent and exclusive control over a region of space.

Trapp 13, Timothy Justin. "Taking up Space by Any Other Means: Coming to Terms with Nonappropriation Article of the Outer Space Treaty." U. Ill. L. Rev. (2013): 1681. (JD Candidate at UIUC Law School)//Re-cut by Elmer

The issues presented in relation to the nonappropriation article of the Outer Space Treaty should be clear.214 The ITU has, quite blatantly, created something akin to “property interests in outer space.”215 It allows nations to exclude others from their orbital slots, even when the nation is not currently using that slot.216 This is directly in line with at least one definition of outer-space appropriation.217

[\*\*Start Footnote 217\*\*Id. at 236 (“Appropriation of outer space, therefore, is ‘the exercise of exclusive control or exclusive use’ with a sense of permanence, which limits other nations’ access to it.”) (quoting Milton L. Smith, The Role of the ITU in the Development of Space Law, 17 ANNALS AIR & SPACE L. 157, 165 (1992)). \*\*End Footnote 217\*\*]

The ITU even allows nations with unused slots to devise them to other entities, creating a market for the property rights set up by this regulation.218 In some aspects, this seems to effect exactly what those signatory nations of the Bogotá Declaration were try3ing to accomplish, albeit through different means.219

#### Violation:

#### 1AC internal links are about satellites and rockets

#### Space usage isn’t permanent or exclusive

De Man 16 [Philip DE MAN obtained his PhD in international space law at the University of Leuven in 2015. He lectures on international, European and national space law and policy at the Master of Space Studies programme of the Universities of Leuven and Ghent. “Exclusive Use in an Inclusive Environment: The Meaning of the Non-Appropriation Principle for Space Resource Exploitation.” *Springer*. 2016. Hmu for a pdf from a sketch Russian site!]

The set-up of the analysis by McDougal, Lasswell and Vlasic mixes references to inclusive use with implications of exclusive appropriation, suggesting that a decision on one aspect will have unambiguous results for the other. Disregarding for a moment whether it is prudent to make such an assumption, the authors’ analysis on inclusive and exclusive use rightly starts from the perspective of claims over types of resources instead of the actual use of particular amounts thereof, as follows from the incorporation of the claim notion in the definition of both policy options. It is clear that a narrative focusing on exclusive use yet omitting the authority angle cannot usefully settle the argument of national appropriation in Article II OST , for it overlooks the obvious fact that every form of use by one state of a resource in space, whether permanent or momentary, is necessarily exclusive to all others for the duration of the use, for otherwise the freedom to use outer space could not be exercised. 108 The physical excludability of space resources, whether tangible or intangible, implies that the use of a specific segment by a certain participant at a given moment ipso facto excludes a similar activity by all other competing users over the same segment at the same time. In this regard, Metcalf rightly notes that, “[i]f any use, which for some time excludes identical use of the same segment by somebody else, amounts to appropriation, it is difficult to see how there can be any content left in the principle of freedom of use”. 109 Our interpretation of property gives solid legal footing to this intuition. 110 For, as we have seen, mere exclusion through use does not, by any means, imply the existence of property rights , and the mere use of a resource is not an unlawful activity in and of itself. Quite the opposite: it is positively protected by the freedom to use outer space. Just as the general principle on the freedom to use outer space should not be defi ned with reference to each particular segment or piece of outer space, 111 a similar interpretation of the exclusive use criterion would result in too broad a restriction of the freedom to exploit natural resources. Additionally, since every use is exclusive for its entire duration and property is defined as exclusion that is not grounded in use, the length of time of resource exploitation is defi nitively removed from the equation applied to determine the legality of an activity, whether it concerns the instantaneous exhaustion of matter or the prolonged use of immaterial orbits. Finally, it should be pointed out that, in line with the caveat on mixing property with wealth, 112 exclusivity of use should be separated from the divisibility of the benefits that follow from such use, as the fruits of exclusive use by one can obviously be shared among multiple stakeholders.

#### Vote NEG for limits and ground: the aff interpretation explodes the topic to allow any aff about things being close together in space which structurally alters the neg research burden because there’s a qualitative difference between appropriation of outer space with regards to property and to anything being up in space. That alters neg ground because it means the aff can defend trivial middle grounds that go beyond just exclusive appropriation unbalancing the topic. At best, it’s extra-T which is a reason to drop them --- allows affirmatives to add on infinite planks to spike out of NEG ground and explodes limits

#### Use competing interps - Topicality is a binary question, you can’t be reasonably topical and it invites a race to the bottom of intervention

#### Drop the debater – dropping the argument doesn’t rectify abuse since winning T proves why we don’t have the burden of rejoinder against their aff.

#### No RVIS – it’s your burden to be topical and incentivizes theory baiting

## CASE

### 1NC - AT: Adv 1

#### Top level --- all of their link evidence is quotes from government officials who run the programs saying that they want to have a private space sector --- that does not mean the space sector is genuine

#### Smith 20 --- the Noor-1 satellite and work on BMD is done by the military

#### Axe --- a. the Zuljanah was developed by the military, b. the plan doesn’t eliminate the Zuljanah --- it’s not reverse causal --- even if the private sector is helping now, that doesn’t mean eliminating it prevents the military from developing and using satellites

#### They didn’t read a prolif impact card --- reject new 1AR terminal impacts

#### Silverstein is highlighted down to nothing and proves no uq --- Iran has capacity to start now

#### El-Zobaidi thumps --- a. it says Iranian missiles are already at late stages --- eliminating private sector doesn’t reverse progress --- b. no impact

#### Saudi prolif prevents nuclear war and caps regional escalation in the Middle East

Golov 12 (Avner Golov; a research associate at the Institute for National Security Studies, doctoral student at the Fletcher School of Law and Diplomacy at Tufts University, researcher for the Middle East Security Research Program at the Center for a New American Security, M.A. (magna cum laude) in Government studies, from the Interdisciplinary Center; 5/30/12; “A New Middle East: Thoughts on a Deterrence Regime against a Nuclear Iran”; <https://fletcher.tufts.edu/sites/default/files/phd_golov-avner-new-middle-east.pdf>; DS)

Moreover, if Iran achieved nuclear capability, the situation in the region would exceed the model of extended deterrence. Over the past year President Obama has repeatedly warned that nuclear weapons in Tehran’s hands could create an incentive for other countries in the region to develop military nuclear capabilities. The Saudis have stated publicly that if Iran acquires nuclear weapons, they will be forced to obtain similar capabilities. According to Dennis Ross, President Obama’s former advisor on Iran, the Saudis have conveyed the same message in closed talks with US representatives.1 Since Saudi Arabia has a close connection with the regime in Pakistan and a nascent nuclear infrastructure, the main risk is that it will purchase Pakistani nuclear weapons or that it will be covered by the Pakistani nuclear umbrella, and within a short time the Middle East will become a region that has three countries believed to possess nuclear capabilities. In this scenario, there will be simultaneous deterrence regimes between Saudi Arabia and Iran, Saudi Arabia and Israel, and Iran and Israel. Joining this would be the impact of US deterrence policy during a crisis. This dynamic is complicated, and the traditional bilateral analysis, including use of the extended deterrence model, is not sufficient to explain it. There are both threats and opportunities inherent in this multilateral deterrence regime, which have not yet been discussed in depth. A Nuclear Iran: Threats and Opportunities In classic deterrence, the main challenge for the defending party is to convey a clear and consistent message to the attacking party about the forbidden action and the price for carrying it out. In multilateral deterrence, on the other hand, the challenge for the defending party is to convey this message simultaneously to a number of countries with different, and sometimes contradictory, world views and interests. This is particularly important because any message will be examined by the other actors in the arena. Any Saudi statements for example, will be interpreted at the same time in Washington, Tehran, and Jerusalem, although not necessarily in the same way. Each party will seek to threaten with the intention of deterring the other three parties, but without causing them an excess of insecurity, which is liable to push them into a preemptive strike in order to damage the enemy's capabilities. Thus, for example, a conciliatory message from one country could be interpreted by a second country as weakness or by a third country as manipulation intended to camouflage a plan to attack. As a result of crossed wires and mixed signals, the risk of escalation will increase, even though none of the parties is interested in escalation. This challenge becomes more complicated in the Middle East, where there is poor communication between states, and especially between Israel and Iran, which do not have diplomatic relations. In a nuclear Middle East, the lack of direct and effective channels of communication between countries could encourage them to receive mistaken assessments of enemy intentions, read the situation incorrectly, and attack the enemy out of fear that will attack first. Another problem is connected to the relativity of the threat. In the bilateral model of deterrence, the credibility of the defending party’s deterrent messages depends on its ability to cause intolerable damage to the attacking party. In multilateral deterrence regimes, however, the threat is not absolute, but is measured against the other threats in the arena. Tehran would compare the Israeli threat with the Saudi threat and the American threat. This equation could have a decisive impact, for example, in the event of a conventional conflict between the United States and Iran. The challenge for Israel would be to present a threat of significant damage, in addition to the damage that could be inflicted by the impressive US military capabilities, in order to influence the decisions in Tehran and prevent it from dragging Israel into the conflict. Saudi Arabia could encounter a similar challenge in the event of a conflict between Iran and Israel. Along with threats that undermine strategic stability, this complex environment could provide a number of opportunities that, if used correctly, would make it possible to reduce the instability somewhat. The different countries’ fear of a common enemy could encourage them to cooperate and increase their independent deterrence capability. Thus, for example, Israel and Saudi Arabia could cooperate against Iran, with each capitalizing on its respective advantages. Israel has a modern army and stronger and more precise firepower than Saudi Arabia, while Saudi Arabia has a geographic and political advantage in a military operation against Iran. If the two countries decided to join together, they could present a significant threat to Iran, greater than the threat that either could present by itself Another opportunity is to cooperate in developing “deterrence by denial,” primarily active protection capabilities. In the context of deterrence, these capabilities are supposed to reduce the benefit to the attacking party and as such, to influence its considerations. It receives legitimacy and broad international support because it enables coping with threats using methods that are defensive and not offensive. Active protection capabilities are not only a deterrent tool; they also make it possible to address the threat and reduce the pressure on decision makers in formulating a response when deterrence fails. They can thus help keep escalation limited and controlled and prevent all-out war between nuclear states, which could be a regional disaster. The Arrow system, for instance, could be a critical restraining factor in the event of escalation between Jerusalem and Tehran if Iran possesses nuclear weapons.

#### No Mid East escalation

* Proxy wars stay localized

They are cheaper to change the status quo

Gives countries the opportunity to deny conflict

Non-state actors can’t escalate because of institutional capacity

* Consensus of international scholars and data conclude

Imran 2/6/19 [Myra Imran, writer for The News International. Citing the international seminar on “Strategic Dimensions of Peace and Conflict in South Asia and the Middle East”. Seminar on ‘Strategic dimensions of peace and conflict in South Asia, Middle East’. 2/6/19, https://www.thenews.com.pk/print/428298-seminar-on-strategic-dimensions-of-peace-and-conflict-in-south-asia-middle-east]

Islamabad : There is a need to study the causes of proxy wars, and what are the potential impacts of such wars on the overall conflict. These thoughts in a daylong international seminar on ‘Strategic Dimensions of Peace and Conflict in South Asia and the Middle East,’ organised by Pak Institute for Peace Studies (PIPS), an Islamabad-based think tank, participated by prominent national and international scholars.

Prof. Shahram Akbarzadeh, Deakin University, Australia, argued there is significant gap in the literature on non-state actors. He called for empirical research, along with concrete policy suggestions, on the topic, so as to mitigate the conflicts in the region, in particular South Asia and Middle East.

Speakers grappled at the notion of non-state actors and proxy wars: PIPS director Muhammad Amir Rana said non-state actors often evoke memories of violent elements. This despite that as per definition, non-state actors include organizations working for human rights.

Prof. Syed Rifaat Hussain, Department of Government and Public Policy, NUST, said the term “proxy wars” is a contested notion. There is no universal agreement on its definition, nor on the set of circumstances behind such wars. Interestingly, he said, proxy wars are as old as the phenomena of conventional war itself.

Speakers noted proxy wars are instruments of state power. As to why states go for it, it was argued, it is because they are often cheap undertaking to change the status quo.

Participants noted over the decades, much of the conflict involves non-state actors. Interstate conflict, on the other hand, has declined. In recent times, he said tit-for-tat tactics on behalf of such actors have reduced their appeal.

Dr. Ibrahim Fraihat, Doha Institute of Graduate Studies, Doha, termed proxy war as an arms conflict between two parties, though one of them is not directly involved. This way, domestic conflicts are escalated by external power intervention. At the same time, proxy war, if unresolved, can take the shape of conventional war, the most significant example was of Vietnam War. In contemporary times, he lamented, the Middle East has been rendered a stock market of proxy organizations.

William Gueriache, Associate Professor American University in the Emirates Dubai, said on surface, all states support open diplomacy and multilateralism. Yet the survival of patronage has paved the way for foreign intervention during conflicts in the whole Middle East.

Dr. Marwan Kablan, Director Policy Analysis at the Arab Center for Research and Policy Studies Doha, also hinted multiplicity of actors involved in Syrian conflict, calling it as mother of conflicts in the region. It was said that wars cannot be ended unless patron states achieve their interests.

Dr. Shaheen Akhtar, Professor National Defence University Islamabad focused on the apprehension of Pakistan about India’s involvement in Afghanistan. She said Pakistan’s uneasy relationship with Kabul reinforces a perception of encirclement while growing US-India strategic cooperation further aggravates these apprehensions.

Dr. Muhammad Riaz Shad, National University of Modern Languages (NUML) Islamabad, said fighting through proxies gives states an opportunity of deniability.

### 1NC - AT: Adv 2

#### No Escalation over Satellites – flips offensive dominant framing:

#### 1] Planning Priorities

Bowen 18 Bleddyn Bowen 2-20-2018 “The Art of Space Deterrence” <https://www.europeanleadershipnetwork.org/commentary/the-art-of-space-deterrence/> (Lecturer in International Relations at the University of Leicester)//Elmer

Space is often an afterthought or a miscellaneous ancillary in the grand strategic views of top-level decision-makers. A president may not care that one satellite may be lost or go dark; it may cause panic and Twitter-based hysteria for the space community, of course. But the terrestrial context and consequences, as well as the political stakes and symbolism of any exchange of hostilities in space matters more. The political and media dimension can magnify or minimise the perceived consequences of losing specific satellites out of all proportion to their actual strategic effect.

#### 2] Military Precedent

Zarybnisky 18, Eric J. Celestial Deterrence: Deterring Aggression in the Global Commons of Space. Naval War College Newport United States, 2018. (Senior Materiel Leader at United States Air Force)//Elmer

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.

#### Concede militarization scenario - We love laundry list impacts – yes sats and yes econ and yes debris internal links – sage reads blue

**AC Gilliard 19**, Alexandra. (Alexandra Gilliard is a Senior Editor and interviewer of international relations experts for the International Affairs Forum. She holds an M.S. in Global Studies and International Relations from Northeastern University, and a B.A. in International Relations from Boston University, with expertise in conflict resolution, arms control, human rights issues, and the MENA region.) “What Are the Consequences of Militarizing Outer Space?” Global Security Review, 10 June 2019, https://globalsecurityreview.com/consequences-militarization-space/. //JQ

Consequences of Armament and Aggression in Space

The consequences of weapons testing and aggression in space could span generations, and current technological advances only increase the urgency for policymakers to pursue a limitations treaty. As it stands, there are three major ramifications of a potential arms race in space:

The destruction of satellites

As both financial and technological barriers to the space services industry have decreased, the number of governmental and private investors with assets in space has inevitably increased. There is now an abundance of satellites in space owned by multiple states and corporations. These satellites are used to not only coordinate military actions, but to perform more mundane tasks, like obtaining weather reports, or managing on-ground communications, and navigation.

Should states begin weapons testing in space, debris could cloud the orbit and make positioning new satellites impossible, disrupting our current way of life. More pressing, however, is that if a country’s satellites are successfully destroyed by an enemy state, military capabilities can be severely hindered or destroyed, leaving the country vulnerable to attack and unable to coordinate its military forces on the ground.

Diminished future use of near space

Whether caused by weapons testing or actual aggression, the subsequent proliferation of debris around the planet would damage our future ability to access space. Not only would debris act as shrapnel to preexisting assets in space, but it would also become much more difficult to launch satellites or rockets, hindering scientific research, space exploration, and commercial operations.

From the past fifty-odd years of activity in space alone, the debris left behind in Earth’s orbital field has already become hazardous to spacecraft — a main reason why the U.S. and the Soviet Union did not continue with ASAT testing during the Cold War. If greater pollution were to occur, space itself could be become unusable, resulting in the collapse of the global economic system, air travel, and various communications.

Power imbalances and proliferation on the ground

Only so many states currently have access to space—which means any militarization be by the few, while other states would be left to fend for themselves. This would establish a clear power imbalance that could breed distrust among nations, resulting in a more insecure world and a veritable power keg primed for war. Additionally, deterrence measures taken by states with access to space would escalate, attempting to build up weapons caches not dissimilar to the nuclear weapons stockpiling activities of the Cold War.

In any arms race, it is inevitable that more advanced weaponry is created. Yet, this does not only pose a risk to assets in space. Should a terrestrial war break out, this weaponry may eventually be deployed on the ground, and space-faring states would be able to capitalize on the power imbalance by using these new developments against states that have not yet broken into the space industry or developed equally-advanced weaponry.

#### Stopping growth solves extinction from eco collapse – decoupling is impossible even under perfect conditions, and transition dangers are overhyped

Hickel 18 [Jason Hickel is an anthropologist, author, and a fellow of the Royal Society of Arts. Why Growth Can’t Be Green. Foreign Policy Magazine. September 12, 2018. https://foreignpolicy.com/2018/09/12/why-growth-cant-be-green/]

Warnings about ecological breakdown have become ubiquitous. Over the past few years, major newspapers, including the Guardian and the New York Times, have carried alarming stories on soil depletion, deforestation, and the collapse of fish stocks and insect populations. These crises are being driven by global economic growth, and its accompanying consumption, which is destroying the Earth’s biosphere and blowing past key planetary boundaries that scientists say must be respected to avoid triggering collapse.

Many policymakers have responded by pushing for what has come to be called “green growth.” All we need to do, they argue, is invest in more efficient technology and introduce the right incentives, and we’ll be able to keep growing while simultaneously reducing our impact on the natural world, which is already at an unsustainable level. In technical terms, the goal is to achieve “absolute decoupling” of GDP from the total use of natural resources, according to the U.N. definition.

It sounds like an elegant solution to an otherwise catastrophic problem. There’s just one hitch: New evidence suggests that green growth isn’t the panacea everyone has been hoping for. In fact, it isn’t even possible.

Green growth first became a buzz phrase in 2012 at the United Nations Cosnference on Sustainable Development in Rio de Janeiro. In the run-up to the conference, the World Bank, the Organization for Economic Cooperation and Development, and the U.N. Environment Program all produced reports promoting green growth. Today, it is a core plank of the U.N. Sustainable Development Goals.

But the promise of green growth turns out to have been based more on wishful thinking than on evidence. In the years since the Rio conference, three major empirical studies have arrived at the same rather troubling conclusion: Even under the best conditions, absolute decoupling of GDP from resource use is not possible on a global scale.

A team of scientists led by the German researcher Monika Dittrich first raised doubts in 2012. The group ran a sophisticated computer model that predicted what would happen to global resource use if economic growth continued on its current trajectory, increasing at about 2 to 3 percent per year. It found that human consumption of natural resources (including fish, livestock, forests, metals, minerals, and fossil fuels) would rise from 70 billion metric tons per year in 2012 to 180 billion metric tons per year by 2050. For reference, a sustainable level of resource use is about 50 billion metric tons per year—a boundary we breached back in 2000.

The team then reran the model to see what would happen if every nation on Earth immediately adopted best practice in efficient resource use (an extremely optimistic assumption). The results improved; resource consumption would hit only 93 billion metric tons by 2050. But that is still a lot more than we’re consuming today. Burning through all those resources could hardly be described as absolute decoupling or green growth.

In 2016, a second team of scientists tested a different premise: one in which the world’s nations all agreed to go above and beyond existing best practice. In their best-case scenario, the researchers assumed a tax that would raise the global price of carbon from $50 to $236 per metric ton and imagined technological innovations that would double the efficiency with which we use resources. The results were almost exactly the same as in Dittrich’s study. Under these conditions, if the global economy kept growing by 3 percent each year, we’d still hit about 95 billion metric tons of resource use by 2050. Bottom line: no absolute decoupling.

Finally, last year the U.N. Environment Program—once one of the main cheerleaders of green growth theory—weighed in on the debate. It tested a scenario with carbon priced at a whopping $573 per metric ton, slapped on a resource extraction tax, and assumed rapid technological innovation spurred by strong government support. The result? We hit 132 billion metric tons by 2050. This finding is worse than those of the two previous studies because the researchers accounted for the “rebound effect,” whereby improvements in resource efficiency drive down prices and cause demand to rise—thus canceling out some of the gains.

Study after study shows the same thing. Scientists are beginning to realize that there are physical limits to how efficiently we can use resources. Sure, we might be able to produce cars and iPhones and skyscrapers more efficiently, but we can’t produce them out of thin air. We might shift the economy to services such as education and yoga, but even universities and workout studios require material inputs. Once we reach the limits of efficiency, pursuing any degree of economic growth drives resource use back up.

These problems throw the entire concept of green growth into doubt and necessitate some radical rethinking. Remember that each of the three studies used highly optimistic assumptions. We are nowhere near imposing a global carbon tax today, much less one of nearly $600 per metric ton, and resource efficiency is currently getting worse, not better. Yet the studies suggest that even if we do everything right, decoupling economic growth with resource use will remain elusive and our environmental problems will continue to worsen.

Preventing that outcome will require a whole new paradigm. High taxes and technological innovation will help, but they’re not going to be enough. The only realistic shot humanity has at averting ecological collapse is to impose hard caps on resource use, as the economist Daniel O’Neill recently proposed. Such caps, enforced by national governments or by international treaties, could ensure that we do not extract more from the land and the seas than the Earth can safely regenerate. We could also ditch GDP as an indicator of economic success and adopt a more balanced measure like the genuine progress indicator (GPI), which accounts for pollution and natural asset depletion. Using GPI would help us maximize socially good outcomes while minimizing ecologically bad ones.

But there’s no escaping the obvious conclusion. Ultimately, bringing our civilization back within planetary boundaries is going to require that we liberate ourselves from our dependence on economic growth—starting with rich nations. This might sound scarier than it really is. Ending growth doesn’t mean shutting down economic activity—it simply means that next year we can’t produce and consume more than we are doing this year. It might also mean shrinking certain sectors that are particularly damaging to our ecology and that are unnecessary for human flourishing, such as advertising, commuting, and single-use products.

But ending growth doesn’t mean that living standards need to take a hit. Our planet provides more than enough for all of us; the problem is that its resources are not equally distributed. We can improve people’s lives right now simply by sharing what we already have more fairly, rather than plundering the Earth for more. Maybe this means better public services. Maybe it means basic income. Maybe it means a shorter working week that allows us to scale down production while still delivering full employment. Policies such as these—and countless others—will be crucial to not only surviving the 21st century but also flourishing in it.

#### Warming is inevitable absent a shift to zero emissions --- we’re busting through the carbon budget and renewables and CCS don’t arrive in time

Mooney and Dennis 18

Chris Mooney and Brady Dennis, Reporters for the Washington Post, “The world has barely 10 years to get climate change under control, U.N. scientists say.” The Washington Post. October 7, 2018. https://www.washingtonpost.com/energy-environment/2018/10/08/world-has-only-years-get-climate-change-under-control-un-scientists-say/?utm\_term=.25de27d0202d

--Also an answer to CCS!

The world stands on the brink of failure when it comes to holding global warming to moderate levels, and nations will need to take “unprecedented” actions to cut their carbon emissions over the next decade, according to a landmark report by the top scientific body studying climate change.

With global emissions showing few signs of slowing and the United States — the world’s second-largest emitter of carbon dioxide — rolling back a suite of Obama-era climate measures, the prospects for meeting the most ambitious goals of the 2015 Paris agreement look increasingly slim. To avoid racing past warming of 1.5 degrees Celsius (2.7 degrees Fahrenheit) over preindustrial levels would require a “rapid and far-reaching” transformation of human civilization at a magnitude that has never happened before, the group found.

“There is no documented historic precedent” for the sweeping change to energy, transportation and other systems required to reach 1.5 degrees Celsius, the U.N. Intergovernmental Panel on Climate Change (IPCC)[wrote](https://www.ipcc.ch/) in a report requested as part of the 2015 Paris climate agreement.

At the same time, however, the report is being received with hope in some quarters because it affirms that 1.5 degrees Celsius is still possible — if emissions stopped today, for instance, the planet would not reach that temperature. It is also likely to galvanize even stronger climate action by focusing on 1.5 degrees Celsius, rather than 2 degrees, as a target that the world cannot afford to miss.

“Frankly, we’ve delivered a message to the governments,” said Jim Skea, a co-chair of the IPCC panel and professor at Imperial College London, at a press event following the document’s release. “It’s now their responsibility … to decide whether they can act on it.” He added, “What we’ve done is said what the world needs to do.”

The transformation described in the document is breathtaking, and the speed of change required raises inevitable questions about its feasibility.

Most strikingly, the document says the world’s annual carbon dioxide emissions, which amount to more than 40 billion tons per year, would have to be on an extremely steep downward path by 2030 to either hold the world entirely below 1.5 degrees Celsius, or allow only a brief “overshoot” in temperatures.

Overall reductions in emissions in the next decade would probably need to be more than 1 billion tons per year, larger than the current emissions of all but a few of the very largest emitting countries. By 2050, the report calls for a total or near-total phaseout of the burning of coal.

'Understanding the Arctic is really a key to understanding the whole global system'

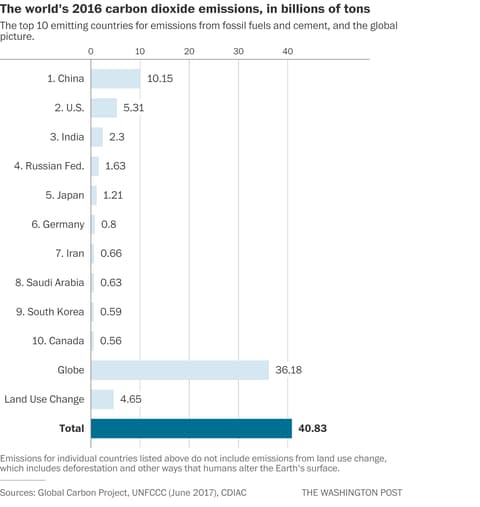
Mark Furze, a geoscientist and professor at MacEwan University, discusses the importance of understanding how climate change is impacting the Arctic. (Alice Li/TWP)

“It’s like a deafening, piercing smoke alarm going off in the kitchen. We have to put out the fire,” said Erik Solheim, executive director of the U.N. Environment Program. He added that the need to either stop emissions entirely by 2050 or find some way to remove as much carbon dioxide from the air as humans put there “means net zero must be the new global mantra.”

The radical transformation also would mean that, in a world projected to have more than 2 billion additional people by 2050, large swaths of land currently used to produce food would instead have to be converted to growing trees that store carbon and crops designated for energy use. The latter would be used as part of a currently nonexistent program to get power from trees or plants and then bury the resulting carbon dioxide emissions in the ground, leading to a net subtraction of the gas from the air — bioenergy with carbon capture and storage, or BECCS.

“Such large transitions pose profound challenges for sustainable management of the various demands on land for human settlements, food, livestock feed, fibre, bioenergy, carbon storage, biodiversity and other ecosystem services,” the report states.

The document in question was produced relatively rapidly for the cautious and deliberative IPCC, representing the work of nearly 100 scientists. It went through an elaborate peer-review process involving tens of thousands of comments. The final 34-page “summary for policymakers” was agreed to in a marathon session by scientists and government officials in Incheon, South Korea, over the past week.

  
(none)

The report says the world will need to develop large-scale “negative emissions” programs to remove significant volumes of carbon dioxide from the atmosphere. Although the basic technologies exist, they have not caught on widely, and scientists have strongly questioned whether such a program can be scaled up in the brief period available.

The bottom line, Sunday’s report found, is that the world is woefully off target.

Current promises made by countries as part of the Paris climate agreement would lead to about 3 degrees Celsius (5.4 degrees Fahrenheit) of warming by the end of the century, and the Trump administration recently released an analysis [assuming about 4 degrees Celsius (7.2 degrees Fahrenheit)](https://www.washingtonpost.com/national/health-science/trump-administration-sees-a-7-degree-rise-in-global-temperatures-by-2100/2018/09/27/b9c6fada-bb45-11e8-bdc0-90f81cc58c5d_story.html?utm_term=.de105fd573a8)by 2100 if the world takes no action.

The IPCC is considered the definitive source on the state of climate science, but it also tends to be conservative in its conclusions. That’s because it is driven by a consensus-finding process, and its results are the product of not only science, but negotiation with governments over its precise language.

In Sunday’s report, the body detailed the magnitude and unprecedented nature of the changes that would be required to hold warming to 1.5 degrees Celsius, but it held back from taking a specific stand on the feasibility of meeting such an ambitious goal. (An [early draft](http://www.climatechangenews.com/2018/02/13/leaked-draft-summary-un-special-report-1-5c-climate-goal-full/) had cited a “very high risk” of warming exceeding 1.5 degrees Celsius; that language is now gone, even if the basic message is still easily inferred.)

“If you’re expecting IPCC to jump up and down and wave red flags, you’re going to be disappointed,” said Phil Duffy, president of the Woods Hole Research Center. “They’re going to do what they always do, which is to release very cautious reports in extremely dispassionate language.”

Some researchers, including Duffy, are skeptical of the scenarios that the IPCC presents that hold warming to 1.5 degrees Celsius, particularly the reliance on negative-emissions technologies to keep the window open.

“Even if it is technically possible, without aligning the technical, political and social aspects of feasibility, it is not going to happen,” added Glen Peters, research director of the Center for International Climate Research in Oslo. “To limit warming below 1.5 C, or 2 C for that matter, requires all countries and all sectors to act.”

Underscoring the difficulty of interpreting what’s possible, the IPCC gave two separate numbers in the report for Earth’s remaining “carbon budget,” or how much carbon dioxide humans can emit and still have a reasonable chance of remaining below 1.5 degrees Celsius. The upshot is that humans are allowed either 10 or 14 years of current emissions, and no more, for a two-thirds or better chance of avoiding 1.5 degrees Celsius.

The already limited budget would shrink further if other greenhouse gases, such as methane, aren’t controlled or if and when Arctic permafrost becomes a major source of new emissions.

But either way — in a move that may be contested — researchers have somewhat increased the carbon budget in comparison with where the IPCC set it in 2013, giving another reason for hope.

The new approach buys some time and “resets the clock for 1.5 degrees Celsius to ‘five minutes to midnight,’ ” said Oliver Geden, head of the research division of the German Institute for International and Security Affairs.

The report is sure to be the central focus of attention this December in Poland when the next meeting of the parties to the Paris climate agreement is held, and countries begin to contemplate how they can up their ambition levels, as the agreement requires them to do over time.

Meanwhile, the report clearly documents that a warming of 1.5 degrees Celsius would be very damaging and that 2 degrees — which used to be considered a reasonable goal — could approach intolerable in parts of the world.

“1.5 degrees is the new 2 degrees,” said Jennifer Morgan, executive director of Greenpeace International, who was in Incheon for the finalization of the report.

Specifically, the document finds that instabilities in Antarctica and Greenland, which could usher in sea-level rise measured in feet rather than inches, “could be triggered around 1.5°C to 2°C of global warming.” Moreover, the total loss of tropical coral reefs is at stake because 70 to 90 percent are expected to vanish at 1.5 degrees Celsius, the report finds. At 2 degrees, that number grows to more than 99 percent.

The report found that holding warming to 1.5 degrees Celsius could save an Alaska-size area of the Arctic from permafrost thaw, muting a feedback loop that could lead to still more global emissions. The occurrence of entirely ice-free summers in the Arctic Ocean goes from one per century to one per decade between 1.5 and 2 degrees, it found — one of many ways in which the mere half a degree has large real-world consequences.

Risks of extreme heat and weather events just rise and rise as temperatures do, meaning these would be worse worldwide the more it warms.

To avoid that, in barely more than 10 years, the world’s percentage of electricity from renewables such as solar and wind power would have to jump from the current 24 percent to something more like 50 or 60 percent. Coal and gas plants that remain in operation would need to be equipped with technologies, collectively called carbon capture and storage (CCS), that prevent them from emitting carbon dioxide into the air and instead funnel it to be buried underground. By 2050, most coal plants would shut down.

Cars and other forms of transportation, meanwhile, would need to be shifting strongly toward being electrified, powered by these same renewable energy sources. At present, transportation is far behind the power sector in the shift to low-carbon fuel sources. Right now,[according to](https://www.iea.org/media/publications/mtrmr/Renewables2017ExecutiveSummary.PDF) the International Energy Agency, only 4 percent of road transportation is powered by renewable fuels, and the agency has projected only a 1 percent increase by 2022.

#### Warming causes extinction and nuclear war

**Pester 8/30/21** (Patrick, staff writer for Live Science. His background is in wildlife conservation and he has worked with endangered species around the world. Patrick holds a master's degree in international journalism from Cardiff University in the U.K. and is currently finishing a second master's degree in biodiversity, evolution and conservation in action at Middlesex University London. Citing **Luke Kemp, a research associate at the Centre for the Study of Existential Risk at the University of Cambridg**e in the United Kingdom AND **Michael Mann, PhD, distinguished professor of atmospheric science at Penn State**. “Could climate change make humans go extinct?” [https://www.livescience.com/climate-change-humans-extinct.html August 30](https://www.livescience.com/climate-change-humans-extinct.html%20August%2030), 2021)DR 21

According to Mann, a global temperature increase of 5.4 degrees Fahrenheit (3 degrees Celsius) or more could lead to a collapse of our societal infrastructure and massive unrest and conflict, which, in turn, could lead to a future that resembles some Hollywood dystopian films.

One way climate change could trigger a societal collapse is by creating food insecurity. Warming the planet has a range of negative impacts on food production, including increasing the water deficit and thereby reducing food harvests, [Live Science previously reported](https://www.livescience.com/58891-why-2-degrees-celsius-increase-matters.html). Food production losses can increase human deaths and drive economic loss and socio-political instability, among other factors, that may trigger a breakdown of our institutions and increase the risk of a societal collapse, according to a study published Feb. 21 in the journal [Climatic Change](https://go.redirectingat.com/?id=92X1590019&xcust=livescience_us_1191050396230939400&xs=1&url=https%3A%2F%2Flink.springer.com%2Farticle%2F10.1007%2Fs10584-021-02957-w&sref=https%3A%2F%2Fwww.livescience.com%2Fclimate-change-humans-extinct.html).

Related: [Has the Earth ever been this hot before?](https://www.livescience.com/65927-has-earth-been-this-hot-before.html)

Past extinctions and collapses

Kemp studies previous civilization collapses and the risk of climate change. Extinctions and catastrophes almost always involve multiple factors, he said, but he thinks if humans were to go extinct, climate change would likely be the main culprit.

"If I'm to say, what do I think is the biggest contributor to the potential for human extinction going towards the future? Then climate change, no doubt," Kemp told Live Science.

All of the major [mass-extinction events](https://www.livescience.com/mass-extinction-events-that-shaped-Earth.html) in Earth's history have involved some kind of climatic change, according to Kemp. These events include cooling during the Ordovician-[Silurian](https://www.livescience.com/43514-silurian-period.html) extinction about 440 million years ago that wiped out 85% of species, and warming during the [Triassic](https://www.livescience.com/43295-triassic-period.html)-[Jurassic](https://www.livescience.com/28739-jurassic-period.html) extinction about 200 million years ago that killed 80% of species, Live Science previously reported. And more recently, climate change affected the fate of early human relatives.

While [Homo sapiens](https://www.livescience.com/homo-sapiens.html) are obviously not extinct, "we do have a track record of other hominid species going extinct, such as [Neanderthals](https://www.livescience.com/28036-neanderthals-facts-about-our-extinct-human-relatives.html)," Kemp said. "And in each of these cases, it appears that again, climatic change plays some kind of role."

Scientists don't know why Neanderthals went extinct about 40,000 years ago, but climatic fluctuations seem to have broken their population up into smaller, fragmented groups, and severe changes in temperature affected the plants and animals they relied on for food, according to the [Natural History Museum](https://www.nhm.ac.uk/discover/who-were-the-neanderthals.html) in London. Food loss, driven by climate change, may have also led to a tiny drop in Neanderthal fertility rates, contributing to their extinction, [Live Science previously reported](https://www.livescience.com/65594-neanderthal-fertility-led-to-extinction.html).

Climate change has also played a role in the collapse of past human civilizations. A [300-year-long drought](https://www.livescience.com/38893-drought-caused-ancient-mediterranean-collapse.html), for example, contributed to the downfall of ancient Greece about 3,200 years ago. But Neanderthals disappearing and civilizations collapsing do not equal human extinction. After all, humans have survived climate fluctuations in the past and currently live all over the world despite the rise and fall of numerous civilizations.

Homo sapiens have proven themselves to be highly adaptable and able to cope with many different climates, be they hot, cold, dry or wet. We can use resources from many different plants and animals and share those resources, along with information, to help us survive in a changing world, according to the [Smithsonian’s National Museum of Natural History](https://humanorigins.si.edu/research/climate-and-human-evolution/climate-effects-human-evolution).

Related: [How would just 2 degrees of warming change the planet?](https://www.livescience.com/58891-why-2-degrees-celsius-increase-matters.html)

Today, we live in a global, interconnected civilization, but there's reason to believe our species could survive its collapse. A study published on July 21 in the journal [Sustainability](https://www.mdpi.com/2071-1050/13/15/8161/htm) identified countries most likely to survive a global societal collapse and maintain their complex way of life. Five island countries, including New Zealand and Ireland, were chosen as they could remain habitable through agriculture, thanks to their relatively cool temperatures, low weather variability and other factors that make them more resilient to climate change.

New Zealand would be expected to hold up the best with other favorable conditions, including a low population, large amounts of good quality agricultural land and reliable, domestic energy. So, even if climate change triggers a global civilization collapse, humans will likely be able to keep going, at least in some areas.

Turning on ourselves

The last scenario to consider is climate-driven conflict. Kemp explained that in the future, a scarcity of resources that diminish because of **climate change could** potentially create conditions for wars that threaten humanity. "There's reasons to be concerned that as water resources dry up and scarcity becomes worse, and the general conditions of living today become much, much worse, then suddenly, the threat of potential nuclear war becomes much higher," Kemp said.

Put another way, climate change impacts might not directly cause humans to go extinct, but it could lead to events that seriously endanger hundreds of millions, if not billions, of lives. A 2019 study published in the journal [Science Advances](https://advances.sciencemag.org/content/5/10/eaay5478) found that a nuclear conflict between just India and Pakistan, with a small fraction of the world's nuclear weapons, could kill 50 million to 125 million people in those two countries alone. Nuclear war would also change the climate, such as through temperature drops as burning cities fill the atmosphere with smoke, threatening food production worldwide and potentially causing mass starvation.

What's next?

While avoiding complete extinction doesn't sound like much of a climate change silver lining, there is reason for hope. Experts say it isn't too late to avoid the worst-case scenarios with significant cuts to greenhouse gas emissions.

"It is up to us," Mann said. "If we fail to reduce carbon emissions substantially in the decade ahead, we are likely committed to a worsening of already dangerous extreme weather events, inundation of coastlines around the world due to melting ice and rising sea level, more pressure on limited resources as a growing global population competes for less food, water and space due to climate change impacts. If we act boldly now, we can avoid the worst impacts."

#### Corona sent shockwaves throughout the global economy and makes collapse inevitable—we need a new system to ensure survival

Tooze, 20

(Adam, history professor and director of the European Institute at Columbia University "The Normal Economy Is Never Coming Back," April 9 <https://foreignpolicy.com/2020/04/09/unemployment-coronavirus-pandemic-normal-economy-is-never-coming-back/> NL)

As the coronavirus lockdown began, the first impulse was to search for historical analogies—1914, 1929, 1941? As the weeks have ground on, what has come ever more to the fore is the historical novelty of the shock that we are living through. The economy is currently in something akin to free fall. If it were to continue to contract at its current pace, 12 months from now GDP would be [one-third lower](https://www.reuters.com/article/us-health-coronavirus-goldman/goldman-sachs-slashes-us-gdp-estimate-further-idUSKBN21I235) than at the beginning of 2020. That is a rate of shrinkage four times faster than during the Great Depression of the 1930s. There has never been a crash landing like this before. There is something new under the sun. And it is horrifying. As recently as five weeks ago, at the beginning of March, U.S. unemployment was at record lows. By the end of March, it had surged to somewhere around 13 percent. That is the highest number recorded since World War II. We don’t know the precise figure because our system of unemployment registration was not built to track an increase at this speed. On successive Thursdays, the number of those making initial filings for unemployment insurance has surged first to 3.3 million, then 6.6 million, and now by another 6.6 million. At the current rate, as the economist Justin Wolfers [pointed out](https://www.nytimes.com/2020/04/03/upshot/coronavirus-jobless-rate-great-depression.html) in the New York Times, U.S. unemployment is rising at nearly 0.5 percent per day. It is no longer unimaginable that the overall unemployment rate could reach 30 percent by the summer. Thursday’s news confirms that the Western economies face a far deeper and more savage economic shock than they have ever previously experienced. Regular business cycles generally start with the more volatile sectors of the economy—real estate and construction, for instance, or heavy engineering that depends on business investment—or sectors that are subject to global competition, such as the motor vehicles industry. In total, those sectors employ less than a quarter of the workforce. The concentrated downturn in those sectors transmits to the rest of the economy as a muffled shock. The coronavirus lockdown directly affects services—retail, real estate, education, entertainment, restaurants—where 80 percent of Americans work today. Thus the result is immediate and catastrophic. In sectors like retail, which has recently come under fierce pressure from online competition, the temporary lockdown may prove to be terminal. In many cases, the stores that shut down in early March will not reopen. The jobs will be permanently lost. Millions of Americans and their families are facing catastrophe. The shock is not confined to the United States. Many European economies cushion the effects of a downturn by subsidizing short-time working. This will moderate the surge in unemployment. But the collapse in economic activity cannot be disguised. The north of Italy is not just a luxurious tourist destination. It [accounts](https://www.bloomberg.com/news/articles/2020-03-31/nightmare-haunting-euro-s-founders-may-now-be-reality-with-italy) for 50 percent of Italian GDP. Germany’s GDP is predicted to fall by more than that of the United States, dragged down by its dependence on exports. The latest set of [forecasts](https://www.ft.com/content/b427db58-77e6-11ea-af44-daa3def9ae03) from the Organization for Economic Cooperation and Development are apocalyptic across the board. Hardest hit of all may be Japan, even though the virus has had a moderate impact there. In rich countries, we can at least attempt to make estimates of the damage. China was the first to initiate shutdowns on Jan. 23. The latest official figures show China’s unemployment at 6.2 percent, the highest number since records began in the 1990s, when the Chinese Communist Party reluctantly admitted joblessness was not a problem confined to the capitalist world. But that figure is clearly a gross understatement of the crisis in China. Unofficially, perhaps as many as [205 million migrant workers](https://www.scmp.com/economy/china-economy/article/3078251/coronavirus-chinas-unemployment-crisis-mounts-nobody-knows) were furloughed, more than a quarter of the Chinese workforce. How one goes about counting the damage to the Indian economy from Prime Minister Narendra Modi’s abrupt 21-day shutdown is anyone’s guess. Of India’s workforce of 471 million, only 19 percent are covered by social security, two-thirds have no formal employment contract, and at least [100 million](https://www.business-standard.com/article/economy-policy/coronavirus-lockdown-headed-home-as-migrants-have-no-room-to-isolate-120032501678_1.html) are migrant workers. Many of them have been sent in headlong flight back to their villages. There has been nothing like it since partition in 1947. The economic fallout from these immense human dramas defies calculation. We are left with the humdrum but no less remarkable statistic that this year, for the first time since reasonably reliable records of GDP began to be computed after World War II, the emerging market economies will contract. An entire model of global economic development has been brought skidding to a halt. An entire model of global economic development has been brought skidding to a halt. This collapse is not the result of a financial crisis. It is not even the direct result of the pandemic. The collapse is the result of a deliberate policy choice, which is itself a radical novelty. It is easier, it turns out, to stop an economy than it is to stimulate it. But the efforts that are being made to cushion the effects are themselves historically unprecedented. In the United States, the congressional stimulus package agreed within days of the shutdown is by far the largest in U.S. peacetime history. Across the world, there has been a move to open the purse strings. Fiscally conservative Germany has declared an emergency and removed its limits on public debt. Altogether, we are witnessing the largest combined fiscal effort launched since World War II. Its effects will make themselves felt in weeks and months to come. It is already clear that the first round may not be enough. An even more urgent task is to prevent the slowdown from turning into an immense financial crisis. It is commonly said that the U.S. Federal Reserve under Chairman Jerome Powell is following the 2008 playbook. This is true. Day by day, it spawns new programs to support every corner of the financial market. But what is different is the scale of the Fed’s interventions. To counter the epic shock of the shutdown, it has mobilized an immense wave of liquidity. In late March, the Fed was buying assets at a rate of $90 billion per day. This is more per day than Ben Bernanke’s Fed purchased most months. Every single second, the Fed was swapping almost a million dollars’ worth of Treasurys and mortgage-backed securities for cash. On the morning of April 9, at the same moment that the latest horrifying unemployment number was released, the Fed announced that it was launching an additional $2.3 trillion in asset purchases. This huge and immediate counterbalancing action has so far prevented an immediate global financial meltdown, but we now face a protracted period in which falling consumption and investment drive further contraction. Seventy-three percent of American households report having [suffered](https://www.ft.com/content/7a7233a3-160a-41be-8d63-40f64e041e57) a loss of income in March. For many, that loss is catastrophic, tipping them into acute need, default, and bankruptcy. Delinquencies on consumer debt will no doubt surge, leading to sustained damage to the financial system. Discretionary expenditure will be deferred. Petrol consumption in Europe has [fallen](https://www.ft.com/content/4c59fd16-6020-4798-b8f1-5df686bbd97a) by 88 percent. The market for automobiles is stone dead. Auto manufacturers across Europe and Asia are sitting on giant lots of unsold vehicles. The longer we sustain the lockdown, the deeper the scarring to the economy and the slower the recovery. In China, regular economic activity is inching back. But given the risk of second- and third-wave outbreaks, no one has any idea how far and fast the resumption of normal life can safely go. It seems likely, barring a dramatic medical breakthrough, that movement restrictions will need to stay in place to manage the unevenness of containment. A protracted and halting recovery seems far more likely at this point than a vigorous V-shaped bounce back. And even once current production and employment have restarted, we will be dealing with the financial hangover for years to come. The argument over fiscal policy is rarely engaged in the heat of the moment. In a crisis, it is easy to agree to spend money. But that fight is coming. We are engaged in the largest-ever surge in public debt in peacetime. Right now we are parking that debt on the balance sheet of central banks. Those central banks can also hold the interest rate low, which means that the debt service will not be exorbitant. But that defers the question of what to do with them. To the conventional mind debt must be eventually repaid through surpluses History suggests, however, there are also more radical alternatives. One would be a burst of inflation, though how that would be engineered given prevailing economic conditions is not obvious. Another would be a debt jubilee, a polite name for a public default (which would not be as drastic as it sounds if it affects the debts held on the account of the central bank). Some have [suggested](https://voxeu.org/article/fight-covid-pandemic-policymakers-must-move-fast-and-break-taboos#.Xos1vsVFjSp.twitter) it would be simpler for the central banks to cut out the business of buying debt issued by the government and instead simply to credit governments with a gigantic cash balance. And on 9 April that is exactly what the Bank of England [announced](https://www.ft.com/content/664c575b-0f54-44e5-ab78-2fd30ef213cb) it would be doing. For all intents and purposes, this means the central bank is simply printing money. That this is even being considered, and under a conservative government, is a measure of how extreme the situation is. It is also symptomatic that, rather than howls of outrage and immediate panic selling, the Bank of England’s decision has so far produced little more than a shrug from financial markets. They are under few illusions about the acrobatics that all the central banks are performing. This resigned attitude is helpful from the point of view of crisis-fighting. But do not expect the calm to last. When the lid comes off, politics will resume and so will the arguments about “debt burdens” and “sustainability.” When the lid comes off, politics will resume and so will the arguments about “debt burdens” and “sustainability.” And given the scale of the liabilities that have already been accumulated, we should expect it to get ugly.

#### Globalization causes war

Irandoust 17 Manuchehr Irandoust 17, Department of Economics and Finance, School of Business Studies, Kristianstad University, “Militarism and globalization: Is there an empirical link?” Quality and quantity, June 16, 2017, Springer Open Access

[GLOB = globalization index, MIS = militarized spending]

The results of the bootstrap panel Granger causality test are shown in Table 2. The findings show that GLOB and MIS are causally related in most of the countries under review. There is a bi-directional causality in UK, US, Saudi Arabia, and Russia. The causality is unidirectional running from GLOB to MIS in Australia, Brazil, India, and China, and running from MIS to GLOB in Turkey. The degree of significance level varies from country to country. There is no any causal relationship between military spending and globalization in France, Italy, South Korea, Germany, and Japan. Overall, this evidence shows a relatively robust association between changes in globalization and changes in military expenditure. In other words, countries experiencing greater globalization have relatively large increases in militarization over the past 20 years.

However, it has been shown that globalization may not lead to more peaceful relations or demilitarization. As we discussed in Sect. 2, bilateral trade increases the opportunity cost of bilateral war and may hinder bilateral war. Globalization (equivalent to multilateral economic openness) reduces this opportunity cost with any given country and devitalize the incentive to make concessions during negotiations, and, therefore, increases the probability of war between any given pair of country. Thus, an increase in trade or openness between two countries may restore peace between those but may increase the probability of conflict with third countries.

6 Conclusion

While previous studies mostly focused on the causal nexus between military expenditure and economic growth, those studies have not considered the role of globalization. This study uses data from the top 15 military expenditure spenders over the period 1990–2012 to examine the relationship between militarism and globalization. The bootstrap panel Granger causality that accounts for both cross-sectional dependence and heterogeneity across countries is utilized to detect the direction of causality. The results show that military expenditures and globalization are causally related in most of the countries under review. Despite the increasing role of globalization, the results show that military expenditures are growing and pointing to a strengthening in nationalist sentiments and militarism. This paper suggests that changes in domestic political and economic conditions might hinder the process of globalization. The results are consistent with those of Acemoglu and Yared (2010) who conclude that high military spending endangers globalization. This study also supports the results of Martin et al. (2008) who find that an increase in multilateral trade raises the chance of conflict between states. The policy implication of the findings is that greater military spending by a country increases the likelihood of military conflict in the future, the anticipation of which discourages globalization.

#### Collapse doesn’t cause war

Clary 15 – Christopher Clary, former International Affairs Fellow in India at the Council on Foreign Relations, Postdoctoral Fellow at the Watson Institute at Brown University, Adjunct Staff Member @ RAND Corporation, Security Studies Program @ MIT, country director for South Asian affairs in the Office of the Secretary of Defense, former Research Fellow @ the Harvard Kennedy School's Belfer Center for Science and International Affairs, former research associate in the Department of National Security Affairs at the Naval Postgraduate School, BA from Wichita State University and an MA from the U.S. Naval Postgraduate School, 2015 (“Economic Stress and International Cooperation: Evidence from International Rivalries,” Massachusetts Institute of Technology Political Science Department Research Paper No. 2015-­‐8, “Economic Stress and International Cooperation: Evidence from International Rivalries,” <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2597712>)

Do economic downturns generate pressure for diversionary conflict? Or might downturns encourage austerity and economizing behavior in foreign policy? This paper provides new evidence that economic stress is associated with conciliatory policies between strategic rivals. For states that view each other as military threats, the biggest step possible toward bilateral cooperation is to terminate the rivalry by taking political steps to manage the competition. Drawing on data from 109 distinct rival dyads since 1950, 67 of which terminated, the evidence suggests rivalries were approximately twice as likely to terminate during economic downturns than they were during periods of economic normalcy. This is true controlling for all of the main alternative explanations for peaceful relations between foes (democratic status, nuclear weapons possession, capability imbalance, common enemies, and international systemic changes), as well as many other possible confounding variables. This research questions existing theories claiming that economic downturns are associated with diversionary war, and instead argues that in certain circumstances peace may result from economic troubles. Defining and Measuring Rivalry and Rivalry Termination I define a rivalry as the perception by national elites of two states that the other state possesses conflicting interests and presents a military threat of sufficient severity that future military conflict is likely. Rivalry termination is the transition from a state of rivalry to one where conflicts of interest are not viewed as being so severe as to provoke interstate conflict and/or where a mutual recognition of the imbalance in military capabilities makes conflict-causing bargaining failures unlikely. In other words, rivalries terminate when the elites assess that the risks of military conflict between rivals has been reduced dramatically. This definition draws on a growing quantitative literature most closely associated with the research programs of William Thompson, J. Joseph Hewitt, and James P. Klein, Gary Goertz, and Paul F. Diehl.1 My definition conforms to that of William Thompson. In work with Karen Rasler, they define rivalries as situations in which “[b]oth actors view each other as a significant politicalmilitary threat and, therefore, an enemy.”2 In other work, Thompson writing with Michael Colaresi, explains further: The presumption is that decisionmakers explicitly identify who they think are their foreign enemies. They orient their military preparations and foreign policies toward meeting their threats. They assure their constituents that they will not let their adversaries take advantage. Usually, these activities are done in public. Hence, we should be able to follow the explicit cues in decisionmaker utterances and writings, as well as in the descriptive political histories written about the foreign policies of specific countries.3 Drawing from available records and histories, Thompson and David Dreyer have generated a universe of strategic rivalries from 1494 to 2010 that serves as the basis for this project’s empirical analysis.4 This project measures rivalry termination as occurring on the last year that Thompson and Dreyer record the existence of a rivalry.5 Why Might Economic Crisis Cause Rivalry Termination? Economic crises lead to conciliatory behavior through five primary channels. (1) Economic crises lead to austerity pressures, which in turn incent leaders to search for ways to cut defense expenditures. (2) Economic crises also encourage strategic reassessment, so that leaders can argue to their peers and their publics that defense spending can be arrested without endangering the state. This can lead to threat deflation, where elites attempt to downplay the seriousness of the threat posed by a former rival. (3) If a state faces multiple threats, economic crises provoke elites to consider threat prioritization, a process that is postponed during periods of economic normalcy. (4) Economic crises increase the political and economic benefit from international economic cooperation. Leaders seek foreign aid, enhanced trade, and increased investment from abroad during periods of economic trouble. This search is made easier if tensions are reduced with historic rivals. (5) Finally, during crises, elites are more prone to select leaders who are perceived as capable of resolving economic difficulties, permitting the emergence of leaders who hold heterodox foreign policy views. Collectively, these mechanisms make it much more likely that a leader will prefer conciliatory policies compared to during periods of economic normalcy. This section reviews this causal logic in greater detail, while also providing historical examples that these mechanisms recur in practice.

#### Transition is possible in a post-coronavirus world—there’s a sea change towards sustainability

Cohen, 20

(Maurie, PhD from the University of Pennsylvania, Professor of Sustainability Studies at the New Jersey Institute of Technology, Editor of Sustainability: Science, Practice, and Policy, Associate Editor of Environmental Innovation and Sustainability Transitions, and co-coordinator of the Future Earth Knowledge-Action Network on Systems of Sustainable Consumption and Production, “Does the COVID-19 outbreak mark the onset of a sustainable consumption transition?,” Sustainability: Science, Practice and Policy Vol 16 No 1 pg 1-3 NL)

For nearly 30 years, since the United Nations Conference on Environment and Development in Rio de Janeiro in 1992, sustainability proponents have sought in various ways to foster a “sustainable consumption transition.” For instance, Chapter Four of Agenda 21 forthrightly observes that “[w]hile poverty results in certain kinds of environmental stress, the major cause of the continued deterioration of the global environment is the unsustainable pattern of consumption and production, particularly in industrialized countries, which is a matter of grave concern, aggravating poverty and imbalances” (United Nation 1992; see also Cohen 2001). During the following decades, numerous governments, multilateral organizations, scientific societies, and others developed carefully detailed plans outlining how to facilitate less resource intensive forms of consumption and to ensure prosperity without transgressing planetary boundaries (Royal Society of London and the United States National Academy of Sciences 1997; Nash 2009; Scholl et al. 2010). For instance, in 1998 the United Nations Development Program described the circumstances of the affluent nations as a “runaway consumption train” (UNDP 1998). Consistent with this characterization, the Nordic Council, the Organization for Economic Co-operation and Development, the European Commission, the Royal Society of London, and the United States National Academy of Sciences highlighted the challenges of designing more sustainable means of consumption and production. More recently, given the close correspondence between consumption practices and greenhouse-gas emissions, the Paris Climate Agreement appropriately recognized, “sustainable patterns of consumption and production … play an important role in addressing climate change” (United Nations 2015; refer also to Alfredsson et al. 2018). The issue of sustainable consumption has evolved on the international policy agenda since the Rio Conference through three loosely demarcated phases. First, the 1990s were largely marked by an emphasis on the promotion of cleaner and more efficient processes for manufacturing consumer goods and their intermediary inputs (Hertwich 2005). Second, during the early 2000s attention shifted to “greener” forms of household provisioning exemplified by strategies devoted to educating consumers, designing eco-labels on product packages, and “nudging” shoppers to make responsible choices (Matthias, Mont, and Heiskanen 2016; Sunstein 2015). Finally, in the years since the onset of the global financial crisis in 2008, we have witnessed growing appreciation of the need for systemic change of the social and institutional arrangements that perpetuate contemporary consumerist lifestyles—in short, to achieve absolute reductions in consumptive throughput (Cohen 2019; Foden et al. 2019; see also Akenji et al. 2016). Against this background, we are now struggling to anticipate the impacts of COVID-19. Major financial markets are gyrating and international supply chains are in turmoil, prompting managers to canvass about to find local sources of fabricated materials to maintain industrial production. Tourism is grinding to a halt as travelers cancel trips, airlines suspend flights, and hotels become increasingly vacant. Sporting events, concerts, theatrical performances, museum exhibitions, and other public showcases are being postponed. Growing numbers of companies are encouraging employees to take time off from work and contemplating the imposition of compelled furloughs. Economic forecasters are warning that gross domestic product for many countries will contract, perhaps very significantly, in coming months. While the present situation is being treated as an emergent economic crisis, it merits acknowledging that sustainability scientists and policy makers have implicitly been seeking to achieve over the past decade broadly similar objectives—albeit with greater political subtlety and awareness for adverse societal consequences—in the form of a sustainable consumption transition (see, e.g. O’Rourke and Lollo 2015; Valentine, Ruwet, and Bauler 2015; Røpke 2015; Welch and Southerton 2018).1 It merits recognizing that COVID-19 is simultaneously a public health emergency and a real-time experiment in downsizing the consumer economy. Social scientists have long recognized that disasters, especially when the scale of their tragic consequences emerges with modest but steady pace, have a tendency to catalyze processes of social change. For instance, the renowned Russian-American sociologist Pitirim Sorokin observed in 1942 that society “is never the same as the one that existed before the calamity. For good or ill, calamities are unquestionably the supreme disruptors and transformers of social organization and institutions” (Sorokin 1942). Although current circumstances pose unique challenges to foretelling the future, it is notable that medical authorities are now making comparisons to the Spanish flu of 1918 and 1919 that internationally resulted in the death of 50 million people (Chen et al. 2020; Lambert 2020). While it is extremely premature to suggest that the current public health emergency will reach this alarming level, political regimes in a number of the most severely affected countries are coming under profound strain due to intensifying anxiety about the coronavirus epidemic. With respect to supply chains, at least some of the stopgap measures being implemented to get through the next few weeks or months will become locked in on a longer-term basis. Consumers are stockpiling nonperishable food and other supplies and public authorities have not disclaimed the eventual need for rationing and other consumption controls. A practical outcome is that we are liable to see customarily face-to face activities move to virtual platforms as users become more acclimated with online interfaces for conducting business, delivering educational programing, and engaging in a widening range of social activities. Experience in China to date suggests that extended periods of quarantine create novel forms of consumer demand as people cope with the exigencies of isolation. The more protracted the threat of contagion proves to be, the further engrained and resistant to reversal these adaptive responses will become. As is frequently the case in the aftermath of disasters, we will quickly forget “how things used to be.” Nonetheless, as soon as circumstances allow, there will be vigorous promotional efforts encouraging us to revert to “normal.” We should expect a relentless stream of inducements from governments and companies encouraging consumers to get out of the house and back on the bandwagon. Central banks are already signaling a willingness to lower interest rates—already in negative territory in some countries—as far as necessary to make this happen. Many individuals are likely, at least initially, to respond positively to these appeals, but we should not be surprised in due course to discover that other predilections have supplanted once-familiar practices. While it may seem both fanciful and insolent, COVID-19 is an opportunity to reduce over the longer term the prevalence of lifestyles premised on large volumes of energy and material throughput. At the same time, imperatives for social distancing to lower the risk of community transmission will regrettably reinforce commitments to individualized rather than public and shared modes of consumption. Despite what appears to be an increasingly dire public health emergency, policy makers should work to ensure that the coronavirus outbreak contributes to a sustainable consumption transition. This would be one way to offset some of the unfortunate suffering and disruption caused by this event.

### 1NC - AT: Adv 3

#### Read the news --- NoKo has its own space program --- launch of the Hwasong-17 proves --- their evidence is all almomst 10 years old

#### NoKo space access thumped --- no sats answered above --- the van alllen stuff just says it increases radiation but no reason why radiation is bad, and the EMP impact is about econ which is above

#### No Korea war ever – answers their miscalc scenario

Jackson 15 [Van, Visiting Fellow at the Center for a New American Security and a Council on Foreign Relations International Affairs Fellow, researching the intersection of Asian security, strategy, and military trends. He is also a Visiting Scholar and Adjunct Assistant Professor with the Asian Studies Program in Georgetown University’s School of Foreign Service. Dr. Jackson has testified before the House Committee on Foreign Affairs, Subcommittee on Asia and the Pacific, and is a frequent commentator in popular media and policy outlets, “Preparing for the Next Korean War”, 8/24/15, <http://thediplomat.com/2015/08/preparing-for-the-next-korean-war/>]

Nobody Wants Nuclear War—Not Even Kim Jong-un Every Korea expert I’ve ever met believes North Korea’s primary goal is regime survival. Yet most of these same experts believe that Kim Jong-un is capable of anything and there’s no telling what he might do. To put it politely, that’s cognitive dissonance. If we know North Korea seeks regime survival, then we know something about what it’s keen to avoid. Even Kim Jong-un must know there are certain actions that would end him and his regime—nuclear attacks, the destruction of Seoul, or a mass invasion of South Korea. Kim Jong-un isn’t a Millenarian or a Jihadi; his goal isn’t ~~suicide~~. So unless we want to shrug our shoulders and say “anything could happen,” we should have some modest confidence that Kim won’t pursue the extreme actions that North Korean media routinely threaten. South of the DMZ, the incentives to avoid a nuclear conflict are just as strong. For starters, 60 years of “restraint” when faced with North Korean violence suggests that, in the United States especially, there is a strong desire to avoid the risks of escalation and conflict in general. Plus, no sitting president—American or South Korean—wants to go down in history as the first president to usher in the era of nuclear warfighting. The cost in lives would be abhorrent, and there’s a high risk that such a situation would rapidly erode the nuclear nonproliferation regime. North Korea Can’t Invade the South In June 1950, North Korea launched a large-scale invasion of a South Korea with only a token ability to resist and no meaningful U.S. military presence. This is the classic scenario that experts and military planners often imagine when they think of another Korean War. Yet there’s now a heavily armed DMZ—replete with a large minefield, no less—separating the North and South, and the South Korean military is better trained and equipped than any force North Korea could muster. North Korea’s air force and navy services are vastly inferior to the technologically advanced South Korean military. And the U.S. military presence in and commitment to South Korea is far more than symbolic. The point is that no military leader would look at the military balance on the Korean Peninsula—especially not a leader in the North Korean People’s Army (KPA)—and think that it makes sense for North Korea to invade South Korea. The former might have cause for conflict, but waged asymmetrically, not as a head-on frontal assault. Invasion of the South is militarily impossible. This North-South military imbalance is worsened by a KPA that lacks the logistics and sustainment capacity required of an invasion; the KPA is numerically large, but regularly diverted from military tasks to perform agricultural and industrial labor functions to support a moribund economy. The KPA isn’t a force that’s capable of a long duration military campaign. Invading North Korea is Long, Slow, and Costly While there are few, if any, reasons to expect a North Korean conquest over the South, the converse is equally unlikely. Any invasion of North Korea would be slow and costly, offering both sides many opportunities to either “pause” and de-escalate conflict, or escalate to total devastation. First, invading North Korea guarantees the mass artillery shelling of Seoul, South Korea’s capital, and North Korea’s use of “battlefield” chemical weapons at scale. If the alliance is invading, there’s no reason for North Korea to refrain from taking these actions. Second, moving large numbers of troops into North Korea requires not only facing down an adversary with home field advantage, but a topography that’s entirely inhospitable to outside invasion—highly mountainous, lots of underground facilities and tunnels, and with very little infrastructure such as roads and bridges to exploit. Third, because North Korea’s local advantages would dramatically slow the progress of a northward march, North Korea would have plenty of time to confirm that its regime is facing extinction, which increases incentives to launch nuclear strikes. North Korea’s Growing Nuclear Confidence, with Authoritarian Characteristics Applied to the Korea situation, two concepts in political science also bear on incentives for limited conflict: audience costs and the stability-instability paradox. Audience costs are the expected punishments or rewards a leader is likely to face based on their behavior. In democracies, domestic audience costs are thought to sometimes encourage restraint in political leaders, and to strengthen the credibility of threats when leaders of democratic polities make them. A politician who fails to live up to their word, for example, will be punished at the ballot box (this is a theory, not a description of reality). In dictatorships though, the audience cost mechanism as a source of either restraint or credibility doesn’t exist in the same way. The only audiences that might punish or reward a leader are elites who implement orders and are capable of threatening a coup. But in North Korea, Kim Jong-un seems to be killing all those guys. So even if dictators face audience costs in general—and many scholars think they don’t—North Korea seems a special case in which audience costs are marginal if they exist at all. So if North Korea ends up in an undesirable conflict, Kim Jong-un and the generals can de-escalate or back down without necessarily losing face. At any rate, North Korea has a history of making threats that it fails to follow through on. The stability-instability paradox was a concept developed during the Cold War to explain how two states can achieve stability at the strategic level through mutually assured destruction but, as a consequence, simultaneously be even freer to pursue small-scale and seemingly low-stakes conflicts like provocations and proxy wars. The odds of a nuclear holocaust were thought to approach zero while low-intensity conflicts became a recurring phenomenon. As North Korea’s nuclear capability improves, the logic of the stability-instability paradox becomes more compelling. Even without delivery vehicles for North Korea’s nuclear capability, some believe that the stability-instability paradox has already reached the Korean Peninsula due to the capacity of both sides to inflict unimaginable atrocities on the other through conventional weapons alone. In short, while there may be incentives for conflict by either side, both sides also have even more compelling incentives to limit the scope of any violence. There are, of course, many chances for miscalculation—especially during a crisis—but there’s no conceivable miscalculation that would reasonably lead to total war without lots of intervening steps and assumptions in between the miscalculation and the nightmare outcome. And if we reason from a place of likelihoods rather than from a place of what’s hypothetically possible, we stand a chance of crafting better policy.