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# 1AC

## 1AC – NDT

### 1AC – Supply Chains

#### Contention one: Supply Chains

#### The DOT affords antitrust immunity (ATI) to 24 alliance carriers. The DOT uses a public interest test which is more lenient than a consumer welfare standard. Recent, empirical evidence proves these immunities cause limit quantity and quality while increasing prices.

Moss ’18 [Diana; President @ American Antitrust Institute; “Revisiting Antitrust Immunity for International Airline Alliances”; https://papers.ssrn.com/sol3/papers.cfm?abstract\_id=3332651]

Alliance carriers have incrementally amassed immunity over the last 25 years. The U.S. founding members and largest European partners in the three alliances have been the most active in seeking ATI. For example, United (Star) was granted immunity a total of 11 times between 1992 and 2016 while major European alliance partner Lufthansa received six grants.17 Delta (SkyTeam) was granted ATI nine times over the same period and alliance partner Air France-KLM received six grants. American Airlines (oneworld) was granted ATI 14 times and alliance partner British Airways received immunity three times. As shown in the figure below, there are currently 24 active immunized alliances. Each of the bubbles represents a grant of immunity and the size of the bubble corresponds to the number of carriers included in the grant. Some of these are older agreements between smaller numbers of carriers that have been folded into or expanded into larger alliances over time. The largest of the active immunized alliances includes the nine members in Star that were granted ATI in 2009. American obtained immunity in 2010 with five other oneworld members. And Delta obtained immunity in 2008 for its alliance agreement with five members of SkyTeam. Three of the four largest grants of immunity have been obtained in the last decade -- the period corresponding to dramatic growth in alliance membership and the consummation of the largest U.S. legacy mergers.

III. Antitrust Immunity and the Alliances

A. Skepticism Surrounding Immunities and Exemptions

Antitrust immunities and exemptions protect certain forms of conduct that would otherwise violate the U.S. antitrust laws. They cover forms of unilateral (single-firm) conduct or joint (coordinated) conduct that adversely affects price, output, and other non-price dimensions of competition such as quality or market “rules.” Immunities and exemptions are statutory judicially created through legal interpretation and precedent. Immunities and exemptions from the antitrust laws are disfavored. The Supreme Court has repeatedly held that exemptions and immunities are “disfavored” and should be “strictly construed.”18 The bipartisan Antitrust Modernization Commission (AMC or Commission) recommended in 2007 that Congress “should not displace free-market competition [with immunities or exemptions] absent extensive, careful analysis and strong evidence.”19

The AMC went further to explain that in evaluating the need for existing or new immunities, Congress should consider, among other things, “the likely adverse impact of the existing or proposed immunity on consumer welfare[] and . . . [w]hether a particular societal goal trumps the goal of consumer welfare, which is achieved through competition.”20 The Commission also recommended imposing sunset provisions on all immunities enacted by Congress and amending existing immunities and exemptions to include sunset provisions.

B. Arguments for Immunity

Alliance carriers typically support requests for immunity by downplaying competitive concerns and highlighting the public benefits that are required to justify immunized coordination.21 These arguments generally cover three areas. One is the claim that immunity does not eliminate competition. Carriers argue that immunized coordination is not equivalent to the loss of a competitor, because both partners generally continue to serve overlap routes.22 Because of this, fares are allegedly lower and capacity at alliance hubs expands.

A second argument for immunity is that it creates significant, countervailing public benefits. For example, applicants assert that immunity benefits passengers by integrating itineraries on connecting (e.g., one-stop) routes. They maintain that this enhances competition in behind-or beyond-the-gateway segments and leads to lower fares than what non-alliance interlining carriers can offer.23 Finally, alliance carriers claim that immunity is needed so that the alliances can compete with other alliances. Immunity seekers argue that revenue and profit sharing and closer integration allows them to compete more effectively against the immunized portions of other alliances that also serve the same or similar international routes.24

Immunity for airline alliances is a form of express statutory immunity that is granted pursuant to 49 U.S.C. §§ 41308-309. 25 The U.S. DOT uses a two-step process to review alliance agreements. In the first step, DOT may approve an agreement that “substantially reduces or eliminates competition” only if it meets a “serious transportation need” or “achieve[s] important public benefits.”26 The burden of showing that an agreement is anticompetitive rests on the parties opposing the request. The parties proposing the agreement bear the burden of showing need or public benefits. Second, the Department has the discretion to exempt parties to an agreement from the antitrust laws “to the extent necessary to allow the person to proceed with the transaction.” In other words, DOT must grant immunity in order to approve an otherwise anticompetitive agreement that meets the public benefit test.

C. DOT’s Approach to Granting Immunity

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The DOT has increasingly insisted on “full metal neutral” integration for immunized alliance agreements to maximize incentives to realize claimed public benefits.27 Such joint-venture type coordination affects pricing, scheduling, service levels, and other factors on international overlap routes that mimic the fully integrated operations of a single carrier. Encouraged by the U.S. Department of Justice’s (DOJ’s) comments on various immunity applications, DOT has raised a number of competition concerns associated with immunized alliance agreements.28 Among these is the significant loss of head-to-head competition on international “overlap” routes where both alliance carriers serve routes. Another leading issue is the loss of access by non-alliance carriers to interlining with alliance carriers at alliance gateways. 29

D. Recent Economic Evidence on Immunized Alliances Shows Fewer Benefits Than Costs

We now have more that two decades of experience with and evidence relating to the competitive effects of immunized alliances. During this time there have been significant underlying changes in alliance structure and the markets they serve. It is not surprising therefore that economic studies of alliance immunity reflect these changes. Economic studies of ATI performed in the late 1990s generally showed that immunity delivered more public benefits than costs in the form of lost competition. Empirical studies performed in the late 2000s to the present tell a very different story of the effects of ATI on fares, capacity, and non-alliance rivals.30

Recent studies find that even without immunity, cooperation under alliance agreements can enhance incentives to collude on price on parallel routes between a U.S. and European hub. As a result, passengers traveling on such routes may pay higher prices, unless there are offsetting efficiency gains.31 As for immunized nonstop service offered by alliance partners on transatlantic routes, recent studies find that immunity may lead to less competition in all markets, i.e., both non-stop and one-stop routes.32

For example, one study based on data from 2005-2010 found that immunized service offered by two alliances partners on a transatlantic route has a “fare effect that is equivalent to the loss of an independent competitor,” with significantly higher fares on routes with fewer independent competitors.33 This is consistent with the presumption that eliminating competition enhances the market power of remaining suppliers. More recent studies also find that while immunized joint ventures led to a three to five percent increase in capacity between alliance partners’ hub airports, this capacity expansion came at the expense of services elsewhere in the network.34 These findings stand in contrast to carriers’ claims that immunity does not eliminate competition because both alliance partners continue to offer service on non-stop routes.

Recent economic analysis also shows that when an alliance member competes with a nonalliance interlining carrier, foreclosure of the latter at alliance hubs increases disparities in market share and potentially lowers interlining traffic.35 Moreover, research indicates that immunity does not lead to alliance fares for passengers below those sold under nonimmunized arrangements. This undermines claims that ATI induces competition in behindor beyond-the-gateway markets and is necessary to achieve pricing and network benefits.

Last are arguments that immunity is needed to enable an alliance to compete in the alliance “market.” These claims are ill-founded and put immunity policy onto a slippery slope. For example, granting immunity to a rival alliance simply to keep up with other alliances is a noncontainment policy. It is akin to granting mergers that are motivated by the quest for enhanced market power to compete more effectively against a powerful buyer or seller. The changing evidence on the costs and benefits of immunity raises many questions. These include how ATI policy should change in response to such evidence and lessons learned from past immunity cases. But it also highlights the importance of a significantly more cautious approach to immunities and exemptions. The foregoing section further opens the door to growing concerns over the competitive implications of immunized alliances. We now turn to the immunity cases themselves to identify important trends that reinforce those concerns.

IV. Trends in Immunity Cases

A. U.S. Legacy Airlines Have Long Stopped Objecting to Rivals’ Requests for Immunity

The U.S. airlines have all but stopped objecting to requests for immunity by rival alliances. Between 1993 and 2007, the U.S. legacy carriers vigorously opposed rivals’ requests for immunity, filing comments in almost 45% of DOT dockets over this period. 36 In contrast, during the 10-year period between 2007 and 2017, there were no objections to immunity requests by rival legacy carriers. The only carriers that opposed immunity requests were some U.S. regional carriers and U.S. and Mexican LCCs. Two major reasons may explain the fall off in carrier objections to immunity.

One is that the DOT’s relatively lenient policy on immunity discouraged rivals from devoting resources to opposing requests. A second is based on the observation that the drying up of complaints by legacy rivals corresponds to the diminution of competition in U.S. markets following the spate of mergers over the last 10 years. More competition tends to stimulate objections to competitors’ attempts to gain special treatment or engage in strategic maneuvering to get a “leg up.” The entrenchment of the three alliances in a tight oligopoly during this period signals stronger incentives to cooperate rather than compete. It also explains the growing argument that an alliance cannot compete against the other alliances without additional immunity.

B. The DOJ Regularly Warns DOT About the Competitive Perils of Immunity

The role of the DOJ in providing comments to the DOT on immunity requests is vitally important. DOJ filed seven formal comments in immunity proceedings between 1996 and 2008.37 As an antitrust agency, DOJ evaluates competitive issues under a “no competitive harm” standard. This differs fundamentally from the broader, regulatory public interest standard employed by the DOT. The DOJ’s recommendations to the DOT in immunity cases have ranged from recommending that immunity be denied to imposing conditions such as carve-outs and slot divestitures.

In Aloha-Hawaiian, for example, the DOJ recommended against immunity that would have allowed the parties to a joint venture to coordinate capacity on inter-island routes. 38 In the American-British Airways-Iberia-Finnair-Royal Jordanian Airlines case, the DOJ identified a likely 15% fare increase on affected transatlantic routes, found no public benefits, and recommended that the DOT deny immunity.39 The DOJ suggested that DOT deny immunity in Alitalia-Czech-Delta- KLM-Northwest-Air France case as well.40 In other cases, the DOJ recommended slot divestitures or route carve-outs as necessary conditions under which immunity could be granted.41

DOJ comments in the oneworld matter are particularly helpful in clarifying the agency’s competitive concerns. The DOJ noted, for example, that fares are higher on immunized non-stop routes as a result of less competition.42 DOJ also pushed back against claims that alliance carriers’ market power is diluted by increases in capacity and traffic that immunized coordination allegedly fosters.

43 The agency also rebutted arguments that immunity pushes down fares for alliance interlining, citing evidence that alliance carriers (without immunity) are capable of managing pricing and inventory in order to compete with non-alliance interlining.

#### Intercontinental air cargo post-COVID rebound limited now.

Knowler ’21 [Greg; 10/25/21; Senior Europe Editor @ Journal of Commerce; “Airlines: Increase in EU-US flights not expected to ease air cargo capacity crunch”; https://www.joc.com/air-cargo/increase-eu-us-flights-not-expected-ease-air-cargo-capacity-crunch\_20211025.html]

All available headhaul air cargo capacity from North Europe to North America was being consumed by the strong US demand, with the average dynamic load factor on the westbound routes currently at 82 percent, a level that was effectively full, said Niall van de Wouw, managing director of CLIVE Data Services.

Van de Wouw told JOC.com Monday that when airlines open up additional passenger travel for non-US citizens on Nov. 8, the focus would be on filling seats on existing flights rather than upgrading aircraft size or increasing frequencies.

“That would initially reduce the available air cargo capacity on these flights because their bags will trump cargo,” he said. “In the longer run, the increase in capacity due to the higher flight frequencies and larger aircraft should outpace the growth in demand, and hence bring down the load factor closer to pre-COVID-19 levels than they currently are. I would expect that to happen on this trade lane perhaps as early as the second half of 2022.”

Detlef Trefzger, CEO of Kuehne + Nagel, said there would be no rapid easing of capacity pressures on the trans-Atlantic this year, despite the reopening of passenger flights to fully vaccinated non-US citizens from Nov. 8.

“The volume we expect from belly cargo on the trans-Atlantic will be in high demand, but it will not serve much of the market needs at the moment, so, it's not a big change, and will not have a big impact,” Trefzger told analysts during an earnings call last week.

“We need regular flights between the continents again, passenger flights, and we had 50 flights per day from the US West Coast to Europe (in 2019),” he added. “We see that coming back, but it will take some time. Our expectation is that we will not see a sizeable offering of belly capacity kicking in before 2024.”

Tight space, high rates

With capacity in such short supply, air cargo spot rates are stuck at elevated levels. From North Europe to North America, the spot rate this week reached $4.42 per kilogram, 240 percent above the pre-pandemic 2019 rate at the same point, according to the Baltic Air Index.

Willie Walsh, director general and CEO of the International Air Transport Association (IATA), had a more optimistic view of the impact additional passenger flights on the North Atlantic trade lane would have on available air cargo capacity.

“There are a lot of trans-Atlantic flights going on because US citizens can travel to Europe, but I do expect more capacity to come into the market,” Walsh told reporters at the recent IATA World Cargo Symposium in Dublin.

However, while airlines work out their post-Nov. 8 schedules on the trans-Atlantic, Olivier Jankovec, director general of Europe for Airports Council International, said fully restoring unconstrained travel remained “a long way off” and would be an uneven and volatile process governed by vaccinations and the spread of coronavirus disease 2019 (COVID-19).

“The level of pent-up demand is staggering, fueled by the savings accumulated by consumers through this pandemic, but there are also significant supply pressures that will slow down the pace of the recovery,” Jankovec said in a statement Monday.

“These include structurally downsized airlines with significant reductions in their aircraft fleet and workforce, rising fuel costs and inflationary pressures, the lasting impact of airport slot waivers, and the fact that capacity-disciplined airlines will be exercising pricing power,” he added.

#### Stricter antitrust immunity spurs increased international routing as method of competition.

Moss ’19 [Diana; President @ American Antitrust Institute; “Alliances and Antitrust Immunity: Why Domestic Airline Competition Matters” *Air & Space Law*, 32(1), p. 1-20]

The DOT’s historical approach to granting ATI is best described as “lenient,” perhaps influenced by economic studies of the 1990s that generally showed benefits of ATI. With domestic consolidation and the growth of the alliances, there has arguably been a paradigm shift at the DOT by using ATI to foster “alliance market” competition.

Against the backdrop of domestic consolidation and growth in the dominance of the U.S. alliance carriers, the DOT’s approach has led U.S. legacy airlines to all but stop objecting to requests for ATI by rival alliances.

Between 1993 and 2007, for example, U.S. legacy carriers opposed rivals’ requests for ATI, filing comments in almost 45 percent of the DOT’s ATI dockets over this period. In contrast, between 2007 and 2017, the decade which saw the spate of large mergers, there were no objections to ATI requests by U.S. legacy carriers. More (not less) competition would stimulate rivals’ objections to others’ ATI requests.

More recently, the DOT has raised a number of competitive concerns associated with immunized alliance agreements.25 Among these are the significant loss of head-to-head competition on international overlap routes and access by nonalliance carriers to interlining with alliance carriers at alliance gateways.26 Empirical studies performed since the late 2000s tell a very different story of the effects of ATI than earlier studies.27 For example, recent studies find that even without ATI, cooperation under alliance agreements can enhance incentives to collude on price on parallel transatlantic routes, resulting in higher fares unless there are offsetting efficiency gains.28

Operating with ATI would thus raise even more questions about potential anticompetitive effects. Some economic studies note that competition may be reduced on routes served by substitute, immunized alliance carriers.29 One study using data from 2005 to 2010 shows that immunized service offered by two alliance partners on a transatlantic route has a “fare effect that is equivalent to the loss of an independent competitor,” with significantly higher fares on routes with fewer independent competitors.30 Other studies find that while immunized joint ventures increase capacity between alliance partners’ hub airports by 3–5 percent, this expansion comes at the expense of services elsewhere in the network.31 And analysis shows that when an alliance member competes with a nonalliance interlining carrier, foreclosure of the latter at alliance hubs increases disparities in market share and potentially lowers interlining traffic.32 Moreover, ATI does not lead to alliance fares for passengers below those sold under nonimmunized arrangements.

The U.S. Department of Justice (DOJ) filed seven formal comments in ATI proceedings between 1996 and 2008.33 In the Aloha-Hawaiian ATI case, for example, the DOJ recommended against ATI that would have allowed the parties to form a joint venture to coordinate capacity on interisland routes.34 In the American-British Airways-Iberia- Finnair-Royal Jordanian Airlines ATI case, the DOJ identified a likely 15 percent fare increase on affected transatlantic routes, found no public benefits, and recommended that the DOT deny the application.35 The DOJ also recommended denying ATI in the Alitalia-Czech-Delta-KLMNorthwest- Air France case.36

#### Increase international air cargo routing key to post COVID supply chain stability and global trade.

Hull ’21 [Melissa; 7/15/21; Content Marketing Strategist @ Aviation Charters; "The Important Role Air Cargo Plays in the Global Supply Chain”; https://www.globaltrademag.com/the-important-role-air-cargo-plays-in-the-global-supply-chain/]

For over a century now, air cargo has played a crucial role in getting time-sensitive and high-value shipments from one point to another as quickly as possible. The world’s first cargo flight was in 1910. Since then, air cargo and private cargo shipping have played a crucial role in transporting time-sensitive and high-value goods internationally and domestically.

Over the years, air transport has also proven to be a key “connector” between the manufacturers and the consumers. In the midst of the COVID-19 pandemic, shipments that took too long to get from one point to another were quickly transported via air.

According to the International Air Transport Association (IATA), air cargo has played a pivotal role in delivering much-needed medical equipment (including repair components and spare parts) and medicines.

Air cargo has also kept the global supply chains functioning for time-sensitive materials. This was carried out by utilizing cargo capacity in passenger aircraft, dedicated cargo freighter operations, and relief flights to affected areas.

IATA added that airfreight had been used to transport a staggering $6 trillion worth of goods annually. This represents at least 35 percent of all global trade by value. However, it is less than 1% of the trade when measured by volume.

The imbalance between value and volume can be attributed to the fact that most of the products that are shipped via air have a high value. Within a given 24-hour period, air cargo providers around the world have:

-Utilized over 100,000 airplanes

-Transported over 20 million parcels

-Shipped a whopping $18.6 billion worth of cargo

Economic Benefits of Air Transport

The air transport industry has a massive and significant impact on other industries and is also considered a growth facilitator. It also affects the global economy’s performance by enhancing the efficiency of other industries across the entire spectrum of economic activity. This is also referred to as “spin-off” or catalytic benefits.

Air transport helps facilitate world trade.

Air transport has allowed countries to participate in the global market by giving them access to primary markets and allowing globalization. Air transport also helps countries to specialize in activities where they have comparative advantage. It also helps facilitate trade with countries that provide other goods and services.

Air transport has been indispensable in the tourism industry.

Air cargo is especially useful for tourism on the island and remote destinations. Tourism directly supports employment in airports and airlines. Spending of tourists and visitors that arrive by air also creates a significant number of jobs in the tourism space.

Air transport boosts global productivity.

Improved air transport links have been pivotal in helping global markets expand. As a result, companies can exploit economies of scale better. This reduces cost dramatically and, as mentioned earlier, allows companies to specialize in areas of comparative advantage.

As more markets open up, air services can introduce companies to more competition and encourage them to become more efficient in the process.

Air transport improves supply chain efficiency.

Countless industries utilize air transport to reduce delivery times as part of the “just-in-time” delivery systems. This will reduce costs and enable companies to deliver products to customers reliably and quickly.

Air transport encourages effective collaboration and networking.

Air transport has been helping promote collaboration and networking among companies from different parts of the world. An excellent transport infrastructure also encourages companies to spend more on development and research.

Final Thought

As the world continues to deal with the unprecedented impact of the COVID-19 pandemic, air transport will continue to play an increasingly vital role in keeping the world’s supply chains running smoothly.

#### Supply chain disruptions cause extinction.

Lynn ’14 [Barry; Director of the Open Markets Program at the New America Foundation, 2014, “Shock Therapy: Building Resilient International Industrial Systems in 2030,” Book: “Global Flow Security”, Chapter 8, <https://static1.squarespace.com/static/5e449c8c3ef68d752f3e70dc/t/5ed05090d45eb54e7aee9675/1590710418862/Shock-Therapy-Global-Flows-V1.pdf>]

The “globalization” of industry and commerce, we are often told, is the surest path to universal peace and prosperity. If so, this would mean the world should be a far safer and richer place than two decades ago, when world leaders largely unleashed the business corporation to operate across national borders. Yet the “global” systems of industry and finance built by the masters of these institutions are increasingly the source of both political conflict and economic disruption. Indeed, the world today— although in some respects richer— is in many ways a far more perilous place than before we established the World Trade Organization (WTO) regime in the 1990s. And it grows more so by the day.

Shock after shock, and political showdown after political showdown, threaten to trigger wide if not global-scale catastrophe. Perhaps it is a natural disaster, like the Tohoku Quake of March 2011—events that are entirely outside the power of any rational actor in any state to control. Perhaps it is a contagion like the avian flu scare of 2009, or a financial panic like the Lehman Brothers crash of 2008. Perhaps it is a crude territorial face off, such as the ongoing conflict over the Senkaku/Diaoyu Islands south of Japan. Whatever the triggering event, where only 15 or 20 years ago the result would have been a merely local disruption or local discord, today we see crashes that cascade swiftly across the whole face of the earth.

Worse, many if not most of us believe these problems derive from forces largely or even entirely beyond our control. For some, the culprit is technology. For others, it is the mechanics of the marketplace or something in the nature of capitalism. For yet others, “globalization” itself is a “force” that has largely determined this fragility. And so, as a society, we stumble from one crisis to the next, wavering between moments of bafflement and terror. Why, we wonder, is our world so much more dangerous than only a few years ago? And what new risks have we missed? What new events— like cyber attacks or crop failures— loom in the offing?

But what if we could trace both the source of these dangers and our confusion to a relatively simple set of intellectual mistakes? What if the problem is merely that we have used the wrong ideological frames, hence the wrong principles, to establish the rules that guide the actions of our bankers, executives, and engineers? Further, that these same mistaken ideas also block our ability as a society to understand the problem and act to fix it?

As this chapter makes clear, we possess all the skills and tools we need to solve the problem. We can for instance easily identify— and at least in theory enact— a simple set of fixes that would greatly reduce the likelihood of almost all conceivable sudden crashes of vital, crossborder flows of goods, money, and information. Once identified, enacting these changes is a matter of political will only.

If anything, the immensity of this new threat actually presents us with an immense opportunity— to lay a foundation for a more cooperative, more inclusive world political economy. This is a pertinent task as we look towards 2030. Perhaps, indeed, we can achieve exactly what the founders of today’s global system expected to achieve seven decades ago, at the end of the Second World War, which is to build a truly perpetual peace and prosperity, one made to last through our 21st century.

An Entirely New Threat

In recent years we have witnessed numerous cascading “crashes” of industrial activity, in which a small and local breakdown in the flow of physical goods or finance triggers a shutdown of systems across the world.

The most dramatic of these “supply chain” crashes took place after the Tohoku earthquake in March 2011 off the north coast of Japan. The event shuttered Japanese industrial giants like Toyota and Honda for nearly half a year, and resulted in extremely powerful economic downdrafts across Asia, Europe, and North America. (In the United States, the Philadelphia Federal Reserve reported the largest threemonth drop in industrial activity ever.) Similarly, we saw unprecedented levels of industrial disruption from the “demand shock” after the collapse of Lehman Brothers in September 2008. Within weeks this financial crash brought the entire U.S. automotive industry to the verge of physical paralysis, and resulted in a truly phenomenal drop off of industrial activity in Japan and other Asian nations, with activity often plunging more than 50%.1

These were but two of many similar events. We saw cascading shutdowns of industrial activity after the Thai floods of 2011, the Icelandic volcano blast of 2009, the Niigata earthquake of 2007, the SARS epidemic of 2003,2 and the September 11, 2001 attacks in New York, among others. We have also seen many near misses, in which a natural or political disaster that threatened to disrupt some complex system simply failed to reach critical state. This includes the avian flu epidemic of 2009 and the two near wars between India and Pakistan a decade ago.

Although we have known since the second half of the 19th century that financial collapses can swiftly cascade from country to country, these industrial crashes are largely a new phenomenon. The first major international supply chain crash took place in September 1999 after an earthquake in Taiwan cut off the flow of highly specialized semiconductors from foundries concentrated in the city of Hsinchu. Within days this resulted in the sudden closure of factories across Asia and the United States.3 Within the business community, these crashes have resulted in a boom industry devoted to identifying ways to lessen the impact of a sudden supply shock on individual companies. One of most sophisticated such efforts is run out of the Massachusetts Institute of Technology by the systems engineer Yossi Sheffi, author of the book Resilient Enterprise. 4

What became clear from these early studies is that there are sharp limits to what individual companies can accomplish on their own. Every large and structurally important company today depends on outside suppliers for many key components and materials. Competitive pressures—and the actions of mercantilist governments and monopolistic corporations intent on concentrating a particular industrial capacity—can make it difficult or even impossible for even the most safety-minded of management teams to keep an alternative source of supply always at the ready.5

What is also clear is that, despite the fact that 15 years have passed since the first modern industrial crash, and despite the evident limitations on what private sector actors can accomplish on their own, national governments and multilateral organizations have only barely begun to analyze how a major industrial crash might affect national communities or human society as a whole. Even less effort has been devoted to the study of whether and how nation states and other political actors might seek to exploit these structural flaws for political ends, or how to limit the dangers they pose.

The Proximate Sources of the Threat— Mercantilism, Monopolism, and Speed

There are a few important exceptions to this all-but-willful effort to ignore the new phenomena of cross-border industrial crashes. This includes a team of WTO economists who studied how supply chains transmitted and amplified the Lehman stock market crash.6 It also includes Japan’s Ministry of Economy, Trade, and Industry, which in 2012 published a groundbreaking study that introduced a new concept, that of “diamond structure” manufacturing systems.7

From these private and public studies we see a growing consensus that the fragility of these systems poses a potentially “existential” problem for human society, in the words of Tomas Ries. To be sure, no industrial crash has yet resulted in the complete shut down of an entire global production system for more than a few days. But, obviously, the mere fact that a catastrophic event has not happened yet does not mean that such a system-wide collapse is not entirely possible today or even likely to occur in the near future. We also see a general consensus forming as to what factors are most responsible for these cascading, cross-border industrial crashes.

The most obvious factor is international industrial integration. It is plainly evident that the radical liberalization of trade in the mid-1990s cleared the way for private firms to tie nation states together industrially in far more intimate ways than ever before. Well into the 1990s, every large industrialized nation remained largely self reliant. The only exceptions were for low-end products, like apparel, and very high-end technological devices and software, the production of which was carefully regulated by the governments themselves. Today by contrast, we see a single immensely intricate world-spanning industrial system, on which all peoples now depend for almost all day-to-day necessities, including drugs, food, and information, but over which no group of businesses nor any group of nations exerts control.

A second factor is the rapid concentration of production capacity in most industrial systems over the last 25 years. Many factors have played a role in this concentration—including the emergence of digital technologies. Most important, however, is the radical relaxation of antimonopoly law beginning in the early 1980s in most industrial nations, especially the United States. The concentration of ownership that has resulted does not necessitate concentration of capacity; governments could require industrial monopolies to build redundant plants. But absent such regulation, the real-world result in industry after industry has in fact been a dramatic concentration of physical capacity, hence of risk.8

A third factor is the rise of “just-in-time” and “lean” production techniques designed to speed the flow of materiel and capital through manufacturing systems. Although we can trace such techniques to the 1920s, the emergence of the internet and of modern data management systems over the last 20 years has enabled corporate managers both to extend such systems across much wider geographies and to speed them up dramatically. The key result for our purposes has been to enable production managers to reduce sharply the inventories of both raw and processed materials that until recently were available to cushion against supply chain disruptions.

In combination, the effects of these three changes upon the physical structure of most of our important industrial systems is economically and politically revolutionary. For millennia, groups of people have aimed at a general self sufficiency for most vital industrial goods, to ensure their independence of action in times of economic or political emergency. For most of the last century, the international distribution of productive capacity that resulted from this policy was reinforced by domestic antimonopoly law, which was used by many states to promote competition and to further distribute capacity. Yet what the Tohoku quake and the Lehman crash revealed was that, for all intents, many of our most important industrial activities are now organized into tightly integrated, world-spanning networks marked by great and growing degrees of concentration and specialization.9

Although concentration of ownership does not necessitate concentration of capacity, in industry after industry the real world result has in fact been a dramatic concentration of physical capacity. In many instances, the entire world supply of some keystone component now takes place in a single industrial zone, even a single factory. The immediate and necessary result of such physical concentration of production is an extreme concentration of risk that leaves production managers with little or no ability to respond to even predictable disruptions.10

The ultimate result is a new global industrial commons that, from the point of view of a systems engineer, suffers from extreme if not fatal structural flaws. As a system, this new global industrial commons is characterized by numerous single points of failure, innumerable active tectonic and political fault lines, and (in the words of Charles Perrow, the pioneering expert on systemic risk) by extremely “tight coupling.”11 It is, in short, a system that is not merely “built to break” but that is all but designed to ensure that a relatively small disaster in one place will one day result in a massive disaster every place.

The Ultimate Source of the Threat—Laissez Faire Politics

Ask almost any engineer how to eliminate the fragility in these cross-border systems and you will likely receive a simple answer— geographically distribute all keystone industrial capacities and create real-time redundancy in every important production systems. Ask most any member of the public, and the answer will be even simpler— don’t put all our eggs in one basket.

Nevertheless, as a society, not only have we failed to address this industrial fragility, we have largely failed to inquire whence it came and what it means. Before discussing what exactly to do, we therefore have to address why we as a society have so much difficulty seeing the problem. And why, among the few who do see the problem, there is little faith that we can fix it.

Much of the answer traces to a revolution in U.S. and European politics that began more than three decades ago. This was the rise of the corporate libertarian—or “estatist” movement.

The first generation of industrial interdependence, established in early post-war Europe through the Marshall Plan and the Coal and Steel regime, is widely recognized as a grand political achievement. Not only did the generation that rebuilt Europe after the War use industrial interconnectedness to bridge the centuries-old divide that separated France from Germany, they used industrial interconnectedness to provide a foundation for a period of unprecedented peace and prosperity across much of the “Western” world.

That international economic regime required very close regulation of trade and investment flows. This regulation was provided by multilateral institutions such as the Organization for Economic Co-operation and Development. And it was provided by the U.S. government in Washington. As Geir Lundestad has written, although this first generation “global” system was entirely “imperial” in its nature. But it was also a uniquely liberal form of imperialism; the U.S. Executive’s vision of empire required it to work hard to distribute fairly among many nations not only skills and capital but also access to market. And, thereby, industrial capacity.

In the 1970s and 1980s, however, first the Thatcher government in Britain and then the Reagan Administration in the United States reacted strongly against such intrusive regulation by the state. In this initial stage of the corporate libertarian movement, however, the main targets were purely domestic—such as labor unions and antitrust laws. The result was also mainly domestic—in the form of greater concentrations of economic and political power in private hands.12

Internationally, the U.S. government continued to use its power to break up efforts to overly concentrate wealth or power in a single country. This included successful efforts to revalue Japan’s currency and to place strict limits on how much control over the international computer industry Japan could acquire.

After the collapse of the Soviet Union in 1991, however, the corporate libertarians moved swiftly to extend their revolution into the international realm. The key tool for this revolution was the Uruguay Round of the General Agreement on Tariffs and Trade, which established the World Trade Organization.

On the surface, the WTO regime was designed only to take the grand success of first-generation globalization to the next level, by extending the system to China, Russia, and the nations of Eastern Europe. More important for our purposes, the WTO regime was also designed to shift the power to regulate the international industrial and financial systems away from the U.S. government and institutions like the OECD, to the giant industrial corporation and banking estate.

In combination, the revolution in the governance of domestic political economies of the 1970s and 1980s, and the revolution in the governance of the international political economy in the 1990s, cleared the way for the rise of today’s monopolists and mercantilists.

Perhaps even more damaging, these twin revolutions undid the public institutions, regulatory practices, and ways of thought that had enabled the United States and its European allies to ensure the safe distribution of industrial and other economic activity, and the stability of complex cross-border systems.

Political Origins & Ideological Obstacles

Our inability to see the threat and to respond practically is also due to ideological and intellectual factors. Some of these obstacles derive from the rapid rise in the influence of the economics academy over international trade and industrial policy, hence to the ideologies that shape the thinking of many professional economists. Other obstacles derive from the ways in which concentration of control and capacity has disrupted many of the traditional ways we manage risk in our political economy, and apportion responsibility and liability.

Of the many factors that have played a role in hiding the fragility of our industrial systems, the following four stand out.

The Fetishization of Efficiency

Economists believe their prime task is to promote the “efficient” use of natural and human resources. There is nothing new about this; we can trace this thinking far into the 19th century. What is new is the degree to which other academies have come to accept this same basic goal and have ceased to offer competing ideas of what we, as a society, might desire or require.

Consider competition policy, which for 200 years in the United States was the single most powerful determinant of industrial structure. From the founding of the nation, the goals of our many antimonopoly laws and policies were the liberty of the individual citizen, the democratic distribution of voice and responsibility, the maintenance of a rough equality of opportunity, and the security of the nation. Efficiency, although it was sometimes taken into account, was never held to be the foremost goal.

This all changed in the 1970s and early 1980s when legal scholars of the “Chicago School,” led by Richard Posner and Robert Bork, succeeded in convincing policymakers to embrace an “economic analysis of law.” The result, almost overnight, was a radical simplification of competition policy around a single goal, “efficiency,” theoretically in order to better serve the interests of the “consumer.” The main consideration now became not the distribution of power, the maintenance of competition, the openness of markets, nor the stability of systems. Instead it was only whether any particular proposed “economy of scale” would drive down the price of a particular good or service.

One result of this radical change in competition policy and law (and I would argue, an intended result) has been a revolutionary concentration of power, especially in the United States but in other countries as well. Another (apparently unintended) result has been a rapid concentration of human thought around the goal of efficiency, in ways that have all but blinded us— as individuals and as a society— to the physical dangers posed by the extreme concentration and reorganization of human industrial activity over the last generation.

The Socialization of Risk

Economists assume, as a foundational principle of their system, that rational actors will always identify and mitigate risk. This assumption is entirely logical, given that economists also assume the existence of open markets in which multiple companies compete to deliver the same basic goods and service. When capacities and skills are compartmentalized in such a way, the failure of any one company is always an option society as a whole will be willing to accept. This enables a compartmentalization of responsibility, which leaves it entirely up to the individual owners and operators of these firms to guard against any failure— including the cutoff of supplies— that would destroy the value of their assets.

The main problem with this theory is that it no longer reflects the reality of today’s industrial and financial structures. Over the last two decades we have witnessed a revolutionary reorganization of industrial activity around the world. In addition to the extreme consolidation of control over many marketplaces already noted, this restructuring also includes the dis-integration of many industrial systems that for the last century were highly vertically integrated. In sector after sector, managers have chosen to “outsource” key production activities to outside suppliers, many of which in turn have captured control over the production of vital components, and which have also often concentrated the capacity to produce these components.

The practical result is that where once we had many companies competing in real time to, say, manufacture windshield wipers or piston rings, today we increasingly see one company managing the bulk of such production. This in turn entirely alters how the managers of toptier companies view risk. When production of vital components is the responsibility of each company individually, and that company faces robust competition, managers of that company are all but compelled to guard against supply chain disruptions. By contrast, the pooling or communalization of production largely eliminates any impetus to invest time and resources in identifying and mitigating supply chain risks. Such pooling of capacity affects the incentive for any one corporate actor to devote time to identifying and mitigating potential bottlenecks.

The Resurrection of Metaphysics

One of the key ideas of the Enlightenments is that all economics is political, hence human beings enjoy the capacity to restructure all economic relationships within society and all economic relationships among different peoples. In America, over the last generation, we have witnessed a phenomenal—yet all but unaddressed, even unremarked—resurrection of the belief that our economy is shaped by powers largely or completely outside human control. The basic idea here is that some force—such as “technology” or the “market” or “capitalism”—mechanically drives actors within the economy towards certain ineluctable outcomes.

Most important for this discussion is the belief that “globalization” itself is a natural, even inevitable force, rather than a carefully structured product of political decisions.

Over the years, many actors have sought to inject deterministic thinking into political debate. A century and half ago, the richest man in United States, Andrew Carnegie, literally imported Herbert Spencer to preach the metaphysics of “Social Darwinism” to voters who might otherwise be tempted to view Carnegie’s assets as ill gotten. In the 20th Century, the economist Joseph Schumpeter promoted a form of biological determinism that owed much to Spencer’s teachings

What is new, and directly pertinent to our problem, is how fully such metaphysical thinking and analysis has come to dominate not merely the social sciences but the thinking of policymakers. Nowadays, we see such deterministic thinking not only in popular works of journalism such as the books of Thomas Friedman. We also see such deterministic thinking in the statements of important politicians; U.S. President Barack Obama recently defined “globalization” as a “force” that shapes us at least as much as we shape it. And we see such deterministic thinking in the economics academy and throughout the social sciences.

What is also new is how dangerous such thinking can be. A century ago the main dangers of believing in such metaphysics was that some would-be plutocrat would use such tales to concentrate economic and political power. Today, such metaphysical thinking—by hiding the political acts of the human builders of these systems—can also prevent us from acting in pragmatic and practical ways to ensure the stability of even our most vital systems.

A Flawed Understanding of InterDependence

Among those who do understand the fragility of systems, many argue that such extreme industrial interdependence forces political leaders to walk peaceful paths in any dispute. Perhaps the best known purveyor of this argument is New York Times columnist Thomas Friedman, especially in his 2005 book The World is Flat. The basic thesis of Friedman and similar thinkers is that the dangers of systemic disruption are more than counterbalanced by the ways in which such mutual dependence on the same systems forces different peoples to avoid conflict and to cooperate harmoniously.13

But there are two large problems with Friedman’s line of thinking. First, such extreme industrial interdependence is simply not necessary to keep the peace. There are many other very potent checks against armed conflict among industrial nations today— such as the fear that any hot conflict might lead to the use of nuclear weapons. Further, as we learned from the first half century of America’s postwar empire, the main political benefits of industrial interdependence can be achieved with a far more limited sharing of capacity— in energy, metals, and advanced electronics for instance.14

Second, today’s extreme industrial interdependence poses dangers that in many respects far outweigh even the potential benefits imagined by Friedman and other “globalists.” And these dangers grow worse by the day. It is, indeed, all too easy to imagine “normal,” everyday disasters that would effectively end economic— and hence political— life as we know it.

The most obvious flaw is that the structure of the system leaves us entirely exposed to natural disasters, which obviously are entirely outside the power of any rational actor in any state to control. Two of the biggest industrial crashes— in September 1999 and March 2011— were triggered by earthquakes. Similarly, the incipient shut down of trade flows during the SARS scare of 2003 was averted only when the disease suddenly ceased to spread.15

Third, the structure of today’s system leaves us entirely exposed to political disasters in third states, as well as within states. Even if leaders in Beijing and Washington forged the most perfect of ententes, they would not be able to exert complete control over the human beings who control other states. They would not, for instance, be able to guarantee that North Korea would never disrupt South Korea’s highly concentrated DRAM industry, for instance. Nor could they guarantee that Pakistan will never disrupt the flow of processed information from India to the back offices of corporations in the United States, Europe, Japan, and China.

Similarly, neither China nor the United States is itself a monolith, and there is no guarantee whatsoever that leaders in either Beijing or Washington can always prevent factions within their nations from disrupting vital industrial and financial flows. In 1989, the Tiananmen uprising had little effect on any economic activity outside China. Any similar event today would conceivably shut down business as usual through much of the industrialized world.

Worse, in some cases extreme industrial interdependence appears actually to tempt powerful factions within a state to various forms of adventurism. This is certainly one way to view China’s cut off of shipments of rare earth minerals to Japan in 2010, following a flareup of tension over the Senkaku/Daiyudao islands.

Such High Noon-style political face-offs between two nations joined at the industrial aorta pose two huge dangers to the United States and Europe. First is that one of the parties will miscalculate and make a military or political move that triggers exactly the sort of catastrophic industrial shut down we most fear. The second danger is that China (or some other nation) will manipulate the face off in a way that forces the United States (or one of our key allies) to back down politically, much in the way the United States forced Britain and France to retreat from the Suez in 1956. The political and economic effects of such a humiliating loss of prestige— and such a complete demonstration of the impotence of military power— are almost incalculable

Finally is the fact the hyper concentration of capacity we see in so many of today’s international industrial system also provides numerous highly tempting targets for non-state actors like terror groups as well as factions within a state who are playing for power. In September 2001 al-Qaeda struck at what it viewed as the symbolic heart of the capitalist system— Wall Street. Today, if al-Qaeda or some other group really wanted to wreck havoc, it need merely strike some vital concentrations of industrial capacity located somewhere around the world, in Hsinchu, or Seoul, or Bangalore, or maybe Shenzhen. Last, there is the danger that the United States, or one of our allies, might respond to some provocation in an unwise or untimely fashion.16

Toward Simple Rules

Human societies can be highly flexible and resilient, and often adapt with remarkable speed to new physical realities. So too the human mind, which can swiftly turn the truths of today into the stuff of ridicule tomorrow. That’s why, despite the fact that economic power and thought have been so fantastically concentrated, we can still look to the day when the perils we face will become starkly clear. The only question is whether this truth will reveal itself via insight or catastrophe.

Our most immediate practical challenge then is twofold: to determine what sorts of rules would result in a safe physical distribution of keystone industrial capacities; and to determine how to begin a political discussion that will prepare us for this task before a truly devastating crash does the work for us.

In any discussion of making rules, it helps to clarify up front exactly what role government would play. I myself am very confident of the ability of private sector actors to work out the basic details all on their own. The task they face is actually quite simple. The constituent pieces of these systems— be it machines, or servers, or debt— are all manmade, and can be arranged however we wish. For such a challenge, today’s industrial engineers and corporate managers have all the technical expertise our society requires.

That said, governments will have to set basic ground rules that ensure that all these private actors are treated alike. Regulators do not need to figure out every last detail of our supply chains. But they do have to establish an environment that empowers engineers to secure these systems, without fear of putting their individual companies at competitive risk.

The following three observations may be of use in helping policymakers set such rules. These three observations address the three factors that— as noted in the first section of this chapter— are widely regarded as the primary sources of the growing fragility of our international industrial systems. They are based on 15 years close study of supply chain crashes and of the history of interdependence among nations, and distill much of the reporting I have done elsewhere.17

Just-In-Time Logistics Practices Are Not a Fundamental Source of Fragility

After the Tohoku quake, many in the news media and in the investment community blamed the subsequent disruptions on overly “lean” supply chain practices. But we also know from previous industrial crashes that JIT practices can themselves be compartmentalized, hence that even in extremely lean systems, disruptions can be kept local.16 Further, focusing too much attention on JIT practices poses dangers of its own. It will likely lead us to aim at the wrong fixes; bigger inventories of components, for instance, may cushion the shock, but the effects are at best only temporary. Worse, placing too much blame on JIT may lead us to discount the role that information technologies can play in providing more supply chain transparency

Industrial Integration Among Countries Is Also Not a Fundamental Source of the Danger

After every industrial crash, a staple of news coverage is that “globalization” has put us in danger. Yet there is no sound basis whatsoever for such a conclusion. We can in fact imagine many forms of highly complex international industrial systems that would be, from an engineering point of view, all but fully safe against both natural and political disaster. As we saw during the first era of globalization between 1947 and 1993, it is possible to engineer systems that promote high degrees of international cooperation, yet also do not bind peoples so tightly that disaster in one place instantly becomes disaster everywhere. Worse, blaming integration poses perils of its own. The fix it implies— i.e. a retreat from “globalization”—means abandoning a policy that at least in its first iteration proved immensely successful. Further, blaming integration for fragility runs the risk of exacerbating tensions between nation-states in ways that threaten to spin out of our political control.

Geographic Concentration of Keystone Production Capacity Is, In Fact, a Fundamental Source of Fragility

My reasoning here is simple. This is the one factor that is entirely new; we have never before seen such high degrees of concentration of vital capacity. We can clearly measure the effect of concentration by comparing two events that took place in the 1990s— the Kobe earthquake and the Aisin fire— to two events that took place more recently— the Niigata and Tohoku earthquakes.18 The principles here are the same ones responsible for the growing fragility of our financial system, where much of the problem is the over concentration of debt of storage and processing capabilities. Perhaps most important, not one of these industrial crashes would have happened had alternative sources of production been available in real time.

If these three observations are in fact true, the key to ensuring the resiliency of our international production systems is to build up realtime redundancy by physically distributing the capacity to produce keystone components, be they electronics chemicals or information. This, in turn, points us immediately to all sorts of pragmatic, practical rules and laws that would promote such distribution. We could, for instance, require that all firms dual source supplies in real time. We could, for instance, require firms to report all bottlenecks and potential bottlenecks to investors, governments, and the public. We could, for instance, alter the goals of competition policy (which, properly understood, includes trade policy) to ensure that the resiliency of vital systems is a main goal.

The one thing we need never do is adopt protectionist policies designed specifically to shift production to our own home countries. The fragility of these systems derives not from the fact that production is located off shore, but from the fact that all production of many keystone components is located in one or a couple places only. It is, if anything, a direct product of our failure to deal with such protectionist and mercantilist policies— in places like Beijing, Tokyo, Taipei, and Berlin— in a realistic fashion.

Looking to 2030—Fragility and Volatility

The Atlantic Community faces a choice as it looks forward towards 2030. We can stumble numbly on towards an economic and/or political disaster of the first magnitude. Or we can work, honestly and realistically, with the leaders of the dominant nation-states and dominant corporate and banking estates to reestablish these systems on a more stable and resilient footing.

This is not a problem that will “heal” itself; nor will some new technology emerge to solve the problem for us. The origins of the problem are entirely political in nature, hence can be fixed only through political action. Absent such political will, the fundamental structural flaws in the industrial system will, in many cases, simply grow more dire. To make matters worse, the concentration of political and economic power that is the source of this danger poses many other closely related threats to our political and economic wellbeing.

The stakes could not be higher. Failure to act now to restore coherent, rational, democratic, public institution-based control over our international political economy means that, as we look to 2030 we can expect:

More industrial and financial crashes. The present industrial system is already radically unstable. Every day the actions of monopolists and mercantilists— by promoting an ever greater concentration of keystone capacities— make it more so. Given that natural and political disasters are inevitable in our world, it is only a matter of time until some event triggers another cascading shutdown, perhaps far more damaging than any we have yet experienced.

An ever more provocative and assertive China. Factions within China have already proven willing to use various forms of embargo to project power on other nation states and on individual international corporations. They will continue to use this power until the United States, Europe, and Japan mount a coherent, coordinated response.

A sudden collapse of U.S. and European prestige and authority. The Iraq War, the financial meltdown, the eurozone crisis, and the revelations of NSA spying have all severely reduced U.S. and European standing in the world but have not destroyed it. However, another financial crash or a humiliating retreat before a Chinese provocation has the potential to shatter the political foundations of the postwar system once and for all.

More economic volatility. Over the last decade, the increasingly giant companies that control the flow of grains, energy, and metals have become far more sophisticated at manufacturing volatility in commodity markets, mainly to drive up trading profits. This volatility will increasingly disrupt the ability of states, businesses, and individuals to plan and act in any coherent fashion.

Worsening economic stagnation. Over the last decade, a few increasingly large and powerful companies like Monsanto, Oracle, Google, Microsoft, GE have captured control over entire realms of technology. This concentration of control appears already to have reduced innovation and growth, and will only do so more dramatically over time.

Collapse of Checks and Balances. Today’s regulators tend to respond to crises mainly by further concentrating power and by integrating state regulatory functions more intimately into theoretically “private” institutions. This blurring of public and private economic realms will increase the corruption of our democratic political system even while it greatly increases the likelihood of bigger crises in the near future.

A dis-integration of public information systems. One of the most important products of competition in open markets is trustworthy information that allows us— as a society and as individuals— to react and adapt to a constantly changing world. The monopolization of control over entire production activities by private corporations and foreign states radically reduces the flow of trustworthy information through our society, and hobbles our ability to understand and manipulate the world around us.

Towards a 21st Century International System

The greatest threat to the stability of the complex systems on which we all depend is posed not by any terrorist group or foreign state but by the corporate libertarian movement in the United States. It was their assault on competition policy that transformed the international industrial system from a source of resiliency and strength into what is now perhaps the single most powerful transmitter of shock from nation to nation. It was their assault on the institutions of public knowledge and empiricism itself that has all but destroyed our ability— as individuals and as a society— to understand and respond to these dangers.

This is not only an American problem. The extreme and growing instability in our international industrial and financial systems, caused by this reckless dismantlement of the U.S. state’s ability to police against efforts to concentrate industrial capacity and other forms of risk threatens all nations. The threat is not merely to the grand achievements of Monnet, Schuman, Marshall, and Eisenhower. It is to human society as we know it.

#### Trade decline causes nuclear war.

Oppenheimer ’21 [Michael; Clinical Professor in Center for Global Affairs @ New York University, Senior Consulting Fellow @ Scenario Planning at the International Institute for Strategic Studies, Former Executive Vice President @ The Futures Group, Member @ Council on Foreign Relations, Member in the Foreign Policy Roundtable @ Carnegie Council on Ethics and International Affairs, Member @ The American Council on Germany; “The Turbulent Future of International Relations,” in *The Future of Global Affairs: Managing Discontinuity, Disruption and Destruction*, p. 23-43]

Four structural forces will shape the future of International Relations: globalization (but without liberal rules, institutions, and leadership)1; multipolarity (the end of American hegemony and wider distribution of power among states and non-states2); the strengthening of distinctive, national and subnational identities, as persistent cultural differences are accentuated by the disruptive effects of Western style globalization (what Samuel Huntington called the “non-westernization of IR”3); and secular economic stagnation, a product of longer term global decline in birth rates combined with aging populations.4 These structural forces do not determine everything. Environmental events, global health challenges, internal political developments, policy mistakes, technology breakthroughs or failures, will intersect with structure to define our future. But these four structural forces will impact the way states behave, in the capacity of great powers to manage their differences, and to act collectively to settle, rather than exploit, the inevitable shocks of the next decade.

Some of these structural forces could be managed to promote prosperity and avoid war. Multipolarity (inherently more prone to conflict than other configurations of power, given coordination problems)5 plus globalization can work in a world of prosperity, convergent values, and effective conflict management. The Congress of Vienna system achieved relative peace in Europe over a hundred-year period through informal cooperation among multiple states sharing a fear of populist revolution. It ended decisively in 1914. Contemporary neoliberal institutionalists, such as John Ikenberry, accept multipolarity as our likely future, but are confident that globalization with liberal characteristics can be sustained without American hegemony, arguing that liberal values and practices have been fully accepted by states, global institutions, and private actors as imperative for growth and political legitimacy.6 Divergent values plus multipolarity can work, though at significantly lower levels of economic growth-in an autarchic world of isolated units, a world envisioned by the advocates of decoupling, including the current American president. 7 Divergent values plus globalization can be managed by hegemonic power, exemplified by the decade of the 1990s, when the Washington Consensus, imposed by American leverage exerted through the IMF and other U.S. dominated institutions, overrode national differences, but with real costs to those states undergoing “structural adjustment programs,”8 and ultimately at the cost of global growth, as states—especially in Asia—increased their savings to self insure against future financial crises.9

But all four forces operating simultaneously will produce a future of increasing internal polarization and cross border conflict, diminished economic growth and poverty alleviation, weakened global institutions and norms of behavior, and reduced collective capacity to confront emerging challenges of global warming, accelerating technology change, nuclear weapons innovation and proliferation. As in any effective scenario, this future is clearly visible to any keen observer. We have only to abolish wishful thinking and believe our own eyes.10

Secular Stagnation

This unbrave new world has been emerging for some time, as US power has declined relative to other states, especially China, global liberalism has failed to deliver on its promises, and totalitarian capitalism has proven effective in leveraging globalization for economic growth and political legitimacy while exploiting technology and the state’s coercive powers to maintain internal political control. But this new era was jumpstarted by the world financial crisis of 2007, which revealed the bankruptcy of unregulated market capitalism, weakened faith in US leadership, exacerbated economic deprivation and inequality around the world, ignited growing populism, and undermined international liberal institutions. The skewed distribution of wealth experienced in most developed countries, politically tolerated in periods of growth, became intolerable as growth rates declined. A combination of aging populations, accelerating technology, and global populism/nationalism promises to make this growth decline very difficult to reverse. What Larry Summers and other international political economists have come to call “secular stagnation” increases the likelihood that illiberal globalization, multipolarity, and rising nationalism will define our future. Summers11 has argued that the world is entering a long period of diminishing economic growth. He suggests that secular stagnation “may be the defining macroeconomic challenge of our times.” Julius Probst, in his recent assessment of Summers’ ideas, explains:

…rich countries are ageing as birth rates decline and people live longer. This has pushed down real interest rates because investors think these trends will mean they will make lower returns from investing in future, making them more willing to accept a lower return on government debt as a result.

Other factors that make investors similarly pessimistic include rising global inequality and the slowdown in productivity growth…

This decline in real interest rates matters because economists believe that to overcome an economic downturn, a central bank must drive down the real interest rate to a certain level to encourage more spending and investment… Because real interest rates are so low, Summers and his supporters believe that the rate required to reach full employment is so far into negative territory that it is effectively impossible.

…in the long run, more immigration might be a vital part of curing secular stagnation. Summers also heavily prescribes increased government spending, arguing that it might actually be more prudent than cutting back – especially if the money is spent on infrastructure, education and research and development.

Of course, governments in Europe and the US are instead trying to shut their doors to migrants. And austerity policies have taken their toll on infrastructure and public research. This looks set to ensure that the next recession will be particularly nasty when it comes… Unless governments change course radically, we could be in for a sobering period ahead.12

The rise of nationalism/populism is both cause and effect of this economic outlook. Lower growth will make every aspect of the liberal order more difficult to resuscitate post-Trump. Domestic politics will become more polarized and dysfunctional, as competition for diminishing resources intensifies. International collaboration, ad hoc or through institutions, will become politically toxic. Protectionism, in its multiple forms, will make economic recovery from “secular stagnation” a heavy lift, and the liberal hegemonic leadership and strong institutions that limited the damage of previous downturns, will be unavailable. A clear demonstration of this negative feedback loop is the economic damage being inflicted on the world by Trump’s trade war with China, which— despite the so-called phase one agreement—has predictably escalated from negotiating tactic to imbedded reality, with no end in sight. In a world already suffering from inadequate investment, the uncertainties generated by this confrontation will further curb the investments essential for future growth. Another demonstration of the intersection of structural forces is how populist-motivated controls on immigration (always a weakness in the hyper-globalization narrative) deprives developed countries of Summers’ recommended policy response to secular stagnation, which in a more open world would be a win-win for rich and poor countries alike, increasing wage rates and remittance revenues for the developing countries, replenishing the labor supply for rich countries experiencing low birth rates.

Illiberal Globalization

Economic weakness and rising nationalism (along with multipolarity) will not end globalization, but will profoundly alter its character and greatly reduce its economic and political benefits. Liberal global institutions, under American hegemony, have served multiple purposes, enabling states to improve the quality of international relations and more fully satisfy the needs of their citizens, and provide companies with the legal and institutional stability necessary to manage the inherent risks of global investment. But under present and future conditions these institutions will become the battlegrounds—and the victims—of geopolitical competition. The Trump Administration’s frontal attack on multilateralism is but the final nail in the coffin of the Bretton Woods system in trade and finance, which has been in slow but accelerating decline since the end of the Cold War. Future American leadership may embrace renewed collaboration in global trade and finance, macroeconomic management, environmental sustainability and the like, but repairing the damage requires the heroic assumption that America’s own identity has not been fundamentally altered by the Trump era (four years or eight matters here), and by the internal and global forces that enabled his rise. The fact will remain that a sizeable portion of the American electorate, and a monolithically pro- Trump Republican Party, is committed to an illiberal future. And even if the effects are transitory, the causes of weakening global collaboration are structural, not subject to the efforts of some hypothetical future US liberal leadership. It is clear that the US has lost respect among its rivals, and trust among its allies. While its economic and military capacity is still greatly superior to all others, its political dysfunction has diminished its ability to convert this wealth into effective power.13 It will furthermore operate in a future system of diffusing material power, diverging economic and political governance approaches, and rising nationalism. Trump has promoted these forces, but did not invent them, and future US Administrations will struggle to cope with them.

What will illiberal globalization look like? Consider recent events. The instruments of globalization have been weaponized by strong states in pursuit of their geopolitical objectives. This has turned the liberal argument on behalf of globalization on its head. Instead of interdependence as an unstoppable force pushing states toward collaboration and convergence around market-friendly domestic policies, states are exploiting interdependence to inflict harm on their adversaries, and even on their allies. The increasing interaction across national boundaries that globalization entails, now produces not harmonization and cooperation, but friction and escalating trade and investment disputes.14 The Trump Administration is in the lead here, but it is not alone. Trade and investment friction with China is the most obvious and damaging example, precipitated by China’s long failure to conform to the World Trade Organization (WTO) principles, now escalated by President Trump into a trade and currency war disturbingly reminiscent of the 1930s that Bretton Woods was designed to prevent. Financial sanctions against Iran, in violation of US obligations in the Joint Comprehensive Plan Of Action (JCPOA), is another example of the rule of law succumbing to geopolitical competition. Though more mercantilist in intent than geopolitical, US tariffs on steel and aluminum, and their threatened use in automotives, aimed at the EU, Canada, and Japan,15 are equally destructive of the liberal system and of future economic growth, imposed as they are by the author of that system, and will spread to others. And indeed, Japan has used export controls in its escalating conflict with South Korea16 (as did China in imposing controls on rare earth,17 and as the US has done as part of its trade war with China). Inward foreign direct investment restrictions are spreading. The vitality of the WTO is being sapped by its inability to complete the Doha Round, by the proliferation of bilateral and regional agreements, and now by the Trump Administration’s hold on appointments to WTO judicial panels. It should not surprise anyone if, during a second term, Trump formally withdrew the US from the WTO. At a minimum it will become a “dead letter regime.”18

As such measures gain traction, it will become clear to states—and to companies—that a global trading system more responsive to raw power than to law entails escalating risk and diminishing benefits. This will be the end of economic globalization, and its many benefits, as we know it. It represents nothing less than the subordination of economic globalization, a system which many thought obeyed its own logic, to an international politics of zero-sum power competition among multiple actors with divergent interests and values. The costs will be significant: Bloomberg Economics estimates that the cost in lost US GDP in 2019- dollar terms from the trade war with China has reached $134 billion to date and will rise to a total of $316 billion by the end of 2020.19 Economically, the just-in-time, maximally efficient world of global supply chains, driving down costs, incentivizing innovation, spreading investment, integrating new countries and populations into the global system, is being Balkanized. Bilateral and regional deals are proliferating, while global, nondiscriminatory trade agreements are at an end.

Economies of scale will shrink, incentivizing less investment, increasing costs and prices, compromising growth, marginalizing countries whose growth and poverty reduction depended on participation in global supply chains. A world already suffering from excess savings (in the corporate sector, among mostly Asian countries) will respond to heightened risk and uncertainty with further retrenchment. The problem is perfectly captured by Tim Boyle, CEO of Columbia Sportswear, whose supply chain runs through China, reacting to yet another ratcheting up of US tariffs on Chinese imports, most recently on consumer goods:

We move stuff around to take advantage of inexpensive labor. That’s why we’re in Bangladesh. That’s why we’re looking at Africa. We’re putting investment capital to work, to get a return for our shareholders. So, when we make a wager on investment, this is not Vegas. We have to have a reasonable expectation we can get a return. That’s predicated on the rule of law: where can we expect the laws to be enforced, and for the foreseeable future, the rules will be in place? That’s what America used to be.20

The international political effects will be equally damaging. The four structural forces act on each other to produce the more dangerous, less prosperous world projected here. Illiberal globalization represents geopolitical conflict by (at first) physically non-kinetic means. It arises from intensifying competition among powerful states with divergent interests and identities, but in its effects drives down growth and fuels increased nationalism/populism, which further contributes to conflict. Twenty-first-century protectionism represents bottom-up forces arising from economic disruption. But it is also a top-down phenomenon, representing a strategic effort by political leadership to reduce the constraints of interdependence on freedom of geopolitical action, in effect a precursor and enabler of war. This is the disturbing hypothesis of Daniel Drezner, argued in an important May 2019 piece in Reason, titled “Will Today’s Global Trade Wars Lead to World War Three,”21 which examines the pre- World War I period of heightened trade conflict, its contribution to the disaster that followed, and its parallels to the present:

Before the First World War started, powers great and small took a variety of steps to thwart the globalization of the 19th century. Each of these steps made it easier for the key combatants to conceive of a general war. We are beginning to see a similar approach to the globalization of the 21st century. One by one, the economic constraints on military aggression are eroding. And too many have forgotten—or never knew—how this played out a century ago.

…In many ways, 19th century globalization was a victim of its own success. Reduced tariffs and transport costs flooded Europe with inexpensive grains from Russia and the United States. The incomes of landowners in these countries suffered a serious hit, and the Long Depression that ran from 1873 until 1896 generated pressure on European governments to protect against cheap imports.

…The primary lesson to draw from the years before 1914 is not that economic interdependence was a weak constraint on military conflict. It is that, even in a globalized economy, governments can take protectionist actions to reduce their interdependence in anticipation of future wars. In retrospect, the 30 years of tariff hikes, trade wars, and currency conflicts that preceded 1914 were harbingers of the devastation to come. European governments did not necessarily want to ignite a war among the great powers. By reducing their interdependence, however, they made that option conceivable.

…the backlash to globalization that preceded the Great War seems to be reprised in the current moment. Indeed, there are ways in which the current moment is scarier than the pre-1914 era. Back then, the world’s hegemon, the United Kingdom, acted as a brake on economic closure. In 2019, the United States is the protectionist with its foot on the accelerator. The constraints of Sino-American interdependence—what economist Larry Summers once called “the financial balance of terror”—no longer look so binding. And there are far too many hot spots—the Korean peninsula, the South China Sea, Taiwan—where the kindling seems awfully dry.

#### Passenger air cargo network growth key to vaccine distribution speed.

Kiernan ’21 [Kristy; 1/14/21; Professor @ Embry-Riddle Aeronautical University; “Covid-19 Vaccine Delivery: Can Air Cargo Meet The Challenge?”; https://www.forbes.com/sites/kristykiernan/2021/01/14/covid-19-vaccine-delivery-can-air-cargo-meet-the-challenge/?sh=3ca71bd05f7b]

In the race to defeat Covid-19, medical research is passing the baton to aviation. Vaccines have been designed, tested and approved; now they’re starting to be delivered across the globe. Normally, the air cargo industry would easily have the capacity, network and infrastructure to meet this challenge. But ironically, the distribution of Covid-19 vaccines depends on cargo capacity and robust air networks that the pandemic severely disrupted. Industry partners from regulators to manufacturers have been working together to look ahead and identify the obstacles that will need to be overcome for vaccines to be delivered safely and efficiently.

Capacity is the first challenge that must be addressed. Only about 40% of air freight is carried by dedicated cargo aircraft, while the rest is transported in the belly of passenger carrying aircraft. The epic drop in passenger demand has forced airlines to cut capacity, resulting in a 57% decrease in belly capacity compared to last year. Further, as flight schedules were slashed in response to plummeting demand, the networks connecting city pairs were also reduced, leaving cities with fewer air connections. Capacity and networks are slowly rebounding, primarily in the all-cargo sector, but there are still unanswered questions about exactly how much volume will be needed. The number of doses per vial of vaccine is not yet known for all types of vaccines, and that number will heavily influence how much vaccine each flight can carry safely.

Vaccines and other medicines also have stringent requirements that affect the infrastructure needed to transport them. Pfizer’s PFE +0.4% vaccine, the first to receive FDA approval, requires cold storage at -70 degrees. Maintaining this cold chain involves using special storage boxes equipped with dry ice. However, because dry ice sublimates into carbon dioxide, the amount of dry ice that can be transported on each flight is strictly regulated. In an Aviation Week webinar, Niklas Adamsson, COO of the container manufacturer Envirotainer, explained that since the need for cold storage became apparent, sublimation rates have been re-evaluated, taking into account advanced storage techniques and materials. Both the FAA and the European Union Aviation Safety Agency have used the new data to issue updated guidance for operators, making it possible for airlines to carry more dry ice and therefore more vaccines safely.

According to Adamsson, the Pfizer vaccine with its ultra-cold requirements will only make up about 10% of the global vaccine supply, and most of that supply has already been bought up by wealthy countries with the infrastructure to support the cold chain. Moderna’s vaccine, already approved by the U.S. and other nations, only requires temperatures of -20 degrees. Since that temperature can be sustained without the use of dry ice, air transport of the Moderna vaccine will only be limited by cargo capacity.

Having capacity, network and infrastructure are critical, but even more critical may be coordination between vaccine manufacturers, storage equipment providers, freight forwarders and operators. The greatest challenge, according to Adamsson, is timing. “Once a vaccine is approved by any country, of course, they would like to get it shipped as soon as possible, preferably yesterday,” he explained, “No one can really predict when the approvals will come, so we all need to be very on our toes and be well prepared in order to serve the global community.” Prior to the announcements of test results for vaccine trials in early December, the industry had prepared as well as it could. But as results came out and approvals were issued, there was a scramble as demand for vaccine transport increased almost overnight.

#### Vaccine airlift speed prevents Chinese vaccine diplomacy – causes Taiwan war and collapses the liberal order.

McDonagh ’21 [Naoise; 6/24/21; Institute for International Trade; “System Rivalry during Pandemic Times: An Institutional Political Economy View of Great Power Vaccine Diplomacy”; https://papers.ssrn.com/sol3/papers.cfm?abstract\_id=3873029]

Some have called the heightening tension between China and the U.S., and increasingly the wider Anglo-Saxon and European democracies, as a new Cold War (Karaganov, 2018; M. Zhao, 2019). In the above analysis of Chinese institutional history, conditions for a Cold Warlike geopolitical competition are readily apparent. As China returns as a geopolitical power, its political leaders have increasingly referenced its long history as a great civilization, as well as positioning the country as a model for others to follow. The institutional memory of its tributary status as the Middle Kingdom, Confucian norms and contemporary MarxistLeninist political institutions provide important insights for understanding China’s behaviour. They will increasingly shape the competition between liberal-democratic market economies and China in ways reminiscent with the Cold War. Other parallels with the Cold War era lie in the emergence of proxy conflicts between the U.S. and China with seeking to gain ‘spheres of influence’ (Allison, 2020), which was a hallmark of the Cold War era7

. The pandemic has become one such arena for proxy competition. As Bahi notes, the pandemic and ensuing health crisis has heightened the ‘competitive dynamics between the USA and China which affected the provision of global public goods’. (Bahi, 2021, p. 3). A crucial global good required for ending the COVID-19 health crisis is a cooperative global vaccination campaign, using vaccines with the highest efficacy rate. However, geopolitical tensions have instead led to a proxy competition that threatens such cooperation by way of ‘vaccine diplomacy’ (Karásková, 2021; Leigh, 2021; Sharun & Dhama, 2021).

Vaccine diplomacy is defined here as leveraging an ability to produce and distribute vaccines to populations other than a government’s own national population in order to achieve political purposes. Currently there is emerging evidence that suggest great power competition between the U.S. and China is influencing the production and distribution of vaccines. Vaccine diplomacy may hold benefits for nations, however there are also risks. Benefits to this diplomacy include vaccines that have been provided through donations, while Chinese manufacturers are also helping partner countries such as the United Arab Emirates, Egypt, and Indonesia to establish their own production capacity (Mardell, 2021). Such actions help China enhance its global status and soft power influence (Karásková & Blablová, 2021). By October 2021 the U.S. Biden administration was reported as having pledged to donate 1.1 billion vaccines by the end of 2022 to mainly lower income countries. Data up to late October from COVAX, an international initiative aimed at equitable access to COVID-19 vaccines and co-directed by the Vaccine Alliance (GAVI), the Coalition for Epidemic Preparedness Innovations (CEPI) and the World Health Organization, indicated the U.S. had had made good on 190 million of vaccines pledged8 . COVAX data shows the EU is by far the next biggest donator, at 178 million. For reasons discussed below China’s donations are not through COVAX, thus its donations do not show up in the COVAX database. However, data elsewhere indicates that by October 25, 2021 China had donated 87m doses9 . To the extent that such vaccine diplomacy competition supports greater global access to a critical global public good then the effects are positive.

However, there has also been risks evident in the race to lead the vaccine donation race. For example, by mid-2021 a total of three Chinese vaccine producers were in operation: Sinovac, CanSino, and state-owned giant Sinopharm. While this diversity of supply is also positive, these entities were offering Chinese vaccines on the global market despite reluctance by the responsible Chinese-based producers to release clinical trial data (Mardell, 2021). It was reported in mid-2021 that 200 million doses of Sinopharm’s vaccine had been administered worldwide before the state-owned firm finally released interim phase 3 clinical data, but even this data was lacking information on the elderly and vulnerable groups (Pinghui & McCarthy, 2021). Using vaccines prior to such data becoming available is highly risky. Developed countries, including the United States, have thus far refused to approve any vaccines absent phase 3 clinical data on efficacy and safety. However, given that a small number of rich countries had secured 60% of world vaccine supply up to April 2021 (Sharun & Dhama, 2021), developing countries desperate to access vaccines have understandably been willing to take risks in a bid to reduce COVID deaths by using vaccines absent full clinical transparency. The willingness of Chinese pharmaceutical firms to distribute vaccines lacking such data is arguably a consequence of the country’s governance system in general, which lacks transparency, and contains more leeway for decision-making based on political expediency rather than rule-based processes and accountability. Internal political pressure to release a vaccine ahead of or in tandem with the U.S., and then engage vaccine diplomacy can be understood in the context of a political shift under Xi Xinping that pushes for China to reassert itself as a civilizational power.

Alongside non-transparent data for distributed vaccines, there have also been reports that China has used access to its COVID-19 vaccines as a geopolitical carrot to entice countries to switch diplomatic ties from Taiwan to China (Londoño, 2021; Stott, Hille, Sevastopulo 2021). Beijing’s ‘one-China’ principle means nation-states must choose between Taiwan and China when establishing formal diplomatic ties, as China will not allow both. As of May 2021 only fifteen nations recognize Taipei over China. Picking off Taiwan’s remaining official diplomatic relations is designed to further isolate the nation internationally and incentivize Taiwan’s leaders to engage reunification talks with Beijing. In other cases, it has been claimed that vaccines have been used to shore up foreign support for China’s Belt and Road initiative (Biyani & Graham, 2021). More worryingly, an EU European External Action Service (EEAS) report released in April 2021 stated:

‘Disinformation around the COVID-19 pandemic, measures taken to contain it and vaccine rollout campaigns continue to be significant… Russia and China, in particular, continue to intensively promote their own state-produced vaccines around the world. The so-called “vaccine diplomacy” follows a zero-sum game logic and is combined with disinformation and manipulation efforts to undermine trust in Western-made vaccines, EU institutions and Western/European vaccination strategies.

Strings-attached vaccine diplomacy coupled with disinformation campaigns to undermine some vaccines has serious negative repercussions for achieving global vaccination. Furthermore, China’s desire to donate with conditionality reveals why it has not provided any vaccine donations to COVAX to distribute. COVAX works by pooling donated vaccines and then applying a transparent equitymodel using population-based proportional allocation for participating countries (Herzog, Norheim, Emanuel, & McCoy, 2021). Donating nations have no say in how COVAX distributes vaccines, and its model ensures governance transparency.

These examples highlight the ways in which a crucial global public good can become caught up in the new geopolitical competition between the United States and China, a conflict grounded in their different economic systems. As Goldstein (2020) argues, both countries view the global pandemic as an opportunity and risk to gain or lose influence relative to their competitor. It is clear that rather than pooling resources to mass produce the most effective vaccines for the fastest possible global access, China, the United States and others are determined to compete to produce and distribute vaccines separately. This may benefit some countries, yet also holds the risk of vaccines with lower relative efficacy being produced and distributed. Other negatives include the possibility of receiving countries being made subject to conditionality under the duress inflicted by the pandemic.

#### Taiwan war causes extinction and turns every impact – MAD fails.

Kulacki ’22 [Gregory; 3/7/22; China Project Manager @ Union of Concerned Scientists, PhD in Political Theory @ University of Maryland; “Could US Nuclear Weapons Prevent an Attack on Taiwan?”; <https://allthingsnuclear.org/gkulacki/could-us-nuclear-weapons-prevent-an-attack-on-taiwan/>]

Today, Chinese military manuals teach troops they are training to “fight a conventional war under conditions of nuclear deterrence.” More specifically, they are preparing to fight a war to prevent Taiwanese independence even if the United States threatens to use nuclear weapons to try to stop them. If the United States were to use nuclear weapons against the Chinese forces attacking Taiwan, Chinese military planners intend to retaliate, most likely against US military bases in Okinawa and Guam.

Once it starts, no one can reliably predict how far or how fast a nuclear contagion could spread. The worst-case scenario is too horrible to imagine. Within an hour, every major city in China and the United States could be reduced to rubble. Hundreds of millions of people could be killed. The global economy, and the global environment, could collapse.

It is precisely because of this possible outcome that Chinese communist leaders believe they can safely ignore US threats to use nuclear weapons. This is what the peasant revolutionary leader Mao Zedong meant when he called US nuclear weapons a “paper tiger.”

#### LIO solves extinction and filters every impact.

Beckley ’20 [Michael; Associate Professor of Political Science @ Tufts University; “Rogue Superpower Why This Could Be an Illiberal American Century”; *Foreign Affairs* 99(6), p. 73-87]

What would happen to the world if the United States fully embraced this kind of “America first” vision? Some analysts paint catastrophic pictures. Robert Kagan foresees a return to the despotism, protectionism, and strife of the 1930s, with China and Russia reprising the roles of imperial Japan and Nazi Germany. Peter Zeihan predicts a violent scramble for security and resources, in which Russia invades its neighbors and East Asia descends into naval warfare. These forecasts may be extreme, but they reflect an essential truth: the postwar order, although flawed and incomplete in many ways, has fostered the most peaceful and prosperous period in human history, and its absence would make the world a more dangerous place.

Thanks to the U.S.-led order, for decades, most countries have not had to fight for market access, guard their supply chains, or even seriously defend their borders. The U.S. Navy has kept international waterways open, the U.S. market has provided reliable consumer demand and capital for dozens of countries, and U.S. security guarantees have covered nearly 70 nations. Such assurances have benefited everyone: not just Washington’s allies and partners but also its adversaries. U.S. security guarantees had the effect of neutering Germany and Japan, the main regional rivals of Russia and China, respectively. In turn, Moscow and Beijing could focus on forging ties with the rest of the world rather than fighting their historical enemies. Without U.S. patronage and protection, countries would have to get back in the business of securing themselves and their economic lifelines.

Such a world would see the return of great-power mercantilism and new forms of imperialism. Powerful countries would once again try to reduce their economic insecurity by establishing exclusive economic zones, where their firms could enjoy cheap and secure access to raw materials and large captive consumer markets. Today, China is already starting to do this with its Belt and Road Initiative, a network of infrastructure projects around the world; its “Made in China 2025” policy, to stimulate domestic production and consumption; and its attempts to create a closed-off, parallel Internet. If the United States follows suit, other countries will have to attach themselves to an American or a Chinese bloc—or forge blocs of their own. France might seek to restore its grip on its former African colonies. Russia might accelerate its efforts to corral former Soviet states into a regional trade union. Germany increasingly would have to look beyond Europe’s shrinking populations to find buyers for its exports—and it would have to develop the military capacity to secure those new far-flung markets and supply lines, too.

As great powers competed for economic spheres, global governance would erode. Geopolitical conflict would paralyze the UN, as was the case during the Cold War. NATO might dissolve as the United States cherry-picked partners. And the unraveling of the U.S. security blanket over Europe could mean the end of the European Union, too, which already suffers from deep divisions. The few arms control treaties that remain in force today might fall by the wayside as countries militarized to defend themselves. Efforts to combat transnational problems—such as climate change, financial crises, or pandemics—would mimic the world’s shambolic response to COVID-19, when countries hoarded supplies, the World Health Organization parroted Chinese misinformation, and the United States withdrew into itself.

The resulting disorder would jeopardize the very survival of some states. Since 1945, the number of countries in the world has tripled, from 46 to nearly 200. Most of these new states, however, are weak and lack energy, resources, food, domestic markets, advanced technology, military power, or defensible borders. According to research by the political scientist Arjun Chowdhury, two-thirds of all countries today cannot provide basic services to their people without international help. In short, most countries depend critically on the postwar order, which has offered historically unprecedented access to international aid, markets, shipping, and protection. Without such support, some countries would collapse or be conquered. Fragile, aid-dependent states such as Afghanistan, Haiti, and Liberia are only some of the most obvious high-risk cases. Less obvious ones are capable but trade-dependent countries such as Saudi Arabia, Singapore, and South Korea, whose economic systems would struggle to function in a world of closed markets and militarized sea-lanes.

### 1AC – Green Aviation

#### Contention two: Green Aviation

#### Lenient antitrust immunization standards create security for anticompetitive practices.

Lazar ’18 [Fred; Professor of Econ @ York University; “Antitrust Immunity for Joint Ventures Among Alliance Airlines,” *Journal of Air Law and Commerce*, 83(4), p. 787-838]

Section 2 of the Sherman Act, and to a lesser extent the Clayton Act and FTC Act, have described a number of restrictive trade practices: refusal to supply, exclusive dealing or requirement contracts, exclusionary conduct, predatory or below-cost pricing, and refusal to deal.130 Restrictive trade practices provisions were developed to deal with relations between upstream and downstream firms that could lessen competition in either or both markets.131 The upstream firms supply goods and/or services to the downstream firms. The downstream firms either sell the goods or services directly to final customers—consumers or other firms—or use the goods and services to produce other goods or services that are in turn sold to firms further downstream in the value chain—that is, firms that are closer to the final customers.

Airlines deal with many upstream suppliers of goods and services (e.g., airports, maintenance companies, ground handlers, aircraft manufacturers, leasing companies). But feed traffic from one airline to another can and should be considered as a transaction between an upstream supplier (the airline providing the feed traffic) and a downstream customer (the airline taking the feed traffic beyond the connecting airport). Thus, these two provisions should cover the airline industry as well, even though they were not developed with the airline industry in mind.

1. Access to Slots

As suggested above, if the added value alliances and joint ventures supposedly created for customers translates into increased demand, the airlines should increase frequencies of flights to and from their hubs. They might also increase the size of aircraft operating on a number of routes, especially hub-to-hub routes. These actions should increase the number of flights and/or passengers served during each bank at their hubs, as well as lead to an additional bank of flights operating at each hub. Either or both should reduce the availability of slots at the hub airports and increase congestion on taxiways and gates. Thus, despite the occasional requirement for carve-outs and relinquishing slots at key airports, access to slots and other airport infrastructure could have been reduced, particularly at peak periods during the day and week.132

Authors Wu and Lee found that congestion did reduce the availability of check-in counters, thus making it more difficult for entry to occur at a major hub:

The busy day in terms of check-in counter demand took place on Tuesday with a peak demand of 185 positions at 0830 h in the morning, as a result of more concentrated morning departures than the rest of the week. The most comprehensive allocations were noted at check-in islands occupied by the home-based carrier, where the majority of the counters have been assigned from 0400 to 2200 h to process the airline’s regular departures, leaving minimal residual capacities at these check-in areas. The overlapped check-in windows and combined passenger arrival profiles can result in a more constant demand of counters over a long period of time, which is not sustainable for a single flight demand . . . . At the case airport’s international terminal where check-in counters are scarce during the morning peaks, similar common check-in arrangements could be extended to alliance member airlines to co-locate and consolidate existing flightdriven counter allocations and free up check-in capacities.133

But it seems that alliance airlines have reduced their frequencies in Europe and the United States.134 The theoretical possibility of reducing the availability of slots might not have materialized, at least at a number of airports. But if this is the case, then perhaps alliances and joint ventures have not created that much value for customers, and a major argument in favor of ATI might not be valid.

2. Market Foreclosure

Diana Moss, writing for the American Antitrust Institute, highlighted the importance of feed traffic:

Alliance carriers have maintained high market shares on important transatlantic routes between Europe and the U.S. Long-haul routes are difficult for smaller, non-allied airlines to enter. . . . [T]he DOJ has shifted its focus to slot and gate divestitures in domestic mergers and monopolization issues in order to encourage entry. . . .. . . . A second reason why higher concentration at alliance connecting airports is potentially harmful to competition and consumers is because dominance in connecting markets increases the risk that non-alliance carriers will be foreclosed from interlining at alliance hubs.135

So too did the EC and DOT:

Alliance partnership with other carriers can also significantly improve access to feeder traffic of alliance partners—particularly important for long-haul operations. While feeder traffic can also be obtained outside of the global alliances through interlining agreements such as an IATA multilateral proration arrangement (“MPA”) or a bilateral proration agreement, airlines in an alliance tend to favour their alliance partners in the financial terms of their interlining and choose them for code-sharing. With the increasing membership of alliances (and, respectively, their network coverage), it may be difficult for unaligned carriers to secure feeder traffic at some airports. This can therefore encourage them to join an alliance to benefit from more attractive conditions for feeder traffic from fellow members.136

Market foreclosure can and does stifle entry and competition. CAPA has provided some anecdotal evidence of the negative impacts on competition when alliance airlines refuse to interline with other airlines, even other members of the same alliance: Exclusion from a JV carries other impacts: airberlin had to cancel a proposed new route to Dallas, apparently because airberlin could not secure the codeshares it needed from American at its Dallas megahub. Airberlin required beyond-Dallas access to make the route work, but American had no incentive to help a competitor—despite being a oneworld partner—when such traffic could more profitably flow over its network/JV.

In another example, LOT struggled to access beyond-Tokyo codeshares on All Nippon Airways for its new Warsaw-Tokyo flight. LOT’s problem was that ANA’s JV with Lufthansa forbade ANA from cooperating with another European airline without Lufthansa’s approval. Lufthansa approving LOT-ANA cooperation, even if small, could impact the Lufthansa-ANA JV.137

3. Switching Costs

There is extensive literature in economics about switching costs.138 Switching costs are the result of strategic decisions, which impact rivalry.139 The more important switching costs are, the more companies will focus on creating these costs to capture their customers and deter entry.140 Because it would be costly to attract away those customers locked in by switching costs, prospective entrants become restricted to a subset of the entire market. 141 There are many examples of switching costs for customers—free training for the customer’s employees, joint product development with the customer, establishing supply chain links with customers through B2B networks, developing products that are incompatible with those of competitors, low interest financing, etc.142 In the airline industry, the major switching costs are frequent flyer programs and their offshoots, elite status programs, and corporate discounts.143 By restricting access to a frequent flyer program to only alliance airlines, an airline makes it difficult for a non-alliance airline in the country to compete for the frequent traveler.

#### Airline’s anticompetitive practices lock out low-cost carriers.

Moss ’19 [Diana; President @ American Antitrust Institute; “Alliances and Antitrust Immunity: Why Domestic Airline Competition Matters” *Air & Space Law*, 32(1), p. 1-20]

The Alliances and U.S. Consumers: Domestic Consolidation, High Concentration, and Limited Market Entry

The competitive implications of immunized alliances are particularly important for U.S. consumers, especially in light of the sweeping domestic consolidation among the largest U.S. network airlines over the last decade. This consolidation has affected U.S. alliance carriers’ market shares on routes and at alliance hubs and smaller U.S. airports.45 Consequently, concentration among the “big three” immunized alliances on transatlantic routes, which are some of the busiest in the world, remains extremely high. Entry on such routes is difficult, as exemplified by the the Norwegian Air International (NAI) case (discussed below), yet remains one of the only ways in which to inject competition and benefit consumers.

A second reason to consider the effects of domestic consolidation on ATI policy is that alliance routes utilize gateways (hubs) in the United States to service nonstop itineraries and connecting (i.e., one-stop) itineraries to route U.S. passengers to behind- and beyond-gateway markets. High concentration at those hubs limits choice for consumers and increases the risk of foreclosing rivals from interlining to deliver passengers to their ultimate destination. The analysis in this section highlights major statistics that support each of these concerns.

High-Traffic Transatlantic Routes Are Intensely Concentrated, Limiting Entry by Smaller, Nonallied Carriers

Transatlantic traffic between Europe and the United States accounted in 2015 for the highest proportion of total global traffic (about 11 percent), as measured by global passenger-kilometers.46 Immunized alliance carriers have maintained high market shares on these transatlantic routes. Long-haul routes are difficult for smaller, nonaligned airlines to enter because they require infrastructure and other capabilities that are often outside the scope of smaller carriers’ resources and business models. An examination of market shares for the busiest immunized Europe–U.S. routes served by oneworld (American and British Airways) and SkyTeam (Delta and Air France KLM) before and after consolidation of the major U.S. carriers (i.e., 2007 and 2016) reveals the key role of market entry.47 These routes include: (1) Paris (CDG) to New York (JFK), Los Angeles (LAX), and San Francisco (SFO); and (2) London Heathrow (LHR) to Dallas Forth Worth (DFW), JFK, LAX, and SFO.

On the majority of routes, only relatively small changes in combined alliance carrier (nonstop) shares occurred between 2007 and 2016. For example, the combined share of Delta and Air France on the CDG–JFK and CDG–LAX routes remained at around 80 percent over the period. The combined share of American and British Airways remained at 100 percent on the LHR– DFW route. American-British Airway’s share dropped from 67 percent to 62 percent on the LHR–JFK route, but increased somewhat on the LHR–LAX (51 percent to 59 percent) and LHR–SFO (40 percent to 45 percent) routes. With the exception of the CDG–SFO route, where United’s entry likely forced Delta-Air France’s share down from 100 percent to 75 percent, the major source of new or expanded entry on routes dominated by the immunized alliances is smaller, nonaligned carriers. By 2016, NAI had entered the CDG–JFK and CDG–LAX markets and stolen shares from alliance carriers. But these shares were small (3–4 percent). Virgin Atlantic, which was already in the market in 2007, expanded modestly on the LHR–JFK and LHR–SFO routes (about 3 percent) but not enough in the latter case to counter growth in market share by the alliance carriers.48

While entry or expansion of smaller carriers is likely to dilute highly concentrated route markets and introduce pricing discipline, those carriers face significant challenges to enter these markets and sustain service. NAI’s entry into U.S. markets was a protracted process.49 Its application for a foreign air carrier permit under the U.S.-European Union Air Transport Agreement remained pending before the DOT for over two years amid controversy over whether the airline’s labor practices complied with the Agreement’s requirements. U.S. airlines and their unions opposed the application, but the DOT finally approved the application in 2016.50 In a similar vein, the three U.S. legacy carriers opposed certain services operated by Emirates, Etihad Airways, and Qatar Airways and any planned expansion of those services on the basis that those carriers benefit from alleged state subsidies.51 Thus, the immunized alliance carriers have used political strategies to obstruct new competitive entry by foreign airlines into alliance-dominated U.S. routes.52

U.S. Alliance Gateways Are Highly Concentrated, Limiting Choice Behind and Beyond the Gateway

The claimed benefits from immunized, complementary end-to-end alliance networks depends on competitive conditions at U.S. alliance gateways where consumers connect to behind- and beyond-gateway markets. The wave of consolidation over the last decade in the United States has increased concentration at many airports that are the point of connection for alliance traffic. This is particularly true of smaller and mediumsized airports in the United States.

The table below shows market concentration53 at selected airports of the 22 U.S. alliance domestic connecting airports for Europe–U.S. traffic for the three immunized alliances in 2007 and in 2016.54 Results show that concentration increased at over 60 percent of connecting airports on one-stop transatlantic itineraries between 2007 and 2016. Increases in concentration at selected airports were as high as 84 percent at Phoenix (PHX), 63 percent at Philadelphia (PHL), 53 percent at Seattle (SEA), and 49 percent at San Diego (SAN). Decreases in airport concentration were significant at Houston (IAH) (–31 percent) and Minneapolis-St. Paul (MSP) (–31 percent) (not shown). But such decreases were outstripped by increases in concentration at other airports. And 50 percent of airports that showed increases in concentration over the period were highly concentrated in 2016. The DOJ/Federal Trade Commission (FTC) Horizontal Merger Guidelines recognize that highly concentrated markets are much more conducive to anticompetitive outcomes through the enhanced likelihood that market participants will exercise market power, either alone or in coordination with rivals.55

High concentration at U.S. alliance gateways means less competition from other carriers and less choice for consumers. For example, the Dallas Ft. Worth airport supported oneworld’s application for ATI in 2010, stating that ATI would “benefit DFW and its travelers because the London–DFW route will develop into a ‘pipeline’ route with improved services.”56 The reality is far different.

Not only did oneworld maintain a monopoly on the LHR–DFW route in 2016, as it did in 2007, but ATI has not produced any discernable increases in behind/beyond-gateway benefits. For example, the number of airports served from DFW by American flights was 75 in 2007 and increased only to 78 in 2016.57 PHX, a connecting airport also used by oneworld, saw the highest increase in concentration (80 percent) and 20 percent fewer carriers operating between 2007 and 2016.58 And the number of cities served did not change at all over the period. Similar analyses can be done for other airports that serve as connecting hubs for alliance traffic.

Much like the effects that highly concentrated immunized transatlantic routes have on discouraging entry, high concentration at alliance connecting airports also raises entry barriers and increases the risk that smaller nonaligned carriers (e.g., low-cost carriers) will be foreclosed from interlining at alliance hubs. And in cases where there is competition on connecting alliance itineraries, high hub concentration increases incentives for carriers to coordinate instead of compete. These concerns undercut arguments that immunity promotes benefits for consumers in behindand beyond-gateway markets in the United States.

#### LCCs key to green aviation – abuse of market power locks in the unsustainable hub and spoke model.

Liao ’21 [Weijun et al; School of Economics and Management @ Beihang University; Ying Fan Chun an Wang Zixun Wang; “Emissions from intercity aviation: An international comparison,” *Transportation Research Part D: Transport and Environment*, 95, p. 102818]

In order to effectively control the levels of emissions, each player in the aviation industry should bear its corresponding responsibilities. For airlines, especially the airlines in developed countries, it is helpful to reduce their dependence on hub airports and hub-and-spoke networks and schedule a higher proportion of direct flights. Meanwhile, they may use a higher proportion of biofuels, such as hydro-processed esters and fatty acids (HEFA) and biofuels via Fischer-Tropsch (FT) synthesis, and adjust the composition of their fleets by purchasing or renting more aircrafts with high fuel efficiency, such as the Airbus A330NEO and the Boeing B787 Dreamliner. In addition, in the markets with high traffic density, airlines may use aircrafts with larger capacity, such as wide-body aircrafts, to decrease the emissions per passenger.

For airports, optimizing airport ground activities and facilitating fast flight connections of passengers can save fuels and reduce aircraft emissions. For aircraft manufacturers, innovating solar powered aircraft and electric aircraft equipped with superconducting motors in the long term may thoroughly solve the emissions problem of intercity aviation. For air navigation service providers, the update of navigation services, such as the Single European Sky Air traffic management Research (SESAR) in the European Union and the Next Generation Air Transportation System (NextGen) in the USA, can effectively optimize the flight trajectories. This measure will allow aircrafts to take fewer fuels and reduce the environmental footprints of flight operations.

Furthermore, governments’ regulation policies on fuel price and fuel tax help to control the emissions of intercity aviation through airlines’ optimal responses (Brueckner and Zhang, 2010, Liao and Wang, 2021). As low-cost carriers (LCCs) operate mainly the point-to-point networks (or direct flights) and have relatively high load factors, governments may design policies to facilitate the entry of LCC. Feasible policies include restricting the abuse of market power of incumbent airlines and ensuring fair access to airport slots. Governments may also support to develop alternative transport modes, for example, HSR. Specifically, HSR could be used to reduce intercity aviation emissions, especially emissions from short-haul flights. Although developing HSR incurs a high degree of infrastructure investment, as well as a considerable amount of emissions from the construction process (Ha et al., 2011), as it is a cleaner transport mode in terms of operation (compared to air travel), it may be an effective means of reducing emissions from intercity travel.

Starting from 2021, ICAO implemented the pilot phase of the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). Together with aircraft technology, operational improvements, improved air traffic management, and sustainable aviation fuels, CORSIA aims to achieve the carbon neutral growth of international aviation activities from 2020. During 2020, ICAO has approved a series of eligible emissions programs satisfying offsetting requirement, including American Carbon Registry, China GHG Voluntary Emission Reduction Program and Clean Development Mechanism. In fact, governments can use the existing emissions programs and implement carbon offsetting and reduction mechanism in domestic intercity aviation markets. Mechanisms like cap-and-trade scheme used in the USA and the Emissions Trading Scheme in European Union can be useful reference.

Another important finding is that the distribution of emissions per capita between countries is quite uneven. Surprisingly, the emissions per capita of each pollutant of intercity aviation in the USA, Canada and Australia are 5 times higher than in China and Brazil, and 25 times higher than in India. This result shows the substantial difference between developed and developing countries. Besides the levels of development of economies and intercity aviation markets, the different degrees of dependence on the hub-and-spoke network may also explain the difference in emissions per capita between countries to some extent. Under the hub-and-spoke network, passengers who have travel demand between two non-hub airports have to take connecting flights. This feature of the hub-and-spoke network may imply higher emissions per passenger (Wang and Wang, 2019a, Wang and Wang, 2019b). Considering the hub-and-spoke network is dominant in some developed countries like the USA, the airline network structure may be a reason to explain the difference in emissions per capita.

Given the high levels of total emissions and emissions per capita of intercity aviation, developed countries face considerable pressure to reduce their levels of emissions. For developing countries, even though their current emissions per capita are still relatively low, the total emissions have already been sufficiently high. More importantly, due to the demands of the rapid development of aviation markets, they will face serious challenges in managing aviation emissions in the future. Balancing market development and emissions control will be an important ongoing issue for developing countries.

#### Green aviation key to solve extinction from energy dependence and stratospheric aerosolization.

Lele ’20 [Dr Ajey; Senior Fellow @ Manohar Parrikar Institute for Defence Studies and Analyses; and Ms Kritika Roy; Research Analyst in Cyber Security Centre of Excellence @ Manohar Parrikar Institute for Defence Studies and Analyses; Climate Change and Aviation in “Air Power,” *Journal of Air Power and Space Studies*, 15(1), p. 1-20]

Aviation has been at the heart of global activity for long. Continents and people can come together, travelling over distances of thousands of kilometres only because of aircraft. Today, enhanced connectivity, cheaper tickets and more flying options have made the aviation sector an increasingly important means of transport for citizens, businesses and governments. Air travel is considered fundamental to the development of new markets, business relations, cargo and humanitarian aid. The importance of informal and spontaneous meetings can hardly be overestimated, especially for the growing markets. Some air travel, within the maritime and petroleum sectors, is also associated with inspections of physical installations or vessels, or for the transportation of crew to platforms and other technical installations. Additionally, air cargo is assuming an increasingly important role within various industries, especially among humanitarian organisations for relief work. Similarly, the aviation sector is intricately linked to so many sectors such that the smooth functioning of this sector facilitates a ceaseless functioning of all the dependent sectors. The International Air Transport Association has predicted that the number of passengers transported by airlines will reach 8.2 billion in 2037, up from 7.8 billion in 2036. The figures speak volumes for the growing popularity of air travel.1 There is absolutely no doubt that economic growth, world trade, international investment and tourism are being facilitated by the airline industry. However, there is a sizeable downside of this growth, and that is the impact on climate change. Climate change is a stark reality and growth in the aviation sector means an increase in emission rates. This growth rate of the aviation sector may even overshadow the Paris Agreement’s quest to keep the increase in global average temperature below two degrees.2

This paper establishes the context for the need to focus on climate change and its impact on the aviation sector. The paper also analyses various features linking aviation and climate change through case studies. Finally, the paper offers a few policy recommendations.

Climate change, Energy and Aviation

Global climate change is an issue discussed not only with a lot of concern but also with a lot of passion. As an intellectual exercise, few recognise that “climate change represents the tragedy commencing on a global scale” and also gets described as the most important environmental problem of the 21st century.3 Today, climate change is known as a ‘mother of all problems’ and it is believed that cataclysmic events will unfold as humanity blindly demands more and more luxuries like autos, jet travel, air-conditioned homes, etc.4 Indeed, in the coming years, the change of the climate system would become so intense that it would have a wide range of consequences for biological and socio-economic systems, which, in turn, would have a cascading impact on other linked man-made systems. The 19th century saw remarkable development of our knowledge about climatic variations. Around the period of the 1850s, the idea of climate change on the earth was determined by the heat balance between incoming solar radiations.5

Subsequently, this idea got developed further with more research taking place and with increased understanding about the science of climate change. The Intergovernmental Panel on Climate Change (IPCC), which was established in 1988 to develop climate policies, in its 2007 synthesis report, stated that the warming of the climate system is now “unequivocal.” The earth’s climate is getting warmer, and its temperature has gone up about one degree Fahrenheit in the last 100 years. Much of the warming is attributed to the increase in the levels of atmospheric carbon dioxide. The major contributor to this rise is the use of fossil fuels. The consumption of fossil energy is increasing globally. At the same time, efforts are being made to reduce the carbon dioxide emissions in order to reduce further greenhouse gas emission loads on the environment. It is a reality that the production and utilisation, mainly in the case of fossil fuels, is becoming a major cause of environmental degradation.6 Another accepted reality is the link between the progress of a nation and the availability of energy resources, and owing to the push for development—especially in the developing countries—energy demand is growing rapidly. Fossil fuels are the most commonly used form of energy that have also been accused of causing significant environmental damage like emission of various greenhouse gases. Besides burning of fossil fuel and deforestation, the transportation sector is also responsible for the global emission of greenhouse gases.

The aviation industry is one of the most important sectors for international business, tourism, transportation of goods, and military and humanitarian aid. This industry is also seen as one of the most energy and carbon intensive forms of transport, whether measured per passenger km or per hour travel. However, the aviation sector, in particular, accounts for a very small percentage of greenhouse emissions, that is, around 2 per cent of all human produced carbon dioxide emissions.7 Nonetheless, this small percentage of emission cannot be overlooked, as it should be seen with reference to the growth rates of the aviation sector and the reduction in emission rate demanded by the IPCC.8 Moreover, aviation is different from other energy using activities, as the majority of emissions occur at an altitude that tends to instigate different atmospheric chemical processes, thereby adding to the global warming scenarios.

Aviation Sector’s Impact on Climate Change

As air traffic increases year on year, so does the impact on the environment. The major impact of the sector on the environment occurs through the combustion of fuels leading to the emission of heat, gases, noise and particulate matter. These emitted particles and gases such as carbon dioxide (CO2 ), black carbon, and hydrocarbons, oxides of nitrogen (NO2 ) and sulfur (SOx), and carbon monoxide (CO) interact among themselves and the atmosphere and have an impact on atmospheric composition that contributes to global warming and ocean acidification. Additionally, the disturbance in the atmospheric composition leads to the formation of condensation trails (contrails). Many times, these disturbances also increase the formation of cirrus cloudiness that adds to the phenomena of climate change.9 There are several reports that highlight that the rate of emission of CO and SOx from aviation has also gone up since 1990, while the rates of emissions from most other transport modes have fallen (European Environment Agency, 2017).10 Additionally, NOx emitted from aircraft (especially the emission from subsonic and supersonic aircraft) fumbles with the ozone layer, and indirectly contributes to radiative forcing (a measure of the change in the climate). Since the emissions from these aircraft are released at a higher altitude, they have a stronger affinity to react with ozone formation. Concerns over aviation’s global impact are not new; rather, these concerns gained prominence in the 1970s because of the proposed fleet of civil supersonic aircraft, namely, the Concorde and Tupolev-144. This concern was related to potential stratospheric ozone depletion because of the emissions from the supersonic aircraft. In the late 1980s and the early 1990s, research was initiated to look into the effects of nitrogen oxide on the ozone layer and also the effect of contrails from these supersonic aircraft. The sonic boom (this happens whenever an aircraft flies faster than the speed of sound, i.e. over Mach 1.0), that the Concorde produced was also a source of nuisance to people on the ground. In the 1990s, various research projects identified a number of emissions and effects from aviation. It was also noted that aviation presented unique challenges for the environment since the major fraction of its emissions is injected at aircraft cruise altitude, i.e. 8-12 km. At these altitudes, the emissions have increased affinity to cause chemical and aerosol effects relevant to climate forcing. It is also important to note that an operating aircraft’s emission remains in the atmosphere for periods ranging from days to centuries, with some climatic effect felt on even longer time scales. In the year 1999, IPCC published a comprehensive report titled “Aviation and the Global Atmosphere” which for the first time presented an exhaustive assessment of aviation’s impact on climate using the climatic metric “Radiative Forcing (RF).”11 Today, the aviation sector is a top-ten global emitter whose emissions are expected to rise dramatically by midcentury. Under current scenarios, the aviation sector could emit 56 GtCO2 over the period 2016-50, or one-quarter of the remaining carbon budget.12 In addition to the sector’s CO2 emissions, aviation’s non-CO2 effects are also significant in nature. Aviation emissions are 2.1 per cent of the global share, but when non-CO2 effects are included, aviation contributes an estimated 4.9 per cent to the global warming problem.

#### Stratosphere aerosolization causes extinction and triggers every existential risk.

Tang ’21 [Aaron; 11/19/21; Fenner School of Environment and Society @ The Australian National University; and Luke Kemp; Centre for the Study of Existential Risk @ The University of Cambridge; “A Fate Worse Than Warming? Stratospheric Aerosol Injection and Global Catastrophic Risk”; https://www.frontiersin.org/articles/10.3389/fclim.2021.720312/full]

Hothouse Earth or Shithouse Earth?

Could the risks of large-scale solar geoengineering be worse than the dangers posed by climate change? Many concerns have been expressed over geoengineering the Earth's climate. These tend to centre on solar radiation management (SRM) methods, particularly stratospheric aerosol injection (SAI). These range from fears over negative unintended effects on ecology, political conflict, mitigation deterrence, to ethical objections. Given the breadth of objections, it is quite clear that SAI would be iatrogenic in some way. Like some medical interventions, SAI may have adverse side-effects and complications. The question is whether it could be worse than the problem it is seeking to remedy: climate change.

There is a wealth of information on the different risks posed by climate change (although notably little on high-end warming scenarios), yet few attempts to compare this to the potential damages of SAI. This is unsurprising since there have been limited attempts to systematically analyse the myriad of threats posed by SAI.

We address this gap by analyzing the severe downside risks of SAI. We do not directly compare the risks posed by SAI and climate change in this paper. Rather, we provide an analytical foundation for future comparative analyses. In this article we ask: what are the plausible contributions of SAI to global catastrophic risk (GCR)? To the best of our knowledge this is the first attempt to offer a novel, comprehensive framework for comprehending the contributions of SAI to GCR. As noted in section: A Framework for Unraveling Global Catastrophe, this is a useful and original step forward for the nascent field of studying GCRs. This is not just simply adding up SAI's potential negative impacts. It requires understanding how SAI could trigger or worsen other large-scale threats (such as nuclear warfare) or systemic risks. Understanding extreme downside risks can also help provide direction for policy and governance. The future may be hazy, yet avoiding the extreme downsides is a priority for risk management under uncertainty. To guide our investigation, we put forward a novel framework for understanding how SAI, or any other complex risk, contributes to GCR. We then use this to review and discuss the existing evidence on SAI's critical threats.

Our approach makes use of a structured literature review and systems mapping exercise. We use our novel framework to structure a literature review covering studies relevant to the risks of SAI. For each area we highlight the level of evidence and uncertainty, and draw out some key implications. The nature of the risk will depend on the specifics of the geopolitical situation and the SAI intervention. We explore this through a causal-loop diagram (Figure 1) which plots out the connections between the level of risk, the amount of SAI loading, the level of international coordination and other key variables.

Note that for most of this paper we address SAI in the abstract. The exact potential damage imposed by SAI would vary the way it is deployed. In section: Discussion: Building the Policy Boundaries for Climate Engineering, we discuss how the method of deployment creates different impacts. Throughout the paper we assume a “default” deployment method of SAI to be the continuous multi-decadal global use of planes with multiple injection locations, guided by a global cooperative endeavor led by states with private sector contributions, with an overall objective to respond to global warming. Deployment “thickness” (how much warming is masked) is a particularly important variable. We flag thickness throughout our analysis. Where we discuss the risks of other potential forms of deployment we directly state so.

We proceed by outlining our framework, before examining SAI's direct catastrophic risks, SAI's interaction with other catastrophic hazards, SAI's potential input to systemic risk, and finally SAI's influence on latent risk. We then discuss how different methods of deployment could lead to different risks and what the policy implications of our analysis are. To avoid the critical downside risks we consider throughout the paper, SAI governance would have to be near perfect for multiple decades.

A solution that is almost impossibly difficult to implement well, and that plausibly threatens catastrophe if implemented poorly, is not a good solution.

Whether this is preferable to climate change remains to be seen.

A Framework for Unraveling Global Catastrophe

There is no agreed framework for understanding the contribution of different phenomena to GCR. Most studies and reports on GCRs rely on analyzing a set of large-scale “GCR-level” hazards (Bostrom and Cirkovic, 2008; Global Challenges Foundation, 2016). Usual suspects include anthropogenic risks such as nuclear weapons, climate change, and more speculatively, Artificial General Intelligence1, biologically engineered pandemics, and natural risks such as super volcanoes and asteroids. While there have been some alternative frameworks for classifying GCRs (Avin et al., 2018; Liu et al., 2018; Baum and Barrett, 2019), these have yet to be widely adopted. They are also disconnected from relevant literature on systemic risk. Moreover, while they are helpful in classifying a given hazard, they do not act as aids in understanding how much a given event or system could contribute to overall levels of GCR or extinction risk.

There are several problems with the typical, hazard-centric approach. First, it is unclear how these hazards are decided on. Second, a risk is composed of hazards, vulnerabilities, and exposure, not just individual threats (IPCC, 2012; Avin et al., 2018; Currie and Ó hÉigeartaigh, 2018; Liu et al., 2018). Third, the different hazards are treated as disconnected when they frequently have similar institutional drivers. Fourth, it ignores systemic risk, particularly the ability for a set of smaller,2 diffuse risks to scale to a global and cataclysmic level due to the fragility and interconnectedness of critical systems. Risk is no longer just about hazards, vulnerabilities and exposures. Comprehensive risk assessment also needs to consider responses, as well as the common drivers across these four risk determinants (Reisinger et al., 2021; Simpson et al., 2021).

We incorporate all of these aspects in a four-stream framework for understanding the contribution of a system or event to GCR. Hazards are directly assessed through the first two streams, while the focus on systemic risk analyses potential vulnerabilities. Latent risk explores the often neglected possibility of vulnerabilities that are hidden in the short-term. Exposure and responses are articulated throughout the analysis. The overall analysis informs a discussion on policy boundaries. Our analysis rests not upon having a particular probability of occurring. Instead, we focus on what is plausible (rather than “merely possible”): consistent with our background knowledge of physical and social systems (Betz, 2016). Understanding risks which are plausible, high-impact, but low or unknown-probability is critical for robust decision making under uncertainty (Ord et al., 2010; Kunreuther et al., 2013; Wagner and Weitzman, 2015). For example, making decisions on the “better” worst case is central to the Maximin approach.

Our four-stream framework is as follows:

1. The first stream focuses on directly catastrophic impacts. A direct contribution refers to ways in which the impacts caused by SAI could alone plausibly cause sufficient mortality and morbidity without considering wider knock-on effects.

2. The second stream examines how SAI could interact with other high-impact hazards such as nuclear war.

3. The third investigates how SAI could contribute to and be affected by systemic risk. Systemic risk focuses on how structural conditions and multiple small stressors can lead to widespread collapse or synchronous, reinforcing failures (Homer-Dixon et al., 2015). Indeed, complex systems can undergo rapid degeneration even without large shocks. They frequently organize into critical states in which small perturbations quickly cascade into calamity (Homer-Dixon, 2008; Helbing, 2013).

4. The final stream focuses on SAI's latent risk. Latent risk focuses on deciphering how SAI could pose threats that manifest under post-catastrophe conditions, such as in the aftermath of societal collapse.

Together, these different factors provide a comprehensive framework for comprehending how SAI could raise or lower overall levels of GCR in the world. The framework is intended to be a first step to risk comparison, in this case climate change and SAI.

Historically, comparison between the two have been a rhetorical device to justify SAI. This is by no means a straight-forward juxtaposition since the two interact [for example, through mitigation deterrence: actors may be less open to ambitious emissions reduction if there is a “technofix” on the horizon (McLaren, 2016)] and any analysis hinges on subjective judgements about climate sensitivity, tipping points, adaptive capacity, and the likelihood of international cooperation. There is also the issue of which precise baselines should be used for comparison (McLaren, 2018): what should climate change or SAI be specifically compared against? In addition, how should the two be compared? Given the high uncertainties for both climate change and SAI, is a Maximin analysis of the “better” worst case a prudent or viable approach? Given these difficulties, we do not look to provide a definitive answer or quantitative analysis. Ultimately, we are not just comparing two different sets of risks, but two separate Earth system states (Jebari et al., 2021) with different winners and losers. Navigating these entangled risk analyses is an area for future analysis, but analysis that this paper can hopefully inform.

Nonetheless, any public deliberation and democratic decisions need to rest on comparable evidence and information. Any action is bettered by risk assessment, even if it is always mired in uncertainty. This article provides an initial and incomplete basis for informing such discussions. Imperfectly mapping out risk trade-offs is preferable to sleepwalking (McKinnon, 2018) into a dangerous future.

Directly Catastrophic Impacts: Ecological Blowback?

Could SAI lead to directly3 catastrophic ecological impacts? Existing studies highlight a raft of potential negative consequences. But the specific nature of these impacts, and their contributions to catastrophic outcomes, depends on the specific SAI implementation. This is an issue of high uncertainty, particularly regionally.

The projected local ecological effects of SAI are mixed and uncertain, depending on the specific analytical approach and specific SAI deployment. Monsoon areas would likely face a drop in precipitation under large scale SRM (Tilmes et al., 2013; Reynolds et al., 2016), but this focuses on SRM in the abstract and may not be fully applicable to SAI. Many regions could face a seasonal under- or over-compensation in rainfall (compared to a high warming average (RCP8.5) from 2010 to 2030, and assuming SAI is implemented to mask 5 degrees of warming) (Jiang et al., 2019). Effects on hydrological systems would be regionally diverse and uncertain due to potential changes in non-linear variables including surface runoff, evapotranspiration, rainfall levels, and distribution (Dagon and Schrag, 2016, 2019). These fine-grained changes in weather could then affect vegetation. Plant communities could transform their structure, traits, and geographical range, particularly under larger swifter SAI deployments (Zarnetske et al., 2021). While SAI might offer salvation to climate vulnerable vegetation it will depend on deployment timing. Some communities may already be committed to at least local extinctions before SAI is deployed. SAI would likely result in ecological trade-offs with some communities benefitting and others suffering. The exact nature of these trade-offs is uncertain and needs further study (Zarnetske et al., 2021). The key theme here is that SAI would likely have a range of impacts on many ecological systems. But how these would play out is highly uncertain, particularly at regional scales. Impacts hinge on the inherent uncertainties within complex ecological systems, varied comparative baselines, and the specific SAI deployment.

The overall direct impacts of SAI, while uncertain, do not currently seem to constitute a catastrophic threat. Whether SAI would cause greater risks in terrestrial, freshwater, marine systems than climate change is unclear and depends on SAI's specific deployment configuration. Higher levels and swifter deployment of SAI would mean greater potential for disastrous impacts (Trisos et al., 2018; Zarnetske et al., 2021). Additional considerations like seasonal (Lee et al., 2021) or hemispheric (MacMartin et al., 2017) deployment further affect potential impacts.

There is a paucity of research on SAI impacts (Irvine et al., 2016, 2017; MacMartin et al., 2016; McCormack et al., 2016; but see Schäfer et al., 2015 for an exception), particularly so for catastrophic or worst-case impacts. This has been the case for climate modeling literature in the past as well (Brysse et al., 2013). Climate modeling is often an exercise in “betting on the best case” (Geden, 2015; Jehn et al., 2021). Others have noted this idealistic tendency for SAI modeling (Low and Honegger, 2020), for example limiting SAI use to only halving warming (Irvine et al., 2019) or limiting SAI deployment to spring (Lee et al., 2021). These idealized approaches in theory could reduce negative impacts associated with SAI. Yet their likelihood is questionable due to optimistic assumptions of multi-decadal international cooperation (see section: Politics).

The possibility of dangerous ecological tail-risks depends on the level of cooling. Initial game theoretic research indicates the possibility of overcooling if SAI is pursued by uncoordinated actors (Abatayo et al., 2020). Negative impacts which are projected to be relatively minor in existing studies, for example sulfate deposition impacts on terrestrial ecosystems (Kravitz et al., 2009; Visioni et al., 2020b), may become major ecological issues if SAI is deployed to far more of an extent than envisioned. Similarly, a poor choice4 of aerosols could result in large-scale ozone depletion (Heckendorn et al., 2009; Keith et al., 2016). It is unclear whether, in these extreme cases, biophysical impacts would revert to their pre-SAI state once SAI is removed. Modeling on “worst” cases is thus critical in informing SAI's desirability. Exploring uncoordinated scenarios with the (simultaneous) use of different aerosols, different desired extents of cooling, and implementation by a small club, would all be helpful complements to existing idealized modeling scenarios.

Regardless of how developed our understanding on SAI impacts become, there will always be inherent uncertainty. When dealing with a complex system like the climate there is always the chance that a black swan is lurking in the dark.

Some commentators have downplayed the potential of unknown impacts due to the availability of historical analogs, namely historically severe volcanic eruptions (Halstead, 2018). Improvements in modeling, a gradual implementation, and a cessation if unacceptable negative impacts are found could also lessen the likelihood of an unforeseen catastrophic tipping point.

None of these reasons are causes for comfort. Modeling, regardless of improvements, may simply be incapable of capturing rare tipping-points and is not intended to accurately predict or foresee non-rational political dynamics (Elsawah et al., 2020). In addition, a gradual rational phase-in and phase-out relies on optimal governance conditions. Overly rapid deployment due to “free-driving”5, (Weitzman, 2015) or overly slow phase-out due to technological or infrastructural lock-in (Seto et al., 2016) are entirely plausible. Moreover, SAI impacts may also not follow the pathway of historical analogs. The core rationale of SAI is to manufacture the cooling effect of a volcanic eruption in a “safe” manner, not replicate volcanic processes. Deviance from historical analogs is especially a possibility if the choice or mix of aerosol is radically different. This is particularly the case since climate change and human-pressures are already pushing ecological systems into novel states (Williams and Jackson, 2007; Williams et al., 2021). SAI would push systems into further novel states that make unseen ecological responses likely (McKinnon, 2018).

Our understanding of both Earth systems and the likely contours of deployment are too weak for us to rule-out a potentially catastrophic form of ecological blow-back. For now, the literature points to SAI having numerous impacts. But none seem remotely capable of being a GCR, particularly if SAI deployment were limited. Nonetheless, the Specter of an unforeseen tipping point in the Earth's climatic system remains.

Interactions with Other Global Catastrophic Hazards

The impacts of SAI, or any other catastrophic risk, should not be assessed in isolation (Baum et al., 2013). Different catastrophic hazards6 have interactions. One could potentially trigger another and/or worsen its effects. Climate hazards for example have been shown to compromise governments' ability to provide effective responses to COVID-19 (Phillips et al., 2020). The potential for one global shock to ignite and amplify another has previously been dubbed “double-catastrophes.” Baum et al. (2013) suggest that this could be the case if nuclear war or a pandemic were to disrupt an SAI system, leading to abrupt termination shock. GCHs which are simply a matter of probability, like extreme space weather or a volcanic eruption, may also coincide through pure bad luck.

In this section we consider both a broader array of hazards and how SAI could trigger and interact with them. This will not be an exhaustive comparative analysis of all possible GCHs. Instead, we focus on hazards that have clearly established causal relationships, relatively well-developed literatures, and some empirical track record of their impacts. Our analysis suggests that the possibility of SAI sparking other GCHs are tenuous. SAI could only plausibly contribute to large-scale conflict and potentially nuclear war. The possibilities of SAI exacerbating other GCHs are more concerning. SAI has the worrying ability to significantly heighten the impacts and mortality of any global catastrophe due to termination shock.

Volcanic Eruption

A large volcanic eruption would demand rapid SAI adjustments. While severe overcooling seems unlikely [the cooling of SAI and volcanic winter are not additive (Laakso et al., 2016)], SAI should be rapidly scaled down in a matter of weeks (MacMartin et al., 2019). Laakso et al. (2016) assume a relatively thick SAI injection (offsetting roughly a doubling of carbon dioxide from preindustrial levels). The prudent course of action for thinner SAI is unclear. However, the SAI adjustment in a volcanic future is not simply one of scale down. SAI injection may need to increase in the opposite hemisphere to the volcanic eruption to ensure a more uniform global temperature (MacMartin et al., 2019) (a high temperature variance across hemispheres can have severe adverse impacts on precipitation and drought dynamics).

Adjusting the SAI level may seem straight-forward but depends on an informed, rapid political response. There are reasons to doubt this would be forthcoming. First, the technical demands may prove too much for cumbersome domestic and multilateral politics. These includes potentially politically vexing dilemmas over the balance between scaling SAI up and down on different hemispheres, whether to inject SAI at new locations or “thicken” existing deployments (MacMartin et al., 2019), or whether SAI should be scaled down at all. A second and novel addition is that a volcanic eruption would not solely affect temperature. Many pinch points of global supply systems are near active volcanic areas. Even modest volcanic eruptions could lead to disruption and catastrophic economic system collapse (Mani et al., 2021). The difficulty of coordinating regional SAI adjustments would be compounded by sub-optimally functioning supply systems and general economic and political chaos.

While the interactions between a volcanic eruption and SAI currently seem to have only modest direct contributions to catastrophic risk, the highly political decisions of a volcanic-SAI world may lead to political ruptures and ineffective SAI governance.

Space Weather

Solar flares, coronal mass ejections, and associated solar radiation and geomagnetic storms, can lead to widespread damage to terrestrial, avionic, and space infrastructure. The fear for SAI is that a “black sky” event could disrupt and knock-out critical SAI infrastructure. Yet there have been no attempts thus far to investigate SAI-space weather interactions. We examine SAI interactions with an Earth-bound space weather event roughly on par or worse than the 1859 Carrington Event– the benchmark for extreme space weather events (Green and Boardsen, 2006). A current day Carrington Event would likely lead to widespread electrical failure and disruption for multiple months at minimum, potentially years (Eastwood et al., 2017; Loper, 2019; Ritter et al., 2020).

Extreme solar events are difficult to accurately and timely forecast. They are essentially random events7 which provide little forewarning. Solar radiation can travel at such high speeds that an extreme coronal mass ejection would likely reach Earth in less than a day. Other radiation and energized particles travel at or close to light speed—8 min to reach Earth. Even with the earliest detection possible there would be little response time (Royal Academy of Engineering, 2013). It would be a late flinch to an oncoming blow.

The impacts of extreme space weather events are vast. Aviation, satellite, and general electronic infrastructure are especially vulnerable. Energized particles can affect memory cells, for example changing a bit from a 1 to 0 and vice versa, that lead to erroneous commands or overall hardware failure (Jones et al., 2005). Global navigation and communication systems would experience disruption and downtime that could last several months (alternative navigation systems, like the US Alternate Position Navigation and Time programme, may still be affected by electrical damage) (Goodman, 2005; Royal Academy of Engineering, 2013). Aircraft crew would have greatly limited airtime due to limits of safe radiation exposure (Jones et al., 2005). Flights at higher altitudes and closer proximity to the Earth's poles would be unlikely to continue (Dyer et al., 2003; Jones et al., 2005; Alvarez et al., 2016). The use of automated aircraft would be compromised by widespread electrical and avionic damage. Especially alarming is that SAI would likely depend on vulnerable aviation, satellite, and general electronic infrastructure for deployment, monitoring, impact attribution determination, calibration, and modulation.

Impacts of space weather events are not limited to human infrastructure. Substantially increased UV output can influence the Northern Hemisphere jet stream, ozone production (and ozone UV absorption and warming), and precipitation patterns (Jones et al., 2005). These systems, particularly precipitation, are the same systems that SAI is likely to greatly affect. Interaction between these impacts is currently unclear.

These disruptions appear enough to halt even a robust SAI system. Even with high uncertainties of potential infrastructural impacts (Royal Academy of Engineering, 2013; National Science Technology Council, 2019) and the nature of the event itself (Liu et al., 2014; Pulkkinen et al., 2015; Eastwood et al., 2017), the limited evidence so far indicates that SAI infrastructure would be vulnerable and exposed to damage, thus leading to termination shock if SAI was sufficiently thick (see section: Latent Risk and SAI). In the aftermath of an extreme space weather event, continued implementation or preservation of SAI infrastructure would have to compete for limited government attention. Damage would be widespread and international—ranging from railway failure (Ptitsyna et al., 2008; Wik et al., 2009; Eroshenko et al., 2010) to power failure (Royal Academy of Engineering, 2013; Juusola et al., 2015; Kai-rang et al., 2015; Matandirotya et al., 2015) to failure of satellite infrastructure (Odenwald et al., 2006). Governments and resources would be stretched thin and SAI reimplementation may be neglected. An extreme space weather event could lead to severe economic and infrastructural shocks (Loper, 2019) that make continued SAI deployment infeasible. At worst, widespread power failures could lead to ripple effects across food, health, and transport systems that extend recovery time potentially into decades, driving modern societies back to a more fractured pre-electronic state (Loper, 2019). It is unclear how SAI, with its high technical and information demands (MacMartin et al., 2019), could continue under these conditions. Troublingly, mitigation options are currently limited and highly depend on future (but relatively well-known) scientific and engineering solutions (National Science Technology Council, 2019). Considering the speed of space weather events, SAI infrastructure would have to be built to be resilient (with technology which does not currently exist) from the offset.

SAI is ultimately highly vulnerable to extreme space weather events. Widespread electrical damage would compromise SAI redeployment, making a termination shock highly likely and worsening the already catastrophic impacts of an extreme space weather event.

Nuclear Weaponry

SAI would worsen any nuclear winter and our recovery from it. A nuclear war could occur due to either an accidental strike leading to escalation, or a full-blown exchange. Even a relatively smaller conflict between Pakistan and India would have global ramifications. The background risk of incidental or inadvertent nuclear deployment is present unless there is total nuclear disarmament (Barrett et al., 2013; Baum et al., 2018). In addition to nuclear winter, the physical blast, ionizing radiation, and electromagnetic pulse (EMP) would all contribute to widespread and severe damage of electronic infrastructure (Baum and Barrett, 2018), including SAI infrastructure. Indeed, EMPs are similar in effect to the “black-sky” events discussed in section: Space Weather. This leads to two key concerns. The first is the combination of SAI cooling with nuclear winter conditions, the second is the grim mixture of nuclear cooling combined with termination shock.

The combination of SAI's existing cooling and additional nuclear winter would lead to short term overcooling, followed by medium- or long-term overheating due to termination shock (Baum et al., 2013). It would be global frost followed by global furnace. Alternatively, there may be the potential for SAI and nuclear winter layering to spark non-linear or unexpected cooling effects. This is an area that justifies further study. There is modeling on the impacts of a nuclear detonation, comparison of nuclear and climate threats via the “climate-nuclear nexus” (Scheffran et al., 2016), and modeling on the impacts of SAI deployment and termination shock. Yet so far nothing integrates these two separate bodies of knowledge. The oversight is interesting given the entangled histories of climate science and nuclear weapons research (Edwards, 2012). In any case, such rapid swings in global temperature would be unprecedented for the Earth system and humanity.

A key question is whether a disrupted SAI system could be revived during nuclear winter to prevent a termination shock summer, and whether SAI was masking sufficient warming for termination shock to occur (see section: Latent Risk and SAI). But there also are reasons to believe that the re-establishment of an SAI system would not be able to occur during the buffer period in the wake of a nuclear cataclysm. First, technological damage may be so severe that timely deployment is impossible. Backup infrastructure like aircraft (and associated supporting infrastructure such as air traffic control) may be damaged beyond repair or be grounded for security purposes. Second, political and policy attention would likely be focused on other post nuclear issues, such as disaster recovery and the creation of alternative food systems. As with other disasters, governments would be stretched thin and may prioritize these more short-term issues. Lastly, a post-nuclear world would likely exhibit a lack of international cohesion that is seen as an enabling condition for effective SAI (Horton and Reynolds, 2016; Chhetri et al., 2018; Jinnah, 2019). Discussions over SAI have already been deadlocked (McLaren and Corry, 2021). It seems unlikely that a world of post-conflict lessened trust would be more conducive to speedy decision-making. Different countries may drop out of implementation, further complicating SAI deployment configurations, possible regional impacts, and concordant policy responses. Disagreement over resource allocation is likely to arise, as is the case for many disaster recoveries (Platt, 1999; Cohen and Werker, 2008; Doan and Shaw, 2019).

The presence of thick SAI greatly increases the potential consequences of nuclear warfare, and vice versa. The rapid temperature swings involved with a nuclear winter and termination shock summer would likely lead to ecological disaster, and a chaotic post-nuclear world would not likely reimplement SAI in a timely sensible manner.

Pandemics

A pandemic that reaches the level of a GCR could be enough of an economic or population shock to sever an SAI system (Baum et al., 2013). Whether the system could be reactivated during the buffer period would depend on both the severity as well as the length of the pandemic. COVID-19 provides a chilling reminder that states are not rational nor necessarily cooperative during a disease disaster. COVID-19, a far cry from being a GCR, has spawned fragmented responses and cases of both vaccine nationalism and vaccine diplomacy. Such multilateral behavior does not engender confidence that a pandemic with a significantly higher mortality rate would lead to survivors coolly and collectively reactivating an SAI system whilst dealing with the outbreak. Other issues, like keeping healthcare systems afloat, would likely be an overwhelming priority. With resources and capacity stretched thin, SAI may be neglected. A pandemic would be a severe shock to political and economic systems that may preclude continued SAI use. Not least rational, well-governed, well-resourced SAI use. Whether this risks termination shock depends on the amount of warming masked.

There are also reasons (albeit speculative) to believe that SAI could contribute to a pandemic. SAI induced temperature changes and uncertain regional climatic effects can alter disease transmissions (Carlson and Trisos, 2018; Carlson et al., 2020). This could in turn affect pandemic dynamics. As with general ecosystem impacts (section: Directly Catastrophic Impacts: Ecological Blowback?), a larger and quicker SAI deployment can be expected to have more severe impacts. Critical nodes in urban and health systems may become exposed to diseases that are beyond typical immunity or resistance (see section: Health for more on SAI-health interactions). This could be the spark for a pandemic spread, particularly if decision-makers are unprepared to make early and rapid response measures. However, the most worrying (but thus far neglected) concern would be effects on animal populations. Similar concerns of low or lapsed immunity or resistance would apply to animal populations and new disease vectors. But animal populations would lack similar healthcare systems to keep disease spread at bay. Many contemporary pandemics have resulted from cross-species spill over (Christophersen and Haug, 2006; Cheng et al., 2007; Quammen, 2012; Plowright et al., 2017; Borremans et al., 2019; Johnson et al., 2020; Morens et al., 2020), including the 2009 Swine Flu Pandemic from pigs and birds, and the 2013–2016 Ebola Epidemic and COVID-19 Pandemic from bats. Altered animal disease dynamics, particularly those stemming from unpredictable regional SAI impacts, may increase the frequency and severity of future pandemics.

The Systemic Risks of Climate Engineering

Both previous societal collapses and disasters in the modern world are marked more by the accumulation of many stresses leading to failure, rather than single abrupt shocks destroying systems (Homer-Dixon, 2008; Haldane and May, 2011; Helbing, 2013). Seemingly modest stressors can cascade to catastrophe. This section analyses the potential of SAI to create and be impacted by biophysical and political stresses which contribute to global systemic risk.

The world currently exists in a deeply interconnected, and increasingly homogenous state which is prone to systemic risk (Helbing, 2013). One ship blocking the Suez Canal in March 2021 led to losses of roughly $6–10 billion (Russon, 2021). More serious stressors could lead to far more severe consequences. The economic and political state of the world would be central in determining whether risk cascades. It is unclear how SAI could or would adjust the structure of the globalized economy. Hence, instead we focus on a few critical systems that SAI might be expected to impact and where there have been initial attempts to gather evidence: agriculture, health, and international politics8. SAI would likely not alter any of these system structures, but would rather aggravate existing systemic vulnerabilities.

Agriculture

SAI's effects on temperature and precipitation distributions would likely affect agricultural systems. The precise nature of these impacts are unclear (Kortetmäki and Oksanen, 2016; Irvine et al., 2017; Svoboda et al., 2018; Pamplany et al., 2020). For example, some studies have shown that the low temperature high carbon dioxide environment of a SRM deployment might increase yields: maize yields may increase in China (Xia et al., 2014), as could overall global yields of maize, wheat, and rice (Pongratz et al., 2012). On the other hand, solar dimming might reduce yields of groundnut in India (Yang et al., 2016) or offset benefits of reduced temperature (Proctor et al., 2018). These effects would all further differ across crop and area. The differing approaches to analysis [Xia et al. (2014) focus on SRM to offset a 1% increase in carbon dioxide from preindustrial levels for 50 years, whereas Pongratz et al. (2012) focus on SAI masking carbon dioxide concentrations of 800 ppm] as well as use of outdated equatorial injection in these studies (see section: The Means of Deployment) make clear conclusions difficult to discern. The main point is that SAI would affect agriculture, but the precise impacts are unknown.

Regardless, the sensitivity of these key staple crops is alone cause for concern. Small variations in yields of staple crops could induce disproportionate price fluctuations and cascades into socio-political violence, particularly in areas with political instability and weaker governance (Natalini et al., 2015, 2017; Richards et al., 2021). Additional uncertainties with attribution between SAI and agricultural yields could compound potential political difficulties.

Even in the case that SAI provides agricultural benefits, these are likely to be marginal if other issues affecting agricultural productivity, such as habitat loss and soil degradation, continue unabated (Kortetmäki and Oksanen, 2016). An SAI high carbon dioxide low sunlight world would also require additional adaptation on the part of agricultural actors. This does not look likely given agricultural adaptation to climate change has so far only been modest (Proctor et al., 2018). Large-scale changes in yield and precipitation are likely to create at least short-term food insecurity. There is evidence that existing population density and economic growth are closely tied to the existing climate niche. The narrow climatic envelope of ~13°C has provided beneficial environmental conditions within which most humans and societies have tended to historically cluster (Burke et al., 2015; Xu et al., 2020). Our agricultural systems almost certainly are similarly tied to this niche, and any sudden change at a global level is likely to affect short-term yields and prices.

Politics

SAI could feasibly spark conflict and instability. There are already some emerging empirical links between food price shocks and socio-political violence. Moreover, the very act of undertaking SAI could be grounds for dispute. States may look to develop their own SAI capabilities before others do, creating more extensive backup infrastructure to avoid dependencies on others, or even construct counter SAI capabilities (see Horton and Reynolds, 2016 for a review in this area; McKinnon, 2020). Existing political order may become undone by SAI (Keith, 2013; Corry, 2017). A novel and interesting example could be high historical emitters like the US using the Common but Differentiated Responsibilities and Respective Capabilities principle as an instrument to assert SAI control or leadership (“we are mostly responsible for climate change, therefore it is ‘just’ that we lead the response”). Manipulation of the climate could become a new frontier for political conflict or even warfare. Different cross-boundary impacts on different regions would create large sets of winners and losers, alongside questions of attribution (MacMartin et al., 2019) and compensation. Whether such disputes could snowball into conflict is beyond prediction. Nonetheless, it is reasonable to say that unless enacted as altruistic, cooperative endeavor over multiple decades, the project of SAI would load further pressure onto existing international tensions. But even in the most altruistic cooperative scenarios, there may still be sub-national tensions in and/or between “donor” and “recipient” populations.

There is also the possibility that politics would worsen SAI. SAI and politics is a two-way street. Political conflict can cascade to affect SAI deployment and its impacts. Previous studies have made a compelling case that the direct weaponisation of SAI is unlikely (Fleming, 2007; Olson, 2011; Horton and Reynolds, 2016; Lin, 2016; Halstead, 2018). High impact uncertainties, management difficulty, low precision, and preferable alternative weaponry make SAI an unappealing instrument in state arsenals. However, this does not mean that SAI has limited military use. SAI may not have usefulness as a direct weapon, but can function as a support system or a threat. Indeed, early attempts at cloud seeding were used by the US military during the Vietnam War as a tactical weapon to extend the Monsoon Season and disrupt North Vietnamese supply lines (Operation Popeye).

Another avenue for political dynamics to worsen a SAI deployment, and that has received relatively little attention, is via cyberwarfare. In May 2021, a ransomware cyber-attack forced a US fuel pipeline out of service. A $5 million ransom was paid to restore service (BBC, 2021). As a globally critical (and potentially highly politicized) piece of infrastructure, SAI would likely be a target for private or state actors. SAI deployment dependent on any software or advanced algorithmic system (Rolnick et al., 2019; Schroeder de Witt and Hornigold, 2019), which is likely given the high technological and informational demands of deployment (MacMartin et al., 2019), would be vulnerable to cyberattack.

Cyberattacks do not need to come from external forces. For instance, the notorious 2000 Maroochy Cyberattack was from a disgruntled ex-employee (Slay and Miller, 2008). SAI would likely depend on a large workforce and have numerous reasons for controversy.

These political dynamics would have decades to play out. A cooperative and benevolent deployment of SAI could crumble into chaos with a change in actor preferences (or vice versa). Politics and its broader conditions are likely to change substantially over coming decades. Interactions between future geopolitics, warming and emissions, and technology are all nigh impossible to predict or even foresee (Wells, 2001), but would be of critical importance to SAI and its governance. Relying on one set of optimal political assumptions would be greatly unwise.

Health

SAI could negatively impact human health by both changing disease vectors and range (and therefore pandemics, see section: Pandemics), and by undermining existing health system infrastructure. The regional variations of SAI's impacts on temperature and other ecological factors would likely affect disease transmissions. SAI-induced reductions in monsoon rainfall may increase cholera risk (Carlson and Trisos, 2018), and temperature changes can affect transmission of vector borne diseases like malaria (Carlson and Trisos, 2018; Carlson et al., 2020). Yet such health impacts are chronically understudied: currently only 4 papers focus on the health impacts of SAI (Effiong and Neitzel, 2016; Carlson and Trisos, 2018; Eastham et al., 2018; Carlson et al., 2020). The lack of coverage is significant since these studies have critical limitations, namely an assumption of equatorial injection (see section: The Means of Deployment). The impacts of other forms of deployment are largely unknown. Similarly, there is little research on the health impacts of exposure to SAI aerosols (Effiong and Neitzel, 2016), and the few quantitative assessments of mortality related to air quality and changes in UV exposure carry significant uncertainty (Eastham et al., 2018).

Despite these limitations, the research to date does point toward potential dangers. Alterations of disease transmission are especially important because diseases may reach populations which have lapsed or little immunity or resistance (Carlson and Trisos, 2018), or may have relatively weak or vulnerable public health systems. These critical nodes in health and urban systems, which otherwise would be less exposed, may amplify health risks and impacts: an epidemic may be amplified to become a pandemic (section: Pandemics). The uncertainty of SAI's potential deployment configurations, associated impacts, and state of existing health systems means that early identification of different critical nodes would likely be difficult and insufficient. Overall, systemic effects between health and SAI currently seem modest and carry high uncertainty. However, they are not negligible.

#### Energy wars cause extinction.

Friedemann ’20 [Alice, Creator of Energy Skeptic and Author of When Trucks Stop Running: Energy and the Future of Transportation, B.S. in Biology from the University of Illinois, “Even A Small Nuclear War Could Cause 1+ Billion Deaths”, Energy Skeptic, 8/24/2020, http://energyskeptic.com/2020/nuclear-winter/]

Ron Rosenbaum in his book “How the end begins: the road to a nuclear World War III” explains how and why nuclear weapons will inevitably be launched. He also recounts the many times a nuclear war was almost launched — sometimes by accident — and how flawed the complex reasoning of Mutually Assured Destruction is to begin with. He concludes: “I think only luck has saved us, and our luck is bound to run out.”

What other nuclear nations besides North Korea will try nuclear blackmail after peak oil?

North Korea is portrayed as a nation run by insane ruler, but building nuclear weapons to blackmail other nations for oil is a predictable consequence of the collapse that followed a drastic reduction of their fossil fuels after the Soviet Union collapsed.

Andrei Lankov, a professor at Kookmin University in Seoul, wrote “the world is likely to say that the North Koreans are acting “irrationally.” But this is not the case — they are a very rational regime, actually the world’s most Machiavellian. North Korean leaders are sending a message…using both artillery and centrifuges to say: “We are here, we are dangerous, and we cannot be ignored. We can make a lot of trouble, but also we behave reasonably if rewarded generously enough. … U.S. policy toward Pyongyang has been based … on the assumption that North Korea can be persuaded and bribed into surrendering its nuclear program. It is an illusion: The survival of the North Korean regime depends to a large extent on its blackmail diplomacy. There has never been a chance that it would surrender its nuclear program, which alone makes it possible to extract sufficient aid from the outside world.

The entire world is on the cusp of the energy cliff — will other nations also try this tactic?

Though North Korea may have been more predisposed to take this route given their long and tragic history, including being occupied by the Japanese in the 1920s, massively destroyed by the Korean War in 1950-53, and major natural disasters in the mid-1990s. With little farmland and poor soils, the North Korean population was far past their carrying capacity when massive fossil fuel and food imports dropped suddenly after the collapse of the Soviet Union – millions of people may have died as a consequence (Pfeiffer, Wikipedia).

Even the USA might nuclear blackmail the world

Even the United States might be tempted, according to Erik Townsend: “While the use of nuclear weapons … might seem unthinkable today, the USA has yet to endure significant economic hardship. … a government operating in crisis mode to hold off systemic financial collapse … would change the mood considerably. All the USA has to do in order to secure an unlimited supply of $50 per barrel oil is to threaten to nuke any country refusing to sell oil to the U.S. for that price. Unthinkable today, but in times of national crisis, morals are often the first thing to be forgotten. We like to tell ourselves that we would never allow economic hardship to cause us to lose our morals. …What we’ll do in a true crisis that threatens our very way of life is anyone’s guess. If faced with the choice between a Soviet-style economic collapse and abusing its military power, the USA just might resort to tactics previously thought unimaginable.”

When you consider the crazy hate talk and massive denial of science in the United States right now, when times are good, it’s not hard to imagine how hard times could drive America into fascism, and demagogues elected with massive funding from corporations – hell, it’s already happening.

I wrote this in 2013, and now with Trump’s election this surely brings us closer to nuclear war. Who knows what he meant by this tweet: The United States must greatly strengthen and expand its nuclear capability until such time as the world comes to its senses regarding nukes. At any rate, I was dismayed by how many men in the peak oil movement said that Hillary was the warmonger, not Trump! It’s not hard to find a fact-checking site to check on this. It sure looks to me like Trump is more likely to get us into war: Donald Trump on War & Peace.

Some people would say we’ve been blackmailing the Saudi Arabia for decades now by giving them an offer they couldn’t refuse, a mafia-style relationship with Saudi Arabia, where nearly half of the world’s cheap, easy oil remains. In return for defending the Saudis from other nations, we get some of their oil and prevent other nations from controlling it. China, Russia, and Europe certainly know any attempt to take the Saudi or other Middle Eastern oil would result in nuclear Armageddon.

#### Ozone depletion causes extinction.

Gibbons ’21 [John; Environmental Columnist @ Irish Times, Author of “Routledge Handbook of Environmental Journalism, Formerly @ Guardian and ed. British Medical Journal; “What caused the mass extinction on Earth 359m years ago?”; https://www.irishtimes.com/news/science/what-caused-the-mass-extinction-on-earth-359m-years-ago-1.4457340]

Nothing has so dramatically reconfigured the history of life on Earth as the epic mass extinction events that punctuate the fossil record stretching back at least half a billion years. One such episode, known as the end-Devonian mass extinction (or Hangenberg Crisis), occurred 359 million years ago, and as many as 75 per cent of species disappeared during this tumultuous period. While the exact trigger of this mass extinction event has been long debated, what is beyond dispute is that it involved a sudden and catastrophic depletion in the global ozone layer. One theory published last September in the Proceedings of the National Academy of Sciences proposed that the effects of deadly cosmic rays from a Supernova explosion led to the destruction of the ozone layer. Its conclusions, however, remain speculative. A paper published earlier last year in the journal Science Advances presents a more compelling and altogether more worrying scenario. According to this study, the end-Devonian extinction event was preceded by rapid warming, and it was this warming spike, not volcanic activity or cosmic rays, that led directly to massive ozone depletion and a subsequent spike in deadly UV-B radiation reaching the Earth’s surface and even penetrating into shallower ocean waters. Lead author on the study, Dr John Marshall, professor of earth science at the University of Southampton was excited and alarmed in equal measure by the implications of the research. “There was a lot of push-back on our study when it was first published; obviously, we’re saying something quite big here,” he told The Irish Times. “I felt like we had suddenly tumbled into a big secret in knowing how the world works, so I was actually slightly more careful crossing the road, because we wanted to communicate it.” The bombshell finding in Dr Marshall’s research is that while ozone depletion was the end-Devonian “kill mechanism,” the trigger was primed by rapid global warming. The implications are stark, given that the Earth today is heating rapidly. “We’re now in this rate of fast warming, so you should be alarmed now - it’s a decadal problem, not a thousand-year problem, because the speed of warming is like nothing else the planet has seen,” Dr Marshall says. During Earth’s last mass extinction event some 55 million years ago, known as the Paleocene-Eocene Thermal Maximum, rates of warming were 100 times slower than today’s human-induced climate shift, he notes. Dr Marshall’s research team gathered rock samples from the mountainous polar regions in east Greenland, an area that was once an ancient lake bed in the Earth’s southern hemisphere. The team also collected samples in Bolivia, which would have been located close to today’s South Pole during the Devonian period. Plant spores On analysing the samples, they discovered microscopic plant spores right along the end-Devonian period showing clear evidence of ultraviolet radiation damage at the DNA level. Some of the spores were also found to have developed dark pigmented walls, as an apparent attempt to develop a protective “tan” against extremely high levels of UV radiation. The question remained as to how exactly a spike in global warming, in the absence of a massive volcanic event, could lead to the virtual obliteration of the global ozone layer? This puzzle may have been solved by earlier research published by Dr James Anderson and colleagues in a paper in Science which noted the “increased risk of ozone loss from convectively injected water vapour”. This research, mainly carried out over the continental US, identified water vapour that that been convectively injected deep into the stratosphere. This, they noted, “can fundamentally change the catalytic chlorine/bromine free-radical chemistry of the lower stratosphere” by transporting ozone-destroying substances such as chlorine high into the stratosphere. “This chemical shift markedly affects total ozone loss rates and makes the catalytic system extraordinarily sensitive to convective injection into the mid-latitude lower stratosphere in summer,” the paper observed. The research concluded that if the intensity and frequency of convective injection were to increase as a result of climate forcing by the continued addition of CO2 and methane to the atmosphere, “increased risk of ozone loss and associated increases in ultraviolet dosage would follow”. Such ozone depletion is already being recorded over the US as a result of the rapidly warming atmosphere, which is fuelling increased storminess and higher levels of atmospheric water vapour and provides the energy to sweep terrestrial elements all the way into the stratosphere. CFCs were widely used in fridges, air conditioning units and as a propellant in aerosol cans Ironically, the history of how the Earth’s ozone layer was inadvertently damaged during the 20th century by the widespread use of chlorofluorocarbons (CFCs) and how the international scientific and political establishment rallied to avert the danger is one of the great success stories of the modern era. It is often cited as an example of the kind of decisive science-led political action now sorely absent when it comes to tackling the global greenhouse gas emissions crisis. Although apparently safe and inert, CFCs were widely used in fridges, air conditioning units and as a propellant in aerosol cans. Scientists Mario Molina and Sherwood Rowland shared the Nobel Prize in Chemistry for their work in showing how the ozone layer was the Achilles’ heel of the biosphere, and just how vulnerable it was to anthropogenic emissions of key chemicals which would eventually drift into the stratosphere, with potentially grave consequences for the ozone shield. Their theoretical work in the 1970s was vindicated in the most dramatic fashion when, in 1985, the British Antarctic Survey reported drastic depletion of the ozone layer, the so-called ozone hole. Public alarm led to intense political action, culminating just two years later with the United Nations developing the Montreal Protocol in 1987, which was ratified by almost 200 nations. This led to the rapid phasing out of the most destructive ozone-destroying gases. Disaster had been narrowly averted. Ozone depletion Now, it seems the spectre of dangerous global ozone depletion may have returned. It is known that stratospheric ozone was also virtually obliterated during the end-Permian mass extinction event (or the Great Dying, as it is known) some 252 million years ago. In that instance, ozone was destroyed as a result of the emission of huge quantities of hydrothermal organohalogens following a prolonged period of massive volcanic activity. What makes the ozone loss as a trigger for the end-Devonian mass extinction of pressing scientific concern is that it appears to have been precipitated by rapid global warming with clear analogues to the present day. “Ozone loss during rapid warming is an inherent Earth system process, with the unavoidable conclusion that we should be alert for such an eventuality in the future warming world,” Marshall’s research paper concluded. Among the biggest evolutionary losers in the end-Devonian die-off, which involved two discrete extinction pulses separated by around 300,000 years, were armoured fish, while sharks survived. Other casualties were ancient tetrapods with seven or eight digits per limb. Once this extinction period ended, the dominant number of digits became five. “It completely changes the terrestrial trajectory of life,” according to Dr Marshall. The hypothesis presented by this new research remains to be definitively proven or rejected. The fact that the period in question is more than a third of a billion years ago further complicates matters. While crucial to life on Earth, stratospheric ozone is surprisingly fickle, according to Dr Marshall. He hopes that, in time, researchers will have pieced together a definitive “ozone history” of Earth. His more urgent concern is his ozone hypothesis does not become a deadly reality in the coming decades.

#### P2P airline integration key to COVID-variant control – prevents passenger contagion through airport hubs.

Bauer ’20 [Linus et al; Lecturer in Air Transport Management @ City University of London; Daniel Bloch, Rico Merkert; “Ultra Long-Haul: An emerging business model accelerated by COVID-19,” *Journal of Air Transport Management,* 89, 101901]

3. Advantages of Ultra Long-Haul services

In the pre-COVID19 era, the development of new ULH services had been fostered by a range of political, economic, social, technological, environmental and legal advantages. In order to reflect the existing advantages provided by Ultra Long-Haul services, which remain relevant to an industry emerging beyond the COVID-19 outbreak, we conducted a PESTLE analysis with the results being illustrated in Table 1 on the following page.

With the airline industry having recorded eleven consecutive years of profitability, largely driven by lower fuel costs (Merkert and Swidan, 2019) and strong economic growth in various parts of the world, a viable foundation for the launch of ULH services has been iteratively developing. To this effect, as the price of jet fuel declined in the recent past, it has historically been met with the launching of new, additional long and ultra-long haul routes, as represented by carriers such as Qantas and Singapore Airlines. Moreover, the development of aircraft types including the 787-9 and A350ULR has enabled carriers to launch new ULH flights with a higher chance of achieving profitability on routes that were previously not commercially viable, having been operated by the comparably inefficient A340-500 and 777-200LR (Bauer, 2019). With respect to lower fuel cost per available seat mile (ASM) and increasing long-range capabilities, the 787-9 and A350ULR in particular can be considered as the most suitable aircraft for ultra long-range operations between unique city-pairs, with its capacity to afford lower real transport costs. Concerning the economics of new aircraft technology, the 787 for instance can reduce operational costs by 15% on average, thereby creating a context in which longer-thinner routes are increasingly feasible (Maertens, 2010).

From an overall standpoint however, political, economic and technological developments are the three major pillars of the commercial airline industry. With this in mind, recent developments in the pre-COVID19 era have shown more carriers becoming open to bypassing major hubs, thereby moving away from what can be recognised as more traditional route and network architecture. In turn, airlines have gone about connecting highly profitable city-pairs that often share strong “political, social and economic ties”, as well as having “premium demand in both directions”, however were otherwise regarded as secondary markets (Bloch, 2020). In turn, this has afforded passengers with the option of flying non-stop to more final destinations, thereby eliminating the need to transfer at a hub airport. With this in mind, Berntsen et al. (2016) recognised that to achieve these feats, the need to develop and maintain a liberalised airline industry is paramount, such that a greater level of bi and multilateral agreements would need to be signed in order to facilitate higher levels of unique direct connections.

Another key factor that has promoted the growth of ULH services has been the increase in aggregate global household wealth, to the sum of USD$200 trillion, since the beginning of the new millenium. Due to the growing affluence of the middle class, of whom now account for 21% of the world's wealth, there is a heightened desire for premium travel experiences that in turn, leads to an increase in demand for premium and more frequent travel services (e.g., Castillo-Manzano and López-Valpuesta, 2014). This naturally synergises with another advantage of ULH services, such that along with their heightened level of efficiency, it also tends to offer travellers with a more premium and exclusive on-board product. To this effect, the ‘premium travel priorities’ typically will include the likes of improved levels of privacy, safety, shorter total travel time, and an overall higher product quality level at every stage of the customer journey; all of which ULH services have strategically gone about affording to its patrons. With consumer spending having notably increased over the past decade, it has also led to the development of Premium Economy Class, which offers economy passengers with a more affordable upgraded service option. To this end, with ULH routes commanding a price premium, airlines operating the services have been increasingly inclined to deploy strategically configured aircraft, with greater proportions of the plane dedicated to Business and Premium Economy cabin seats, which in turn, further distinguishes ULH as being an overall premium service (Bloch, 2020).

Extending upon this, the global aviation industry has witnessed an overall decline in yields over the past seven years, having largely been driven down by capacity growth and the development of lower fares. However, yields in the less price-sensitive classes, such as Business and Premium Economy, have been largely upheld, thereby generating another advantage for such premium-oriented ULH services. Crucially, the main findings of Hugon-Duprat and O'Connell, (2015) affirm that the production and implementation cost of a Premium Economy Class seat is 1.6 times higher than that of an Economy Class seat, yet it generates 2.3 times higher revenues than its production cost; thereby ultimately leading it to achieve the highest marginal returns across all cabin classes. In turn, a well-developed premium economy product could be seen as a potential solution to sustain higher yields during recessions and economic downturns, during which business travel becomes increasingly price sensitive and companies look to downgrade their employees from Business Class. By targeting price-sensitive business travellers and comfort-seeking VFR and leisure travellers, the Premium Economy product has become a value-added product, an important revenue stream and a strategic mechanism to improve yields on ULH services (Bauer, 2019).

Building on these factors in the current environment, Point-to-Point ULH flying also maintains a significant health advantage, by way of affording passengers with the ability to bypass busy international hub airports. With this in mind, we carried out an analysis on the passenger density at hub airport terminals, thereby representing their inherent inability to foster the likes of social distancing rules. Covering the timeframes of pre (Dec-19), during (Mar-20) and a prediction for beyond (Jul-20) the COVID-19 era, Table 2 represents the monthly scheduled international passenger numbers at the Top 20 largest international hub airports, which in turn infers the terminals’ effective passenger density levels. The December 2019 figures portray both total passenger (Pax in million) and international passenger (IPax in million) numbers, which serve to distinguish the airports that also maintain a high share of domestic travellers, such an Bangkok Airport. International passengers per terminal m2 figures have predictably suggested that during the global pandemic, air traffic has been severely impacted, which has had the one advantage of helping hub airports facilitate the recommended 1.5m of physical distancing between passengers. This has been further achieved through the optimisation of terminal design and passenger flows. However, the figures also identify for several hub airports that have faced a high level of passenger density prior to the Coronavirus, of which might again become a challenge as soon as July 2020, according to passenger demand forecasts and scheduled air services for that period. As illustrated in Table 2, this can be especially associated with the likes of London Heathrow, Bangkok, Taipei and Hong Kong, as represented on the following page:

While Table 2 indicates that passenger density of hub airport terminals will increase again upon the re-emergence of demand, our interviews with the management of Dubai (DXB), Singapore (SIN) and Frankfurt Airport (FRA), have further revealed that the average transfer passenger will typically encounter a minimum of 5 or 6 ground staff; in addition to the passengers they will be in proximity to. This estimate is based on the average transfer passenger going through the following processes at the connection hub:

1) Passenger leaves the aircraft and passes an airport or gate agent

2) Passenger passes through a set of security and checks, in order to clear connections

3) Passenger then passes through security and baggage checks

4) Passenger is airside and explores various retail, food and beverage options

5) Passenger boards the aircraft, with airport and or gate agents in proximity

In turn, it can be suggested that by choosing to forego a connection at a busy hub airport, a passenger is selecting the relative safest option, especially with respect to contracting COVID-19. To this end, the notion of ULH networks provides a major health advantage. In recent response, Etihad and Emirates have respectively decided to operate ‘direct itineraries’ from Sydney and Melbourne to London, such that their aircraft would only stop in Dubai or Abu Dhabi for refuelling. As such, this mitigates the risks that come with the territory of passengers needing to disembark at their respective hub airports, but it also further heightens the value of the direct ULH service, such that those ‘connecting’ via DXB or AUH would be forced to remain on-board; thereby not benefiting from the ability to ‘stretch their legs’ at a midway point.

In terms of physical distancing, ULH premium services offer another key advantage in terms of its economic and on-board dynamics. As such, the industry has recently seen the idea of removing both the middle seat, and every second row, raised as a method of combatting COVID-19 spread on-board aircraft. With this in mind, several airlines have feared such developments, with Ryanair suggesting it would destroy the economics of LCCs altogether. In contrast however, such developments may heighten the viability of ULH premium products. Despite the potential for a slightly less densely configured ULH service to become more expensive, there is reason to suggest that there is a sufficient enough price-inelastic market that would demand the services, which would ultimately ensure the upholding of higher seat loaf factors and yields. In turn, even with fewer passengers on-board than usual, ULH services could still foreseeably generate profits under any new configuration measures set by the industry. Overall, whereas LCCs will face the strongest challenges in navigating any such changes to on-board configuration dynamics, premium ULH services could potentially become more attractive by virtue of onlu facing relatively marginal adaptations.

Finally, it can be further argued that ULH point-to-point networks are more flexible, such that airlines could easily choose to deploy their aircraft on a different ‘long-thin’ route much faster than that of a network carrier with larger aircraft. This becomes particularly relevant in the event of sporadic or regional re-emergences of the virus, whereby a destination on an airline's route network may once again become temporarily blocked. Moreover, throughout the COVID-19 period, repatriation flights have been more easily facilitated through the use of ULH flights, such that beyond the health and operational benefits, it has saved both airlines and corresponding governments alike the need to conduct additional negotiations and landing agreements. Overall, while COVID-19 outbreak remains the biggest shock to ever hit the aviation industry, it appears evident that the situation has accelerated the value of and transition to ULH point-to-point services, and more widely, the ULH business model as a whole. While some carriers may specialise in such ULH routes, others will look to add them as a part of their overall portfolio, thereby incorporating the ULH business model into their wider holding structures (Pearson and Merkert, 2014).

#### Endemic COVID variant control prevents extinction and turns all nuclear war scenarios.

RECNA ’21 [Research Center for Nuclear Weapons Abolition, Nagasaki University (RECNA), Asia Pacific Leadership Network (APLN) & Nautilus Institute; “Pandemic Futures and Nuclear Weapon Risks: The Nagasaki 75th Anniversary pandemic-nuclear nexus scenarios final report,” *Journal for Peace and Nuclear Disarmament*, 4(sup1), p. 6-39]

The Challenge: Multiple Existential Threats

The relationship between pandemics and war is as long as human history. Past pandemics have set the scene for wars by weakening societies, undermining resilience, and exacerbating civil and inter-state conflict. Other disease outbreaks have erupted during wars, in part due to the appalling public health and battlefield conditions resulting from war, in turn sowing the seeds for new conflicts. In the post-Cold War era, pandemics have spread with unprecedented speed due to increased mobility created by globalization, especially between urbanized areas. Although there are positive signs that scientific advances and rapid innovation can help us manage pandemics, it is likely that deadly infectious viruses will be a challenge for years to come. The COVID-19 is the most demonic pandemic threat in modern history. It has erupted at a juncture of other existential global threats, most importantly, accelerating climate change and resurgent nuclear threat-making. The most important issue, therefore, is how the coronavirus (and future pandemics) will increase or decrease the risks associated with these twin threats, climate change effects, and the next use of nuclear weapons in war.5

Today, the nine nuclear weapons arsenals not only can annihilate hundreds of cities, but also cause nuclear winter and mass starvation of a billion or more people, if not the entire human species. Concurrently, climate change is enveloping the planet with more frequent and intense storms, accelerating sea level rise, and advancing rapid ecological change, expressed in unprecedented forest fires across the world. Already stretched to a breaking point in many countries, the current pandemic may overcome resilience to the point of near or actual collapse of social, economic, and political order. In this extraordinary moment, it is timely to reflect on the existence and possible uses of weapons of mass destruction under pandemic conditions – most importantly, nuclear weapons, but also chemical and biological weapons. Moments of extreme crisis and vulnerability can prompt aggressive and counterintuitive actions that in turn may destabilize already precariously balanced threat systems, underpinned by conventional and nuclear weapons, as well as the threat of weaponized chemical and biological technologies. Consequently, the risk of the use of weapons of mass destruction (WMD), especially nuclear weapons, increases at such times, possibly sharply. The COVID-19 pandemic is clearly driving massive, rapid, and unpredictable changes that will redefine every aspect of the human condition, including WMD – just as the world wars of the first half of the 20th century led to a revolution in international affairs and entirely new ways of organizing societies, economies, and international relations, in part based on nuclear weapons and their threatened use. In a world reshaped by pandemics, nuclear weapons – as well as correlated non-nuclear WMD, nuclear alliances, “deterrence” doctrines, operational and declaratory policies, nuclear extended deterrence, organizational practices, and the existential risks posed by retaining these capabilities – are all up for redefinition.

A pandemic has potential to destabilize a nuclear-prone conflict by incapacitating the supreme nuclear commander or commanders who have to issue nuclear strike orders, creating uncertainty as to who is in charge, how to handle nuclear mistakes (such as errors, accidents, technological failures, and entanglement with conventional operations gone awry), and opening a brief opportunity for a first strike at a time when the COVID-infected state may not be able to retaliate efficiently – or at all – due to leadership confusion. In some nuclear-laden conflicts, a state might use a pandemic as a cover for political or military provocations in the belief that the adversary is distracted and partly disabled by the pandemic, increasing the risk of war in a nuclear-prone conflict. At the same time, a pandemic may lead nuclear armed states to increase the isolation and sanctions against a nuclear adversary, making it even harder to stop the spread of the disease, in turn creating a pandemic reservoir and transmission risk back to the nuclear armed state or its allies.

In principle, the common threat of the pandemic might induce nuclear-armed states to reduce the tension in a nuclear-prone conflict and thereby the risk of nuclear war. It may cause nuclear adversaries or their umbrella states to seek to resolve conflicts in a cooperative and collaborative manner by creating habits of communication, engagement, and mutual learning that come into play in the nuclear-military sphere. For example, militaries may cooperate to control pandemic transmission, including by working together against criminal-terrorist non-state actors that are trafficking people or by joining forces to ensure that a new pathogen is not developed as a bioweapon.

To date, however, the COVID-19 pandemic has increased the isolation of some nuclear-armed states and provided a textbook case of the failure of states to cooperate to overcome the pandemic. Borders have slammed shut, trade shut down, and budgets blown out, creating enormous pressure to focus on immediate domestic priorities. Foreign policies have become markedly more nationalistic. Dependence on nuclear weapons may increase as states seek to buttress a global re-spatialization6 of all dimensions of human interaction at all levels to manage pandemics. The effect of nuclear threats on leaders may make it less likely – or even impossible – to achieve the kind of concert at a global level needed to respond to and administer an effective vaccine, making it harder and even impossible to revert to pre-pandemic international relations. The result is that some states may proliferate their own nuclear weapons, further reinforcing the spiral of conflicts contained by nuclear threat, with cascading effects on the risk of nuclear war.

Developing Pandemic-nuclear Nexus Scenarios

How might the COVID-19 pandemic (and future pandemics) create new opportunities or challenges for governments, civil society, and market actors to reduce nuclear risk and resume nuclear disarmament? And how might those challenges and opportunities emerge in Northeast Asia, in particular?

In the face of so much uncertainty, a powerful way to obtain navigational guidance and to develop robust strategies is to conduct scenario-based dialogues. Scenarios may be underpinned by analysis, but they rest primarily on eliciting diverse insights through a dialogic process (typically a workshop) that explores the multiple, powerful drivers of complex problems and possible strategies to resolve such problems. Rather than predict any specific future, the goal of developing scenarios is to prepare individuals and organizations for radically divergent, possible futures.

A scenario is a tool for ordering one’s perceptions about alternative future environments in which today’s decisions might play out. In practice, scenarios resemble a set of stories built around carefully constructed plots. These stories can express multiple perspectives on complex events and give multiple meaning to these events. The development of such scenarios was the primary goal of the Nagasaki 75th Anniversary Pandemic-Nuclear Nexus Scenarios workshop. Through this project, we wanted to develop an analytic understanding of the interrelated nature of nuclear weapons and global pandemics. We wanted to explore the potential levers and pathways to influence the future. And we wanted to find concrete strategies to reduce the risk of nuclear war and resume disarmament, particularly novel approaches that could engage both state and non-state actors.

Shaping the Focal Question

At the outset of the Pandemic-Nuclear Nexus Scenarios Project, the organizers framed a focal question that would guide the development of the scenarios: What are the opportunities driven by global pandemics for Northeast Asian governments, civil society, and market actors to reduce nuclear risk and resume nuclear disarmament? This focal question has twin normative values in it: (a) how to reduce the risk of nuclear war arising from the pandemic and (b) how to resume nuclear disarmament under pandemic conditions. Measures to realize (a) might be in opposition to measures to realize (b). They might be independent, or they might be complementary. Discovering opportunities where the measures are synergistic has the highest value; avoiding contradictory measures might be critically important. But forced to choose, we likely must go first and foremost with measures to reduce the risk of nuclear war, as disarmament becomes moot and improbable if nuclear war occurs.

As in any scenarios event, we sought to identify robust strategies that could work across the divergent, uncertainty-based scenarios and move each story line toward a higher probability of realizing these two strategic goals. We were particularly interested in prompting discussion on the role of cities as potential new players with regard to nuclear war risk reduction. The challenges of “global nuclear governance” and nuclear disarmament have traditionally been dominated by great powers (that is, nation-states).

But given their evident and emerging leading role as “first responders” to the existential threats of the coronavirus pandemic and climate change effects, we wanted to see how cities’ capacity and experience may be useful in relation to nuclear risk and disarmament. The focal question also centers on Northeast Asia, a region that was the site of the first use of nuclear weapons (in Hiroshima and Nagasaki), and that today has thousands of cities, as well as potential for conflict on multiple fronts, including between China and Taiwan, China and the United States, and the ROK and DPRK. Northeast Asia sits at the nexus of relations between the world’s three largest nuclear armed states (China, Russia, and the United States), and it is home to the DPRK, a rapidly developing new nucleararmed state.

Identifying Critical Uncertainties

In the first phase of the scenario development process, participants were divided into four groups where they brainstormed a broad range of “critical uncertainties,” variables whose outcomes are both undetermined and important for shaping the near- and long-term future. Participants were asked to consider uncertainties based on different categories (social, technological, environmental, economic, political, military, and epidemiological). Through their initial brainstorm, groups developed a list of dozens of critical uncertainties (see Appendix 2). They were asked to narrow down their lists of uncertainties to those most likely to play a major role in shaping the pandemic-nuclear nexus. They then considered how these uncertainties could unfold along an axis with two diverging outcomes. Following are a few of the drivers participants identified: How might a distanced society affect nuclear strategies? On one end of the spectrum, for example, re-spatialization could lead to greater cooperation as people work across borders, physical and virtual. On the other end, the need to maintain distance could lead to shifts in militaries’ offshore strategies for deterrence/military projection of might and could potentially lead to the increased use of non-conventional (including nuclear) weapons.

How will changes in budgets affect dis/armament? The economic recession caused by the pandemic could lead to drastic cuts in funding for the military, including for nuclear weapons. On the other hand, countries’ economic struggles could lead them to increasingly favor investing in nuclear, as opposed to higher-cost conventional weapons.

How might pandemics affect global cooperation? The COVID-19 pandemic could serve as an impetus for increased international cooperation and the sharing of global information, which could extend to other areas, including nuclear. On the other hand, questions over the origin of the virus, border closures, and “vaccine competition” could lead to a rise in tensions.

How will information sharing evolve? The proliferation of misinformation through diverse media channels (including social media) could erode progress in tackling shared global challenges. Or new systems could emerge that help ensure that information is shared with a high level of transparency and be verified as accurate.

Will inequality increase or decrease? Following the economic recession caused by shutdowns aimed at limiting the pandemic, the gap could continue to grow between (and within) societies regarding economic well-being and human health. Or the pandemic may usher in a more redistributive economic system that leads to a decrease in inequality.

How will governments manage simultaneous or prolonged threats? Governments may struggle to contend with concurrent challenges of pandemics, climate change, food insecurity, and terrorism, leaving them to ignore the nuclear issue. Or they may find ways to collaborate, reallocating budgets toward effective solutions and developing international agreements that could later pave the way for disarmament.

What is the effect of technology on nuclear risk and disarmament? Changes in technology could have a major influence on nuclear risk. New risks could emerge from the proliferation of artificial intelligence systems (including in nuclear command, control, and communication systems), deep fakes, drones, and hackers intercepting and altering messages. On the other hand, technology could enhance capacity for early warning systems, increase monitoring of military movement, and improve communication systems.

#### Unconditional, ex ante immunities allow companies to renege on promised benefits. The threat of losing immunity backed by periodic review causes airlines to demonstrate consumer benefits in order to avoid antitrust suits.

Lazar ’18 [Fred; Professor of Econ @ York University; “Antitrust Immunity for Joint Ventures Among Alliance Airlines,” *Journal of Air Law and Commerce*, 83(4), p. 787-838]

This article addresses four fundamental questions:

1. If joint ventures and, particularly, metal-neutral joint ventures produce significant benefits for consumers, then why not grant them antitrust immunity while subjecting them to periodic reviews that ensure benefits continue to materialize and exceed the potential costs of lessening competition?

2. Alternatively, why not grant antitrust immunity to a joint venture with a time limit and subject it to another review on whether the immunity should be extended for another fixed period of time?

3. Or, why not attach conditions other than carve-outs to any immunized joint ventures?

4. Finally, should immunity have been granted in the first place?

In granting immunity, the U.S. Department of Transportation (DOT) and its counterparts in other countries faced the classic type I and type II errors in decision-making.1 By not granting immunity, the DOT risked preventing joint ventures that might have net positive effects for consumers—a type II error.2 On the other hand, when granting immunity, the DOT risked approving joint ventures that might have net negative effects—a type I error.3 Which error is more critical, and more likely? Antitrust immunity never made sense, even for so-called public policy purposes. Alliances did not spare major U.S. airlines from bankruptcy. There were frequent “open skies” agreements even without antitrust immunity.

It is unlikely that the joint ventures’ efficiency benefits and antitrust immunity goal to encourage metal-neutrality have materialized. The regulators never thought about integration problems, competing goals, and different corporate cultures. Hence, it is unlikely that joint ventures’ efficiency benefits counteracted anticompetitive effects.

In examining the potential anticompetitive impacts, the regulators did not fully appreciate the potential for restrictive trade practices—such as market foreclosure, switching costs, and access to hubs (e.g., slots, gates, check-in counters)—and the possibility of lessening competition in markets beyond countries or continents covered by the immunity. The European Commission (EC) and the DOT did note the potential for market foreclosure. Even though they acknowledged this possibility, market foreclosure did not influence their decisions because there was no evidence at the time of the proposed joint venture causing market foreclosure.4 Evidence became available years after the opportunity to observe joint ventures’ operations and competitive behavior. Time limits for antitrust immunity and periodic reviews are thus warranted.

More recently, Diana Moss has pointed out the increasing likelihood for market foreclosure:

This white paper examines the implications of this issue for U.S. consumers. It focuses particularly on the implications of antitrust immunity for U.S. consumers that travel on nonstop and con-necting international itineraries that utilize U.S. alliance gateways (i.e., hubs). Many of these gateways have become significantly more concentrated as the result of sweeping U.S. airline consolidation over the past decade, raising concerns about foreclosure of smaller, non-allied carriers and higher fares, less choice in carriers, and lower quality for consumers. Such changes undercut claims that immunity can bring substantial benefits to consumers in nonstop and in the behind-the-gateway and beyond-the-gateway markets served by the alliances.156

Her recommendations for future policy were:

• DOT’s policy on ATI should be more proactive in responding to fundamental competitive changes in U.S. markets by including and enforcing sunset provisions.

• In light of increased concentration at U.S. alliance hubs, DOT should look skeptically at arguments that immunity creates benefits for consumers in behind-the-gateway and beyond-the-gateway markets.

• DOT should conduct periodic reviews of grants of immunity, per the standard 5-year requirement that is written into almost every final ATI order.

• Ease of market entry (or lack thereof) by non-alliance carriers should be one of the DOT’s top considerations in reviewing existing and prospective grants of immunity.

• The DOT should routinely reject arguments that alliances require immunity because they need to compete in the “alliance market.”157

#### Clear requirements that airlines must demonstrate continued consumer benefits to continue receiving antitrust immunization solves anticompetitive practices.

Moss ’18 [Diana; President @ American Antitrust Institute; “Revisiting Antitrust Immunity for International Airline Alliances”; https://papers.ssrn.com/sol3/papers.cfm?abstract\_id=3332651]

This white paper sketches out a potentially troubling competition picture surrounding antitrust immunity for the airline alliances. It shows dramatic growth in alliances, increasing dominance of the U.S. alliance carriers through domestic consolidation, and how the carriers have amassed immunity over time. It highlights skepticism about immunities more generally and economic evidence that buttresses growing concern that immunity increasingly does not pass the cost-benefit test.

Sustained high alliance market shares on the busiest transatlantic routes and increased concentration at connecting alliance hubs highlights strike at the heart of claims that immunity delivers benefits to U.S. consumers. It highlights the reality that injecting competition on transatlantic routes depends critically on entry by smaller foreign carriers, which is opposed by U.S. carriers. The foregoing analysis also emphasizes that declining competition at key connecting alliance airports in the U.S. potentially forecloses and raises entry barriers to smaller carriers, contradicting alliance carriers’ claims of benefits in behindor beyond-the-gateway markets. These observations have potentially grave implications for U.S. consumers who are exposed to the risks of immunity. As such, we offer a number of suggestions and policy recommendations for ATI policy moving forward.

• DOT’s policy on ATI should be more proactive in responding to fundamental competitive changes in U.S. markets by including and enforcing sunset provisions. DOT should recognize that one-stop alliance itineraries involving U.S. hubs are distinctly less competitive as a result of domestic consolidation. The agency should therefore ensure that claims of behind- or beyond-the-gateway benefits are backed up by appropriate, current analysis. This means more aggressive denials of new immunity requests or appropriate, effective remedies designed to fully restore competition on affected routes or networks In light of increased concentration at U.S. alliance hubs, DOT should look skeptically at arguments that immunity creates benefits for consumers in behind-thegateway and beyond-the-gateway markets. Alliance policies should not be viewed in an international vacuum. Behind- and beyond-the-gateway markets are directly connected to alliance markets. As such, competitive effects and claimed benefits in those markets are affected by immunity.

• DOT should conduct periodic reviews of grants of immunity, per the standard 5- year requirement that is written into almost every final ATI order. Moving forward, new grants of immunity should be reviewed every three years. As part of these reviews, immunized carriers should be required to demonstrate that immunity has in fact provided benefits to consumers.

• Ease of market entry (or a lack thereof) by non-alliance carriers should be one of the DOT’s top considerations in reviewing existing and prospective grants of immunity. The international airline alliances dominate major global routes and have become highly concentrated over time due to domestic U.S. consolidation. Entry plays a key role, not only on nonstop alliance routes, but also on one-stop routes where the only competitive discipline is likely to come from entry by smaller carriers. Such entry is difficult and the DOT’s analysis and decisions on immunity should reflect this reality.

• The DOT should routinely reject arguments that alliances require immunity because they need to compete in the “alliance market.” DOT’s ATI policy against the backdrop of highly concentrated alliances has fostered a paradigm shift from “all market” competition to “alliance market” competition. Competition and consumers are poorly served by an approach that assumes that head-to-head competition between only three alliances will produce benefits for consumers. It puts ATI policy onto the slippery slope of approving requests so that carriers can compete more effectively against the other alliances.

### 1AC – Plan

#### The United States federal government should limit antitrust immunities (ATI) for airline alliances that fail to demonstrate periodic consumer welfare benefits.

# 2AC

## Supply Chains

### 2AC – AT: Supply Chains

**CO2 already in the atmosphere’s enough to prevent an ice age---but preventing further increase in emissions is key to avoid catastrophic warming**

Nina **Chestney 12**, Reuters, January 9, 2012, “Next Ice Age Delayed By Global Warming Gases, Study Finds,” online: <http://www.huffingtonpost.com/2012/01/09/next-ice-age-global-warming_n_1193900.html>

High levels of carbon dioxide emissions in the atmosphere mean the next ice age is unlikely to begin for at least 1,500 years, an article in the journal Nature Geoscience said on Monday.¶ Concentrations of the main gases blamed for global warming reached record levels in 2010 and will linger in the atmosphere for decades **even if the world stopped pumping out emissions today**, according to the U.N.'s weather agency.¶ An ice age is a period when there is a long-term reduction in the earth's surface and atmospheric temperature, which leads to the growth of ice sheets and glaciers.¶ There have been at least five ice ages on earth. During ice ages there are cycles of glaciation with ice sheets both advancing and retreating.¶ Officially, the earth has been in an interglacial, or warmer period, for the last 10,000 to 15,000 years, and estimates vary on how long such periods last.¶ "(Analysis) suggests that the end of the current interglacial (period) would occur within the next 1,500 years, if atmospheric CO2 concentrations do not exceed (around) 240 parts per million by volume (ppmv)," the study said.¶ However, the current carbon dioxide concentration is of 390 ppmv, and at that level an increase in the volume of ice sheets would not be possible, it added.¶ The study based on variations in the earth's orbit and rock samples was conducted by academics at Cambridge University, University College London, the University of Florida and Norway's University of Bergen.¶ The causes of ice ages are not fully understood but concentrations of methane and carbon dioxide in the atmosphere, changes in the earth's orbit around the sun, and the movement of tectonic plates are all thought to contribute.¶ The world is forecast to grow hotter as greenhouse gases continue to rise, increasing threats such as extreme weather events and sea level rise.¶ Scientists have warned that global temperature rise should be limited to within 2 degrees Celsius to avoid the worst effects of climate change but **delays in curbing emissions growth are putting the planet at risk.**

#### No food wars.

Vestby ’18 [Vestby, Ida Rudolfsen, and Halvard Buhaug; 5-18-18; Doctoral Researcher at the Peace Research Institute Oslo; doctoral researcher at the Department of Peace and Conflict Research at Uppsala University and PRIO; Research Professor at the Peace Research Institute Oslo (PRIO); Professor of Political Science at the Norwegian University of Science and Technology (NTNU); and Associate Editor of the Journal of Peace Research and Political Geography; “Does hunger cause conflict?” Prio, https://blogs.prio.org/ClimateAndConflict/2018/05/does-hunger-cause-conflict/]

It is perhaps surprising, then, that there is little scholarly merit in the notion that a short-term reduction in access to food increases the probability that conflict will break out. This is because to start or participate in violent conflict requires people to have both the means and the will. Most people on the brink of starvation are not in the position to resort to violence, whether against the government or other social groups. In fact, the urban middle classes tend to be the most likely to protest against rises in food prices, since they often have the best opportunities, the most energy, and the best skills to coordinate and participate in protests.

Accordingly, there is a widespread misapprehension that social unrest in periods of high food prices relates primarily to food shortages. In reality, the sources of discontent are considerably more complex – linked to political structures, land ownership, corruption, the desire for democratic reforms and general economic problems – where the price of food is seen in the context of general increases in the cost of living. Research has shown that while the international media have a tendency to seek simple resource-related explanations – such as drought or famine – for conflicts in the Global South, debates in the local media are permeated by more complex political relationships.

#### Canada economy high now.

**Ljunggren 7-30-21** (David Ljunggren, Ljunggren is covering economics for Reuters, “Canadian economy likely grew 0.7% in June as COVID-19 measures were lifted”, https://www.reuters.com/business/canada-economy-seen-jumping-by-07-june-after-may-dip-2021-07-30/)

OTTAWA, July 30 (Reuters) - **The Canadian economy most likely expanded by 0.7% in June as businesses reopened after shutdowns imposed to help fight the coronavirus pandemic**, Statistics Canada said on Friday. Statscan also said second-quarter annualized growth was set to be 2.5%, better than the Bank of Canada's July 14 forecast of 2.0%. Analysts predicted the third quarter would be stronger. **"With virus cases generally low across the country, the economy has some open road to recover even more ground this summer,"** Royce Mendes, senior economist with CIBC, said in a note. Statscan said growth in retail trade and accommodation and food services was boosted by the easing of public health measures in many of Canada's 10 provinces in June. There were also gains in manufacturing and mining, quarrying, and oil and gas extraction. "The strong handover from June means that GDP should accelerate in the third quarter to around 6% annualized," said Stephen Brown, senior Canada economist at Capital Economics. The Canadian dollar was trading nearly unchanged at 1.2441 to the greenback, or 80.38 U.S. cents. The Bank of Canada, which says third-quarter annualized growth should be 7.3%, has identified possible new variants of COVID-19 as a potential threat. "There remain challenges on the horizon, most notably in the form of variants of the virus which have slowed progress towards healing in other developed economies," Mendes said. The economy shrank by 0.3% in May, matching a forecast from analysts polled by Reuters. Statscan revised April's decline to 0.5% from an initial 0.3% drop. In May, 12 of 20 industrial sectors posted decreases, with services-producing industries down by 0.2% and goods-producing industries contracting by 0.4%.

## Green Aviation

## AT: Death K

## AT: Adv CP

### 2AC – AT: Adv CP

#### Air cargo routes key to supply chain and vaccine distribution speed, and trade.

Patrick Burnson, Executive Editor, 1-3-2022, "Air cargo supply chains are expected to remain under pressure," Logistics MGMT, https://www.logisticsmgmt.com/article/air\_cargo\_supply\_chains\_are\_expected\_to\_remain\_under\_pressure

Air cargo industry analysts observe that as ocean peak season cools off, air peak season heats up.

This year, air rates are feeling even more upward pressure than usual from reduced passenger jet capacity – which could be made worse by omicron fears – and congestion due to labor shortages among overwhelmed ground crews. Strict quarantine restrictions in places like Hong Kong are also complicating operations for many air cargo providers.

Niall van de Wouw, managing director of CLIVE Data Services in Amsterdam, says the air cargo market remains very demanding and constantly changing due to the regulatory COVID-19 landscape, outbreaks of new variants, and escalated vaccine distribution needs.

“And that means higher rates across the board,” he adds. “Matching capacity to need is going to be the key concern for shippers in 2022 – almost regardless of price.”

But there may be light streaming across the horizon, says Brendan Sullivan, Global Head of Cargo for The International Air Transport Association (IATA).

He sees improved cooperation across the logistics supply chain as governments and border authorities lead to the safe transport of millions of tons of live saving medical supplies and the delivery of millions of doses of COVID-19 vaccines.

“We succeeded in what was the most sophisticated global logistics operation ever undertaken but there were and continue to be challenges that need to be resolved,” he says. “Despite this, air cargo emerged from the pandemic even stronger and more agile than before. And as a result, is well positioned to support the global economic recovery and overcome future challenges.”

## AT: Delaware CP

### 2AC – AT: Delaware

#### States get pre-empted – *Trinko* and *Credit Suisse* preclude antitrust claims for regulated industries like airlines under state law.

Richard Brunell 14. General Counsel of the American Antitrust Institute, Washington, DC; former senior adviser for competition matters at the FTC. “The Roberts Court Turn to the Left?”. Antitrust, Vol. 28, No. 3, Summer 2014. https://www.antitrustinstitute.org/wp-content/uploads/2014/10/Brunell-The-Roberts-Court-Turn-to-the-Left.pdf

Preemption. A pending certiorari petition in an antitrust preemption case, Oneok v. Learjet,38 involves an approach towards regulatory immunity that is arguably outside the antitrust mainstream. In Oneok, the Ninth Circuit held that the Natural Gas Act did not preempt class actions under state antitrust law seeking damages for commercial and industrial purchasers of natural gas harmed by a price-fixing conspiracy in deregulated natural gas markets that was partly responsible for the California energy crisis of 2000–2001.

The Justice Department and the CFTC had brought civil and criminal fraud claims against some of the individuals and energy firms engaged in the market manipulation; FERC also investigated and obtained some forward-looking relief.39 The Ninth Circuit held the state antitrust claims were not preempted by FERC’s “exclusive jurisdiction” over practices affecting wholesale natural gas rates insofar as some of the con- duct at issue (as well as plaintiffs’ injuries) involved retail sales over which states have long had jurisdiction and other “non- jursidictional sales.” The certiorari petition claims there is a conflict based on decisions of the Tennessee and Nevada Supreme Courts that dismissed on field preemption grounds somewhat similar claims arising out of the same misconduct. Ironically, the state courts adopted a relatively expansive interpretation of the preemptive scope of the Natural Gas Act while concluding that state antitrust enforcement under- mined “national uniformity and freedom from burdensome government intervention.”40 At the Court’s invitation, the Solicitor General filed an amicus brief supporting preemption but arguing that certiorari should be denied because there is no conflict and the regulatory environment has changed.41

The Solicitor General (and the Ninth Circuit for that matter) did not consider that the plaintiffs’ antitrust claims were not necessarily preempted even if FERC had jurisdiction over all the practices at issue because state antitrust laws are laws of general applicability, like those against fraud and theft, as to which field preemption under the Natural Gas Act does not apply.42 To be sure, the Roberts Court’s expansion of regulatory immunity (Credit Suisse, linkLine’s gloss on Trinko)43 might suggest that the Court would not be sympathetic to antitrust class action claims—federal or state—that challenge conduct subject to regulation and potential relief by FERC and other agencies. On the other hand, even as it has expanded the notion of what constitutes an “actual conflict” between regulation and antitrust, the Court has not elimi- nated the analysis altogether when it comes to implied regu- latory immunity under the federal antitrust laws.44 And there is little logic in applying a different standard to the preemption of parallel state antitrust laws.45 So it would not be sur- prising for the Court, if it reaches the issue, to reject petitioners’ sweeping field preemption theory under which FERC’s mere jurisdiction to regulate would completely oust state antitrust claims. Relatedly, it seems plausible that when and if a circuit conflict arises in connection with the lower courts’ expansion of the filed rate doctrine to bar treble- damages claims in connection with FERC “market-based” (i.e., deregulated) rates, the Court will rein in the doctrine.46

#### State enforcement over-deters and generates uncertainty – stifles competition.

Grosso ’21 [Jacob; JD Candidate @ University of Richmond School of Law; “The Preemption of Collective State Antitrust Enforcement in Telecommunications,” *University of Richmond Law Review* 55(2), p. 615-656; AS]

Preemption would address the effects of the growth of federal regulators in the telecommunications market, particularly CFIUS, as well as the resulting changes to the regulatory landscape. If the states act as another national regulator in telecommunications, then innovation, competition, and the ability of federal enforcers to pursue policy goals will be stifled. To solve this problem, collective state antitrust action should be preempted by federal law in the telecommunications market. States likely remain better plaintiffs than consumers in many situations and therefore should litigate on behalf of their citizens. This litigation should be conducted individually, with federal regulatory enforcement generally left to federal regulators.

States should not be prevented from enforcing antitrust law; instead, states should focus exclusively on violations of their own state laws and on protecting their citizens as individual enforcers, not as a collective body. Federal agencies are the proper regulators of national industries such as telecommunications, while state enforcement prevents federal nonenforcement policies which may benefit social welfare overall.253 With respect to policy goals, CFIUS's interventions in recent years showcase the federal government's focus on national security concerns in the telecommunications market. Agendas balancing broader policy goals-such as national security-with competition are only possible under a more centralized enforcement system and by specialized agencies.254

Specialized agencies are therefore the best regulators of the telecommunications market. 25 5 The requirement that "[a]ntitrust analysis must always be attuned to the particular structure and circumstances of the industry at issue" leads to efficiencies from the use of specialized enforcers. 256 The inelasticity of the market and the significant barriers to entry require oversight by specialized expert regulators to maintain a competitive environment, and interference from other government regulators will only impede the ability of the federal regulators to direct this market. Nonenforcement policies, used when the agencies determine doing so is in the best interests of competition, cannot be enforced without a monopoly on enforcement. 257

Placing control in the hands of more centralized regulators reduces uncertainty for competitors due to the inherent inconsistencies in court proceedings and allows for better market functioning. 258 The inability to pursue nonenforcement agendas and reduce litigation will cause unnecessary false positives. False positives can discourage competition and innovation. 25 9 Too many false positives will cause competitors to restrict their behavior drastically to comply with enforcers at the cost of innovative business practices.26 0 Overenforcement and the resulting false positives reduce competition, inviting harm to both the consumer and the aggregate social welfare.26 1 Reduction in states' ability to conduct collective antitrust litigation will naturally decrease the overall amount of litigation, which provides several benefits to competition and to regulators. These benefits include reduced compliance costs, legal fees, and the redistribution of resources. 26 2 Reduced costs will benefit administrative costs, particularly those resulting from the coordination of state agencies. The result is a leaner, specialized enforcement system; increased market freedom due to clear regulations; and the opportunity for regulators to balance broader policy goals with antitrust.

## AT: SG

### 2AC – AT: Courts CP

#### DOT key – using industry-specific agencies precision regulates the industry.

Edelman ’21 [Jonathan; Law Clerk for Hon. Claria Horn Boom, U.S. District Judge, JD @ Michigan; “Reviving Antitrust Enforcement in the Airline Industry,” *Michigan Law Review*, 120(1), p. 125-156; AS]

Though common ownership causes competitive harm within the airline industry, two aspects of the practice make it difficult to regulate within the conventional boundaries of the Sherman and Clayton Acts: courts’ emphasis on showing a “mechanism of harm” and an exception to the Clayton Act for investors. This Section covers those aspects in turn. First, the nebulous nature of the competitive harm caused by common ownership makes the Sherman and Clayton Acts difficult to apply. Since at least Twombly, 59 courts have required antitrust enforcers to show the specific method by which a business practice harms competition in order to bring suit under the Sherman Act.60 If regulators bring an enforcement action but cannot prove a specific method by which a common owner is reducing competition (like telling executives not to compete or structuring executive pay to dissuade competition), then courts are likely to dismiss the suit.61 Such overt acts are hard to identify.62 In fact, the most likely method is not any overt action but instead “selective omission,” whereby common owners simply decline to encourage corporations to compete as hard as independent owners would.63 Consequently, the DOJ and others suing under the Sherman Act may be prevented from addressing common ownership in many cases.

Section 7 of the Clayton Act specifically prohibits stockholders from using stock acquisitions to reduce competition,64 so it could provide an avenue for regulators looking to address common ownership even if the Sherman Act would not apply. But section 7 provides a carve-out for stock that is acquired solely for investment, 65 which throws its applicability to common ownership into question. Professor Elhauge has argued that because institutional investors still exercise voting power and control through their stock, the Clayton Act should apply to common owners who are institutional investors.66 But since institutional investors are often more concerned about making a return on investment than about controlling the corporations themselves, other scholars have disagreed or noted lasting questions about the applicability of the Clayton Act.67 Resolving this disagreement is outside of the scope of this Note, but its presence suggests another issue the DOJ may face in suing common owners under the Clayton Act.

Beyond these legal questions lie concerns about the method by which the Sherman and Clayton Acts must be enforced: through the courts. The DOJ may not use notice-and-comment rulemaking to regulate antitrust behavior; instead, it must bring action in court.68 But courts are often far from ideal adjudicators of antitrust issues given that economic analysis is required.69 This is especially true when courts are confronted with cutting-edge theories of antitrust harm. For example, in the early 2000s the FTC discovered that pharmaceutical companies were paying generic manufacturers to delay challenging their drug patents. 70 When the FTC sued to stop these “pay for delay” arrangements, courts of appeals held that “pay for delay” was not a traditionally recognized mechanism of harm and allowed the arrangements to continue. “Pay for delay” arrangements cost consumers $60 billion in higher drug prices.71 As this example shows, the DOJ and private parties may be prevented from enforcing the antitrust laws by courts unfriendly to new theories of antitrust harm. The DOJ may face an uphill battle countering the competitive harm common ownership causes: it is difficult to identify how common ownership harms competition, the Clayton Act exempts passive investors, and courts are hostile to new economic arguments. Because common ownership sits on the boundaries of the Sherman and Clayton Acts, agencies able to prosecute “unfair methods of competition”—like the FTC and the DOT—may have an easier path to regulation.

#### Antitrust remedies are key.

Lazar ’18 [Fred; Professor of Econ @ York University; “Antitrust Immunity for Joint Ventures Among Alliance Airlines,” *Journal of Air Law and Commerce*, 83(4), p. 787-838]

The supposed benefits of alliances for consumers likely have been overstated. But what should governments do now? The EC and DOT have warned that governments might have few degrees of freedom to undo the ATI:

The Commission and DOT agree that one of the main challenges in the airline industry is to design a remedy that can effectively address the identified negative effects of the parties’ cooperation while giving consideration to the principle of proportionality. Given the specificities of the airline industry, it is, however, difficult to apply the traditional forms of divesture remedy, commonly used in other sectors. A key issue is the assessment of the barriers to entry on the route(s) of concern: is it possible to design remedies which would lower these barriers such that entry on the route would become likely? Are there carriers whose existing networks would be compatible with potential entry on a city-pair of concern, with appropriate remedies?158 Despite this warning, the author puts forward some suggestions.

1. Mandatory Interlining

Feed traffic, especially at major hub airports, is critical to support many routes to and from these hubs. If there is no technology or any other real operational issue that prevents interlining, or code-sharing between an alliance airline and a non-alliance airline, then alliance airlines should be required to offer nonalliance airlines the option to interline or code-share on terms similar to those offered to alliance members. Otherwise, refusal to offer interline or code-share could be a restrictive trade practice, and it would be subject to review by the FTC and DOJ in the United States.

2. Open Access to Frequent Flyer Programs (FFP)

Frequent flyer programs were created by American Airlines to promote loyalty, especially among the frequent travelers, and create a switching cost for such travelers.159 At the present time it is not the accumulation of points for redemption for free travel that matters for frequent travelers.160 Rather, it is the accumulation of miles to achieve higher levels of status that offer important perks.161 When someone joins a program, he or she is reluctant to shop around to find lower prices on other, nonaffiliated airlines. The combination of FFP and dominance at a hub tend to reinforce each other in reducing the likelihood that frequent travelers will switch to competing airlines. The switching costs deter entry, and if the airline refuses to interline with a competitor, competition is greatly lessened, especially in markets where feed traffic is critical.

Thus, to level the playing field further, alliance airlines should be required to open up their FFP to all passengers, even passengers not flying on their respective airlines. Obviously, this might lead to privacy and other competitive concerns. An alliance airline might use the information to contact passengers directly and offer special deals to attract them away from other competitors. But, undoubtedly, there are rules that could be imposed to restrict this type of predatory behavior. There is a precedent for this recommendation. The OECD pointed out the case in Sweden:

A rare example of antitrust enforcement against an airline’s FFP is provided by the Swedish Competition Authority (SCA). The SCA found SAS liable for abusing its dominant position by extending its EuroBonus programme to domestic flights. SAS had a market share of approximately 70% in the Swedish market for scheduled domestic passenger flights. The SCA concluded that EuroBonus programme had strong loyalty-inducing benefits hampering competition from alternative carriers. On appeal, the Swedish Market Court considered that the programme was capable of distorting market incentives, especially when the person accruing the benefits (i.e. the employees) was not the one paying for the programme (i.e. the employer). The Court also found that EuroBonus programme could be used to influence prices by reducing customers’ responsiveness to price, and that the programme had a price-raising effect. The Market Court therefore confirmed the SCA’s finding that SAS’s programme had exclusionary effects. It prohibited the EuroBonus programme on domestic routes where SAS or any airline cooperating with SAS faced competition, as well as on routes considered by new entrants.162

3. Competitive Pricing by Suppliers

Scale does give a company a bargaining advantage with suppliers. If there are economies of scale and/or significant contracting costs (including monitoring and enforcement), lower prices might be warranted for large customers. However, the bargaining leverage can place smaller competitors at an increasing disadvantage.

For this reason, it is important to continually monitor the relationships between suppliers of various services to airlines, particularly services at airports, to ensure that a dominant airline is not pressuring a supplier to provide inferior service to competitors. This might include longer wait times for ground handling or fueling services, limited access to check-in counters, access only to more remote gates, or access to less desirable slots. The relationships must be monitored to ensure that suppliers are not engaging in price discrimination that favors the larger airline.

4. Time limits for ATI

The author concurs with Diana Moss’s recommendation that the DOT include and enforce sunset provisions in all ATI cases.163 And the DOT, in conjunction with the Department of Justice and possibly the FTC, should conduct periodic reviews of grants of immunity. The recent Delta-Aeromexico joint venture has been granted ATI for five years.164 All the other existing immunized joint ventures should be subject to a similar five-year time limit going forward. During the five-year period and at the end of this period, the DOT should review each case to determine whether efficiencies did materialize and, if so, the magnitude of the efficiencies. They should also analyze the anticompetitive effects, including the possibility of market foreclosure through restrictive trade practices.

#### Periodic review of immunities key – incentives joint ventures to demonstrate procompetitive benefits rather than renege on their ex-ante claims. The CP can’t create an escrow.

Lazar ’18 [Fred; Professor of Econ @ York University; “Antitrust Immunity for Joint Ventures Among Alliance Airlines,” *Journal of Air Law and Commerce*, 83(4), p. 787-838]

The DOT continues to believe that immunized joint ventures, particularly metal-neutral joint ventures, encourage airlines to fully cooperate and thus permit them to maximize the “theoretical” benefits for consumers.46 But the airlines in a joint venture would have an even greater incentive to generate efficiencies and pass on some of the benefits to consumers if the joint venture is reviewed periodically. They must actually produce the benefits, rather than claim ex ante that benefits would materialize to extend ATI.

### 2AC – Open Skies Add On

#### Return to CWS in airlines key to certainty and clarity in merger enforcement – key to open skies and aerospace liberalization.

Paul Stephen Dempsey, Prof. Air and Space Law @ McGill, ’18, "Regulatory ~~Schizophrenia~~: Mergers, Alliances, Metal-Neutral Joint Ventures and the Emergence of a Global Aviation Cartel," Journal of Air Law and Commerce 83, no. 1 (2018): 3-44

\*edited for language\*

The competitive landscape in international aviation has changed enormously during the last decade and a half. Massive mergers have reduced competition as, in the United States, seven major network airlines have been reduced to three. Further, in the EU, the British Airways, Lufthansa, and Air France conglomerates too have reduced network competition. The regulators have insisted on "metal-neutral joint ventures" as the price of admission for antitrust immunity. Three carriers on each side of the Atlantic now dominate transatlantic traffic in "metal neutral joint ventures" with antitrust immunity. In fact, the USDOT's insistence on "metal neutral joint ventures" as the price for admission to antitrust immunity, coupled with the consolidation of major airlines on both sides of the Atlantic, has created the global oligopoly of Star, SkyTeam, and Oneworld. As the DOJ's analysis has revealed, the market power that emerged from this antitrust abdication has resulted in consumer harm.

Meanwhile, many major U.S. and EU alliance airlines complain about the alleged subsidies received by the Middle East airlines, which operate from countries without State aid prohibitions. Several U.S. and EU airlines seek a roll back from the ubiquitous "open skies" bilateral air transport agreements with the United Arab Emirates (UAE) and Qatar.13 1 Airlines are also immune from General Agreement on Trade in Services (GATS) anti-dumping prohibitions.1 12 The result has been a regulatory mess with no clear solutions.

The USDOT has embraced a largely schizophrenic [contradictory] approach to airline competition. On one hand, it has concluded liberalized "open skies" air transport agreements with more than 120 States.13 3 On the other hand, it has also enabled airline competitors to fix prices and limit capacity on common routes. Although the former enhances competition, the latter does the opposite. If "open skies" is the competitive Dr. Jekyll, antitrust immunity is the anticompetitive Mr. Hyde. Code-sharing and antitrust immunity exist as a means to skirt around the statutory foreign ownership restrictions. While the USDOT has significantly liberalized those restrictions, permitting, via regulatory fiat, foreign equity investment of up to fortynine percent non-voting stock, thereby diluting the statutory requirement that no more than twenty-five percent of U.S. airline voting stock may be owned by foreign citizens, and U.S. airlines must be owned and controlled by U.S. citizens. USDOT efforts to bend these rules further have been prohibited by Congress. These statutory prohibitions, as well as the "significant ownership and control" requirements in many bilateral air transport agreements, prohibit mergers of U.S. airlines with foreign carriers. It is clear that the USDOT is using antitrust immunity to allow carriers to violate the antitrust laws; in effect, it is also using antitrust immunity to enable carriers to breach the statutory foreign ownership and cabotage prohibitions.1 3 4 Beyond flaunting the statutory prohibitions, the anticompetitive impact of code-sharing and antitrust immunity is also troublesome. More than one airline has had to abandon international nonstop markets once an immunized code-share alliance has been authorized. 1 35 The loss of competition has translated into higher fares for consumers.1 36 For example, soon after the United/Lufthansa Star alliance was given antitrust immunity, Delta closed its Frankfurt hub, TWA dropped its New York-Frankfurt flights, and American Airlines withdrew from Miami-Frankfurt and Chicago- Dusseldorf. 137

#### Solves hotspot escalation from blurred lines.

Garcia ’19 [Marcelo; Manager of Regulatory and Corporate Affairs @ Qatar Airways; and Roncevert; The Wicks Group, PLLC; “Coercive Diplomacy in the Skies” *The Airspace Lawyer*, 32(1), p. 1-20]

The world is experiencing a gradual yet decisive shift toward a new paradigm in international relations—one that is based on muscular sovereignty and assertive nationalism. International trade is increasingly subject to geopolitics. In the realm of international air transport, this shift has come in the form of coercive diplomacy involving civil aviation. From conflicts in the Crimean peninsula to the Taiwan Strait, this growing state practice has been referred to as the “weaponization of airspace.”1 At issue is whether such actions are consistent with state obligations under the Convention on International Civil Aviation (Chicago Convention).2

In some cases, coercive diplomacy has taken the form of abrupt airspace closures and the unilateral withdrawal of traffic and other commercial rights for designated airlines.3 In other cases, measures have aimed at seizing control of another state’s airspace as a means to assert sovereignty over a disputed territory.4 In these instances, aspects of civil aviation are not used to promote cooperation and comity between states, but as geopolitical tools that create new hazards to commercial aviation and threaten peace and security in the skies above.5 These measures breach the letter and spirit of the Chicago Convention, which sets forth core principles governing international air transport. Compounding the problem, the dispute resolution framework under the Chicago Convention is not equipped to mitigate the immediate safety and economic threats resulting from this new form of warfare.

### 2AC – Democracy AO

#### Plan’s sunset sets a precedent for broader democratic oversight of antitrust.

JOHN E. FINN, Professor of Government, Wesleyan University. PhD. Princeton University, ’10, “Sunset Clauses and Democratic Deliberation: Assessing the Significance of Sunset Provisions in Antiterrorism Legislation” 48 Colum. J. Transnat'l L. 442 2009-2010

The regulatory reform movement of the 1970s promoted the use of sunset clauses as a mechanism to improve legislative oversight of the bureaucracy and to increase regulatory efficiency. As Christopher Mooney has written, "[t]he contemporary concept of sunsetting dates from the idealistic political reform movement of the 1970s, which sought to transform a U.S. government considered bloated, in-efficient, and beholden to special interests. ' 16 In The End of Liberalism, Theodore J. Lowi favored sunsets as a mechanism to reinvigorate stagnant government bureaucracies. 17 To counteract the problem of interest-group liberalism, in which bureaucratic agencies were often captured by the interests they were meant to regulate, Mooney writes, "Lowi suggested a 'tenure-of-statutes act' that would set a 'Jeffersonian limit of from five to ten years' on the life of every law creating a federal agency."' 18 "The objective," Mooney notes, "was less to make these agencies disappear than to use the termination date to achieve what Lowi called a 'guillotine effect,' sparking effective legislative oversight and possible reorganization of agencies that had grown too big for their britches." 19 On this view, sunsets can advance the public welfare by ensuring that legislation creating regulatory agencies that have outlived their purpose expire or are replaced by more current public policy tools. The impetus behind the sunset movement was to improve democratic accountability by subjecting bureaucratic agencies to periodic legislative oversight and control.

Sunset clauses can also improve public policy by increasing opportunities for, and by improving the quality of, legislative decision- making. Sunset clauses promote democratic oversight and accountability by providing the legislature with periodic opportunities to revisit questions with the additional information or experience necessary to adjust or to recalibrate public policy. Sunsets can also encourage policy innovation and legislative learning by creating incentives for policy makers to develop mechanisms for policy implementation and assessment. Moreover, sunsets may provide legislators with an institutional imperative to seek and develop improved informational resources. Some students of sunsets refer to these as "deliberative" benefits, which are elements or characteristics that improve second stage legislative decision-making by improving the quality and functioning of the deliberative process. 20

There are also "informational" and "distributive" advantages to temporary legislation.21 "From an informational perspective, temporary legislation provides .... windows of opportunity for policymakers to incorporate a greater quantity and quality of information into legislative judgments. By redistributing the decision costs of producing legislation [often by transferring or delaying costs to another time], temporary measures also facilitate experimentation and adjustment in public policy. '22 Sunset clauses are thus attractive in conditions where initial policy judgments are likely to be inaccurate and where those policy judgments may be expected to be informed by or revised when more or better information becomes available. 23 Consequently, sunsets are an especially useful tool when legislatures must act in conditions where information is limited or uncertain, but the perceived need for action is high.

#### Key to LIO – extinction.

GANESH SITARAMAN, Law @ Vanderbilt, ’19, “Countering Nationalist Oligarchy” https://democracyjournal.org/magazine/51/countering-nationalist-oligarchy/

International engagement must therefore focus as much—if not more—on rebuilding unions, enforcing antitrust laws, closing tax havens, ensuring transparency, and restricting the ability of money to influence politics as it does on lowering barriers to trade. Without such policies, the pursuit of international economic power—and the building of international economic institutions and agreements—can indirectly undermine democracy. This is one reason why the proposed Trans-Pacific Partnership (TPP) was so problematic. While many of its proponents justified the deal on strategic grounds akin to those offered here, the substance of the agreement was not focused on addressing the grave threats to economic democracy at home—and arguably made some of them worse. For example, one of the sources of our current age of ever-growing monopolies is the “consumer welfare standard,” a weak approach to enforcing antitrust laws that is not part of existing statutory law and is now fiercely contested among antitrust experts. The TPP’s antitrust provisions, however, adopted this approach, which would make it harder to combat monopolies and promote economic competition. International agreements like the TPP, and international institutions more broadly, should not include policies that undermine the effort to advance economic democracy at home. Such actions do not strengthen American national security.

The third strategy is development. Democracies must have a coherent development policy—an internal policy to support and strengthen innovation and industry. This means massive investments in research and development and an active innovation policy that ensures the development of certain industries within the borders of the country, particularly those on the cutting edge of technology. Development increases resilience in the face of economic threats. But it cannot be implemented through a policy focused on supporting national “champions”—the country’s leading megacorporations. Because democracy requires dispersing economic power internally, so too must its strategy for development.

Democracy’s Allies

Democracies that work together will be stronger in the face of nationalist oligarchies. Alliances help us defend our democracy from internal and external threats. Consider NATO. Since its founding, NATO was based on two premises. The first was preserving security and stability in Europe. In the classic formulation by Lord Ismay, following two world wars that started in Europe, NATO’s goal was to “keep the Soviet Union out, the Americans in, and the Germans down.” The second was that NATO was designed on the premise that its member countries shared liberal democratic ideas and practices. In the post-Cold War era, the first premise lost much of its force, leading to endless discussions of whether NATO was still relevant. The second premise, perhaps unsurprisingly given the neoliberal character of the age, turned toward the promotion of a thin notion of electoral democracy combined with neoliberal market economics for the countries of the former Soviet bloc.

But the optimistic policies that followed the end of history are no longer advisable, if they ever were. Over time, three serious problems have become clear. The first, as Celeste Wallander has argued, is that “There is no price for violating NATO’s liberal democratic standards, and some weak links are indeed backsliding.” Countries like Hungary and Turkey are no longer robust liberal democracies, and their links to Russia, in particular, may make it harder for NATO to defend the democratic foundations of its other members. The second problem is that NATO’s vision of liberal democracy became relatively thin. With a goal of democracy promotion and the expansion of capitalism, countries could be admitted for making democratic reforms with respect to elections and political changes, and without regard for their degree of economic equality. The third problem is that the nature of the threat from Russia has changed. During the Cold War, the Soviet Union’s threat to Europe was largely understood to be a military threat—including the risk of invasion. Today, the Russian threat to democracy “operates through shadowy financial flows, corrupt relationships, bribes, kickbacks, and blackmail.” In this system, cronyism and corruption are not a bug but the central feature of the model.

Today, the central purpose of our alliances must be to defend democracy. We must recognize the existential threat to democracy that comes from hacking, election vulnerabilities, social media disinformation, and other forms of electronic and cyberwarfare. These are areas in which democratic countries can help one another by sharing intelligence and learning from attempted attacks across the West. For example, NATO countries that want to meet their 2 percent of GDP spending commitment, as President Trump has undiplomatically asked them to do, should be able to invest in cybersecurity, so long as the benefits can be shared. Our alliances can also do more to prevent the rise of nationalist oligarchs domestically, and the corrupting influence of financial flows internationally. International institutions, from the Organization for Economic Cooperation and Development to the European Union to NATO, should work together to disseminate data and information and to coordinate policies that help fight domestic and international corruption.

The boldest proposal might be to create a new alliance of democracies, something that John McCain once called for. As a path forward for defending democracy, this idea has merit, particularly if the Trump Administration succeeds in weakening the NATO alliance to the point of no return. But for it to work, its goals would have to diverge significantly from those of its original promoters.

Advocates for such an alliance came up with the idea following the 2003 intervention in Iraq. They were largely responding to the failure of the United Nations Security Council to intervene in a variety of conflicts and humanitarian crises with sufficient haste and attention. (And these advocates tended to be supporters of the Iraq War.) While proponents argued that a concert of democracies would cooperate on a wide variety of issues of common concern, they also believed that this new alliance would be able to engage in foreign interventions more easily than the United Nations. And far from being exercises of power by Western elite democracies, the alliance’s military and humanitarian interventions would be seen as more legitimate because the alliance would include upwards of 60 countries. As James Lindsay wrote in 2009, the Concert of Democracies “would be composed of a diverse group of countries from around the globe—small and large, rich and poor, North and South, strong and weak.” Some others, like Anne-Marie Slaughter and John Ikenberry, saw an alliance of democracies as updating the architecture of the international system for a new era, and hoped the alliance would form a bloc that could push for the reform of traditional international institutions, like the UN, World Bank, and IMF. Opponents of the idea primarily worried that an alliance would cause backlash. China, Russia, and other non-democracies would see the alliance as a threat, leading to a downward spiral of mistrust that could potentially end in conflict.

Today, the case for an alliance of democracies is stronger than it was in the post-Iraq context—but for different reasons. By now, it is clear to everyone that we were never at the end of history and that the United States and other democracies never had the time, money, and military power to spend engaging in adventures abroad. Even those who thought we might have been in that place recognize now that the global context has shifted. Today, the primary goal of an alliance of democracies would not be to engage in interventions and democracy promotion. It would not be offensive. It would be defensive. It would be to maintain democracy inside each of a small number of member countries.

An alliance today would also focus on deepening economic cooperation, in order to build collective economic power vis-à-vis nationalist oligarchies. The original proponents of an alliance of democracies argued for “eliminating tariffs and other trade barriers among member countries.” But as Trump’s election, Brexit, and new data on the “China Shock” suggest, a trade policy based on the liberalization of trade barriers without regard to the consequences is destructive for economic democracy and is a threat to social cohesion. Instead, the alliance’s international economic agenda should be to expand economic democracy within member countries: to enforce antitrust and antimonopoly rules across borders, prevent tax havens and simplify the financial system, regulate tech platforms, promote corporate democracy, and reinvigorate worker power. This cooperative effort is critical because, individually, each democracy is vulnerable to lucrative offers from nationalist oligarchs abroad—and from would-be oligarchs within. The enemies of economic democracy can play countries against each other, creating a race to the bottom that ultimately undermines democracy itself. Cooperation is critical to helping solve this problem.

#### FTC rulemaking thumps.

Conley 22 – Stephen Conley, Wiley Rein LLP attorney, “‘An Avalanche of Rulemakings’ – The FTC Gears Up for an Active 2022,” 1/19/22, https://www.jdsupra.com/legalnews/an-avalanche-of-rulemakings-the-ftc-1324181/

On December 10, 2021, the Federal Trade Commission (FTC) published its Annual Regulatory Plan for 2022 – the first under FTC Chair Lina Khan – noting that it “will consider developing both unfair-methods-of-competition rulemakings as well as rulemakings to define with specificity unfair or deceptive acts or practices.”[1] Among other rulemakings, the Annual Regulatory Plan notes that the FTC is considering a Trade Regulation Rule on Commercial Surveillance to stop “lax security practices,” limit “intrusive surveillance,” and ensure “that algorithmic decision-making does not result in unlawful discrimination.”[2]

The release of an expansive agenda comes just months after the agency streamlined its Rules of Practice under Section 18 of the FTC Act and created a new rulemaking group within the FTC’s Office of General Counsel, to expedite otherwise cumbersome rulemaking requirements under the Magnusson-Moss Act. While these procedural maneuvers will allow the FTC to increase the pace of the rulemaking   
  
  
process, many of these measures will likely require the support of three Democratic Commissioners, and the agency is currently in a 2-2 partisan deadlock pending the confirmation of nominee Alvaro Bedoya.

The FTC Cites ‘Changed Circumstances’ as a Catalyst for Rulemaking

The FTC’s Annual Regulatory Plan identifies “changed circumstances” in 2021 as the impetus for the agency to promulgate new competition and consumer protection rules. Specifically, the FTC identifies the U.S. Supreme Court’s decision in AMG Capital Mgmt., LLC v. FTC as a key turning point that has hampered the agency’s enforcement capabilities. As we discussed in greater detail here, that decision interpreted Section 13(b) of the FTC Act to not provide the FTC with the authority to seek restitution or disgorgement in federal court. The agency had historically relied on Section 13(b) to seek monetary penalties in a wide range of cases involving unfair or deceptive practices. However, if the FTC adopts a rule outlawing certain practices, it can still seek monetary penalties for violations of the rule under a separate part of the FTC Act.

Another key catalyst mentioned by the FTC in the Annual Regulatory agenda was a “case-by-case approach to promoting competition,” which has purportedly proven “insufficient.”[3] According to the FTC, this approach has resulted in “a hyper-concentrated economy whose harms to American workers, consumers, and small businesses demand new approaches.”[4]

FTC Plans to Initiate Consumer Protection and Competition Rulemakings

To address perceived market concentration across the economy, the FTC under Chair Khan plans to examine how to define “unfair methods of competition” under Section 5 of the FTC Act in an attempt to root out perceived anticompetitive practices. In addition to the proposed Trade Regulation Rule on Commercial Surveillance, the FTC is also actively seeking comment on the following:

A rule targeting business and government impersonation fraud – as discussed in another article in this issue, the FTC recently released an Advanced Notice of Proposed Rulemaking (ANPRM) targeting rising government and business impersonation fraud committed via telephone calls, text messages, and other forms of communication. Comments on the ANPRM are due February 22.

A rule requiring reporting of security incidents by covered financial institutions – as described in greater detail here, the FTC is seeking comment on a Supplemental Notice of Proposed Rulemaking (SNPRM) that would require covered financial institutions to report certain security incidents to the FTC within 30 days of the date of discovery. The rulemaking would further amend the FTC’s Safeguards Rule under the Gramm-Leach-Bliley Act. Comments on the SNPRM are due February 7.

A petition from Accountable Tech proposing that the FTC promulgate rules to prevent “surveillance advertising,” or the practice of displaying ads to individual consumers based on inferences about their interests, demographics, or other characteristics inferred from their activities over time. Comments on the Accountable Tech Petition are due January 26.

A petition from the Institute for Policy Integrity asking the FTC to regulate “drip pricing.” The petition describes “drip pricing” as “the practice of advertising only part of a product’s price upfront and revealing additional charges later as consumers go through the buying process.”

Importantly, the Annual Regulatory Plan also took note of President Biden’s Executive Order on Promoting Competition in the American Economy. As we discussed in greater detail here, the Executive Order encouraged the FTC to exercise its statutory authority to address a number of competition issues. In the Annual Regulatory Plan, the FTC stated that it will “explore the benefits and costs” of several of the Executive Order’s rulemaking proposals for the agency, including “surveillance, the right to repair, pay-for-delay pharmaceutical agreements, unfair competition in online marketplaces, occupational licensing, real-estate listing and brokerage, and industry-specific practices that substantially inhibit competition.”[5]

FTC Commissioner Christine Wilson dissented from the Annual Regulatory Plan, arguing that it “extends far beyond” the agency’s routine review of existing rules and that many of the existing rules “should be abolished in any event.”[6] She further characterized the Annual Regulatory Plan as ushering in “an avalanche of rulemakings” and rejected Chair Khan’s depiction of the economy as being “hyper-concentrated.”[7] Indeed, in a subsequent statement made at the agency’s December 16 Open Meeting, Commissioner Wilson referred to the FTC’s 2022 agenda as a “Rule-a-Palooza.”[8] Commissioner Wilson’s dissent signals likely uniform Republican Commissioner opposition to most of the agency’s planned rulemakings, leaving the body in a 2-2 Democrat-Republican split on many of the proposals. That said, proposals like the Safeguards Rule SNPRM have drawn some bipartisan support and may point to some additional rulemaking even without a fifth Commissioner.

## AT: Axon

### 2AC – AT: Axon DA

#### Bedoya will be confirmed – that drives a slew of new enforcement

Fung 3/30 – Brian Fung, writer for CNN Business, “Senate votes to advance Alvaro Bedoya's FTC confirmation,” 3/30/22, https://www.cnn.com/2022/03/30/tech/ftc-bedoya-advance/index.html

One of President Joe Biden's key administrative nominees is a step closer to confirmation after Alvaro Bedoya, Biden's pick for Federal Trade Commissioner, narrowly cleared a key procedural vote in the Senate on Wednesday.

The decision paves the way for a final floor vote on Bedoya's nomination, to be held at a later time. But what was supposed to be a 15-minute process on Wednesday stretched on for over two hours, culminating in Vice President Kamala Harris traveling to Capitol Hill to break a 50-50 tie.

The close Senate vote reflects a partisan rift over Bedoya, a visiting professor at Georgetown University's law school and founding director of its center on privacy.

Bedoya's nomination is considered critical as the Federal Trade Commission ramps up enforcement on algorithms, cybersecurity, privacy, and a slew of antitrust issues surrounding Big Tech.

If Bedoya is confirmed, it would give Democrats a voting majority at the FTC and break a months-long 2-2 partisan deadlock at the antitrust and consumer protection agency.

#### Adinstative state dead – the 6-3 conservative court is the final nail in the coffin

Yaffe-Bellany 20 – David Yaffe-Bellany, reporter for Bloomberg News, “Biden’s Agenda Faces a Court System More Hostile to Agency Power,” 12/15/20, https://news.bloomberglaw.com/us-law-week/courts-skeptical-of-chevron-may-stymie-bidens-agenda

Barrett declined to offer an opinion on Chevron, which has become a valuable tool for agencies looking to institute aggressive environmental rules. Her exchange with Crapo was little more than a footnote in a hearing that focused largely on the abortion precedent in Roe v. Wade. But ultimately, the Supreme Court’s posture toward Chevron could become a defining theme of President-elect Joe Biden’s first term, with the new administration poised to face a grinding series of legal battles over the scope of its regulatory authority.

Democrats have long hoped that unseating President Trump would usher in a period of political transformation. But if Republicans maintain control of the Senate after Georgia’s Jan. 5 runoffs, Biden won’t be able to push broad legislation through Congress. He may have to use federal agencies’ rulemaking powers to advance much of his agenda, relying on the Environmental Protection Agency to craft policies limiting emissions and the Consumer Financial Protection Bureau to regulate Wall Street.

He’ll inevitably face opposition in the judicial system, which has grown increasingly hostile to government regulation. President Trump and Senate Majority Leader Mitch McConnell have stacked the federal appeals courts with conservative judges, many of them handpicked by groups intent on dismantling regulations. And with Barrett confirmed, the 6-3 conservative majority on the Supreme Court is likely to chip away at Chevron and other legal doctrines that give deference to agencies.

“It’s a big threat,” says Patrick Parenteau of Vermont Law School, an expert on environmental regulations. Courts are “going to demand a whole lot more justification for what the agencies are doing.”

Already, libertarian groups such as the Pacific Legal Foundation are gearing up for fights with the Biden administration over financial regulations, environmental rules, and new policies to combat the pandemic. They’ll be joined by a familiar cast of characters: Republican state attorneys general, who fought Obama’s regulatory agenda in the courts. Challenges to Chevron are likely to be front and center.

“More regulatory activity means more opportunities for courts to defer to agencies,” says Steve Simpson, a senior attorney at the Pacific Legal Foundation. “And more opportunities for people like us to challenge that deference. That will happen across the board.”

The roots of Chevron deference lie in a battle environmentalists lost—a 1984 Supreme Court case in which the Natural Resources Defense Council sued to prevent the Reagan-era EPA from letting the energy company Chevron USA Inc. dodge anti-pollution requirements. The court ruled that the EPA had legal authority to interpret the text of the Clean Air Act in a way that effectively defanged environmental protections.

The historical ironies of that decision abound. The EPA administrator at the time was Anne Gorsuch, the mother of Justice Neil Gorsuch, who’s now the Supreme Court’s most vocal critic of Chevron. And in the 1980s, the late Justice Antonin Scalia, a conservative icon, championed the decision, declaring that it “accurately reflects the reality of government.”

“It eventually evolved into a huge decision that really required courts to defer if agencies’ interpretations were reasonable,” says Lisa Heinzerling, a former EPA lawyer who teaches administrative law at Georgetown University. “The way Chevron became the Chevron we know today is actually with the help of Justice Scalia.”

Toward the end of his career, however, Scalia turned against Chevron, as conservatives increasingly argued that government agencies were using the doctrine to strip Congress of its legislative authority. But by then, Chevron had become one of the most cited decisions in law. In 2014, the Supreme Court rejected a utility industry challenge to the EPA’s interpretation of the Clean Air Act, citing the agency’s regulatory authority under Chevron. Scalia dissented.

In recent years, the Supreme Court has shown a willingness to reconsider Chevron, or at least to limit its reach. Writing for the majority in a 2015 decision, Chief Justice John Roberts ruled that Chevron does not apply to regulatory questions with “deep economic and political significance.”

“The current Supreme Court majority is killing Chevron through disuse,” says Joshua Matz, a Supreme Court litigator at the law firm Kaplan Hecker & Fink. “Judges are neutering Chevron by taking an extremely narrow view of the circumstances in which a statute leaves any ambiguities. You can kill the doctrine by narrowing it to the vanishing point.”

Under the Biden administration, that process would almost certainly accelerate, as libertarian groups and Republican attorneys general sue to block regulations. Lower courts are bound by Supreme Court precedent, but judges at various levels could still rule that the text of a law is insufficiently ambiguous for Chevron to apply. And in theory, the Supreme Court could overturn the decision entirely, creating a whole new framework for administrative law.

Trump’s appointees to the Supreme Court have expressed skepticism of Chevron. As an appeals judge, Gorsuch denounced it as “a judge-made doctrine for the abdication of the judicial duty.” Barrett’s record on regulatory law is less substantial, but court watchers say her strict adherence to textual analysis might make her unwilling to punt an interpretive question to agencies. And Justice Brett Kavanaugh has criticized Chevron over the years, complaining about the “culture of ambiguity” in American law.

## AT: OSG DA

### 2AC – AT: OSG

#### No link – no one would have to sue after the plan. The plan just reduces the scope of immunities, of which airline carriers would come into compliance.

Lazar ’18 [Fred; Professor of Econ @ York University; “Antitrust Immunity for Joint Ventures Among Alliance Airlines,” *Journal of Air Law and Commerce*, 83(4), p. 787-838]

Joint ventures among airlines are analogous to a merger, especially since there are foreign ownership restrictions in the airline industry.39 Hence, for joint venture agreements to be approved by the authorities responsible for enforcing the antitrust laws, like mergers, they must generate efficiencies and cost savings to offset the anticompetitive effects. Section 7 of the Clayton Act forbids mergers and acquisitions that may be harmful to “competition, or tend to create a monopoly.”40 But as the FTC has pointed out on its website:

Many mergers produce savings by allowing the merged firms to reduce costs, eliminate duplicate functions, or achieve scale economies. Firms will often pass merger-specific benefits on to consumers in the form of lower prices, better products, or more choices. The agencies [FTC and Department of Justice] are unlikely to challenge mergers when the efficiencies of the merger prevent any potential harm that might otherwise arise from the proposed merger. Theoretical cost savings would not be enough, however; they must be demonstrated. And the efficiencies must involve a genuine increase in productivity. It is not enough for cost savings to result merely from a reduction in output, or from the assertion of newfound market power against suppliers. The price reductions should result from real efficiencies in the merger and not from reducing output or service.41

The key statement is, “[t]heoretical cost savings would not be enough, however; they must be demonstrated.”42 Since it is unlikely that a proposed joint venture could demonstrate any up-front efficiencies, this should support the argument favoring periodic reviews of an ATI grant. Such reviews would examine whether theoretical cost savings materialized and, if so, the magnitude of these savings. Without ex post periodic reviews, the entire exercise is theoretical and abstract.

#### Recession now – laundry list.

Rampell 3/14 – Catherine Rampell, economics writer for the Washington Post, “The outlook for the U.S. economy has darkened,” 3/14/22, https://www.washingtonpost.com/opinions/2022/03/14/inflation-recession-risk-about-to-get-much-worse/

The outlook for the U.S. economy has darkened.

Just as it seemed as though the global economy and its tangled supply chains could be getting back to normal, three factors might supercharge inflation and/or raise the risk of recession.

The first of the three developed in just the past few days: a new covid wave in China that has already led to major lockdowns and will further stress the world’s struggling supply chains. If you haven’t heard much about this yet, you probably will soon.

Daily covid cases in China have reached numbers not publicly reported since 2020. Thanks partly to low vaccination rates for the elderly in China, plus the relative ineffectiveness of Chinese-made coronavirus vaccines, the Chinese government has responded to outbreaks with an iron fist. Under its so-called “zero covid” policy, several areas have been locked down in recent days, with nonessential workers mostly barred from leaving their homes in the major manufacturing hubs of Shenzhen (a city of 17.5 million people) and Changchun (9 million).

Transportation to Shanghai, the country’s largest city (25 million), has been severely restricted, raising fears of a possible lockdown there, too.

These measures have forced factories, including plants affiliated with Apple, Toyota and Volkswagen, to suspend operations. The backlog of container ships waiting off Qingdao, one of the country’s biggest ports, has also swelled, with nearly twice as many ships queued up Monday as at the end of February. These bottlenecks are expected to drive container freight prices (even) higher.

All of this will be bad for already elevated inflation, in both the United States and the rest of the world. The only possible economic upside is that factory shutdowns will likely reduce global demand for oil.

This might be helpful in light of Shock No. 2: the disruptions in commodity markets, including oil, resulting from Russia’s unprovoked invasion of Ukraine.

This issue has obviously generated more coverage. Oil and natural gas prices have climbed in recent weeks as governments and individual corporations have placed new restrictions on transactions with Russia. Oil prices have fallen back a little in the past few days but remain high.

Equally worrisome are rising prices for other commodities produced in that part of the world. Russia and Ukraine together supply nearly a third of global wheat exports, with the Ukraine planting season usually occurring in mid-March (i.e., now). Even before the war, global stocks of wheat were low, and prices high, thanks to unfavorable growing weather over the past two years. In the wake of Russia’s invasion, wheat prices have skyrocketed, threatening to boost food inflation more broadly. The risk of widespread hunger and economic hardship is especially high in lower-income countries that are most reliant on Europe’s breadbasket.

Finally, there’s the third risk: tightening financial conditions, thanks to the Federal Reserve.

The Fed is widely expected to raise interest rates at its meeting this week. Given that U.S. inflation is already at a 40-year high, this is hardly surprising. In a different era, few would have predicted that interest rates could be at zero when inflation hit nearly 8 percent (as happened in February). With hindsight, even Fed officials would probably agree that they should have begun tightening months ago.

Fed officials had delayed taking these measures earlier because they feared doing so would derail the post-pandemic recovery. Most previous Fed efforts to tamp down inflation by making it harder to borrow ended with the Fed plunging the U.S. economy into recession, after all.

Central bankers have been hoping to avoid that outcome this time, particularly because there are still 2 million fewer jobs today than existed before the pandemic. And for a long time, most economic forecasters believed inflationary pressures would largely abate on their own as supply chains normalized. That clearly hasn’t happened.

Engineering a “soft landing” for this hot economy was always going to be difficult. But it got more difficult in light of recent global events, because the Fed is being pulled in conflicting directions. Chinese supply chain problems and Russia/Ukraine commodity market disruptions are widely expected to push overall inflation even higher, which would normally nudge the Fed to raise interest rates faster. But those same forces are also expected to drag down economic growth, which usually suggests the Fed should raise rates more slowly.

It’s not obvious what path the Fed should or even could take to get inflation under control without tipping us into recession. Frankly, even without aggressive rate hikes, recession risks are piling up.

# 1AR

## Green Aviation

### XT 2AC 1: Plan Doesnt Solve Warming

#### Failing commitments.

McSweeney 21 – Eoin McSweeney, on the CNN Business and Africa News Desk, citing UN Secretary-General António Guterres, “New climate pledges 'far short' of meeting Paris Agreement goals, UN warns,” 3/16/21, https://www.cnn.com/2021/02/27/world/un-climate-report-red-alert-intl/index.html

The planet is on "red alert" because governments are failing to meet their climate change goals, the United Nations Secretary-General António Guterres said Friday.

He described 2021 as a "make or break year" following the release of a UN Framework Convention on Climate Change (UNFCCC) report analyzing the updated climate action plans submitted by 75 nations ahead of November's COP26 climate summit which found that current policies won't come close to meeting the goals of the Paris Agreement.

"Today's interim report from the UNFCCC is a red alert for our planet. It shows governments are nowhere close to the level of ambition needed to limit climate change to 1.5 degrees and meet the goals of the Paris Agreement," said Guterres in a statement.

Under the 2015 Paris climate accord, countries committed to reduce their carbon output and halt global warming below 2 degrees Celsius -- and if possible, below 1.5 degrees Celsius -- by the end of the century to avoid the worst impacts of climate change.

Experts have repeatedly warned that exceeding the threshold will contribute to more heatwaves and hot summers, greater sea level rise, worse droughts and rainfall extremes, wildfires, floods and food shortages for millions of people.

According to the UN Intergovernmental Panel on Climate Change, the population must reduce its 2030 CO2 emissions by about 45% from 2010 levels and reach net zero by 2050 to ensure this temperature limit goal is reached.

Despite increased efforts, the carbon reduction plans submitted to the UNFCCC fall "far short" of what is needed and show countries need to "strengthen their mitigation commitments under the Paris Agreement," according to the report.

It shows that the revised climate action plans -- which cover 40% of countries party to the 2015 Paris Agreement that account for 30% of global emissions -- would only deliver a combined emissions reduction of 0.5% from 2010 levels by 2030.

#### China.

Klare ’21 [Michael T. Professor Emeritus of peace and world-security studies at Hampshire College and senior visiting fellow at the Arms Control Association in Washington, DC. “Biden’s Tough Stance on China Will Lead to Global Climate Doom”. 3/1/21. https://www.thenation.com/article/world/biden-china-climate/]

Biden is certainly aware of the dangers of global warming. In that same Foreign Affairs article, he labeled it nothing short of an “existential threat,” one that imperils the survival of human civilization. Acknowledging the importance of relying on scientific expertise (unlike our previous president who repeatedly invented his own version of scientific reality), Biden affirmed the conclusion of the UN’s Intergovernmental Panel on Climate Change (IPCC) that warming must be limited to 1.5 degrees Celsius above pre-industrial levels or there will be hell to pay. He then pledged to “rejoin the Paris climate agreement on day one of a Biden administration,” which he indeed did, and to “make massive, urgent investments at home that put the United States on track to have a clean energy economy with net-zero [greenhouse gas] emissions by 2050”—the target set by the IPCC.

Even such dramatic actions, he indicated, will not be sufficient. Other countries will have to join America in moving toward a global “net-zero” state in which any carbon emissions would be compensated for by equivalent carbon removals. “Because the United States creates only 15 percent of global emissions,” he wrote, “I will leverage our economic and moral authority to push the world to determined action, rallying nations to raise their ambitions and push progress further and faster.”

China, the world’s largest emitter of greenhouse gases right now (although the United States remains number one historically), would obviously be Washington’s natural partner in this effort. Here, though, Biden’s antagonistic stance toward that country is likely to prove a significant impediment. Rather than prioritize collaboration with China on climate action, he chose to castigate Beijing for its continued reliance on coal. The Biden climate plan, he wrote in Foreign Affairs, “includes insisting that China… stop subsidizing coal exports and outsourcing pollution to other countries by financing billions of dollars’ worth of dirty fossil-fuel energy projects through its Belt and Road Initiative.” Then he went further by portraying the future effort to achieve a green economy as a potentially competitive, not collaborative, struggle with China, saying, “I will make investment in research and development a cornerstone of my presidency, so that the United States is leading the charge in innovation. There is no reason we should be falling behind China or anyone else when it comes to clean energy.”

Unfortunately, though he’s not wrong on China’s climate change challenges (similar, in many respects, to our own country’s), you can’t have it both ways. If climate change is an existential threat and international collaboration between the worst greenhouse gas emitters key to overcoming that peril, picking fights with China over its energy behavior is a self-defeating way to start. Whatever obstacles China does pose, its cooperation in achieving that 1.5-degree limit is critical. “If we don’t get this right, nothing else will matter,” Biden said of global efforts to deal with climate change. Sadly, his insistence on pummeling China on so many fronts (and appointing China hawks to his foreign policy team to do so) will ensure that he gets it wrong. The only way to avert catastrophic climate change is for the United States to avoid a new cold war with China by devising a cooperative set of plans with Beijing to speed the global transition to a green economy.

### XT 2AC: Canada

#### NATO relations strong

**AP 3/23**, “NATO affirms unity, tries to put Trump era behind it,” US News.com, https://www.usnews.com/news/politics/articles/2021-03-23/nato-affirms-unity-as-minsters-put-trump-era-behind-them

BRUSSELS (AP) — NATO foreign ministers on Tuesday reaffirmed their commitment to defend each other against outside attack and underlined the strength of relations between North America and Europe, after four years of doubt and concern among some allies under the Trump administration.

“We are now opening a new chapter in our trans-Atlantic relationship,” NATO-Secretary General Jens Stoltenberg told reporters after chairing the talks. He thanked President Joe Biden for committing “to rebuild the strength of this alliance” and make it “future-proof in a more competitive world.”

In a formal joint statement aimed at turning a page on the Trump era, the ministers said: “We are meeting in Brussels to reaffirm the enduring transatlantic bond between Europe and North America, with NATO at its heart.”

The ministers, including U.S. Secretary of State Antony Blinken, also committed to the collective defense clause — Article 5 of NATO’s founding treaty — under which an attack against one ally shall be considered an attack against them all. It has only been activated once by NATO, after the 9/11 attacks on New York and Washington.

Former U.S. President Donald Trump often criticized NATO partners for failing to pay their defense dues, claiming falsely that they owed the alliance or the United States money.

Early in his tenure, he threatened not to come to the defense of any country that did not meet NATO spending guidelines, causing deep concern among member nations close to Russia’s borders, like Estonia, Latvia, Lithuania and Poland.

The ministers noted that members of the 30-nation alliance “are making good progress on fairer trans-Atlantic burden sharing; we welcome the efforts made by all Allies in Europe and North America that contribute to our indivisible security. We must and will do more.”

They also vowed that NATO would continue to adapt in the face of “rising threats and systemic competition,” and underlined that “Russia’s aggressive actions constitute a threat to Euro-Atlantic security.”

Earlier, Blinken said that the U.S. is “determined to revitalize our alliances, to revitalize our partnerships, starting with NATO.”

"When we look at virtually all of the challenges that we face as a country and that are actually going to potentially affect the lives of our citizens, not a single one of them can be effectively dealt with by any one country acting alone, even the United States with all of the resources that we have," he said.

he U.S. is by far the biggest and most influential member of NATO, and Trump also surprised, confounded and sometimes angered allies with unilateral decisions, like pulling U.S. troops out of Afghanistan and northern Syria. France complained about a lack of U.S. leadership at NATO.

Asked about NATO member Turkey, Stoltenberg acknowledged that the allies have differences over Ankara's decision to buy Russian anti-aircraft missiles or its aggressive behavior in the eastern Mediterranean Sea, notably a standoff over energy exploration with Greece and Cyprus.

“We need to use NATO as a platform and consult when there are differences," he said, expressing hope that a series of proposals he has drafted to address problems within the alliance will be endorsed by Biden and fellow NATO leaders when they meet in Brussels in June.

#### Europe is stable.

Dr. John R. Deni 20, Research Professor of Joint, Interagency, Intergovernmental, and Multinational (JIIM) Security Studies at the Strategic Studies Institute, Ph.D. in International Affairs from George Washington University, “The United States and the Transatlantic Relationship”, Parameters, Volume 50, Number 2, Summer 2020, p. 20

Improved Security Situation

In some respects, Europe has entered a security stasis over the last two years particularly in contrast to the 2014–16 period and especially with regard to the most acute security threats confronting Europe— namely, Russian aggression and international terrorism. This security stasis was mostly the result of two key factors. First, most North Atlantic Treaty Organization member states implemented a series of budgetary, force posture, readiness, and modernization initiatives intended both to reverse years of steadily declining defense budgets, on average, and to begin correcting the deficit of territorial defense capability and capacity across Europe.1

Second, France, Italy, Germany, Belgium, and others improved their homeland security postures. Since the mid-2010s, European states have significantly enhanced intelligence collection and sharing, tightened counterterrorism laws and border controls, strengthened communitybased monitoring and reporting networks, and devoted more funding to domestic law enforcement and for other counterterrorism capabilities.2

### XT – Impact

#### Warming outweighs and turns every impact.

Bryce, 20 – Emma, citing Nelson, Roman, and Kemp---Cassidy *Nelson* is Co-lead of the biosecurity team at Oxford), Sabin *Roman* earned a PhD in Complex Systems Simulation from the University of Southampton, and both Roman and Luke *Kemp* are research associates at the Cambridge University. "What Could Drive Humans to Extinction?" Real Clear Science, 7-27-2020, <https://www.realclearscience.com/articles/2020/07/27/what_could_drive_humans_to_extinction.html> -- Iowa

Nuclear war

An existential risk is different to what we might think of as a "regular" hazard or threat, explained Luke Kemp, a research associate at the Centre for the Study of Existential Risk at Cambridge University in the United Kingdom. Kemp studies historical civilizational collapse and the risk posed by climate change in the present day. "A risk in the typical terminology is supposed to be composed of a hazard, a vulnerability and an exposure," he told Live Science. "You can think about this in terms of an asteroid strike. So the hazard itself is the asteroid. The vulnerability is our inability to stop it from occurring — the lack of an intervention system. And our exposure is the fact that it actually hits the Earth in some way, shape or form."

Take nuclear war, which history and popular culture have etched onto our minds as one of the biggest potential risks to human survival. Our vulnerability to this threat grows if countries produce highly-enriched uranium, and as political tensions between nations escalate. That vulnerability determines our exposure.

As is the case for all existential risks, there aren't hard estimates available on how much of Earth's population a nuclear firestorm might eliminate. But it's expected that the effects of a large-scale nuclear winter — the period of freezing temperatures and limited food production that would follow a war, caused by a smoky nuclear haze blocking sunlight from reaching the Earth — would be profound. "From most of the modeling I've seen, it would be absolutely horrendous. It could lead to the death of large swathes of humanity. But it seems unlikely that it by itself would lead to extinction." Kemp said.

Pandemics The misuse of biotechnology is another existential risk that keeps researchers up at night. This is technology that harnesses biology to make new products. One in particular concerns Cassidy Nelson: the abuse of biotechnology to engineer deadly, quick-spreading pathogens. "I worry about a whole range of different pandemic scenarios. But I do think the ones that could be man-made are possibly the greatest threat we could have from biology this century," she said. As acting co-lead of the biosecurity team at the Future of Humanity Institute at the University of Oxford in the United Kingdom, Nelson researches biosecurity issues that face humanity, such as new infectious diseases, pandemics and biological weapons. She recognizes that a pathogen that's been specifically engineered to be as contagious and deadly as possible could be far more damaging than a natural pathogen, potentially dispatching large swathes of Earth's population in limited time. "Nature is pretty phenomenal at coming up with pathogens through natural selection. It's terrible when it does. But it doesn't have this kind of direct 'intent,'" Nelson explained. "My concern would be if you had a bad actor who intentionally tried to design a pathogen to have as much negative impact as possible, through how contagious it was, and how deadly it was.” But despite the fear that might create — especially in our currently pandemic-stricken world — she believes that the probability that this would occur is slim. (It's also worth mentioning that all evidence points to the fact that COVID-19 wasn't created in a lab.) While the scientific and technological advances are steadily lowering the threshold for people to be able to do this, "that also means that our capabilities for doing something about it are rising gradually," she said. "That gives me a sense of hope, that if we could actually get on top [of it], that risk balance could go in our favor." Still, the magnitude of the potential threat keeps researchers' attention trained on this risk.

From climate change to AI

A tour of the threats to human survival can hardly exclude climate change, a phenomenon that (is) already driving the decline and extinction of multiple species across the planet. Could it hurl humanity toward the same fate?

The accompaniments to climate change — food insecurity, water scarcity, and extreme weather events — are set to increasingly threaten human survival, at regional scales. But looking to the future, climate change is also what Kemp described as an "existential risk multiplier" at global scales, meaning that it amplifies other threats to humanity's survival. "It does appear to have all these relationships to both conflict as well as political change, which just makes the world a much more dangerous place to be." Imagine: food or water scarcity intensifying international tensions, and triggering nuclear wars with potentially enormous human fatalities.

This way of thinking about extinction highlights the interconnectedness of existential risks. As Kemp hinted before, it's unlikely that a mass extinction event would result from a single calamity like a nuclear war or pandemic. Rather, history shows us that most civilizational collapses are driven by several interwoven factors. And extinction as we typically imagine it — the rapid annihilation of everyone on Earth — is just one way it could play out.

### XT 2AC 2: No Food

#### **Non-resource factors and costs of war.**

Baryamov ’18 [Agha; PhD candidate and lecturer in the department of International Relations and International Organization @ University of Groningen; “Review: Dubious nexus between natural resources and conflict,” *Journal of Eurasian Studies* 9(1): 72-81]

First, function of natural resources in conflict is narrowly explained. Less research has been devoted to non-resource factors of conflicts and their connection with resources. Conflict is composed of multiple dimensions (political, economic, historical, cultural, ethnic and geographical etc.) rather than single factor. It is not clear how non-resource dimensions o1f conflict interact with natural resources, namely poor performance of state institutions or scarcity of state capacity One may understand how natural resources influence non-resource dimensions but one may not find how and whether non-resource dimensions affect scarcity or abundancy of natural resources. In this regard, it is not sufficient to simply propose scarcity or abundancy of natural resources as the fundamental reason for conflicts. Second, less research has scrutinized political and economic costs of resources wars, namely occupation cost, international cost and investment costs (e.g. Meierding, 2016). The existing works give a misleading impression that resource incomes can cover easily invasion, investment and international costs of wars.

#### **Resource states aren’t equal, and non-state actors aren’t considered.**

Baryamov ’18 [Agha; PhD candidate and lecturer in the department of International Relations and International Organization @ University of Groningen; “Review: Dubious nexus between natural resources and conflict,” *Journal of Eurasian Studies* 9(1): 72-81]

Third, the existing works consider approximately most resource states to be more or less equal entities. Although such states may have equal rights from juridical perspective, they share too many diverse features to be considered equal entities in other empirical terms. For example, while Azerbaijan and Saudi Arabia have rich natural resources, they are dissimilar in a number of other important ways. However, both qualitative and quantitative analyses neglect this factor while explaining the resource-conflict nexus. Therefore, it is unwise to lump different case studies together in the same category without considering the particular characteristics of the region or country in question. Moreover, wide part of the existing works adopts a national-level approach by portraying abundancy, scarcity and conflict at the unitary state-level. Nevertheless, natural resources are distributed inconsistently over a nation's territory. In other words, only particular places, namely cities or urban areas are affected by the abundancy or scarcity of resources. Hence, conflict more likely develops in areas which are excluded from resource wealth and development. However, the present works neglect the distinctive characteristics between resource rich cities and non-resource cities by putting them into country level analysis. Inadequate explanation of actors and players in resource governance is another weak point. The majority of the literature has surveyed the resource-conflict relationship through the lens of sovereign states or the great powers. The rest of the actors (companies, financial institutions, NGOs, and etc.) are superficially recognized because these actors represent states' national interests. Therefore, little research has focused on other players, such as the role of regional and international organizations (e.g. Hendrix & Noland, 2014;Price-Smith, 2015, Schrijver, 2010). Despite their key importance, states are not the sole actors in the sustainable management and use of natural resources. There are several actors that are involved actively in resource management and disputed areas. Although these actors are not the panaceas for global issues, resource state cannot simply ignore their interests. Meanwhile, to protect their own interests, these actors to some extent affect the security and stability of resource rich regions. Considering, the role of multiple actors is thus crucial, in order to pursue a multi-level analysis and view the complex interdependency of these actors from different perspectives.

## SG DA

### XT 2AC 5: Econ Alt Causes

#### COVID in China, commodity prices, and Fed hikes

Rampell 3/14 – Catherine Rampell, economics writer for the Washington Post, “The outlook for the U.S. economy has darkened,” 3/14/22, https://www.washingtonpost.com/opinions/2022/03/14/inflation-recession-risk-about-to-get-much-worse/

The outlook for the U.S. economy has darkened.

Just as it seemed as though the global economy and its tangled supply chains could be getting back to normal, three factors might supercharge inflation and/or raise the risk of recession.

The first of the three developed in just the past few days: a new covid wave in China that has already led to major lockdowns and will further stress the world’s struggling supply chains. If you haven’t heard much about this yet, you probably will soon.

Daily covid cases in China have reached numbers not publicly reported since 2020. Thanks partly to low vaccination rates for the elderly in China, plus the relative ineffectiveness of Chinese-made coronavirus vaccines, the Chinese government has responded to outbreaks with an iron fist. Under its so-called “zero covid” policy, several areas have been locked down in recent days, with nonessential workers mostly barred from leaving their homes in the major manufacturing hubs of Shenzhen (a city of 17.5 million people) and Changchun (9 million).

Transportation to Shanghai, the country’s largest city (25 million), has been severely restricted, raising fears of a possible lockdown there, too.

These measures have forced factories, including plants affiliated with Apple, Toyota and Volkswagen, to suspend operations. The backlog of container ships waiting off Qingdao, one of the country’s biggest ports, has also swelled, with nearly twice as many ships queued up Monday as at the end of February. These bottlenecks are expected to drive container freight prices (even) higher.

All of this will be bad for already elevated inflation, in both the United States and the rest of the world. The only possible economic upside is that factory shutdowns will likely reduce global demand for oil.

This might be helpful in light of Shock No. 2: the disruptions in commodity markets, including oil, resulting from Russia’s unprovoked invasion of Ukraine.

This issue has obviously generated more coverage. Oil and natural gas prices have climbed in recent weeks as governments and individual corporations have placed new restrictions on transactions with Russia. Oil prices have fallen back a little in the past few days but remain high.

Equally worrisome are rising prices for other commodities produced in that part of the world. Russia and Ukraine together supply nearly a third of global wheat exports, with the Ukraine planting season usually occurring in mid-March (i.e., now). Even before the war, global stocks of wheat were low, and prices high, thanks to unfavorable growing weather over the past two years. In the wake of Russia’s invasion, wheat prices have skyrocketed, threatening to boost food inflation more broadly. The risk of widespread hunger and economic hardship is especially high in lower-income countries that are most reliant on Europe’s breadbasket.

Finally, there’s the third risk: tightening financial conditions, thanks to the Federal Reserve.

The Fed is widely expected to raise interest rates at its meeting this week. Given that U.S. inflation is already at a 40-year high, this is hardly surprising. In a different era, few would have predicted that interest rates could be at zero when inflation hit nearly 8 percent (as happened in February). With hindsight, even Fed officials would probably agree that they should have begun tightening months ago.

Fed officials had delayed taking these measures earlier because they feared doing so would derail the post-pandemic recovery. Most previous Fed efforts to tamp down inflation by making it harder to borrow ended with the Fed plunging the U.S. economy into recession, after all.

Central bankers have been hoping to avoid that outcome this time, particularly because there are still 2 million fewer jobs today than existed before the pandemic. And for a long time, most economic forecasters believed inflationary pressures would largely abate on their own as supply chains normalized. That clearly hasn’t happened.

Engineering a “soft landing” for this hot economy was always going to be difficult. But it got more difficult in light of recent global events, because the Fed is being pulled in conflicting directions. Chinese supply chain problems and Russia/Ukraine commodity market disruptions are widely expected to push overall inflation even higher, which would normally nudge the Fed to raise interest rates faster. But those same forces are also expected to drag down economic growth, which usually suggests the Fed should raise rates more slowly.

It’s not obvious what path the Fed should or even could take to get inflation under control without tipping us into recession. Frankly, even without aggressive rate hikes, recession risks are piling up.

#### Inflation high and rising – destroys economy

Lowrey 3/18 – Annie Lowrey, economics writer at the Atlantic, “Inflation Is Bad and About to Get Worse,” 3/18/22, https://www.theatlantic.com/ideas/archive/2022/03/inflation-federal-reserve-recession/627079/

For four decades, the cost of consumer goods was a rare bright spot in the American economy. The stuff we fill our homes and lives with—phones, clothes, makeup, cars, snacks, and toys—got better and cheaper. But no more. Prices were up 6.8 percent year-over-year in February and are near-certain to spike even higher in the coming months. A new Great Inflation is squeezing family budgets, erasing wage gains, and raising the prospect of a period of economic stagnation or even a recession. Given the strong forces driving prices up, costs are likely to get higher before they moderate.

The first force is the coronavirus pandemic: Families are spending more on goods and less on services, and global supply chains have not yet adapted to the new reality. When COVID-19 hit, people quit going to see their personal trainers and set up garage gyms. Families stopped going to restaurants and bought air fryers and barbecue equipment. Two years later, that trend has not reversed: Spending on goods is still roughly 15 percent higher than it was before the pandemic, while spending on services has not recovered.

At the same time the pandemic has increased demand, it has disrupted the world’s supplies of everything from fertilizer to lumber to medical equipment and made it as much as 10 times more expensive to move things around. Infections and lockdowns have made it hard for mines and factories to produce goods. The semiconductor chips used in pretty much every electronic gadget have been in short supply for two years now. The shipping industry, reliant on boats and locks and robots that take years to build, has struggled to expand, too. “Shippers have struggled to locate capacity, with acute shortages of vessel space, container boxes, chassis, warehouse space, intermodal capacity, and labor,” one exhaustive McKinsey report notes.

The Omicron wave sweeping through Asia is now causing another wave of supply disruptions, raising the prospect of another wave of shortages and price increases. This month, Chinese authorities placed the city of Shenzhen and the province of Jilin on lockdown, as cases started to spike. Shenzhen is known as the hardware capital of the world; any sustained closures there will disrupt the market for electronics, with knock-on effects in industries as disparate as auto manufacturing and fast food.

COVID-19 has also caused supply disruptions closer to home, in the domestic manufacturing industry and in the labor force. The pandemic has driven millions of older workers into early retirement and persuaded many younger workers to quit their crappy jobs and hunt for new ones, in what has been termed the “Great Resignation.” At the same time, child-care closures have shunted hundreds of thousands of parents, mostly mothers, out of the labor force, while the pandemic has sickened or killed millions of workers, and left thousands on disability, because of devastating and poorly understood long COVID.

### XT 2AC Rulemaking Now

#### Rulemaking coming now.

Walters ’21 [Kurt; Harvard Law School; “Reassessing the Mythology of Magnuson-Moss: A Call to Revive Section 18 Rulemaking at the FTC,” *Harvard Law & Policy Review*, Vol. 16; AS]

D. A New Era?

There is a palpable sense that the FTC is on the precipice of a new, more assertive era after President Biden’s designated pioneering antitrust scholar Lina Khan as FTC Chair. 108 In recent years, a growing set of scholars have urged the FTC to resuscitate long-underutilized authorities across both its competition and consumer protection mandates, including Khan’s own calls to reinvigorate competition rulemaking. 109 The impression of an imminent return to FTC rulemaking grew even stronger when, in its first meeting under Chair Khan, the Commission issued a suite of administrative reforms to streamline section 18 proceedings. 110

The prospects for new section 18 rulemaking are greater today than at any time in the past forty years. Commissioner Rebecca Slaughter has endorsed section 18 rulemaking to push back against AI-powered algorithms that are biased along lines of race or gender, or otherwise harm consumers. 111 Commissioner Rohit Chopra advocated its use for “restatements” of existing precedent so that penalties can apply to first-time violations as well as repeat offenders, listing imposter fraud and tip-theft by gig work companies as prime areas for rulemaking.112 Commissioner Christine Wilson, who unlike Slaughter and Chopra occupies a Republican seat on the Commission, has voiced her support for a section 18 rulemaking covering data privacy President Biden has similarly called for an FTC rule to restrict surveillance style data collection, 114 which would likely be issued under section 18.115