# 1ac

## 1AC – Balancing Test

### Cartels Adv

#### Glaring inconsistencies and bad decisions interpreting the FTAIA’s limit on the Sherman Act wreck the deterrent effect of US extraterritorial antitrust against global cartels

Murray ‘17 [Sean; 2017; J.D. Candidate and Stein Scholar, Fordham University School of Law; Fordham International Law Journal; “With A Little Help From My Friends: How A Us Judicial International Comity Balancing Test Can Foster Global Antitrust Private Redress.” vol 41, iss. 1 https://ir.lawnet.fordham.edu/cgi/viewcontent.cgi?article=2690&context=ilj]

IV. SHORTCOMINGS OF THE CURRENT JURISPRUDENCE

Although clarity was one of Congress’ goals in enacting the FTAIA, the statute as drafted is anything but clear, and the FTAIA itself has contributed to the ill-defined boundaries of the effects doctrine. The FTAIA has produced a number of circuit splits, one of which was decided by Empagran.151 Other circuit splits currently exist, including one between the Seventh and Ninth circuits concerning the interpretation of the FTAIA’s requirement that anticompetitive behavior have a “direct, substantial, and reasonably foreseeable effect” on US commerce which the Supreme Court has so far abstained from resolving.152 As explained in Minn-Chem, Inc. v. Agrium Inc., the “substantial” and “reasonably foreseeable” prongs have produced little dispute and are relatively straightforward.153 Rather, what it takes to show “direct” is less clear.154 The Seventh Circuit took the position that, like in tort law, recovery should be cut off for injuries that are too remote from the cause of an injury and held that the term “direct” means only “a reasonably proximate causal nexus.”155

To the contrary, the Ninth Circuit in United States v. LSL Biotechnologies looked to the Supreme Court’s definition of “direct” from a different statute germane to international relations.156 Drawing from dictionary definitions and language in the Foreign Sovereign Immunities Act that is similar to that in the FTAIA, the court held that an effect is “direct” if “it follows the immediate consequence of the defendant’s activity.”157 This definition was subsequently utilized by the Ninth Circuit in its decision in United States v. Hsiung (the criminal prosecution of the defendants in Motorola Mobility), which expressly rejected Minn-Chem’s “reasonably proximate causal nexus” approach and reiterated instead the broader “immediate consequence” test.158

A. Problems Arising from the Circuit Split

Using Minn-Chem’s definition of “direct,” however, has produced a questionable holding in Motorola Mobility.159 In that case, a US company, Motorola, brought a claim under Section 1 of the Sherman Act, alleging that it was the victim of price-fixing among foreign manufacturers of liquid crystal display (“LCD”) panels used as components in the manufacture of cellphones.160 The LCD panel manufacturers had already been found guilty of participating in an illegal cartel, and those convictions were affirmed in Hsiung.161 Motorola was a major purchaser of LCD panels, but had purchased most of the price-fixed products through its majority-owned foreign subsidiaries.162 Only one percent of its purchases were made directly by Motorola in the United States and incorporated into cellphones also sold in the United States.163 The other ninety-nine percent of its purchases were made abroad.164 Of those purchases, forty-two percent were incorporated into phones destined for the United States, while the remainder were used to make phones sold abroad.165

In its first stab at the appeal of the lower court’s decision, the Seventh Circuit following Minn-Chem’s definition of “direct” held that anticompetitive behavior affecting intermediary products, rather than final products, could not have a “direct” effect on US commerce.166 After additional consideration likely influenced by the DOJ’s concern with the initial holding and its implications for international cartel enforcement, the court vacated the first opinion and opted for a different approach to the same conclusion.167 Summarizing that the case involved “components [that] were sold by their manufacturers to their foreign subsidiaries, which incorporated them into the finished product to Motorola for resale in the United States,” Judge Posner branded the wrongful conduct, effect, and injury as entirely extraterritorial because Motorola and its subsidiaries did not function as one enterprise.168 Therefore, the court construed Motorola as an indirect purchaser, barred from bringing a claim under the Sherman Act by virtue of the holding in Illinois Brick Co. v. Illinois,169 and concluded that the entire transaction falls outside of the FTAIA’s exception, though recognizing that the effect on US commerce may, perhaps, be “direct.”170

But, the court’s reliance on Illinois Brick was no better than its initial attempt to characterize the effect of the LCD cartel on US commerce. Several points suggest Motorola Mobility was wrongly decided, including inconsistencies with US precedent and statutes. In holding that Motorola and its subsidiaries did not function as one enterprise because they are governed by the different laws of the countries in which they are incorporated and operated, Judge Posner disregarded the Supreme Court’s central holding in Copperweld Corp. v. Independence Tube Corp.171 Copperweld’s progeny have found a corporation and its wholly owned subsidiaries to be a “single entity” with “complete unity of interest” and, similarly, have also found a lack of relevant differences between a corporation and its wholly owned subsidiary for Sherman Act analysis.172 Additionally, for non-wholly owned subsidiaries, courts relying on Copperweld have treated a parent and its non-wholly owned subsidiary as a single entity for antitrust purposes where the parent held a controlling majority of the subsidiary’s stock.173

In addition to precedent, other US antitrust statutes treat parents and subsidiaries as one entity. The Hart-Scott-Rodino Antitrust Improvement Act (“HSR”) requires a business acquiring another business in a transaction meeting certain thresholds to file a premerger notification with the government.174 If the acquiring business is controlled by a parent corporation, the HSR mandates that the “ultimate parent entity” file the notification regardless of the nationality of the acquired business.175 Furthermore, appearing to be influenced by Copperweld, the HSR does not require filing for the merger of two wholly owned subsidiaries with a common parent.176

Motorola also argued that it was the “target” of the illegal conduct or, alternatively, the direct victim because its subsidiary “passed on” the cartel-inflated portion of the original purchase price to Motorola.177 In Illinois Brick, which also contemplated the offensive use of the illfated pass-on theory in US antitrust jurisprudence, Justice White surmised that a situation in which the pass-on defense “might be permitted” is where the direct purchaser is owned or controlled by its customer.178 Posner, highlighting the semantic difference between “might be” and “is,” brushed this off as meaningless.179

The Motorola Mobility decision has negative consequences for US antitrust law, non-US subsidiaries of American parents relying on US law for potential recovery, US businesses operating internationally with international subsidiaries, and consumers. In essence, the Seventh Circuit announced a broad rule that eliminates private antitrust remedies where the first purchase of a price-fixed component occurs offshore, drastically mitigating the ability of US antitrust law to deter harmful foreign conduct targeting US markets.180 Is Posner really suggesting that American businesses are only protected by US antitrust law when the domestic parent itself engages in such wholly foreign transactions?181

Moreover, the Seventh Circuit’s decision creates a glaring inconsonance with the Ninth Circuit’s in what should be similar outcomes to similar cases. Despite justifying its second decision the Seventh Circuit by warning that “rampant extraterritorial application of U.S. law ‘creates a serious risk of interference with a foreign nation’s ability to independently regulate its own affairs,’” the court did not delve into any meaningful comity analysis.182 Particularly troubling is that while concerned with the prospect of “rampant extraterritoriality,” the court gives no attention to whether Motorola would be able to recover abroad or, more importantly, whether the cartels’ host countries have any incentive to prosecute “when their nationals engage in hardcore cartel conduct directed at a huge U.S. consumer market” that caused harm in that, opposed to its own, market.183

B. Comity Analysis: A Possible Solution to Interpreting the FTAIA?

Ultimately, the Seventh Circuit may have initially reached a more reasonable conclusion in its first decision of Motorola Mobility had the court taken a different interpretational approach, such as one taken by the Supreme Court. Because the FTAIA’s effect test reflects an evaluation of a US jurisdictional claim, a possible method of aiding the courts’ construction of what a “direct” effect entails may be to follow Empagran’s example and in fact employ a comity analysis.184 The two most recent comity principle constructions, as discussed, are in Hartford Fire and Empagran. However, the different comity approaches the Supreme Court undertakes in both cases result in standards that are under-inclusive and over-inclusive, respectively.

The Supreme Court’s approach in Hartford Fire suggested the unhelpfulness, if not irrelevance, of comity if there was no true conflict of laws.185 Hartford Fire’s comity test is under-inclusive in the sense that comity considerations would rarely be triggered, perhaps only in cases where a foreign state established laws mandating anticompetitive behavior.186 Indeed, the First Circuit in Nippon Paper suggested that Hartford Fire had “stunted” the growth of comity in antitrust, and Professor Eleanor Fox proclaimed that “[the decision in Hartford Fire] gives U.S. jurists and enforcers license to disregard the interests of non- Americans.”187

Empagran’s comity analysis, on the other hand, may be rigidly over-inclusive to the point where important US antitrust law objectives, such as deterrence and remedy, may go unserved. Turning its back on the Supreme Court’s previous holdings in Continental Ore and Pfizer, the decision’s use of comity may in fact have created “a handicap going forward [that] would lead to under-deterrence as well as unfairness.”188 As Judge Higginbotham’s dissent in Den Norske v. HeereMac stresses, the FTAIA does not alter Pfizer’s affirmation of foreign plaintiffs’ ability to sue under the Sherman Act, which was expressly approved in the statute’s legislative history.189

#### Unrestrained cartel behavior makes global supply chains unstable and undermines domestic manufacturing

Leonardo ‘16 [Lizl Leonardo; 2016; J.D. Candidate, DePaul University College of Law, 2018; B.S., 2011, De La Salle University-Manila, Philippines; DePaul Law Review; “A Proposal to the Seventh and Ninth Circuit Split: Expand the Reach of the U.S. Antitrust Laws to Extraterritorial Conduct that Impacts U.S. Commerce.” vol. 66, https://via.library.depaul.edu/cgi/viewcontent.cgi?article=4008&context=law-review]

The FTAIA was enacted to “clarify” the Sherman Act’s application to transactions that affect U.S. commerce, yet the circuit courts have not come to a consensus as to how it must be consistently interpreted.198 Similarly, despite the circuit splits that have overwhelmed the judicial system, the U.S. Supreme Court has only interpreted the FTAIA once, in Empagran. 199 The Court at that time, however, did not answer the critical question embodied in Hui Hsiung and Motorola: whether the FTAIA applies to transactions made outside of the United States but eventually have an impact upon U.S. competition, commerce, and consumers.200

The indistinguishable facts of Hui Hsiung and Motorola and the irreconcilable rulings call for a consistent rule across the circuit courts and intervention by the U.S. Supreme Court.201 Both cases involved the price-fixing of LCD panels by foreign entities, whose manufactured products eventually reached the United States.202 Yet, the Seventh and Ninth Circuits disagreed on what constitutes “import trade” or “import commerce.”203 The Seventh Circuit held that in order to be liable, a defendant must be engaged as an importer, who directly sells goods into the United States.204 Accordingly, it ruled that the one percent of LCDs sold directly to Motorola were too attenuated to become “import trade” under the Sherman Act;205 the remaining forty-two percent of LCDs, which Motorola’s foreign subsidiaries bought from the defendants, were too “remote” under FTAIA.206 In complete contrast, the Ninth Circuit held that any conduct consummated within an import market qualifies as either “import trade” or “import commerce.”207 This meant that the defendants did not have to import any goods themselves, but only needed to have engaged in conduct within the import business to satisfy both the Sherman Act and the FTAIA.208 Accordingly, the Ninth Circuit held that the defendants, although not the per se importers of the LCD panels, were liable under either the Sherman Act or the FTAIA for engaging in business that affected the finished products that were sold into the United States.209

These two contrasting rulings have placed not only the defendants—but also other foreign companies doing business with the United States—in a precarious position.210 These two cases represent the frequently recurring question of how to interpret the FTAIA.211 Foreign companies that do business, directly or indirectly, want clear guidance on how their business practices could be subjected to U.S. antitrust laws.212 No company will want to risk breaking the law in one jurisdiction, yet be absolved in the other.213 A clear ruling across all federal courts will be beneficial to international antitrust enforcement and the domestic economy, especially with the continuous expansion of global supply chains.214

A “supply chain” is defined as “a network between a company and its suppliers to produce and distribute a specific product, and the supply chain represents the steps it takes to get the product or service to the customer.”215 It essentially “encompasses each step from the supplier to the final consumer.”216 Establishing global supply chains across the world has become a strategy of companies in today’s globalized economy.217 Global supply chains have played an important role in the end-to-end production of goods sought by consumers across the world.218 In today’s globalized economy, companies use this practice to source, manufacture, transport, and distribute products internationally.219 For example, televisions are manufactured in China using displays from Taiwan and Korea.220 These televisions eventually find their way into various countries, including the United States.221 Due to this multi-step process, many businesses that utilize global supply chains become victims of anticompetitive activity by foreign cartels.222 In fact, price-fixing conspiracies have cost consumers more than $1 trillion over the last twenty-five years.223 Needless to say, the United States, holding a huge market share of these products, should protect these supply chains to some degree through the enactment and execution of an understandable U.S. antitrust law.224

The manufacturing industry, in particular, contributes more than $1.8 trillion annually to the U.S. economy and “employs nearly twelve million men and women.”225 The goods sold by foreign intermediaries eventually find their way into the United States, some of which may be used to further domestic manufacturing.226 For example, in 2014, approximately $2.8 trillion of goods were imported into the United States.227 This amount has more than doubled in the last fifteen years.228 Most of these imports act as intermediate inputs on productivity used for other businesses in the United States.229 For example, in 2006, over ten percent of intermediate inputs accounted for imported intermediaries used by private industries.230 Without a doubt, the question presented in these two cases is of tremendous economic significance to U.S. manufacturers and the United States as a whole. The harm of the price-fixing conspiracy from these two cases alone has affected well over $23.5 billion in sales of LCD panels imported into the United States, either as raw materials or as components of finished products.231 Manufacturers have had to absorb the artificially high costs of the LCD panels as they incorporate the component LCD panels into finished products, and they ultimately pass those artificially inflated costs on to U.S. consumers.232 Price-sensitive consumers, in return, may have refused to purchase these more expensive products, altering the demand-supply market and impacting the companies’ bottom lines.

#### Integrated and global supply chains solve every hotspot for conflict – material integration prevents war and encourages resolution – untangling risks the future of global stability.

Khanna '16 [Parag; 4/19/16; Senior Research Fellow in the Centre on Asia and Globalisation at the Lee Kuan Yew School of Public Policy at the National University of Singapore; "From War to Tug-of-War: The Global Fight for Connectivity," https://nationalinterest.org/feature/war-tug-war-the-global-fight-connectivity-15831]//GJ

Here is my prediction: Taiwan won’t cause World War III. Nor will Kashmir, nor the Senkaku Islands, nor the nonexistent Iranian nuclear bomb. We aren’t very good at predicting wars. The wars that have broken out in the recent past—the U.S. invasion of Afghanistan and Iraq after 9/11, Russia invading Ukraine, the proxy war under way in Syria—weren’t predicted by anyone.

Furthermore, applying ancient wisdom such as the “Thucydides trap” only gets us so far. In 2015, respected Harvard professor Graham Allison published a study covering five hundred years of geopolitical power transitions and found that war broke out between the “ruling” power and its “rising” challenger in twelve out of sixteen cases. Based on these historical odds, war between the United States and China is likely but not inevitable. The most important strategy to avoid sleepwalking into World War III, Allison’s brilliant paper urged, is a “long pause for reflection.” Let’s take that pause.

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This isn’t 1914. In our haste to make analogies to a century ago, we have neglected the differences. European nations traded heavily across each other prior to World War I, but they did so as vertically integrated mercantile empires drawing on raw materials from their own vast colonies. They traded in finished goods without outsourcing production to each other. We did not have today’s internationally distributed manufacturing networks in 1914. The nineteenth and twentieth centuries brought trade interdependence; in the twenty-first century, we have complex supply chain dispersal as well—including among rival superpowers.

Even more than trade, it is investment that determines the stability of relations. Under a Cold War geopolitical paradigm, rivals wouldn’t invest in each other either; the United States and the Soviet Union certainly didn’t. But today’s robust flows of global investment among friends and enemies—“frenemies”—highlight how we have shifted from a Westphalian world to a supply-chain world. This financial and investment integration comes in the form of the trillions of dollars of assets invested in each other’s currencies and equities, as well as the tangible, productive capital—factories, real estate, banks, agriculture—they have bought and built inside other’s territory to efficiently and profitably access their markets.

If the United States and China were to go to war, the most immediate casualty would be Walmart, America’s largest retailer, 70 percent of whose merchandise is imported from China. Walmart has also been buying e-commerce companies such as Yihaodian.com to boost sales in China. The world’s most valuable company, Apple (also American), would also see its stock plummet, with so much of the market sentiment around its potential linked to growth in China. Two other American technology giants, Google and Facebook, would have to give up their cherished dreams of equal access behind China’s “Great Firewall,” and Hollywood studios, already accused of self-censorship to gain investment such as Dalian Wanda’s recent purchase of Legendary Entertainment for $3.5 billion, would find themselves banned from the world’s fastest-growing film market.

Approximately 60 percent of the Fortune 500’s revenues come from overseas sales, and the recently ratified Trans-Pacific Partnership (TPP) agreement is an American-led effort to nudge Asia’s share of America’s exports up even higher—with the potential for China itself to eventually join the trade area. As of March 2016, China imports American shale oil supplies from Texas. Direct confrontation is thus not in anyone’s interest so long as China needs peace for growth, America needs China for its hardware and everyone relies on shipping through the South China Sea.

Supply chains thus diminish the incentives for conflict. Leaders think twice, and step back from the brink. The growing depth of global cross-border trade and investment make geopolitics much more complex than in previous eras. When Presidents Obama and Xi held a 2013 summit at Sunnylands in California and spoke of aspiring toward “a new kind of great power relationship,” that was a reflection of the current reality—not a future scenario.

The common-sense truth is that while leaders talk about “red lines” for public consumption, and navies come dangerously close to trading direct fire, global market integration churns forward, knowing that there are two kinds of mutually assured destruction at play: military and economic. Military maneuvers don’t tell us enough about what drives leverage among great powers nor what they are willing to fight over. The tangled complexities of today’s system force leaders to think beyond borders and make functional calculations about the cost-benefit utility of their strategies—knowing full well that supply-chain warfare involves not just an enemy “over there” but also one’s own deep interests “over there.”

Waiting for World War III thus recalls Samuel Beckett’s Waiting for Godot, in which Vladimir and Estragon resolve to hang themselves if Godot does not arrive—so they simply sit endlessly. Their would-be savior, of course, never comes, but the protagonists never actually commit suicide either.

It is well documented that the number and frequency of interstate wars has fallen to nearly zero. Equally important, but far less discussed, is our ability to ring-fence conflicts, containing them at the local or regional level rather than allowing them to spillover too widely or escalate too sharply. The one genuine international conflict of the past several years, between Russia and Ukraine, is an example of this. Russia has not invaded the Baltics, marched into Poland, shut off gas to Europe in the winter or otherwise cleaved the European Union. Russia lacks the capacity to do so, and knows the repercussions of overreach.

The Arab world also continues to seize daily headlines. Syria is undeniably a regional proxy war, meaning that chaos there will continue. But it is not likely that Sunni powers such as Turkey and Saudi Arabia will directly escalate against Russia and Iran, whose forces are backing Bashar al-Assad’s Alawite regime. Saudi Arabia and Iran are also jockeying in Iraq, marking yet another chapter in Iraq’s destruction that began with the 1980s Iran-Iraq War, the disastrous invasion of Kuwait in 1990, the U.S. invasion in 2003 and brutal insurgency ever since. But Iraq, too, will not become the flash point that triggers war among great powers. While all of these conflicts are tragic, none of them, civil or international, are of world-historical significance.

A far more important driver of the long-term geopolitical positioning among key powers is not their role in any of these minor wars, but how they play the great supply-chain tug-of-war that is a far more pervasive reality than international warfare. Tug-of-war is an apt metaphor for our times. The world’s oldest team sport, its rituals are recorded in ancient stone etchings from Egypt to Greece to China to Guinea. Often conducted in resplendent royal ceremonies, tug-of-war was used by the soldiers of great armies to build strength in preparation for combat. In the eighth century, the Tang dynasty emperor Xuanzong was known to pit over five hundred warriors on each side of a rope over 150 meters long.

The rope in today’s geopolitical tug-of-war is connectivity. States want to control the transportation, energy and communications infrastructures and markets that enable them to acquire resources, access markets and move up the value chain. We don’t fight over the borders that divide us, but rather pull and yank the supply chains that connect us. While very few societies are at war, all societies are caught in this global tug-of-war, competing over the flows of money, goods, resources, technology, knowledge and talent transpiring between them.

Wars of connectivity are won by economic master planning rather than military doctrine. Think about it: twenty-first-century China is not a superpower because of the size of its military arsenal, but because it has become the central hub for the world’s manufacturing and electronics supply chains, built a sizeable trade surplus and enormous currency reserves, and penetrated most of its neighbors through robust infrastructure networks and become their main foreign investor and export destination. Do you have any clue how many nuclear weapons China has? Exactly: It doesn’t matter. But you probably know a fair bit by now about how China builds special economic zones, buys and steals foreign technology, and capitalizes companies with billions of dollars to ramp up quickly and capture global markets that range from solar panels to mobile handsets.

Britain’s elite Royal Military Academy Sandhurst publishes a manual of strategies for success in tug-of-war, pointing out that a good team “synchronizes its movements to the point that their pull feels like it comes from a single, unified being.” Does America act like this? Do Washington politicians, the Fed, Wall Street bankers, Texas oil companies, Silicon Valley tech companies and the other players on America’s team act like a single, unified being? Or does China do it better? Tug-of-war is won slowly and carefully. Smart teams dig in their heels to hold ground and tire out opponents while collectively taking small steps to ultimately gain control.

Tug-of-war is still war without end, a marathon without a finish line. Winston Churchill once advised that it is always better to “jaw-jaw” than to “war-war,” meaning diplomacy is preferable to conflict. Today’s world is a hybrid of the two: It is an endless tug-tug.

The future of global stability hinges on whether great powers think and act in terms of sovereignty or supply chains—if they learn the benefits of fighting tug-of-war instead of the real thing. It is no doubt unwise to argue that World War III is a passé risk. However, as the French scholar Raymond Aron argued, nuclear deterrence and the benefits of hindsight are crucial in warding against the uncontrolled escalations of the twentieth century or even harrowing episodes such as the Cuban missile crisis. Furthermore, China’s neo-mercantilism today is quite different from the zero-sum European colonial mercantilism of centuries ago: It is the pursuit of catch-up modernization rather than global hegemony. China seeks foreign raw materials and technology, not foreign territory. The smoother the supply chains, the more satisfied China will be.

A hyperconnected, multipolar world is uncharted and dangerous territory, but the paradox of tug-of-war may be that the longer it goes on, the more everyone wins. If we play our cards right, North Korea will become a supply-chain condominium of China and South Korea and other investors variously exploiting its tremendous mineral and agricultural resources while modernizing its nascent manufacturing capacity. India and Pakistan will revive the historic Grand Trunk Road of trade linkages stretching from Afghanistan to Bangladesh, and complete the natural gas pipeline from Iran via Pakistan to India. China and Taiwan will deepen their supply chain linkages and accept the outstanding differences in political systems. And China and Japan will settle their historical grievances through generational change in leadership, and accept with maturity the obvious hierarchy of Asia’s future.

Today’s world is full of tension, strife and hostility: nuclear standoffs, terrorist insurgencies, collapsing states and tragic civil conflicts. It is healthy to remind ourselves that many of our ongoing flash points could potentially escalate through unpredictable chain reactions into global conflagration. But it is even more important to pay attention to what we are doing that prevents the unintended slide into disaster—and do more of it. The future of global stability hinges on whether we continue global supply-chain integration and content ourselves with waging tug-of-war rather than the real thing. The world’s oldest team sport has an admirable track record: almost nobody has ever died playing it.

#### And globalized CRM supply chains are hyper-vulnerable to anticompetitive conduct that shocks global battery markets – the entire market is at risk

Umbach ‘18 [Frank; 2018; Research director of the European Centre for Energy and Resource Security (EUCERS) at King’s College, London; adjunct senior fellow at the S. Rajaratnam School of International Studies (RSIS) at the Nanyan Technological University (NTU) in Singapore, senior associate at the Centre for European Security Strategies (CESS GmbH), Munich, executive advisor of Proventis Partners GmbH, Munich, and a visiting professor at the College of Europe in Natolin/Warsaw (Poland); "Energy Security in a Digitalised World and its Geostrategic Implications," https://www.kas.de/documents/265079/265128/Energy+Security+in+a+Digitalised+World+and+its+Geostrategic+Implications+Final.pdf/07691140-d019-4f4c-5363-795d9aeea361?version=1.0&t=1541645390708]

The worldwide electrification of the transport and other industry sectors, the development of a new generation of batteries for electricity storage as well as the digitalization of the industries, including the spread of robotics and artificial intelligence systems in the industry (‘industry 4.0’) will further boost the worldwide demand for CRMs such as lithium, cobalt and others. As a result, it might create new and unprecedented challenges, including bottlenecks and supply shortages, for the global supply chains of the CRMs on each stage ranging from mining to processing, refining and manufacturing.

The production of CRMs is geopolitically - compared with the concentration of conventional oil and gas resources - more challenging and problematic as currently 50% of CRMs are located in fragile states or politically unstable regions. Moreover, security of supply risks are not just constrained to primary natural resources and CRMs but also to the import of semimanufactured and refined goods as well as finished products. Manipulated prices, restricted supplies and attempts at cartelization of CRM markets with wide-ranging negative economic consequences are not restricted just to producing and exporting countries. Powerful states and private companies have also been responsible for non-transparent pricing mechanisms for many precious CRMs. Global supply chains have become ever more complex due to the blurring of boundaries between physical and financial markets and weakly governed market platforms. These market imperfections lead to the manipulation of prices and threaten the stability of the future security of supply of CRMs.

Given China’s status as the world’s largest battery producer, and as the leading nation in the electrification of the national transport sector, it may increase the dependencies of the European and U.S. carmakers on China. The dependence on CRMs such as lithium, cobalt, graphite, rare earth and others will equally rise. Those geopolitical impacts have already been highlighted in 2010–2011, when China in the midst of escalating diplomatic conflict with Japan stopped all exports of Rare Earth Elements (REEs) to the world’s biggest importer and blackmailed Tokyo diplomatically by instrumentalising its status as the world’s largest producer and exporter of REEs. It has sent a troubling message to the world that the new rising Asian economic and military power might not respect international law, the existing global rules of the WTO and that Beijing may not politically be willing to accept the regional and global responsibilities that grow with its emerging superpower status. Over the last months, China has further strengthened its efforts to control the entire global supply chain of lithium, from owning international mines to the production of lithium up to manufacturing of batteries and EVs.

#### Supply chain disruptions cascade across key industries

O'Sullivan et al ‘17 [Meghan O’Sullivan; 2017; Harvard Kennedy School of Government Indra Overland Norwegian Institute of International Affairs—NUPI David Sandalow Columbia Center on Global Energy Policy; "The Geopolitics of Renewable Energy," https://energypolicy.columbia.edu/sites/default/files/CGEPTheGeopoliticsOfRenewables.pdf]

As the transition to renewable energy accelerates, cartels could develop around materials critical to renewable energy technologies. Even if these cartels were unable to generate as much impact as OPEC did with oil in years past, they might be able to exert influence over consumers of these materials. Some materials critical for renewable energy technologies are also critical in other sectors, such as consumer products and weaponry, raising the potential for competition between sectors as well.

Rare earth elements (including dysprosium, neodymium, terbium, europium and yttrium) are often considered to be critical components of renewable energy hardware.7 Ironically, rare earth elements are not rare. They are found in many countries, including China, Russia, Australia, the United States, Brazil, India, Malaysia and Thailand. However, two countries—China and Russia—together hold 57% of global reserves, while the largest remaining country, Australia, holds a mere 2.4% of global reserves.8 Furthermore, rare earths are found in dilute concentrations and are often difficult to separate, making mining, production and processing difficult and capital intensive. Today almost all mining, production and processing of rare earths is in China. Rare earths mined elsewhere generally must be exported to China for processing and then re-imported.9 As demand for renewable energy technologies continues to increase, countries may be inclined to hold rare earth elements in reserve for themselves and compete over these resources.

#### Next gen batteries solve grid stability and blackouts

Beall ‘18 [Abigail Beall; 2018; Journalist writing for Chinadialogue, citing Dr Emma Kendrick, a materials chemist at the University of Warwick; "The race to develop the next generation battery," https://www.chinadialogue.net/article/show/single/en/10808-The-race-to-develop-the-next-generation-battery]

Alongside electric cars, grid storage is another area where large-scale batteries will play an increasingly important role. The amount of renewable power from solar and wind at any given time depends on the weather, which makes it intermittent. Batteries can help stabilise grids by storing energy efficiently.

“Sodium-ion batteries could be an inexpensive alternative to lithium-ion in the grid storage market,” says Ms Cheng. Sodium-ion batteries work in a similar way to lithium-ion but use sodium instead, which is more readily available. Dr Emma Kendrick, a materials chemist at the University of Warwick, is looking into the sodium-ion battery. “This is a low-cost alternative to lithium-ion batteries,” she says. “It is still in its infancy but there are opportunities to perform research into the manufacturability and durability of the technology.” Flow batteries are another alternative.

“Flow batteries are also attractive options since they can be easily scaled up to provide high capacity," says Ms Cheng, adding: "They contain two chemical compounds that are separated by a membrane. The compounds can flow through the membrane, creating chemical energy, but they can also move back to where they started, which recharges the battery."

There are many other options. In February this year, scientists at the University of California Irvine created gold nanowire batteries that can withstand more recharging than ever before, hundreds of times within their lifetime. The team hopes this will one day lead to batteries that can last indefinitely.

Graphene may also be a component of the battery of the future. A Spanish company called Grabat says their graphene batteries can provide power for an electric vehicle to travel 500 miles on a single charge. For comparison, Tesla’s Model 3 can travel 215 miles on one charge.

While nobody can predict exactly what the next generation of batteries is going to look like, there is a huge amount of work going into solving the problem.

#### They insulate the network from attacks and build in resilience that stops collapse

Urry ‘17 [Amelia; 2/22/17; Grist's associate editor of science and technology; "Inside the Race to Build the Battery of Tomorrow," https://www.wired.com/2017/02/researchers-racing-build-battery-future/]

And here’s what a better battery stands to win: a cleaner, more reliable power system, which doesn’t rely on fossil fuels and is more robust to boot.

Every time you flip a light switch, you tap into a gigantic invisible web, the electrical grid. Somewhere, at the other end of the high-voltage transmission lines carrying power to your house, there’s a power plant (likely burning coal or, increasingly, natural gas) churning out electricity to replace the electrons that you and everyone else are draining at that moment.

The amount of power in our grid at any one time is carefully maintained—too much or too little and things start to break. Grid operators make careful observations and predictions to determine how much electricity power plants should produce, minute by minute, hour by hour. But sometimes they’re wrong, and a plant has to power up in a hurry to make up the difference.

Lucky for us, it’s a big, interconnected system, so we rarely notice changes in the quality or quantity of electricity. Imagine the difference between stepping into a bucket of water versus stepping into the ocean. In a small system, any change in the balance between supply and demand is obvious — the bucket overflows. But because the grid is so big—ocean-like—fluctuations are usually imperceptible. Only when something goes very wrong do we notice, because the lights go out.

Renewable energy is less obedient than a coal- or gas-fired power plant—you can’t just fire up a solar farm if demand spikes suddenly. Solar power peaks during the day, varies as clouds move across the sun, and disappears at night, while wind power is even less predictable. Too much of that kind of intermittency on the grid could make it more difficult to balance supply and demand, which could lead to more blackouts. Storing energy is a safety valve. If you could dump extra energy somewhere, then draw from it when supply gets low again, you can power a whole lot more stuff with renewable energy, even when the sun isn’t shining and the wind isn’t blowing. What’s more, the grid itself becomes more stable and efficient, as batteries would allow communities and regions to manage their own power supply. Our aging and overtaxed power infrastructure would go a lot further. Instead of installing new transmission lines in places where existing lines are near capacity, you could draw power during off-peak times and stash it in batteries until you need it.

Just like that, the bucket can behave a lot more like the ocean. That would mean—at least in theory—more distributed power generation and storage, more renewables, and less reliance on giant fossil-fueled power plants.

#### Grid resilience solves extinction – it’s a threat buffer and the impact is understated

Greene ‘19 [Sherrell; 2019; He is a recognized subject matter expert in nuclear reactor safety, nuclear fuel cycle technologies, and advanced reactor concept development. Mr. Greene is widely acclaimed for his systems analysis, team building, innovation, knowledge organization, presentation, and technical communication skills. Mr. Greene worked at the Oak Ridge National Laboratory (ORNL) for over three decades. During his career at ORNL, he served as Director of Research Reactor Development Programs and Director of Nuclear Technology Programs; "Enhancing Electric Grid, Critical Infrastructure, and Societal Resilience with Resilient Nuclear Power Plants (rNPPs)," https://ans.tandfonline.com/doi/pdf/10.1080/00295450.2018.1505357?needAccess=true]

Societies and nations are examples of large-scale, complex social-physical systems. Thus, societal resilience can be defined as the ability of a nation, population, or society to anticipate and prepare for major stressors or calamities and then to absorb, adapt to, recover from, and restore normal functions in the wake of such events when they occur. A nation’s dependence on its Critical Infrastructure systems, and the resilience of those systems, are therefore major components of national and societal resilience.

There are a variety of events that could deal crippling blows to a nation’s Grid, Critical Infrastructure, and social fabric. The types of catastrophes under consideration here are “very bad day” scenarios that might result from severe GMDs induced by solar CMEs, HEMP attacks, cyber attacks, etc.5

As briefly discussed in Sec. III.C, the probability of a GMD of the magnitude of the 1859 Carrington Event is now believed to be on the order of 1%/year. The Earth narrowly missed (by only several days) intercepting a CME stream in July 2012 that would have created a GMD equal to or larger than the Carrington Event.41 Lloyd’s, in its 2013 report, “Solar Storm Risk to the North American Electric Grid,” 42 stated the following: “A Carrington-level, extreme geomagnetic storm is almost inevitable in the future…The total U.S. population at risk of extended power outage from a Carrington-level storm is between 20-40 million, with durations of 16 days to 1-2 years…The total economic cost for such a scenario is estimated at $0.6-2.6 trillion USD.” Analyses conducted subsequent to the Lloyd’s assessment indicated the geographical area impacted by the CME would be larger than that estimated in Lloyd’s analysis (extending farther northward along the New England coast of the United States and in the state of Minnesota),43 and that the actual consequences of such an event could actually be greater than estimated by Lloyd’s.

Based on “Report of the Commission to Assess the Threat to the United States from Electromagnetic Pulse (EMP) Attack: Critical National Infrastructures” to Congress in 2008 (Ref. 39), a HEMP attack over the Central U.S. could impact virtually the entire North American continent. The consequences of such an event are difficult to quantify with confidence. Experts affiliated with the aforementioned Commission and others familiar with the details of the Commission’s work have stated in Congressional testimony that such an event could “kill up to 90 percent of the national population through starvation, disease, and societal collapse.” 44,45 Most of these consequences are either direct or indirect impacts of the predicted collapse of virtually the entire U.S. Critical Infrastructure system in the wake of the attack.

Last, recent analyses by both the U.S. Department of Energy46 and the U.S. National Academies of Sciences, Engineering, and Medicine47 have concluded that cyber threats to the U.S. Grid from both state-level and substatelevel entities are likely to grow in number and sophistication in the coming years, posing a growing threat to the U.S. Grid.

These three “very bad day” scenarios are not creations of overzealous science fiction writers. A variety of mitigating actions to reduce both the vulnerability and the consequences of these events has been identified, and some are being implemented. However, the fact remains that events such as those described here have the potential to change life as we know it in the United States and other developed nations in the 21st century, whether the events occur individually, or simultaneously, and with or without coordinated physical attacks on Critical Infrastructure assets.

#### Solar storms and EMP strikes are inevitable and outweigh nuclear war – distributed power solves

MM ‘15 [Microgrid Media; 9/15/15; “Grid Will Not Survive Inevitable Geomagnetic Storm or EMP Attack,” microgridmedia.com/grid-will-not-survive-geomagnetic-storm-or-emp-attack/]

But as former Director of Central Intelligence James Woolsey warned in his recent congressional testimony, “The EMP threat is as real as the Sun and as inevitable as a solar flare.”

The Congressional EMP Commission, called it “one of a small number of threats that has the potential to hold our society seriously at risk” and “is capable of causing catastrophe for the nation.” These are not one commissions findings, but represent a consensus from studies by the Congressional Strategic Posture Commission, the National Academy of Sciences, the Department of Energy, the National Intelligence Council, a U.S. Federal Energy Regulatory Commission report coordinated with the Department of Defense and Oak Ridge National Laboratory, and numerous other reports.

With such overwhelming political and scientific consensus, it may come as a shock that nothing has been done to protect America from a power outage that could last several years. You may also be surprised that your energy bill could be paying the lobby efforts to keep it that way.

The Hundred Year Geomagnetic Solar Storm The worst disasters are often the result of natural events which occur less than every hundred years. The hundred year earthquake doesn’t remind us to build away from fault lines. The hundred year tsunami doesn’t remind us to build nuclear reactors above the inundation zone. Likewise, the hundred year solar storm did not remind us to build an electric grid capable of surviving it. Solar storms, or Geomagnetic Disturbances (GMD) are the result of a solar wind shock wave or a magnetic cloud interacting with the earth’s magnetic field. While solar storms happen as frequently as northern lights, experts are most concerned about a rare solar super-storm, like the 1921 Railroad Storm. The National Academy of Sciences estimates that if the Railroad Storm were to occur today, there would be a nationwide blackout for 4-10 years. The most powerful geomagnetic storm on record is the 1859 Carrington Event. Estimates are that Carrington was about 10 times more powerful than the 1921 Railroad Storm and 100 times more powerful than anything the modern grid has experienced. The Carrington Event was a worldwide phenomenon, causing forest fires from flaring telegraph lines, burning telegraph stations, and destroying the freshly laid telegraph cable at the bottom of the Atlantic Ocean.

According to Woolsey, a solar super-storm like the Carrington Event today would “collapse electric grids and life-sustaining critical infrastructures worldwide, putting at risk the lives of billions.”

A Close Call

In July 2014, NASA reported that Earth narrowly escaped another Carrington Event. Indeed, a Carrington-class coronal mass ejection crossed the path of the Earth, missing our planet by just three days. NASA assessment is that the resulting storm would have been catastrophic.

We are overdue for a hundred-year solar storm like the Carrington Event. NASA puts the likelihood of such a geomagnetic super-storm at 12 percent per decade, virtually guaranteeing that if we don’t experience a catastrophic geomagnetic super-storm, our children will. In his congressional testimony, Dr. Richard Garwin of the IBM Thomas J. Watson Research Center emphasized that “a once-per-century event could occur next week,” urging action to reduce the impact on the bulk power system.

Weaponized Electromagnetic Pulse (EMP)

If the threat of a natural geomagnetic super-storm wasn’t enough, the electric grid is equally fragile to an electromagnetic pulse attack. There are ways in which an EMP threat is more serious than a conventional nuke threat. Deterrence may not work

at all because we may not know where the pulse came from. If everything goes dark, it could be a solar event or it could be North Korea. It could be launched from a freighter off one of our coasts or from a northern satellite designed to go unnoticed. We may never know.

“An EMP attack is one of a small number of threats that has the potential to hold our society seriously at risk” and “Is capable of causing catastrophe for the nation.” — Congressional EMP Commission

“We talk a lot about a Nuclear Bomb in Manhattan, and we talk about a cyber-security threat to the grid in the Northeast. All these things would probably pale in comparison to the devastation that an EMP attack could put on Americans” — James Woolsey, Former Director of Central Intelligence

How Likely is an Electromagnetic Pulse Attack?

EMP nuclear attacks are an open part of cyber warfare doctrine in several countries.

Russian General Vladimir Slipchenko, in his military textbook ‘No Contact Wars’ describes the combined use of cyber viruses and hacking, physical attacks, non-nuclear EMP weapons, and ultimately nuclear EMP attack against electric grids and critical infrastructures as a new way of warfare that is the greatest Revolution in Military Affairs (RMA) in history. Like Nazi Germany’s Blitzkrieg (“Lightning War”) Strategy that coordinated airpower, armor, and mobile infantry to achieve strategic and technological surprise that nearly defeated the Allies in World War II, the New Blitzkrieg is, literally and figuratively an electronic “Lightning War” so potentially decisive in its effects that an entire civilization could be overthrown in hours. According to Slipchenko, EMP and the new RMA renders obsolete modern armies, navies and air forces. For the first time in history, small nations or even non-state actors can humble the most advanced nations on Earth.

China’s military doctrine sounds an identical theme. According to People’s Liberation Army textbook World War, the Third World War–Total Information Warfare, written by Shen Weiguang (allegedly the inventor of Information Warfare), “Therefore, China should focus on measures to counter computer viruses, nuclear electromagnetic pulse…and quickly achieve breakthroughs in those technologies…”

Iran in a recently translated military textbook endorses the theories of Russian General Slipchenko and the potentially decisive effects of nuclear EMP attack some 20 times. An Iranian political-military journal, in an article entitled “Electronics To Determine Fate Of Future Wars,” states that the key to defeating the United States is EMP attack and that, “If the world’s industrial countries fail to devise effective ways to defend themselves against dangerous electronic assaults, then they will disintegrate within a few years… American soldiers would not be able to find food to eat nor would they be able to fire a single shot.”

North Korea appears to have practiced the military doctrines described above against the United States–including by simulating a nuclear EMP attack against the U.S. mainland. Following North Korea’s third illegal nuclear test in February 2013, North Korean dictator Kim Jong-Un repeatedly threatened to make nuclear missile strikes against the U.S. and its allies. In what was the worst ever nuclear crisis with North Korea, that lasted months, the U.S. responded by beefing-up National Missile Defenses and flying B-2 bombers in exercises just outside the Demilitarized Zone to deter North Korea. On April 9, 2013, North Korea’s KSM-3 satellite orbited over the U.S. from a south polar trajectory, that evades U.S. early warning radars and National Missile Defenses, at the near optimum altitude and location to place an EMP field over all 48 contiguous United States.

Recently, a North Korean vessel was disrupted in Panama carrying missiles that would have been capable of carrying out an EMP attack off the coast of America. When approached out of suspicion of drug smuggling, they resisted and the captain attempted suicide. Why Hasn’t Anything Been Done? At least five US Government studies have concluded that the threat of an EMP attack is real and needs to be acted upon, but alarmingly little has been done. NERC has prevented states from taking action and kept acts bottled up and not able to be passed by congress. Texas State Senator Bob Hall, a former USAF Colonel and himself an EMP expert, has called the lobby efforts of the electric utilities in this matter as “equivalent to treason.” “As a Texas State Senator who tried in the 2015 legislative session to get a bill passed to harden the Texas grid against an EMP attack or nature’s GMD, I learned first hand the strong control the electric power company lobby has on elected officials.” What Can Be Done To Protect Critical Infrastructure?

There is a lot that can be done to harden the grid, ranging from fast warning systems to hardening the trains that deliver coal. The grid may become more secure by trends already happening with distributed renewable energy and microgrids. Long run lines, such as the electric grid are the most vulnerable to an EMP or geomagnetic storm. “Microgrids are an important part of the solution,” said Dr. George H Baker of Resilient Societies. Reminding us that microgrids can be relatively large.

For example, my own city, Harrisonburg, has the capability to isolate itself from the grid and run critical services on local gas-turbine generators.

The bulk power system in the United States is reliable but not resilient. Like most systems, the way to be resilient is by having a robust, decentralized network with built in flexibility. Although it’s not what electric utilities want to hear, Americans will remain at risk until communities can meet all critical loads without the bulk power system.

#### The aff’s balancing test deters anticompetitive behavior while balancing comity and global antitrust development – solves both under- and over-inclusion

Murray ‘17 [Sean; 2017; J.D. Candidate and Stein Scholar, Fordham University School of Law; Fordham International Law Journal; “With A Little Help From My Friends: How A Us Judicial International Comity Balancing Test Can Foster Global Antitrust Private Redress.” vol 41, iss. 1 https://ir.lawnet.fordham.edu/cgi/viewcontent.cgi?article=2690&context=ilj]

In response to international criticism of the statute’s unbridled transnational application, the United States has curtailed the Sherman Act’s reach both judicially and legislatively.20 Judicially, courts looked to international comity, the practice of taking into account the interests of other nations.21 The Ninth Circuit was the first court to invoke international comity in Timberlane Lumber Co. v. Bank of America, N.T. & S.A., which used an interest-balancing test to determine whether exercising jurisdiction was proper.22 Legislatively, Congress enacted the Foreign Trade Antitrust Improvements Act of 1982 (“FTAIA”), which attempts to delimit and define the cross-border reach of US antitrust laws by introducing an objective test under the effects doctrine.23 Powerful arguments can be advanced in the American interest for applying US antitrust laws beyond US borders, including adequately protecting American competition and consumers, deterring inimical foreign anticompetitive behavior affecting the United States, especially in an increasingly globalized economy, and providing remedial measures to US victims of such conduct.24 However, these interests in providing protection and redress are counterbalanced by equally important rationales for limiting the extraterritorial span of US antitrust law, such as costly overregulation, avoiding international disputes, allowing nascent worldwide antitrust regimes to develop to beget increased antitrust enforcement, and avoiding harmful interference with antitrust regulators’ amnesty programs.25

The aforementioned responses to these competing concerns have been ambiguous, inconsistent, and over-inclusive or under-inclusive.26 In particular, the poorly worded FTAIA has created more problems than it has solved, including inconsistent holdings, wrongly decided cases, and disagreements among the circuit courts over interpreting the statute’s language.27 The most recent interpretational difficulty involves determining what constitutes a “direct” domestic effect under the FTAIA. Some courts have held that “direct” takes on a broader meaning, where conduct causing domestic effect need only be an “immediate consequence.”28 In comparison, other courts have narrowly interpreted the statute’s “direct” domestic effect requirement as calling for “a reasonably proximate causal nexus,” drawing from tort law to exclude an injury that is too remote from the injury’s cause.29 The most recent appellate decision involving the FTAIA, Motorola Mobility LLC v. AU Optronics Corp., has contributed to the statute’s confusion.30 There, the Seventh Circuit held that a US parent company failed to show that it suffered direct injury as a result of foreign anticompetitive conduct, despite the fact that price-fixed component products were purchased by its majority-owned foreign subsidiaries to be incorporated into final products purchased by the US parent and sold to US customers.31

Nevertheless, various delineations already exist that suggest a solution to the inconsistency is attainable and may be designed to enhance global antitrust enforcement through greater availability of worldwide private redress. What is apparent from the succession of decisions from Hartford Fire Insurance Co. v. California32 to F. Hoffman-La Roche Ltd. v. Empagran S.A. (Empagran)33 is that the FTAIA grey area has been sufficiently tapered to allow for the return of a comity balancing test to appropriately reconcile the conflicting interests at hand in the residual universe of cases.34 This Note argues that Hartford Fire, its progeny, and Empagran form confining parameters on the applicability of the FTAIA, namely that cases that do not involve a US party, domestic effect, and domestic injury arising from that effect will fail the FTAIA’s exemption test. Moreover, because the FTAIA’s “direct, substantial, and reasonably foreseeable” effect test can be construed as a proxy for the United States’ prescriptive jurisdiction interest, comity analysis is helpful in its interpretation.35 Thus, claims which are based on exclusively non-US conduct that questionably has a “direct effect” on US commerce resulting in the plaintiff’s injury are more properly decided not by the courts’ current focus on statutory interpretation, but rather by a Timberlane-style ad hoc fact-intensive balancing test that contemplates factors more suitable to the modern global economy and promoting international dialogue.36

In sum, this Note proposes the introduction of a new international comity balancing test into US antitrust jurisprudence with the aim of fostering and strengthening global antitrust enforcement and private redress. It does so in four parts. Following this introduction, Part II briefly summarizes the expansion of US antitrust extraterritorial application. Next, Part III discusses various developments undertaken to limit and demarcate the reach of US antitrust law. Part IV raises issues arising from those efforts that have resulted in inconsistent and questionable holdings. Finally in Part V, by analyzing and synthesizing the existing precedent, this Note contends that a judicial international comity balancing test would most appropriately determine the propriety of US antitrust extraterritoriality for particular types of private recompense cases that are problematic under the current framework.

#### And factoring in consideration of foreign penalties prevents over-enforcement and ensures global anti-cartel cohesion

Huizing ‘18 [Pieter Huizing; 2018; PhD student at Leiden University and a senior associate at the antitrust department of Allen & Overy LLP; "InnoLux v AU Optronics: comparing territorial limits to EU and US public enforcement of the LCD cartel," https://academic.oup.com/antitrust/article-abstract/6/2/231/4964994]

The LCD cases show that in respect of cartel conduct by multinational corporations involving their worldwide sales, the existence of a certain domestic connection to justify the exercise of jurisdiction is almost a given. It is therefore not surprising that a multitude of authorities will generally be able to assert jurisdiction over truly global cartel behaviour. Without any jurisdictional or territorial delineation between authorities on ‘who sanctions what and by how much’, domestic enforcement of international cartel conduct is bound to lead to potential or actual overlapping punishment. It is easy to see how the fining methodologies used by the Commission and the DOJ can result in the same sales being taken into account more than once for the purposes of sanctioning the same overall conduct. Such double-counting increases risks of over-enforcement and disproportionate overall punishment. To ensure that on an international level the overall penalty fits the severity of the crime, it is submitted that authorities targeting the same conduct in parallel should avoid unilaterally aiming for the maximum fine available without having any regard for the level of punishment and deterrence achieved by sanctions imposed elsewhere. This is necessary not only to safeguard overall proportionality of fines, but also with a view to comity considerations. Maintaining an isolated and expansive view on cartel enforcement may have been justifiable when antitrust laws were effectively enforced in only a few countries in the world. But with over 125 jurisdictions with active cartel enforcement, this may be the time for the European and American authorities to start adopting a more modest approach.132 As noted by Connor in the context of his support for the Motorola Mobility judgment: [h]aving invited the world to join the effort to prohibit and prosecute cartels, and that invitation having been enthusiastically accepted, it is good manners/ policy that the competition regimes set up around the globe—which continue to develop—be given due respect and that the views of our partners be given serious consideration.133 The need for international coordination of extraterritorial cartel enforcement is a hot topic in the global antitrust community. It is a recurring theme on antitrust conferences and a key focus of the advocacy efforts of international organizations such as the ICN, the OECD, and the International Bar Association (IBA). The focus of such efforts has often been on cooperation in respect of the investigation stages and less on coordination in respect of the scope and level of punishment.134 But there are more and more calls for authorities to also coordinate their cartel penalties. For example, during the OECD Roundtable on Cartels Involving Intermediate Goods in October 2015, several delegates highlighted ‘the importance of taking into account fines or sanctioning decisions already imposed by other competition agencies to minimise concerns about the fairness and proportionality of fines levied in multijurisdictional cases’.135 In June 2016, the Japanese Ministry of Economy, Trade and Industry (METI) published a report on its research into the enforcement of international cartels, in view of the ‘growing concern about overlapping application of competition laws or imposition of multiple surcharges by several countries’.136 Based on its research, the Ministry proposed increased coordination between authorities to take into account concurrent penalties. In December 2016, both the IBA and the American Bar Association (ABA) in their comments on the proposed new DOJ and FTC Antitrust Guidelines for International Enforcement and Cooperation called upon the US authorities to stress the need for cooperation regarding sanctioning of international cartel cases to avoid over-deterrence or double-jeopardy.137 Furthermore, also in December 2016, in one of the key submissions for the OECD’s 15th Global Forum on Competition, Hwang Lee specifically pressed for increased efforts by competition authorities to coordinate fining decisions in parallel proceedings.138 These examples indicate that—while moving slowly—progress is made in recognizing the need for commonly accepted principles for coordination between authorities in the sanctioning of international cartels.

Since internationally agreed principles on the coordination of cartel fines are yet to be developed, national self-restraint is currently required to limit the risks resulting from parallel enforcement of international cartels. Such self-restraint can be exercised in respect of any of the three elements assessed in this article: asserting jurisdiction, defining the territorial scope of punished conduct, and setting the fine.139 The Japan Fair Trade Commission (JFTC), for example, has explained that it cannot currently take into account sanctions imposed by other authorities in determining its own fine because it lacks the discretion to do so.140 However, in view of international comity, the JFTC does consider enforcement action elsewhere in respect of the same international cartel to decide whether it will also take action. Similarly, in Australia– where cartel fines are set by the court—the authority exercises prosecutorial discretion by considering whether it is more appropriate to leave enforcement activities to jurisdictions where the harm of a cartel was felt most immediately.141 In contrast, the Korean Fair Trade Commission does not consider sanctions imposed elsewhere for the decision whether or not to bring an enforcement action, but it does have the discretion to consider foreign fines in calculating the surcharge it imposes.142 The DOJ has indicated that when a sanction in respect of the same cartel is first imposed outside the USA, it may take this into account if the sanction accounts for the harm to businesses and consumers in the USA and therefore satisfies deterrent interests of the USA.143 Terzaken and Huizing have suggested altering this latter approach by focusing on whether there is any residual deterrence need following penalties already imposed elsewhere, not on whether specific national harm was considered in the fining methodology applied by a foreign authority.144

As an alternative to taking into account penalties imposed elsewhere, Bentley and Henry have proposed that authorities should solely take into account sales for the purposes of fine calculation if such sales meet the applicable jurisdictional tests.145 This seems a sensible proposal. While it is true that the basis for asserting jurisdiction can be separated from the basis for calculating a fine, as explicitly reasoned by the ECJ, it is hard to justify partly relating a penalty to conduct that in itself would not have a sufficient territorial nexus to trigger potential prosecution. In analogy to the Seventh Circuit’s assessment of Motorola’s damages claims, it is difficult to accept that foreign sales without such nexus can still be taken into account as part of domestic enforcement as long as they happened to take place alongside some import commerce. Internationally, it may not even be all that controversial to require authorities to calculate cartel fines on the basis of only those sales that create a sufficient jurisdictional link to their territory. A recent survey by the International Competition Network (ICN) already shows that many jurisdictions maintain the view that only the direct sales of cartelized products should form the basis of a cartel fine in all or most cases.146

Bentley and Henry consider their solution to be simpler than requiring authorities to take into account fines already imposed elsewhere. But it is submitted that this is still needed even if authorities only take into account sales that pass the applicable jurisdictional tests, as this does not avoid situations where more than one authority claims jurisdiction.147 This is especially the case where authorities apply a broad interpretation of a qualified effects test. In such situations, the same sales may still be taken into account more than once. And even if authorities avoid any double counting of sales, international alignment of sanctions may still be required to ensure overall proportionality and an optimal level of deterrence. A truly coordinated approach to international cartel enforcement should therefore more comprehensively focus on the ultimate outcome of the overall enforcement.

It goes beyond the scope of this article to discuss at what level cartel fines must be set to achieve both proportionality and optimal deterrence. And it must be noted that it has not been empirically tested whether overlapping cartel fines imposed in multiple jurisdictions actually create a problem of over-deterrence or whether global cartels are (still) more likely to benefit from under-deterrence.148 But it is clear that an optimal overall penalty for a global cartel is not automatically achieved by the accumulation of several national fines for the same cartel that were considered optimal by the respective authorities. First, such accumulation would likely mean that the overall fine amount increases in a certain proportion to the additional amount of affected sales in the sanctioning jurisdictions. However, proportionality and deterrence are complex principles that not necessarily (directly) related to the level of sales achieved with the cartelized products. Proportionality is typically linked to the elements of culpability of the offender and the harm caused by the offence.149 Optimal deterrence is typically linked to the expected gains from the offence and the probability of detection and punishment.150 So it is not obvious to see why in the pursuit of a proportionate and deterrent penalty, the fine amount should increase in direct proportion to the level of affected sales. It may well be that a proportionate and deterrent fine has already been achieved despite not covering all potentially affected sales. In this context, the Business and Industry Advisory Committee to the OECD reasoned that ‘once any jurisdiction sets a fine at an appropriate and proportionate level, another jurisdiction imposing penalties on top of that needs to strike a proper balance’.151 Second, several authorities may take the same factors into account in increasing a fine for deterrence purposes, such as the size of the undertaking. A single authority may determine that for a cartel fine to actually ‘hurt’, it should amount to at least 3 per cent of an undertaking’s total turnover. But if five authorities use this approach in respect of the same global cartel, the total fine amounting to 15 per cent of the total turnover may hurt much more than what was considered necessary by each individual authority.152 Thirdly, many authorities apply a maximum fine amount that is related to the total turnover of an undertaken (eg the cap of 10 per cent as applied by the Commission). Such a cap serves to ensure fines are not excessive or disproportionate153 and to limit the risks of undue financial difficulties and insolvency (and hence lessened competition) as a result of a fine. But if five authorities were to impose fines for the same global cartel up to a 10 per cent cap, the total fine amounting to 50 per cent of the undertaking’s turnover is still quite likely to jeopardize the viability of the undertaking and quite likely to be (perceived as) disproportionate in relation to the size of its economic activities.154

In AU Optronics, Judge Illston in her discretion decided that USD 500 million was sufficiently deterrent and not excessive, even though the fining guidelines had recommended a fine between USD 936 and 1872 million. Her decision was also based on the penalties and financial impact already incurred by AUO in other proceedings, something explicitly not taken into account in the DOJ sentencing recommendation. Rather than rigidly applying the domestic fining guidelines, she appears to have adopted a comprehensive approach that considered the overall proportionality of punishment for AUO’s cartel conduct and the residual deterrence need. While the EU and US authorities also seem willing to incidentally and on an ad hoc basis take a step back in view of foreign enforcement,155 sound enforcement policies that are aimed to achieving an overall appropriate fine by taking into account the international context of cartel sanctioning are still lacking.156 It is submitted that the development of such policies is necessary not only to ensure consistency in enforcement practices but also to increase legal certainty, predictability of sanctions, and confidence in the proportionality of international cartel enforcement.

#### Plan: The United States federal government should increase prohibitions on anticompetitive business practices by establishing a balancing test that expands the extraterritorial scope of its antitrust laws.

### Indigenous Development Adv

#### Ambiguous unreliable enforcement inhibits anti-cartel cohesion and undermines foreign regulatory institutions

Briggs & Bitton ‘15 [John; Daniel; 2015; Antitrust and litigation counsel of choice for dozens of major companies in the United States, Asia, Europe and Scandinavia. Client demand for his work has focused on antitrust, M&A and complex civil litigation; An attorney who represents clients in the San Francisco, California area; "Heisenberg’s Uncertainty Principle, Extraterritoriality and Comity." https://thesedonaconference.org/sites/default/files/publications/Heisenberg%27s%20Uncertainty%20Principle\_Extraterritorialty%20and%20Comity.16TSCJ327.pdf]

In a variety of settings foreign governments have expressed and are expressing concerns about the extraterritorial application of U.S. law. The United States occupies a unique position in global trade and finance. The United States also has enacted far-reaching legislation involving commerce, banking and finance, business conduct, mergers and acquisitions, foreign corrupt practices, and a variety of other matters. The extraterritorial application of laws in these areas challenges the sovereignty of other nations and is often viewed as offensive. In antitrust, the United States’ influence is the result of its status as the world’s largest importer of goods and services.18 In finance, this influence is the result of the U.S. dollar’s status as the international unit of account: “Pretty much any dollar transaction— even between two non-US entities—will go through New York City at some point, where it comes under the jurisdiction of US authorities.”19

The rampant extraterritorial application of U.S. laws has ruffled the feathers of foreign governments for a long time, beginning essentially with the cluster of private and government actions in the Uranium cartel cases back in the 1970’s and 1980’s. Close American allies, including Australia, Canada, France, South Africa, the UK, and others, reacted with hostility to the extraterritorial activism of the domestic judiciary by enacting “blocking” and “claw back” legislation.20 Such reactions included the enactment of laws by the United Kingdom and Canada that prohibit enforcement of foreign judgments awarding multiple damages21 and laws passed by the United Kingdom, France, Australia, and the Canadian provinces of Quebec and Ontario that limit or prohibit the removal of documents in response to a foreign order.22

More recently, a number of governments have expressed their concerns about the application of U.S. laws abroad through amicus briefs, including Australia, Belgium, Canada, China, France, Germany, Japan, the Netherlands, South Korea, Switzerland, Taiwan, and the United Kingdom:23 most of the United States’ top fifteen trading partners.

These foreign governments have expressed a fairly wide variety of concerns about the potential for extraterritorial application of U.S. laws to interfere with those governments’ policy decisions on such matters as liability, procedure, and damages. While most governments have regulatory regimes in place to police, for example, securities fraud and cartel behavior, these differ in many regards both from the American approach and also from each other, reflecting different cultural, social, and economic factors. These differences include the required showing for liability (e.g., definition of materiality in securities fraud cases),24 procedural protections (e.g., class-action formation and punitive) damages.26 Applying U.S. law to actors, conduct, and effects appropriately considered under a set of foreign laws undermines a foreign government’s ability to govern its own domain and, in the end, becomes an affront to its sovereignty.

Stepping on the toes of foreign governments’ regulatory regimes also risks stymying the international development of policies and regulations beneficial to the United States. Countries without well-developed regulatory apparatuses are less likely to develop them if the behavior is already policed by private plaintiffs in the United States or if the apparatuses would see their policy choices effectively overruled by U.S. policies.27

Foreign governments have also taken the view that extraterritorial application of treble damages threatens to undermine their own enforcement efforts. For example, they claim availability of private treble damages in the United States against their national companies for local conduct may have a detrimental effect on foreign leniency programs. These programs are a key tool for them in rooting out cartel activity, which has traditionally proven difficult to detect and prosecute.28 “These leniency policies seek to balance the interests of disclosure, deterrence, and punishment,” but “disclosure and reform are greatly hindered when a company risks the imposition of treble damages in a U.S. court for confessing to another nation or authority that it has participated in an international conspiracy.”29 When that reach is expanded outside of U.S. consumers in a U.S. court, “the prospect of ruinous civil liability in U.S. courts far outweighs the benefits most companies would receive from participating in an amnesty program.”30 And as Germany and Belgium informed the Supreme Court in Empagran,31 “[h]istorically, other nations have bristled at extraterritorial applications of United States antitrust laws. These concerns have resulted in foreign governments taking a number of measures to counter what they perceive to be an illegitimate encroachment into their sovereignty.”32

#### That cracks sustainable development and poverty relief.

Cheng ‘12 [Thomas; 2012; assistant professor at the Faculty of Law of the University of Hong Kong; "Convergence and Its Discontents: A Reconsideration of the Merits of Convergence of Global Competition Law." <https://chicagounbound.uchicago.edu/cgi/viewcontent.cgi?article=1362&context=cjil>]

SME = small to mid-sized enterprise

Serious poverty and income inequality are prevalent in many developing economies. These phenomena present two main challenges to developing countries as far as competition law enforcement is concerned. One is the need to encourage entrepreneurship to promote inclusive growth; the other is the need to protect impoverished consumers from exploitative practices. A number of commentators, including Fox, have argued that developing countries must pursue inclusive growth that will alleviate poverty and reduce income inequality.162 Inclusive growth requires opportunities for upward economic mobility, an important avenue for which is entrepreneurship.'63 For those who are at the bottom of the economic ladder in a developing country, often the only way to break out of poverty is to start their own businesses, which are going to be, at least initially, SMEs. Therefore, encouragement of entrepreneurship and assistance to SMEs must be a central pillar in every inclusive growth strategy. If competition law is to complement an inclusive growth strategy, it must afford SMEs stronger protection than is customary in established jurisdictions and be particularly vigilant against abuse of dominance. This is especially so because dominant firms in developing countries are often former state monopolies that still benefit from official patronage or informal connections to the state. Their privileged positions make it even harder for new private firm rivals to compete with them.

The poorest in many developing countries live below the poverty line and often scrape by with no more than a dollar or two a day.'64 They are often malnourished, sick, and illiterate, which severely curtails their productivity and ability to improve their economic well-being. Therefore, an inclusive growth strategy must include policies to combat malnourishment, poor health, and illiteracy. While the bulk of the responsibility will fall on government programs that directly confront these problems, competition law has a role to play. Competition law enforcement may focus on goods that have the most direct impact on the nutritional, health, and educational needs of the poorest in developing countries. Anticompetitive conduct in these sectors should be dealt with harshly.

Beyond that, developing country competition authorities may consider taking a tougher stance on exploitative practices by dominant firms. This is despite the fact that most established jurisdictions, especially the US, have largely left exploitative practices out of the purview of competition law."' The usual justification for this stance is two-fold. First, there is a serious implementation problem of distinguishing between very high prices and excessive prices.'6 6 Such distinctions are notoriously difficult to draw. The inability to do so undermines effective enforcement and legal certainty for firms seeking to comply with the law. Second, there is the theoretical objection that the opportunity to reap temporary monopoly profit spurs firms to compete and innovate.'6 1 In the industrialized nations, the general view is that consumers are able to bear momentary high prices, which will be eroded once a new competitor enters the market. Short-run monopolistic prices are the price that consumers pay for the benefit of keener long-run competition and innovation. While consumers in developed nations may be in a position to withstand such high prices, the poorest consumers in developing countries are not. Any extra cost for a basic necessity will have a direct and severe impact on their overall standard of living. For example, 10 percent more spent on foodstuffs may require consumers to remove their children from school."' The plight of these consumers therefore may justify a more assertive stance on exploitative practices in markets for basic necessities.

#### Development diffuses multiple existential risks -- d doesn’t assume the changing nature of conflict

UNSC ‘17 [United Nations Security Council; 12/20/17; “Prevention, Development Must Be at Centre of All Efforts Tackling Emerging Complex Threats to International Peace, Secretary-General Tells Security Council,” https://www.un.org/press/en/2017/sc13131.doc.htm]

Prevention and development must be at the centre of all efforts to address both the quantitative and qualitative changes that were emerging in threats around the world, the Secretary‑General of the United Nations told the Security Council today, as some 60 Member States participated in an all‑day debate tackling complex contemporary challenges to international peace and security.

António Guterres said the perils of nuclear weapons were once again front and centre, with tensions higher than those during the Cold War. Climate change was a threat multiplier and technology advances had made it easier for extremists to communicate. Conflicts were longer, with some lasting 20 years on average, and were more complex, with armed and extremist groups linked with each other and with the worldwide threat of terrorism. Transnational drug smugglers and human traffickers were perpetuating the chaos and preying on refugees and migrants.

The changing nature of conflict meant rethinking approaches that included integrated action, he said, stressing that prevention must be at the centre of all efforts. Development was one of the best instruments of prevention. The 2030 Agenda for Sustainable Development would help build peaceful societies. Respect for human rights was also essential and there was a need to invest in social cohesion so that all felt they had a stake in society.

He also emphasized that women’s participation was crucial to success, from conflict prevention to peacemaking and sustaining peace. Where women were in power, societies flourished, he pointed out. Sexual violence against women, therefore, must be addressed and justice pursued for perpetrators.

Prevention also included preventive diplomacy, he said, noting that the newly established High-level Advisory Board on Mediation had met for the first time. The concept of human security was a useful frame of reference for that work, as it was people‑centred and holistic and emphasized the need to act early and prioritize the most vulnerable.

“Let us work together to enhance the Council’s focus on emerging situations, expand the toolbox, increase resources for prevention, and be more systematic in avoiding conflict and sustaining peace,” he said, emphasizing the need for Council unity. Without it, he said, the parties to conflict might take more inflexible and intransigent positions, and the drivers of conflict might push situations to the point of no return.

Japan’s representative, Council President for December, spoke in his national capacity, noting that in the 25 years since the end of the Cold War, there had been a rise in complex contemporary challenges to international peace and security. That included the proliferation of weapons of mass destruction, the expansion of terrorism, and non‑traditional challenges such as non‑State actors and inter‑State criminal organizations.

#### SDGs are leverage points that solve extinction BUT failure causes cascading risks that cumulatively outweigh any single risk, causing extinction

Fenner and Cernev ‘20 [Richard Fenner; Jan. 2020; Director of the MPhil in Engineering for Sustainable Development at Cambridge; Australian National University, Canberra, Australia; “The importance of achieving foundational Sustainable Development Goals in reducing global risk,” Volume 115, https://www.sciencedirect.com/science/article/pii/S0016328719303544]

Fig. 3 demonstrates that cascade failures can be transmitted through the complex inter-relationships that link the Sustainable Development Goals. Randers, Rockstrom, Stoknes, Goluke, Collste, Cornell, Donges et al. (2018) have suggested that where meeting some SDGs impact negatively on others, this may lead to “crisis and conflict accelerators” and “threat multipliers” resulting in conflicts, instability and migrations. Ecosystem stresses are likely to disproportionately affect the security and social cohesion of fragile and poor communities, amplifying latent tensions which lead to political instabilities that spread far beyond their regions. The resulting “bad fate of the poor will end up affecting the whole global system"(Mastrojeni, 2018). Such possibilities are likely to go beyond incremental damage and lead to runaway collapse.

The World Economic Forums’ Global Risks Report for 2018 shows the top five global risks in terms of likelihood and impact have changed from being economic and social in 2008 to environmental and technological in 2018, and are closely aligned with many SDGs (World Economic Forum, 2018). The report notes “that we are much less competent when it comes to dealing with complex risks in systems characterised by feedback loops, tipping points and opaque cause-and-effect relationships that can make intervention problematic”. The most likely risks expected to have the greatest impact currently include extreme weather events natural disasters, cyber attacks, data fraud or theft, failure of climate change mitigation and water crises.

These are represented in Fig. 3 by the following exogenous variables. “Climate change” drives the need for Climate Action (SDG 13), “Cyber threat” may adversely impact technology implementation and advancement which will disrupt Sustainable Cities and Communities (SDG 11); Decent Work and Economic Growth (SDG 8) and the rate of introduction of Affordable and Clean Energy (SDG 7), with reductions in these goals having direct consequences in also reducing progress in the other goals which they are closely linked to. “Data Fraud or Threat” has the capacity to inhibit innovation and Industrial Performance (SDG 9), reducing competitiveness (and having the potential to erode societal confidence in governance processes). “Water Crises” (linked with climate change) have a direct impact on Human Health and Well Being (SDG 3) as well as reducing access to Clean Water and Sanitation (SDG 6) and reducing agricultural production which increases Hunger (SDG 2). The causal loop diagram also highlights “Conflict” as a variable (driven by multiple environmental-socio-economic factors) which together with regions most impacted by climate degradation will lead to an increase in migrant refugees enhancing the spread of disease and global pandemic risk, thus impacting directly on Human Health and Well Being (SDG 3)

4.2. Existential and catastrophic risk

The level and consequences of these risks may be severe. Existential Risks (ER) have a wide scope, with extreme danger, and are “a risk that threatens the premature extinction of humanity or the permanent and drastic destruction of its potential for desirable future development” (Farquhar et al., 2017,) essentially being an event or scenario that is “transgenerational in scope and terminal in intensity” (Baum & Handoh, 2014). With a smaller scope, and lower level of severity, global catastrophic risk is defined as a scenario or event that results in at least 10 million fatalities, or $10 trillion in damages (Bostrom & Ćirković, 2008). Global Catastrophic Risk (GCR) events are those which are global, but they are durable in that humanity is able to recover from them (Bostrom & Ćirković, 2008; Cotton-Barratt, Farquhar, Halstead, Schubert, & Snyder-Beattie, 2016) but which still have a long-term impact (Turchin & Denkenberger, 2018b).

Achieving the Sustainable Development Goals can be considered to be a means of reducing the long-term global catastrophic and existential risks for humanity. Conversely if the targets represented across the SDGs remain unachieved there is the potential for these forms of risk to develop. This association combined with the likely emergence of new challenges over the next decades (Cook, Inayatullah, Burgman, Sutherland, & Wintle, 2014) means that it is of great value to identify points within the systems representations of the Sustainable Development Goals that could both lead to global catastrophic risk and existential risk, and conversely that could act as prevention, or leverage points in order to avoid such outcomes. This identification in turn enables sensible policy responses to be constructed (Sutherland & Woodroof, 2009).

Whilst existential threats are unlikely, there is extensive peril in global catastrophic risks. Despite being lesser in severity than existential risks, they increase the likelihood of human extinction (Turchin & Denkenberger, 2018a) through chain reactions (Turchin & Denkenberger, 2018a), and inhibiting humanity’s response to other risks (Farquhar et al., 2017). It is necessary to consider risks that may seem small, as when acting together, they can have extensive consequences (Tonn, 2009). Furthermore, the high adaptability potential of humans, and society, means that for humanity to become extinct, it is most likely that there would be a series of events that culminate in extinction as opposed to one large scale event (Tonn & MacGregor, 2009; Tonn, 2009).

Whilst the prospect of existential risk, or global catastrophic risk can seem distant, the Stern Review on the Economics of Climate Change estimated the risk of extinction for humanity as 0.1 % annually, which accumulates to provide the risk of extinction over the next century as 9.5 % (Cotton-Barratt et al., 2016). With respect to identifying these risks, it is known that in particular, “positive feedback loops… represent the gravest existential risks” (Kareiva & Carranza, 2018), with pollution also having the potential to pose an existential risk.

#### Particularly in Africa – solves famine

Nwuneli ‘18 [Ndidi Okonkwo Nwuneli; 2018; Co-Founder of AACE Food Processing & Distribution, Managing Partner of Sahel Consulting Agriculture & Nutrition, Founder of LEAP Africa, and a 2018 Aspen Institute New Voices fellow; Project Syndicate; "The High Cost of Food Monopolies in Africa," https://www.project-syndicate.org/commentary/africa-monopoly-food-prices-by-ndidi-okonkwo-nwuneli-2018-08]

One reason for the distortion is the price of food relative to income. As Africa urbanizes, people are buying more imported semi- or fully processed foods, which cost more than locally produced foods. And in most countries, wages have not kept pace with inflation.

But the primary cause is poor public policy: African governments have failed to curb the power of agribusinesses and large food producers, a lack of oversight that has made local agriculture less competitive. In turn, prices for most commodities have risen.

The absence of antitrust laws, combined with weak consumer protection, means that in many countries, only two or three major companies control markets for items like salt, sugar, flour, milk, oil, and tea . The impact is most pronounced in African cities, where prices for white rice, frozen chicken, bread, butter, eggs, and even carbonated soft drinks are at least 24% higher than in other cities around the world. These prices hit consumers both directly and indirectly (owing to pass-through of higher input costs by food conglomerates and service providers).

The Food and Agriculture Organization of the United Nations (FAO) has long argued that food security and fair pricing depends on markets that are free from monopolistic tendencies. The OECD concurs, and has frequently called on authorities to address “anti-competitive mergers, abuse of dominance, cartels and price fixing, vertical restraints, and exclusive practices” in the food sector. And yet, in many African countries, this advice has rarely been heeded.

To be sure, this is not a new problem. Between 1997 and 2004, for example, the FAO counted 122 allegations of “anti-competitive practices” in 23 countries in Sub-Saharan Africa. Violations included a “vertical monopoly” in the Malawi sugar sector, price fixing in Kenya’s fertilizer industry, and a “buyer cartel” in the Zimbabwean cotton industry. And, despite the considerable attention such cases have received, the underlying problems persist.

According to the World Bank, more than 70% of African countries rank in the bottom half globally for efforts to protect “market-based competition.” While 27 African countries and five regional blocs do have antitrust laws on the books, enforcement is rare. The remaining countries have no regulations at all and have made little progress in drafting them.

There is one notable exception: South Africa. Since 1998, the country’s Competition Act has prohibited any company controlling at least 45% of the market from excluding other firms or seeking to exercise control over pricing. Violators face penalties of up to 10% of their earnings, and during the last two decades, some of the biggest companies in the country – including Tiger Brands, Pioneer Foods, and Sime Darby – have been penalized. As Tembinkosi Bonakele, head of South Africa’s Competition Commission, noted last year, the government is “determined to root out exploitation of consumers by cartels,” especially in the food industry.

Other countries should follow South Africa’s lead. Companies and special-interest groups will always seek to benefit from the absence of regulation. The need for reform is greatest in countries like Nigeria and Ghana, where food expenditures are high and food-industry pressure is most pronounced. Fortunately, there is growing recognition of the need to address these challenges. Babatunde Irukera, Director General of the Consumer Protection Council in Nigeria, recently asserted that, “In a large vibrant and loyal market such as Nigeria, the absence of broad competition regulation is tragic. Unregulated markets in competition context constitute the otherwise ‘legitimate’ vehicle for both financial and social extortion.”

Reducing the prices of staple food by even a modest 10% (far below the average premium cartels around the world charge) by tackling anticompetitive behavior in these sectors, or by reforming regulations that shield them from competition, could lift 270,000 people in Kenya, 200,000 in South Africa, and 20,000 in Zambia out of poverty. Such a policy would save households in these countries over $700 million (2015 US dollars) a year, with poor households gaining disproportionately more than rich ones.

#### It's existential – state collapse, refugees, terror, and Chinese spheres of influence, only institutional barriers solve

Perez ‘18 [Alexandra; 2018; Pepperdine University, School of Public Policy. Masters in Public Policy at Pepperdine. Project Manager, Health Policy at Cato Institute; "Food Security as U.S. National Security: Why Fragile States in Africa Matter." https://digitalcommons.pepperdine.edu/cgi/viewcontent.cgi?article=1169&context=ppr]

The United States’ role in foreign affairs is guided by an interest to keep the general peace around the world while protecting national security and economic interests. Stability in regions such as sub-Saharan Africa is crucial to national security, and one way to keep peace is by supplying the basic human need of food. According to the Fund for Peace, the three most fragile states in 2017 were in Africa— the Central African Republic, South Sudan, and Somalia. 1 Several other African countries are fragile, suffering from standard measures of instability, such as widespread corruption, weak institutions, and resource scarcity. Together, these problems create displacement, human-rights violations, and power vacuums where non-state actors can flourish. These issues should concern the United States not only for moral reasons, but also because they negatively affect American interests. Food aid and agricultural systems must be used as a tool to promote peace in Africa to decrease the region’s burden on the United States and to help stabilize a region that is often referred to as a lost continent.

With bipartisan support, the Global Food Security Act became law in July of 2016. It requires the President and appropriate agencies—including USAID, State Department, and the Office of US Trade—to formulate a plan to address food-insecure countries and report on that plan annually.2 The bill cited the Worldwide Threat Assessment of the US Intelligence Community (2014): “[l]ack of adequate food will be a destabilizing factor in countries important to US national security that do not have the financial or technical abilities to solve their internal food security problems.”3 Though it is uncertain whether annual reports will continue under the Trump administration, the US has demonstrated (at least through the Global Food Security Act) that it views food security as a matter of national security. According to the most recent Worldwide Threat Assessment, Africa is among the regions most susceptible to terrorism, especially in Somalia and South Sudan.4 This paper explores the ways in which food insecurity can enable conflict, how the US can improve the ways it offers food aid, and why African food security is in America’s national security interest.

Consequences of Food Insecurity

Enforcing and communicating a universal conception of human rights by any party is difficult. Nevertheless, US national security strategy has placed an emphasis on human rights in recent years. The former Secretary of State under President George W. Bush, Condoleezza Rice, once remarked that: “[f]or the United States, supporting international development is a vital investment in the free, prosperous, and peaceful international order that fundamentally serves our national interest.”5 Fragile regimes in Africa cannot successfully maintain themselves, let alone pose an immediate threat to the United States. However, these regimes are likely to seek alliances with adversaries that may pose a threat, such as China, creating a region of the world adverse to American interests and values.

Secondly, migrant and refugee flows are concerns for the United States due to their economic and social consequences. While many of the most serious cases of refugee crises today are nowhere near the US, they do affect some of the United States’ key allies around the globe. A clear example of this is Syrian migration into NATO member countries. In addition to military conflict, bipartisan research has shown that climate can also contribute to mass migrations by impacting harvest yields in regions still reliant on subsistence agriculture. For example, the famines in Somalia and Yemen have sparked emigration caused by food insecurity. Such crises may not be front page news compared to violent conflicts in surrounding states, but they present just as real a threat.

The third reason why the US should care about weak states is that terrorist organizations thrive in such environments. Since September 11, 2001, US national security policy has been primarily driven by the war on terror. While the fear of a repeat attack on American soil has calmed since 2001, the threat of terrorism is still present, and the United States must be proactive to stay ahead of terrorist threats. Terrorists thrive in weak state environments because either the lack of rule of law inhibits the host state’s ability to act against them, or because corrupt governments refuse to act, such as when Sudan provided refuge to Osama bin Laden in the 1990s.6 As a developing region, Africa is full of potential, and the United States will have to decide whether it will help it stabilize or allow it to become a refuge and breeding ground for terrorism.

Africa can potentially threaten or support American interests. As stated above, food insecurity in Africa creates problems for the US. The potential to politically align with other major powers, the destabilizing effect of refugees on the US and its allies, and the propensity to breed terrorism are all reasons to take Africa seriously as a national security concern. US interests include promoting international market economies that it can easily access, so to increase economic power at home. If the US ignores stability measures in Africa, this could negatively affect both American security interests and global economic growth, 7 which are both American priorities. The US needs a strategy that promotes food security in fragile states to address these concerns.

Food prices in Africa are expected to rise in the next few years due to famine,8 which means there is a risk that instability will grow, heightening the security concern to the United States. Food insecurity, like any social ailment, does not necessarily cause instability, but the two do reinforce each other. Obviously, American food assistance by itself cannot solve every problem in these fragile states. Success will ultimately depend on these countries establishing and enforcing the rule of law and shoring up government legitimacy. That said, nation building is not a viable option in this region, as the US has already committed itself to this in the Middle East and largely failed. The US can, however, provide developmental aid to help promote stability and provide a foundation for future institutional growth. Therefore, it is important that the US not only maintain food security efforts in weak states but also incentivize recipient behavior that will make such aid more effective.

#### A balancing test is goldilocks---harmonizes extraterritorial reach with international comity, generates global antitrust enforcement, AND it link-turns the Trade DA.

Murray ’17 [Sean; 2017; J.D. from Fordham University, B.A. from Vassar College; Fordham International Law Journal, “With a Little Help from my Friends: How a US Judicial International Comity Balancing Test Can Foster Global Antitrust Redress,” vol. 41]

Chiefly, this balancing test would supplement the FTAIA. The underlying impetus for the FTAIA’s enactment – responding to international criticism of expansive US extraterritorial jurisdiction and to calls for recognizing foreign sovereignty where the basis for US prescriptive jurisdiction is weak – functions as this balancing test’s modus operandi. While the difficulty in interpreting “direct” has instigated its introduction, the balancing test does not attempt to shed any more light on the FTAIA’s contemplation of “direct.” Instead, it provides an alternative framework to properly apply the FTAIA where the statute’s language makes it impossible to do so.

As was the balancing test in Timberlane, a balancing test here may also be criticized as leaving too much discretion over political inquiries (i.e., foreign policy considerations) to the judiciary rather than to the executive and legislative branches, where such decisions may rightly belong.200 Professor William Dodge, while asserting that US courts should engage in judicial unilateralism rather than international comity considerations, points out that the judiciary plays an important complementary role to a country’s political branches by encouraging dialogue and negotiation between sovereigns.201 Though Congress and antitrust agencies may be better suited than courts to take account of the interest of other nations, courts are nonetheless faced with the task of weighing those interests when judging a party’s right to redress in private antitrust litigation.202

Footnote 201:

201. Dodge, supra note 2, at 106-07. American courts are also well-versed in taking into account foreign interests through allowing sovereign representatives to articulate official positions in litigation. See, e.g., Empagran, 542 U.S. at 167-68 (relying on non-US government amicus curiae briefs asserting national interests in considering international comity); In re Vitamin C Antitrust Litig., 837 F.3d at 179 (“When, as in this instance, we receive from a foreign government an official statement explicating its own laws and regulations, we are bound to extend that explication the deference long accorded such proffers received from foreign governments.”); BREYER, supra note 7, at 92 (“Since there is no Supreme Court of the World, national courts must act piecemeal, without direct coordination, in seeking interpretations that can dovetail rather than clash with the working of foreign statutes. And so our Court does, and should, listen to foreign voices, to those who understand and can illuminate relevant foreign laws and practices.” (emphasis added)).

“Judicial unilateralism,” as defined by Professor Dodge, implies that courts should only consider whether or not the forum’s legislature intended to regulate the conduct at issue without regard to foreign interests. See Dodge, supra note 2, at 104-05 (“[A] court should apply a statute extraterritorially whenever doing so appears to advance the purposes of the statute and should not worry about resolving conflicts of jurisdiction with other nations.”); see also supra note 16.

End of footnote 201.

The balancing test should be an exercise in both comity and cooperation, an attempt to harmonize counterpoints in the debate over antitrust extraterritoriality. As Professor Fox posits, the question is not “when should we defer to the inconsistent interests of other nations?” but rather “how can the antitrust jurisdictions of the world work together to maximize their shared interest in competitive markets, to the benefit of consumers and robust or potentially robust business?”203 Indeed, this comports with Supreme Court’s current approach to comity analysis of harmonization rather than avoiding conflict among laws.204 Accordingly, the test will have a slightly different focus than the one constructed by the Ninth Circuit in Timberlane, which reflects an outdated period of international antitrust regulation lacking potent modern enforcement tools such as amnesty programs. It will, however, encourage the growth of overall worldwide antitrust enforcement, both public and private, which ultimately contributes to properly functioning international markets.205

The challenge of achieving proper adjudication of an antitrust claim consisting of conduct and injury in two different jurisdictions is that national laws must conform to a market that ignores national borders.206 With this in mind, the goal should be to promote adjudication in the most efficient locale in an effort to maximize world welfare, foster growth of antitrust jurisdictions, and avoid overregulation.207 There are currently over 120 antitrust jurisdictions, many of which are new antitrust jurisdictions or have enacted fresh laws allowing for greater access to private redress, such as Israel (2006), China (2008), the European Union (2014), the United Kingdom (2015), and Hong Kong (2015).208 Letting the laws of these jurisdictions develop and inculcate international standards for antitrust enforcement strengthens the deterrence of anticompetitive behavior and the ability of injured parties to seek recompense.209 Achieving greater international involvement in turn would ostensibly mitigate some of the need behind extraterritorial application of US antitrust law.210

Footnote 209:

209. See, e.g., First, supra note 16, at 732-34 (arguing that international political consensus is integral to effective international antitrust enforcement and that the case-by-case common law process of law development is the optimal path to that consensus in the absence of a single system of or approach to market place regulation); Org. for Econ. Co-operation & Dev., Recommendation of the Council Concerning Effective Action Against Hard Core Cartels 2 (May 1998), http://www.oecd.org/daf/competition/2350130.pdf [https://perma.cc/35HUTEWZ] (last visited Oct. 26, 2017) (“[C]loser co-operation is necessary to deal effectively with anticompetitive practices in one country that affect other countries and harm international trade.”). As noted above, while national recourse for compensating private loss is currently available in a minority of antitrust jurisdictions, it is increasingly acknowledged as a necessary tool for under-resourced national competition authorities. See Pheasant, supra note 11, at 59 (explaining that the European Commission “decided that it would be appropriate to enhance the role of private enforcement to support and supplement public enforcement of the competition rules” given insufficient resources for governmental competition authorities); Edward Cavanagh, Antitrust Remedies Revisited, 84 OR. L. REV. 147, 153-54 (2005) (“Congress created the private right of action to supplement public enforcement because it was aware that the government would not have the necessary resources to uncover, investigate, and prosecute all violations of antitrust laws.”); see also supra note 25.

End of footnote 209.

#### Food crises and refugees each cause extinction

Cribb ‘19 [Julian; 10/3/19; distinguished science writer with more than thirty awards for journalism; “Food or War.” Cambridge University Press. https://www.cambridge.org/core/books/food-or-war/2D6F728A71C0BFEA0CEC85897066DCAF]

Although actual numbers of warheads have continued to fall from its peak of 70,000 weapons in the mid 1980s, scientists argue the danger of nuclear conflict in fact increased in the first two decades of the twenty first century. This was due to the modernisation of existing stockpiles, the adoption of dangerous new technologies such as robot delivery systems, hypersonic missiles, artificial intelligence and electronic warfare, and the continuing leakage of nuclear materials and knowhow to nonnuclear nations and potential terrorist organisations. In early 2018 the hands of the ‘ Doomsday Clock ’ , maintained by the Bulletin of the Atomic Scientists, were re-set at two minutes to midnight, the highest risk to humanity that it has ever shown since the clock was introduced in 1953. This was due not only to the state of the world ’s nuclear arsenal, but also to irresponsible language by world leaders, the growing use of social media to destabilise rival regimes, and to the rising threat of uncontrolled climate change (see below). 12 In an historic moment on 17 July 2017, 122 nations voted in the UN for the first time ever in favour of a treaty banning all nuclear weapons. This called for comprehensive prohibition of “ a full range of nuclear-weapon-related activities, such as undertaking to develop, test, produce, manufacture, acquire, possess or stockpile nuclear weapons or other nuclear explosive devices, as well as the use or threat of use of these weapons. ” 13 However, 71 other countries– including all the nuclear states– either opposed the ban, abstained or declined to vote. The Treaty vote was nonetheless interpreted by some as a promising first step towards abolishing the nuclear nightmare that hangs over the entire human species. In contrast, 192 countries had signed up to the Chemical Weapons Convention to ban the use of chemical weapons, and 180 to the Biological Weapons Convention. As of 2018, 96 per cent of previous world stocks of chemical weapons had been destroyed– but their continued use in the Syrian conflict and in alleged assassination attempts by Russia indicated the world remains at risk. 14 As things stand, the only entities that can afford to own nuclear weapons are nations– and if humanity is to be wiped out, it will most likely be as a result of an atomic conflict between nations. It follows from this that, if the world is to be made safe from such a fate it will need to get rid of nations as a structure of human self-organisation and replace them with wiser, less aggressive forms of self-governance. After all, the nation state really only began in the early nineteenth century and is by no means a permanent feature of self-governance, any more than monarchies, feudal systems or priest states. Although many people still tend to assume it is. Between them, nations have butchered more than 200 million people in the past 150 years and it is increasingly clear the world would be a far safer, more peaceable place without either nations or nationalism. The question is what to replace them with. Although there may at first glance appear to be no close linkage between weapons of mass destruction and food, in the twenty first century with world resources of food, land and water under growing stress, nothing can be ruled out. Indeed, chemical weapons have frequently been deployed in the Syrian civil war, which had drought, agricultural failure and hunger among its early drivers. And nuclear conflict remains a distinct possibility in South Asia and the Middle East, especially, as these regions are already stressed in terms of food, land and water, and their nuclear firepower or access to nuclear materials is multiplying. It remains an open question whether panicking regimes in Russia, the USA or even France would be ruthless enough to deploy atomic weapons in an attempt to quell invasion by tens of millions of desperate refugees, fleeing famine and climate chaos in their own homelands– but the possibility ought not to be ignored. That nuclear war is at least a possible outcome of food and climate crises was first flagged in the report The Age of Consequences by Kurt Campbell and the US-based Centre for Strategic and International Studies, which stated ‘ it is clear that even nuclear war cannot be excluded as a political consequence of global warming ’ . 15 Food insecurity is therefore a driver in the preconditions for the use of nuclear weapons, whether limited or unlimited.

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## K

### Framework

#### Monopoly capitalism worsens every form of oppression and antitrust advocacy strengthens every angle of resistance.

Greer and Rice, 21—co-founders and co-executive directors of Liberation in a Generation (Jeremie and Solana, “Anti-Monopoly Activism: Reclaiming Power through Racial Justice,” <https://www.liberationinageneration.org/wp-content/uploads/2021/03/Anti-Monopoly-Activism_032021.pdf>, dml) [language modifications denoted by brackets]

Since the founding of the nation, people of color have been living an economic nightmare. People of color have persistently lagged behind white people in nearly every economic category, including employment, income, education, small-business ownership, home ownership, and asset-ownership. This is the result of the rise and reach of concentrated wealth and power, including monopoly power.

The Racial Wealth Gap

Economic racial disparities do not happen by accident. Rather, they are the product of centuries of systemic racism and have been built into the design of our economic system, which has created what we at Liberation in a Generation call the Oppression Economy. The Oppression Economy uses the racist tools of theft, exclusion, and 31 exploitation to strip wealth from people of color, so that the elite can build their wealth. In this Oppression Economy, racism is profitable, and it fuels a cycle of oppression 32 that depresses the economic vitality of people of color, suppresses our political power, and obstructs our ability to utilize democracy to change economic rules that make racism profitable in the first place.

Racial wealth inequality is the consequential disease caused by the Oppression Economy. Today, racial wealth inequality has reached astronomical levels and will continue to rise if nothing is done. Without drastic policy action it will take 228 years for average Black wealth and 84 years for average Latinx wealth to match the wealth that white households hold today. Further, if nothing is done—or we attempt to return 33 to “normal” and fail to distance racism34 after COVID-19—Black and Latinx wealth will reach zero sometime in the middle of this century. These disparities are driven by 35 36 two reinforcing phenomena connected to the issue of corporate concentration: 1) the systematic withholding of wealth from people of color and 2) the gross concentration of wealth held by the corporate elite.

Between 1983 and 2016, which coincides with the rise of corporate and monopoly power, average Black and Latinx wealth was dwarfed [outpaced] by the wealth accumulated by white households. In fact, average Black wealth decreased by more than 50 percent over this period. This is the result of a long history of economic oppression that has 37 actively blocked people of color from building wealth or has stripped their wealth through theft and predation. The beneficiaries and perpetrators of this ever-growing gap are the corporate elite who set the rules of the economy. The corporate elite’s actions have led to people of color being paid less for their labor and having to pay more for the basic necessities of life. Here are a few metrics that speak to this reality.

• Black, Indigenous, and Latinx women earn between 55 cents and 63 cents for every dollar earned by white men.38

• Low income people of color often pay a 10 percent poverty premium for essential goods and services.39

• Black and Latinx households are far more likely than white households to be unable to pay their monthly bills or cover unexpected expenses.40

• Black households are more likely to be denied mortgage credit and end up paying more when they are able to access credit.41

• Black households, in particular, suffer from a crippling debt burden composed of an array of predatory credit products (e.g., student, small-dollar, auto, and home loans).

The phenomenon fueling racial wealth inequality is the concentration of wealth in the hands of a small number of individuals. Today, the wealthiest 400 people in the US hold more wealth ($3.2 trillion) than the entire Latinx population ($2.4 trillion)and 43 more than 70 percent of the Black population combined ($4.41 trillion). While the 44 average wealth of Black people has decreased since the 1980s (as cited earlier), the average wealth of those on Forbes’s list of the 400 wealthiest people increased from $600 million in 1982 (adjusted for inflation) to $8.0billion in 2020.. You might be 45 asking, what does the Forbes 400have to do with monopoly? Well, it is a who’s who of corporate monopolists.

The people on this list are some of the most egregious perpetrators of driving down wages, expanding income inequality, degrading the health of workers, desecrating the environment, fleecing consumers, perpetuating racial residential segregation, driving community disinvestment, avoiding taxes, and corrupting our democracy. These monopolists utilize ruthless business practices to perpetuate their unquenchable thirst for maximized profits and for control of major segments of the US economy—and people of color bear the brunt.

America’s Legacy of Racism Drives and Sustains Corporate Concentration

The confluence of monopoly power and racial inequality is not new. The construction of an economy that relies on unchecked capitalism to create the modern-day monopolist relies on the construction and maintenance of America’s racial caste system. The legacy of theft, exclusion, and exploitation of people of color by corporate monopolists has been with us since the founding of the nation. In fact, prior to the Civil War, southern plantation owners were the equivalent of the modern-day Fortune 500 monopolists. The Mississippi Valley had more millionaires per capita than anywhere in the country, making it the Silicon Valley of that period. Prior to the Civil War, the combined value of America’s approximately 4 million slaves was $3.5 billion, making it the largest single financial asset in the entire economy, bigger than all manufacturing and railroads combined.46

As the roots of this problem run deep and disproportionately impact people of color, so too must the solutions. Today’s corporate monopolies are built on the foundation of an economy that also stole land from Indigenous people through genocide and forced removal, and built a labor market on the bodies of enslaved Black people. Nothing in our economy is race-neutral, including our work to dismantle monopoly power and the racial wealth inequality it causes, so we must seek race-conscious solutions.

Scholars have developed a catalogue of research confirming what many people of color experience on a daily basis: Corporations have seized control of many aspects of our lives that were once intended to serve the public good over private sector interests. Examples include the growth of charter schools and for-profit colleges as an alternative to public schools; the growth of private health insurance and private hospitals; the growth of private prisons and paid services in prison, such as phone calls and health care. However, more research is needed that connects the economic conditions of people of color to the growth of monopoly power, a call to action we further explore in Section 6.

Connecting Monopoly Power to Other Movements

There is no silver bullet to slaying the monster that is systemic racism. Leaders of color across the country are actively organizing people of color to advance bold and transformational economic and racial justice policies. These leaders are doing the hard work of transforming our economic systems by advancing liberatory policies such as a Homes Guarantee and a federal jobs guarantee; and by dismantling systems of oppression, including police and prison abolition, ending voter suppression, and curbing corporate power. To this end, anti-monopoly policy and advocacy work can be a powerful tool to advance these transformative, activist-led movement priorities.

To win the battle to advance movement priorities, we must seek to pull every lever of power at our disposal and to directly confront one of their most ardent political opponents: corporate monopolies. The Action Center on Race and the Economy (ACRE) is deftly integrating anti-monopoly tactics to advance their racial and economic justice mission. In advancing police abolition, for example, they highlight the fact that big banks (as discussed in Section 1) finance “police brutality bonds” that fund the payment of police department settlements for acts of police brutality.47 Additionally, they have highlighted for grassroots leaders of color the connections that corporate monopolies have to anti-Muslim bigotry, the Puerto Rican debt crisis, and pharmaceutical prices.48

Corporate monopolists, including big banks, big tech, and big pharma, are often primary opponents in the battles for bold, transformational movement priorities. For example, activists for bold environmental justice policies, such as the Green New Deal, have encountered strong opposition from fossil fuel monopolies, such as Exxon, Shell and BP; but also, Wall Street bank monopolies financing fossil fuel monopolies, in addition to other monopolies in the airline industry. In another example, Wall Street 49 monopolies have aggressively clashed with affordable housing advocates as their investments have displaced residents of color from their homes and businesses and have also gentrified communities of color from Harlem to Oakland and Detroit to New Orleans. Directly challenging the monopoly power of these corporations could prove to be a useful tactic for activists of color to further movement priorities.

### Links

#### The perm solves better—their totalizing critique of predictive policing cedes the terms of politics to elites and short-circuits social movements.

Hannah, 15—Geographisches Institut, Universität Bayreuth (Matthew, “State knowledge and recurring patterns of state phobia: From fascism to post-politics”, Prog Hum Geogr July 30, 2015, dml)

Advances have certainly been made in theorizing surveillance (Surveillance & Society, 2014; see Ball et al., 2012, for a comprehensive overview). Nevertheless, much writing continues to rest upon the familiar distinction-collapsing script, in which the surveilled subject is in danger of becoming fully transparent, and the ever-more-comprehensive capability of states to capture, store, copy, analyze and transmit data, most starkly demonstrated this time around by the activities of the NSA, threatens to make us all completely manipulable, controllable, predictable and normalizable. If the puzzle for critical thinkers in the 1970s was that of how people could want their own repression, the more epistemic version of the puzzle in the early 21st century asks how it is that so many people can willingly and knowingly expose themselves to comprehensive surveillance, for example through social networking sites like Facebook, and in many cases seem to want such complete transparency (Carpenter, 2012; Panek et al., 2013). At the level of institutions, this question now extends well beyond the state as such, since we are most intensely and minutely surveilled by private companies. But as the NSA scandal has demonstrated, the primary location of personal data may be of little significance to well-equipped state security agencies. Most of the public outrage has been provoked not by private companies’ possession of data but by state access to it.

Third and finally, as with theorists of fascism in the 1970s, so today it is not difficult to find thinkers whose theorizations of the state seem to undergird the familiar script. The most interesting broadly equivalent watchwords today for the term ‘fascism’ in the 1970s are ‘post-politics’ or ‘anti-politics’.3 The notion of ‘anti-politics’ has thus far been most clearly articulated in human geography by Erik Swyngedouw, who draws upon Ulrich Beck, Alain Badiou, Jacques Rancière and Slavoj Žižek to argue that an increasing number of public issues are increasingly interpreted and acted upon by nation-states in a ‘post-political’ or ‘anti-political’ fashion (Swyngedouw, 2010, 2011, 2013; see also MacLeod, 2013). In the post-political mode, ‘[p]olitics becomes something one can do without making decisions that divide and separate’; it comprises ‘the everyday choreographies of policy making within a given institutional and procedural configuration in which individuals and groups pursue their interests’ (Swyngedouw, 2011: 4). Politics is essentially managerial, with real antagonism and dissent banished to an outside stigmatized as irrational and subject to risk-policing. This perspective has a good deal in common with fears of ‘technocracy’ often linked to surveillance in the 1970s (Akin, 1977; see Hannah, 2010). Other scholars, even while not explicitly invoking the critique of anti- or post-politics, nevertheless evidence a very similar blanket dismissal of democratic business as usual. In one of many examples, Jenny Pickerell and Paul Chatterton list ‘representative democracy’ among the phenomena they hope ‘we can dismantle’ through involvement in autonomous geographies of activism (Pickerell and Chatterton, 2006: 731). Similarly, Simon Springer’s call for ‘radical democracy’ is directed explicitly against ‘anti-political modes of aggregative and deliberative democracy’ (Springer, 2010: 527).

The argument here is not that these lines of political analysis are wrong. Indeed, any remotely vital democratic culture must be driven fundamentally by social movements and political forces originating outside official institutions (Cohen and Arato, 1992). An increasingly merciless form of capitalism in articulation with tenacious gender and racial discrimination, militarism and other sources of grave injustice obviously cannot be effectively combatted with the tools of representative democracy alone. It is also clearly the case that technological, procedural and cultural changes have had de-politicizing effects, increased the intensity of surveillance, or chased serious dissent outside the circles of ‘acceptable’ politics. However, the radical critique of ‘post-politics’ tends to subsume and collapse all meaningful distinctions and differentiations one otherwise might make within the realm of ‘normal’ democracy under the shadow of the one grand distinction between everyday ‘politics/police’ and ‘the political’ (Swyngedouw, 2011: 4). In the process, significant political phenomena with continued emancipatory potential are swept from view. When prominent critical theorists appear to deliver rigorous justifications for such collapsing of distinctions, it becomes all the more difficult to resist. To illustrate this latter problem, I will discuss the writings of the philosopher Alain Badiou. On some important points, Badiou can also stand in here for Jacques Rancière (Rancière, 2010; Badiou, 2005: ch. 8).

V Badiou, politics and number

Badiou’s work has been discussed at some length already in the geography literature, chiefly for his characterization of the event (Dewsbury, 2007; Bassett, 2008; Doel, 2009; Shaw, 2012) and for innovative elements of spatial thinking potentially useful for socio-spatial theory (Constantinou, 2009; Madarasz, 2009; Plotnitsky, 2012; Shaw, 2010). Mackenzie’s analysis of the multiplication of databases in terms of Badiou’s gloss on set theory is particularly interesting in the present context (Mackenzie, 2012). However, it too, like almost all of this work, either takes his critique of the state as an epistemic power at face value or has other concerns altogether. As Shaw (2012) has explained, Badiou’s major works first set out his ‘pure’ ontology of ‘multiples’ and evental change in terms of set theory (Being and Event, 2006), and then a comprehensive (likewise mathematically expressed) phenomenology of the appearance of events and subjects in structured worlds (Logics of Worlds, 2009). Badiou’s basic understanding of revolutionary politics in terms of events is already formulated in the first of these two volumes. The value of Badiou’s predilection for mathematizing his arguments has been the focus of considerable debate (Hallward, 2003; Bosteels, 2011, Nirenberg and Nirenberg, 2011). For the issues discussed here, his mathematical mode of expression is an advantage, because it illustrates most starkly and directly the basic, distinction-collapsing architecture of many phobic constructions of state knowledge. In effect, as I will argue, Badiou uses the abstraction of set theory (and later, category theory) to disqualify the importance of distinctions between different kinds and uses of state knowledge. This is the main reason I dwell on his work.

The set-theoretic concepts of belonging and inclusion are a good place to start because they bring us quite directly to the problem I want to highlight here (see Mackenzie, 2012). The basic relation at the heart of set theory is that of belonging. This is designated in set theoretic notation with the symbol ‘∊’, so that the expression ‘x ∊ S’ means the element ‘x’ belongs to the set ‘S’. This idea is probably familiar to readers from grammar-school or middle-school mathematics. Another starting point of set theory is that a set cannot (the symbol ∼ means ‘not’) belong to itself: ∼(B ∊ B) (Badiou, 2006: 38, 85). Logically, a set that belonged to itself would constitute a kind of infinite regress. This will be important in Badiou’s definition of an event. The second basic relation in set theory is the notion of a subset or recognized ‘part’ of a set, designated by the symbol ‘⊂’: ‘a ⊂ S’ means that ‘a’ is included in or is a subset of S. A subset can contain a single element or more than one element. If, for example, S is the set of letters of the English alphabet, any subset ‘a’ of S might contain anywhere from one to all 26 of the letters. To get a sense of the basis of Badiou’s understanding of the state, take the simple case of the set B={x, y, r}. A basic theorem of set theory is that the set of parts or subsets of a set always has more members than there are elements in the set. If B={x, y, r}, there are seven subsets, three with one element, three with different combinations of two elements, one with all three elements.4 The state in the historical-political sense is but one illustration of the fundamental ontological figure of a ‘state of the situation’, which encompasses the set of subsets (or ‘power set’) of a situation. The multiples that belong to a situation can be combined into a larger number of subsets, each of which is included in the state of the situation. As seen above with the example B={x, y, r}, there are three multiples in B, but seven subsets in its power set. This meta-level of inclusion, in which what belongs to a situation is also recognized amongst the parts of a situation, Badiou terms representation:

Once counted as one in a situation, a multiple finds itself presented therein. If it is also counted as one by the metastructure, or state of the situation, then it is appropriate to say that it is represented. This means that it belongs to the situation (presentation), and that it is equally included in the situation (representation). (Badiou, 2006: 99)

If an element ‘a’ is presented in a set, its representation, its ‘official’ recognition as a subset, is designated as {a}, or its ‘singleton’.

It is fairly clear already how Badiou will conceive the power of the state: as a power of assigning multiplies (in the political case, individual people or groups) to specific subsets of the population, coupled with an excessive power to define far more subsets than there are people.

There are always more parts than elements, i.e. the representative multiplicity is always of a higher power than the presentative multiplicity. This question is really that of power. The power of the State is always superior to that of the situation.5 (Badiou, 2005: 144)

In concrete instances, the parts or subsets might be voters with different party preferences, categories of age, ethnicity and race, criminal/non-criminal, or many other possibilities. In Badiou’s set-theoretic abstraction, however, the details and contents of any particular state categorial structure are completely beside the point and politically inconsequential. There is no politically important distinction between or among specific kinds or arrangements of subsets. What emerges here is a picture of the state (explicitly including the ‘democratic’ state) as an exclusively repressive or deadening power, exercised through the fixation and ordering of elements into categories or subsets. This image of the state as ‘the measureless enslavement of the parts of the situation’ (Badiou, 2005: 145) echoes Deleuze and Guattari’s use of the term ‘slavery’ in their characterization of fascism (see above). For Badiou,

the essence of the State is that of not being obliged to recognise individuals – when it is obliged to recognise them, in concrete cases, it is always according to a principle of counting which does not concern the individuals as such.… [T]he State solely exercises its domination according to a law destined to form one out of the parts of a situation. (Badiou, 2006: 105)

This coercion is a matter of principle.… If, for example, an individual is ‘dealt with’ by the State, whatever the case may be, this individual is not counted as one, as ‘him’ or ‘herself’.… This individual is considered as a subset.… The ‘voter’, for example, is not the subject John Doe, it is rather the part that the separated structure of the State re-presents, according to its own one […]. The individual is always – patiently or impatiently – subject to this elementary coercion, to this atom of constraint which constitutes the possibility of every other type of constraint, including inflicted death. This coercion consists in not being held to be someone who belongs to society, but as someone who is included within society. (Badiou, 2006: 107)

The formal proximity of Badiou’s and Rancière’s critiques of the normal functioning of the state is striking. Rancière defines ‘the police’, roughly equivalent to Badiou’s ‘state’, as

that distribution of the sensible in which the effectuation of the common of the community is identified with the properties – the resemblances and differences – that characterise bodies and their modes of aggregation. It structures perceptual space in terms of places, functions, aptitudes, etc. to the exclusion of any supplement. (Rancière, 2010: 92)

Badiou indeed unabashedly claims credit for Rancière’s version (Badiou, 2005: 119). But he then goes on to chide Rancière for not following this logic to the point of recognizing the bankruptcy of democracy, or, as he will put it in Logics of Worlds, ‘democratic materialism’, the notion that ‘there are only bodies and languages’ (Badiou, 2009: 1–2).

It follows from Badiou’s premises that the only worthwhile thing to do in relation to the state is to try to initiate or join projects aimed at disrupting its fundamental structuring of normality. In order to explain the possibility of radical disruption of the state, Badiou distinguishes three categories of terms (multiples): normal terms (which are both presented and represented in a situation), excrescences, which are represented but not presented, and singularities, which are presented but not represented (Badiou, 2006: 99). Politically, the state will not be threatened by normal terms, or by shifts in the exact distribution of elements among different subsets: again, Badiou dismisses the importance of concrete statistical or categorial distributions. However, singularities can be dangerous to the state, as illustrated by the historical examples of the French Revolution and the Paris Commune (see Bassett, 2008). The affinity of Badiou’s description with that of Rancière is very close here as well. The fifth of Rancière’s ten ‘theses on politics’ reads as follows (emphasis in original):

The people that comprises the subject of democracy, and thus the atomic subject of politics, is neither the collection of members of the community, nor the laboring classes of the population. It is the supplementary part in relation to every count of the parts of the population, making it possible to identify ‘the count of the uncounted’ with the whole of the community. (Rancière, 2010: 33)

If the state of the situation is a meta-structure obeying the rules of set theory, a true event involves their (at least temporary) overthrow, specifically in the form of a new set that belongs to itself (recall that a ban on self-belonging is a key cornerstone of axiomatic set theory). Badiou writes this ‘matheme of the event’ in the following way:

Formula

In other words, the event of the site X involves an element x already presented, but not represented, in the situation, plus a ‘positing’ or ‘assertion’ of itself as an event. The event declares a truth and has effects through inspiring the fidelity of previously unrelated elements, which may together constitute a new (likewise previously unrecognized) ‘generic’ set and thus an historical subject capable of altering the entire architecture of the situation. Badiou will re-work his account of the appearance of an event and of the constitution of an evental subject in Logics of Worlds (2009),6 but the basic shape of meaningful political change is laid out already in Being and Event. In the final section, below, I want to argue (and to illustrate with brief empirical examples) that this entire state-phobic construction is inadequate, because it fails to recognize the legitimacy of what I term ‘the event of inclusion’.

VI Counting and the event of inclusion

The edifice Badiou has constructed seems an ideal framework in which to understand the revelations about the NSA, and the core structure of the surveillance state more broadly. Certainly Badiou’s account reinforces the familiar picture of state knowledge as a fundamentally dangerous resource finding its authentic expression in the reduction, control and repression it supports. It is crucial to recognize that this image is seriously incomplete and to that extent misleading. Any form or categorial system of state knowledge can in fact be mobilized for repression. But this is not always and automatically the most important thing about state knowledge, and indeed I will argue that in many cases the real potential for emancipatory effects is by far the more significant aspect. Also, meaningful questions of politics can attach to the specific arrangements and differentiations within a given, state-structured statistical knowledge-system; real politics is not reserved only for events that disrupt or overturn the entire edifice.

A number of important progressive social movements over the last two hundred years have had as their explicit goal the inclusion of presented but hitherto un-represented groups in a pre-existing system of categories. Whether we think of the Women’s Suffrage movements of the 19th and 20th centuries or the US Civil Rights movement, it is difficult to deny that the primary goal was inclusion in an established state system of categories (in both cases political categories of democratic representation), an inclusion that, it was hoped, would transform the system, but by changing its content, not its basic structure. Indeed, Swyngedouw cites social movements explicitly aimed at inclusion as examples of ‘the political’ in the sense of ‘disruption[s] in the order of the sensible’ (Swyngedouw, 2011: 5). To this extent, however, he undermines the radical master-distinction Badiou wants to defend. Though he may not have these specific movements in mind, Badiou explicitly laments the results of movements aimed at inclusion, with what I would suggest is a telling undertone of incredulity:

Why do the most heroic popular uprisings, the most persistent wars of liberation, the most indisputable mobilisations in the name of justice and liberty end … in opaque statist constructions wherein none of the factors that gave meaning and possibility to their historical genesis is decipherable? (Badiou, 2005: 70)

Why has the determination of active singularity so often been obliged to represent itself as the consciousness or experience of objective entities, of mythical hypostases? Why endow action with a passive body? (Badiou, 2005: 104)

The ‘statist constructions’ and ‘mythical hypostases’ decried here are, however, not necessarily as nefarious as Badiou would have it. A number of recent developments in the area of political struggles over state knowledge either contradict Badiou’s exclusively negative picture or imply from his perspective that groups seeking state recognition are fundamentally deceived. On the one hand, a range of self-forming groups across both the Global North and the Global South have mounted struggles aimed at being counted by states. One example in the US during the mid-1990s was that a high-profile movement by self-identified ‘mixed-race’ people emerged with the goal of having the category ‘mixed-race’ included among the official racial categories collected by the US government. Their argument was twofold: (1) that being of mixed-racial background in the US context brings with it specific forms of discrimination and disadvantage, and (2) that having a dedicated statistical category was an important affirmation of a coherent identity (US Office of Management and Budget, 1997). In South Asia, Africa and elsewhere across the Global South, self-enumeration movements have emerged among slum dwellers and peasants, partly on the practical premise that a basic level of visibility to the state is the condition of possibility for any service delivery (see Szreter, 2007), but also (as with the mixed-race movement) as a matter of the politics of recognition (Appadurai, 2001; Patel and Baptist, 2012; Muller and Mbanga, 2012). There have been both internal and external criticisms of these movements, of course, worrying about the price of collaboration in a hegemonic regime of truth. In some cases such fears are undoubtedly justified. However, it is important to remember that some key statistical categories and forms of knowledge routinely gathered by the state (gender, ethnicity or environmental data, for example) are only gathered because of earlier social movements for justice. Systems of state knowledge often include categories and statistics that are hard-won results of earlier emancipatory pressures.

The preoccupation in western critical thought with the reductive, repressive possibilities of state knowledge takes for granted that there is state knowledge, contrasting it unfavorably with other richer or more subtle possible alternative forms of representation. A good deal of activism that aims at being counted, whether in the Global North or the Global South, effectively points out that the problem of reductive knowledge is in many instances less serious than the problems that come with being completely invisible to the state. A forgotten dimension of being counted is that it carries with it the fundamental assertion ‘there is’ (mathematically, ‘∃‘). For many people around the world, this affirmation is more important than subsequent questions about exactly how one is counted or what dangers might attach to being counted. As a crucial supplement to Badiou’s scheme, then, it is possible to define the event of inclusion, a politically significant change within a state knowledge system. We could even propose a ‘matheme’ for such events:

Formula

The event of the inclusion of x involves an x that belongs to the situation, and the event consists in x finally being represented as a subset, in this simplest case as its own singleton (see above). Emancipatory effects may follow from such events; they do not follow only and exclusively from complete subversion and overthrow of a pre-existing state of the situation.

There is indirect evidence for this alternative view of inclusion from another angle as well. There are indications, at least in North America, of an emerging neo-conservative backlash explicitly aimed at dismantling state infrastructures of social knowledge. Conservative members of the US Congress have been attempting for years to reduce the collection of statistics by the US government, recently attacking the American Community Survey and seeking to ban inter-censal data gathering by the US Census Bureau (McAuliff, 2013). Although gathered by the state, these sources of information have remained invaluable for activists and officials alike in legitimizing attempts to redress injustices and inequalities. Recent studies of injustice and inequality by geographers (Dorling, 2011) and non-geographers (Wilkinson and Pickett, 2009) alike were made possible by the regular collection of knowledge by states. The results published in these studies are highly inconvenient for neoliberals and social conservatives, so it should not be surprising that they have begun to be the target of deliberate attacks. The controversy over the Harper administration’s decision to discontinue the long-form census in Canada in 2010 points to similar conclusions (Ramp and Harrison, 2012; Walton-Roberts et al., 2014). Under rhetorical cover of protection of privacy, these attacks seek to undermine a core knowledge-base for progressive social and economic policy. Peck and Tickell (2002) distinguish roll-back from roll-out neoliberalism in terms of policy initiatives. We may now be witnessing a complementary, delayed parallel ‘roll-back’ phase in the area of state knowledge infrastructures.

VII Conclusions

This paper has sought to unearth important but often undiscussed assumptions behind a good deal of critical political scholarship. As I have tried to show, these assumptions become particularly explicit in certain political conjunctures. Many features of the current moment have a fascinating parallel in the context of the Klaus Croissant affair in France and West Germany in the late 1970s. Despite important differences, in both contexts there were strong convergences between popular fears of the ‘surveillance state’, purported ‘crises of democracy’ and critical philosophical characterizations of the state as an essentially repressive phenomenon whose repressive character rests upon its epistemic powers. Foucault’s refusal to accept the diagnosis of the West German state in the late 1970s as ‘fascist’ is deployed as a precedent for disputing Badiou’s dismissal of the possibility that (liberal democratic) state systems could have any meaningful progressive or emancipatory potential. In particular, I argue that it is precisely in the knowledge-infrastructures maintained by the state that we may be able to locate, defend and develop such a potential. Evidence to support this view can be found both in social movements explicitly aimed at state recognition and, indirectly, in neo-conservative campaigns to eliminate or reduce state knowledge-gathering. To supplement Badiou’s account of politics, then, we need to recognize the existence and emancipatory potential of ‘events of inclusion’. Even in the age of NSA surveillance, undifferentiated state phobia is a temptation to be resisted.

Strategic-relational approaches to state theory have described the state as a shifting crystallization of social forces, and thus not straightforwardly and exclusively identifiable with the interests of capital (Jessop, 1990; Kelly, 1999; Poulantzas, 2000). The same can be said of state knowledge infrastructures. Writing in 1978, Nicos Poulantzas famously defined the state as ‘the material condensation of a relationship of forces’ that must be grasped as ‘a strategic field and process of intersecting power-networks’ (Poulantzas, 2000: 136ff.). The processes through which the state as strategic field is structured and restructured by power-networks necessarily involve struggles over representation. Of course the category of representation here should be understood to involve ideologies vying for hegemony, as well as party and electoral representation in the narrower institutional sense. Crucially, representation is also a matter of categorial (often statistical) infrastructures. Poulantzas already recognized in 1978 that ‘“bourgeois” statistics and the state statistical bodies cannot be treated as mere mystification, but constitute elements of state knowledge to be used for the purposes of political strategy’ (Poulantzas, 2000: 32). The point is not to struggle against the knowledge-infrastructures of the state in their entirety but to approach them as internally differentiated and changeable strategic terrains of struggle. It is even possible that such infrastructures will become more important as resources for struggle as the categories of electoral democracy are further drained of their potential to address real problems of inequality, injustice and exploitation.

### Alt

#### Planetary competency is a sham.

Gardiner, 20—Professor of Sociology at the University of Western Ontario (Michael, “Automatic for the People? Cybernetics and Left‐Accelerationism,” Constellations: An International Journal of Critical and Democratic Theory, August 6, 2020, dml)

The notoriety of Project Cybersyn in Left‐accelerationist circles and beyond is perhaps not entirely surprising insofar it is the best‐known example of consciously deploying cybernetic principles for what were felt to be emancipatory ends, rather than the augmentation of state or corporate power.3 Due to circumstances very much beyond its control, the system was never brought fully online, and of course we will never know the directions in which it might have developed. However, thanks to Medina's detailed and exacting research, we have been made aware of the sometimes yawning gap between Beer's vision and how it aligned politically with the undeniably admirable goals of Chilean socialism, and the actual nature of Cybersyn's attempted implementation. For instance, worker participation was token at best, and not an integral part of system design; engineers and factory managers didn't really overcome their professional and class bias; and gender inequities with regard to design and organizational management were barely acknowledged, never mind meaningfully addressed (see also Espejo, 2009, p. 79). However, we are less concerned here with the historical realities of Cybersyn or the specific features of Chilean socialism than more general cybernetic principles and how they might lend support to any viable postcapitalist transition. Put differently, to indulge in a spot of “immanent critique,” do the claims of Left‐accelerationist cybernetics regarding enhanced possibilities for human freedom, solidarity, and autonomous self‐actualization match the reality (or potential reality)? What is crucial vis‐à‐vis any such discussion is the (often implicit) suggestion, outlined in the previous section, as to the qualitative differences between first‐ and second‐order cybernetics, together with the idea that Left criticisms typically, and illegitimately, conflate the two. Rather than the use of negative feedback oriented to the maintenance of order by inhibiting counteraction, so the argument goes, second‐order cybernetics is concerned with positive feedback, working through amplification and enhancement of the original signal, whereby the presence of complexity and chaotic states demonstrates the non‐linearity of systems and their capacity for unpredictable change in the pursuit of open‐ended (but self‐correcting) goal attainment. And yet, a careful examination of writings by the likes of Tiqqun or Châtelet demonstrate that they were generally aware of different currents in cybernetic thinking, but nevertheless argue that, whatever its ostensible methods and goals, second‐order cybernetics promulgates a new regime of power and control that dovetails in many respects with the requirements of today's supercharged technocapitalism. Going further, they intimate that even some version of “cybernetic socialism,” with presumably novel human‐machine assemblages, might not necessarily escape this morass.

Arguments concerning this shift to a new regime of power often make reference to one of Deleuze's late essays, or at least show its influence: the brief but tantalizing “Postscript on Societies of Control.” In nuce, Deleuze's position is that the type of “disciplinary” society theorized by Foucault, marked by various enclosures (schools, factories, military barracks, bureaucracies) wherein social behaviors were scrutinized and minutely organized in space‐time so as to enhance their productive efficacy during an era of industrial capitalism, has been superseded by a quite different system of ruling more relevant to the present situation of powerful global corporations and the centrality of the “knowledge economy.” That is, whereas disciplinary societies concern themselves with a process of homogenizing subjectification largely through panoptical means, by which compliant individuals are integrated seamlessly into the mass, control societies are post‐panoptical, and rely instead on “ultrarapid forms of free‐floating control” (Deleuze, 1992, p. 4). Crucial with regard to the latter is the continuous accumulation of statistical information via the elicitation of communicative exchange across the entire social field. The focus ceases to be the atomized individual, but rather a numerically‐based assessment of the “dividual,” by which Deleuze means a generically average subject made comprehensible through opinion surveys, sampling techniques, and market research. Control is now exercised, not through hierarchical, top‐down management, much less by fostering techniques of hermeneutical self‐examination, but the pattern analysis of myriad electronic traces and the subtle shaping (or “nudging”) of micro‐behaviors via what Deleuze calls “universal modulation.” The key is that these environments are not segmented and closed, but fluid and open, and that social actors participate in and maintain the system dynamically through their own seemingly voluntaristic choices and actions, à la Lefebvre's “splendid impression of spontaneity and harmony.”4

The relevance of Deleuze's “Postscript” to our concerns should be fairly obvious. First‐order cybernetics is in lockstep with the nature and demands of what we might call late‐disciplinary societies. Second‐order cybernetics, by contrast, appears more compatible with progressive, even liberatory aims. An indication of this latter orientation is that many of the key figures in British cybernetics situated themselves on the Left of the political spectrum, and cultivated non‐conformist and often explicitly anti‐authoritarian interests, even if Beer himself was something of a “champagne socialist.” Yet, in embracing complexity, contingency, and openness, second‐order cybernetics is not wholly immune to the mentality of control and governance. Indeed, the types of non‐linear self‐organization as discussed by Deleuze are necessarily premised on disequilibrium and chaos: the multiplication of horizontal, autonomously‐structured communicative networks is the new mode of control, not any sort of emancipation from prevailing systems of power. Control societies depend precisely on the constant elicitation of affects and desires, as opposed to their repression or curtailment, provided they can be channeled into forms of communicative action subject to ongoing surveillance and statistical quantification. In second‐order cybernetics, as Maroš Krivý (2018, p. 18) usefully puts it, “power relations reproduce through proliferating indeterminacy, nonlinearity and complexity, rather than by curbing these into determinate, linear and unidirectional forms.”

Writing from the perspective of the French context of the 1990s, but hardly irrelevant to our own era of “nudge theory,” smart cities, and the like, Châtelet (2014, p. 23) suggests that the mania for incorporating concepts of “chaos” and “self‐organization” into what he regards as pseudo‐liberationist thinking was part and parcel of the intellectuals’ post‐1968 capitulation to “market democracy.” The latter is foursquare in favor of the “right to difference,” calling for an end to heavy‐handed state interference and concomitantly eulogizing social mobility and permanent “nomadism.” But that's only because the neoliberal market itself loves fluidity, movement, and constant acceleration, seeking to capture the “creative power of chaos” through a “cyberpolitics” that generates order out of the disorder of self‐regulation. Authoritarianism of the obvious variety is replaced by the covert injunction to produce and consume information, to subscribe enthusiastically to a universal “will to communicate.” Yet the encouragement to speak in the context of today's “social (or “global”) factory,” to cooperate, to express one's “authentic” thoughts and feelings, is ultimately a coerced and deadening gesture. For Châtelet, the “chaos of opinions and microdecisions” relies on a rhetoric of freedom via auto‐emergence, but there is always an apparatus of control working discretely behind the scenes, and hence a crucial distinction to be made between powerful designers and operators and those being operated on. Since the conventional state apparatus is now too slow and clumsy to respond effectively to the demands of the new fluid social ontology, scientific management of political sovereignty is rendered much more palatable when presented in the guise of refined “pressures exerted by an anonymous and nonlocalized entity” (p. 33). This constitutes a “ventriloquism” of power‐effects operating through such ubiquities as globalized market forces, intermeshed communicative networks, and the relentless organization of “public opinion.” Any particular social atom, the locus classicus of disciplinary societies, is irrelevant here; echoing Deleuze, for Châtelet what's important is the modulation of network fluidity via “hydro‐cybernetics,” and the effectuation of valuational equivalences across numerous domains through a universal system of inputs and outputs. Whereas the Young Turks of the new cybernetic order (the children of Lefebvre's cybernanthropoi?) conflate horizontality with enhanced democracy, Châtelet is adamant that the former does not in any way necessarily vouchsafe the latter. Indeed, horizontal formations concentrate power in vital nodal points, and are more effective for being anonymous and unseen, everywhere and nowhere at once, in contrast with “overly visible verticalities” that might precipitate resentment and opposition. The result is the “well‐mannered anarchism” of the market, which, unlike the “romantic” anarchism of old, threatens no societal upheavals ‐ first, because geared towards optimal management of a coolly technocratic nature, but also insofar as there is no worker “downtime” in an age of 24/7 networked production/consumption, and hence little opportunity to foment dreams of revolt.

From the vantage‐point of the early 2000s, in The Cybernetic Hypothesis Tiqqun takes some of these arguments further. Although Cybersyn isn't referenced directly here, they hone in on the technophile Left's contemporaneous fascination with cybernetic possibilities, anticipating later positions advanced by the Left‐accelerationists and “fully automated luxury communists.” According to Tiqqun, the period of upheaval around 1968 could be interpreted as the last reverberation of a cycle of struggles that dominated Western societies over the two previous decades. Facing the manifold shocks of rising worker militancy, the energy crisis, and precipitously‐declining rates of profit, global capitalism required full‐scale reconstruction, and, as discussed above, cybernetics fit the bill very well. However, the logic of cybernetics appealed to certain technologically‐oriented critics of capitalism as well, such as those advocating an “ecosocialism” premised on equilibrium and a steady‐state economy through decentralization and differentiation, especially in light of the Club of Rome's famous 1972 document “Limits to Growth.” For Tiqqun (2020b, p. 98), however, this represents a kind of “social capitalism” seeking change through the democratization or socialization of the “decisions of production,” as if a full‐blown post‐Fordist society could emerge spontaneously from a dispersed, popular “collective intelligence.” As an example, a “new social contract” like universal basic income adopts the logic of the current system's emphasis on “human capital” and the metaphysics of production. It is not incompatible with money, commodity exchange, or markets, and would only free up more disposable income so as to accelerate the circulation of goods and information at the behest of processes of value‐capture (see also Beech, 2019, p. 93). Ultimately, for Tiqqun this would make the labor force itself more, rather than less pliable. If the “new spirit of capitalism” is cybernetic to the core, so are “Left” solutions to the present crisis that rely extensively on repurposing existing infrastructures, neoliberal subjective dispositions, and logistics, so as to end up with a “communism of capital.” Or, to put it differently, any approach advocating the “framing of the world in terms of problems” is not a genuine communist project, but in reality another path to capitalism (Tiqqun, 2020b, p. 109; also Culp, 2018, p. 167). In this way, cybernetic capitalism has absorbed its ostensible opponents into an overarching paradigm of social regulation governed by a managerial reason, disposed to what The Invisible Committee (2015, p. 124) terms the “cult of the engineer,” that can serve the political objectives of “Left” just as well as “Right.” Even Pickering (2010, p. 273) admits that Cybersyn could have been re‐engineered by technicians and state functionaries of the Pinochet regime, and deployed to more nefarious ends than Beer would probably have imagined, which is likely not the kind of “repurposing” Left‐accelerationists have in mind.

It is noteworthy that Alex Williams has written independently about the relationship between Deleuze's theory of control societies and cybernetics, and it is therefore important to consider his arguments here. Rather than contrast the US and UK developments, and primarily associate “first‐order” cybernetics with the former and “second‐order” with the latter (a convention we have followed here), Williams advances a different set of distinctions. That is, he reserves the term first‐order for 20th‐century cybernetics in general, whatever the differences between, say, Weiner or Beer (odd in light of his admiration for Cybersyn, which gets only passing mention here), and suggests second‐order is a phrase better‐suited to the networked “platform” systems of the 21st‐century, such as Airbnb, Facebook, or Uber. First‐order cybernetics, by Williams’ reckoning, follows the domineering control logic as characterized above: it aims to modulate action via recourse to homeostatic equilibrium so as to realize pre‐set goals. In contrast, “platforms” are design architectures that work primarily not through constraint, but by enabling actions through positive feedback circuits that cannot be prefigured in advance. Platforms, writes Williams (2015, p. 223), are “materialised transcendentals – they act as conditions of possibility for other processes and entities to exist.” As “entrenched” infrastructures they do restrain in certain ways (for example, Microsoft owns the vast majority of home computer operating systems and forces users to conform to its licensing arrangements and surreptitious forms of data collection), but they also provide the ground for unpredictably contingent or “generative” outcomes, and hence contain hitherto‐untapped potentialities for autonomous self‐organization outside the aegis of state and capital. Yet, Williams is notably vague on what forms of such self‐organization might be possible here, or what exactly is being “enhanced” through the utilization of such platforms in ways that might be considered “emancipatory,” assuming this doesn't bolster the hegemonic power and virtual ubiquity of existing platforms. As argued earlier, control systems work precisely through such “enhancements,” via the solicitation, reinforcement, and augmentation of myriad desires and affects, so long as they can be successfully captured and “put to use.” “Platform capitalism” emerged after the 2008 crisis, argues Sebastian Olma (2016, p. 171), because of capital's need to both create and exploit a situation of permanent entrepreneurialism and precariousness in an era of falling profits, disinvestment, and declines in manufacturing productivity. In other words, the harnessing of auto‐exploitation is integral to these systems’ very design, whereby “platform proletariats” are pauperized both materially (participants in the “gig economy,” once time, expenses, and insurance are factored in, earn much less than even the minimum wage) and in terms of a relentless degradation of skill and knowledge. As such, it's difficult to see the liberatory potential here, insofar as such platforms are essentially about extending market logic into any and all domains of human life. In this context, Beer's algedonic meters, however crude or well‐intentioned, seem to anticipate today's omnipresent data capture and the vast amounts of unpaid digital labor it exploits (Amazon user reviews, Facebook “likes,” etcetera), which are all forms of “soft” coercion encouraging the formation of certain subjective dispositions in line with the demands of hyper‐productivity and acquisitive consumption. Towards the end of the article, Williams belatedly suggests that alternative platforms could be constructed in the service of non‐capitalistic ends. Yet, it's far from clear how these “socialized” systems could ever be designed and implemented, never mind constitute any sort of threat to the monopolistic, privately‐owned platforms dominating Western societies today, and even if they were, such a scheme remains vulnerable to the objections of Tiqqun et al. as to the foibles of “social capitalism.”

Fy and so on are either quite rudimentary or disoriented with regard to the realization of consequential political changes, I think I am more comfortable to identify myself as a rational pessimist. I reject passive pessimism in the sense that as long as possibilities can be imagined, we have to actively gamble and push beyond any vestige of resignation. Without imagining possibilities and piecewise attempts at actualizing them, there is in fact no good justification for surviving as a species. As Seneca has pointed out, in complete absence of such a struggle, we must perhaps devise the most cunning and artful contrivance for bringing our death about. In that case, even the slogan “let it go,” once inflated, is nothing but a disingenuous pessimism that attempts to fabricate a semblance of profundity. In reality, it is the very exemplification of human conservatism and an adolescent disgruntlement which secretly hopes for a miraculous change even when it tries to seem detached from such concerns. After all, romantic fatalism is the shallowest form of passive optimism, rather than genuine pessimism.

Other than the question of methods and tools, another reason for my doubt is what I mentioned in my answer to your previous question and which you brought up through Mark. It is the enigma of the particular. It is enigmatic precisely because the particular as a real condition can shapeshift and come in different guises, play different even contradictory roles in the domains of both the individual and the collective, the local and the universal piecewise integration and mobilization of localities. Mark was one of the best critics of the Hobbesian myth of the state as that which guards the human from their complete transformation into wolves, as that without which humanity is inconceivable. In a sense, Mark was far more radical than Hobbes in that he fathomed the depth of the enigma of the particular. The particular can be pernicious or even illusory through and through. The absolutization of the particular, the individuals—whether in the name of the victim, the sufferer or in the name of individual choices and preferences—completely misses the fact that the conditions of individuation can themselves be pathological. The overemphasis on the particular or the local, accordingly, can very well the blind perpetuation of the conditions of exploitation and misery. But particulars can also be positively non-trivial and implicitly collective perspectives: by making these perspectives explicit, we can shed light onto the problems of the individual and the collective. However, one thing is certain—as Mark would have agreed—the depth of particularities is inexhaustible. So much that, as I argued earlier, even those who dismiss the universalist labour have to deal with its drastic implication within their neo-reactionary floating islands. Absent a diagnosis of different kind of particularities, and short of analysing them with regard to the mechanisms responsible for generating and distinguishing such causal factors or mechanisms at different levels of socio-economic reality, we are all—and I mean everyone—on the same Hobbesian Raft of the Medusa. We will eventually betray ourselves and eat one another, irrespective of whether we think we should strive for a future universalist collective project, we should denounce such endeavours, or we should do nothing and just let it go.

Given the endless series of particularities, of individuals, and of localities, as well as their protean nature, I think that—given our current tools, modes of thinking and action, methods, etc.—we have at this point a very slim, if any at all, chance to do anything that leads us beyond the nightmare of this auto-cannibalistic raft. While I wholeheartedly support the paradigms raised by people like Patricia Reed, Nick Srnicek and Alex Williams which are focused on consensus-building, hegemony-construction and the critical integration of particularities of the human condition, I think as a philosopher I should take side with the Socratic method of the courage of truth with regard to the political action. And as such, I believe the prospects are now very dim, shockingly so. This claim should not incite the cheer of the right-inclined, resignatory, neo-reactionary, and conservative thinkers. If anything, it should lead them to confront the prospects of their own reality as well in terms of a pure terror, insofar as this dim prospect is not exclusive to the emancipatory politics to which we have subscribed but also includes their recipes or the lack thereof.

This brings me to the main question you raised regarding my political stance. I think this question is predicated on the assumption that we can define our political position by rummaging through and resorting to the concretely instantiated political paradigms which have already been realized and then choose one that fits our methodological and ideal ambitions. I really fail to see such an exemplification that I can hold to or define as my political position. One should engage a great feat of self-deception to see contemporary political paradigms as adequate to respond the existing tribulations and problems. Sure, I am a leftist who believes in the reality of the class struggle, but this is not really a political position, only a consciousness of the socio-economic reality. I take seriously Marx and Engels’s thesis that communism “is not a state of affairs which is to be established, an ideal to which reality (will) have to adjust itself. Communism is the real movement which abolishes the present state of things. The conditions of this movement result from the premises now in existence.” This is what I would call—again following Mark—the possibility of actualizing that which is possible but from our perspective, here and now, seem impossible. For me the task of politics in conjunction with the support of philosophy and technoscience is to not only show—in theory and in collective imagination—that the reality of our world is neither inevitable nor a completed totality, but also manages to concretely build a new world from whose perspective our reality will be exposed as the illusion of the inexorable and finality. But then again, even this, is not a clear-cut political position. It is merely a philosophical thesis on the possibility of a different world and the range of political actions that can fully actualize it.

Fabio Gironi: You merge this rational pessimism with the “engineering approach” for the construction of a better world, as you explained before. To some, this paradigm of political action will sound like you are vouching for a dispassionate and formalist approach to politics, and a government of experts—a “technocracy,” something that in recent times has become anathema in most public discussion (but that, the critic might enjoy pointing out, has been proven to be a failure at least since Plato’s political misadventure in Syracuse)—or even for a nefarious kind of “social engineering.” I suspect that in large part this depends precisely on am equivocation about the very concept of “engineering.” In our folk understanding “engineers,” broadly conceived, are often considered too naive to deal with the intricacies of politics, a domain fraught with normative considerations.

But if I am not mistaken, your expert engineer is as much a technically-minded problem-solver as it is a creative conceptual builder: a figure that applies his or her intelligence to the resolution of problems by means of more than the unilateral application of simple formulas or pre-packaged precepts. Indeed, it seems to me that this is where many contemporary ideas converge. Srnicek’s and Willams’ proposal to “move beyond folk politics and create a new hegemony” and their insistence on the practical/political concept of “repurposing.” Ben Singleton’s reflection on cunning reason (metis) as employed for the strategic and piecemeal construction of freedom from constraints. And of course, your own “speculative inquiry into the future of intelligence,” or functional reconceptualization of intelligence as an emancipatory tool of self- and collective improvement—as well as for practical action upon the world—where conception and transformation are two sides of the same coin. Is it then correct to say the concept of “engineering” (rather different from its “folk” equivalent) is at the core of both your philosophical and political thinking?

Reza Negarestani: Among computer scientists, there is this joke: when computer scientists go into a room full of political theorists, philosophers, cultural critics and linguists, they say to each other, “get rid of all of them and replace them with engineers.” Well, perhaps this joke is a bit too much but it has a grain of truth. Neither philosophers nor political theorists are able to design proper methods adequate to actualize possibilities, imagined or not. We need politically and philosophically informed engineers and designers. Engineers are indeed not mindless technicians, they are people who have one foot in the domain of thinking and one in the realm of an external reality or worldly affairs. They do not see action as a form of hubristic mastery to the extent that they know whatever we do at any level of reality—be it natural, social or cultural—will meet the resistance of that reality. To use a Sellarsian metaphor, reality in the broadest possible sense is not a block of wax ready to be imprinted. Engineers truly know that. They also never see reality in any sense as a flat universe, they see it as vast and deeply multi-scaled structure. In order to concretely intervene at any level of reality we must not only have a multi-level view of the reality but also know which methods, models or tools should be implemented, and at which level. To cut at the joints without splintering the bones is a description of what engineers—as Plato’s good butchers—do.

There are at least two other important tasks which are deeply entangled with the discipline and philosophy of engineering. One is the labour of modelling and the other, the design of approximation techniques. Michael Weisberg has recently written a wonderful book on models and modelling, a topic which in the past was not being taken seriously but was central to engineering. Weisberg elaborates why all our encounters with reality involve one or another kind of model, for example, descriptive, explanatory and predictive models. Even what we call empirical data are not ready-made, they are products of model projection, which means data can be distorted or even false data may be derived if the model is inadequate, too small or too big, misapplied to a target system or applied to a wrong sector of reality. The thing about models is that they are packed with all sorts of implicit and explicit theoretical, mathematical, logical and computational assumptions. Such assumptions encompass not just the model’s description but also the core of the model i.e. the structure and its interpretive factors or construals which include information about the scope, assignment, and fidelity criteria of the model itself. The latter criteria pertain to the exact information which specify the model’s representational, dynamic and resolution constraints for a given level or scale. Without proper attention to such details and the assumptions underlying them, all data and facts can be fundamentally distorted or erroneous. The whole myth of raw or pure data is perpetuated by people who have no clue about how data is mined—irrespective of what kind of data we are talking about.

The other task, the design of approximation techniques, is even trickier. Mark Wilson sums up the nature of the approximation techniques in his new book, Physics Avoidance. Engineers—like Ben Singleton’s designers as embodiments of metis or cunning intelligence—are adept at trickery, hacking the system and reality. They know that it is not the best solution to modify a given target system by intervening with lower levels or fine-grained scales (like for example, the atomic scale-length of a metal beam). Intervention at such bottom levels is rife for what Wilson calls computational hazards, due to extreme fine-grained details of lower levels, any attempt at modification and intervention will either fail or become sub-optimal. Not to mention that we often lack any solid grasp of lower level mechanisms, sometimes we don’t even have any indication as what these fine-grained scales are, we can only postulate them. So what engineers do is first they model scales or levels pertaining to the structure of the target system or the phenomenon in question. Such modelling always involves a controlled amount of simplification and/or idealization which can at a later time be revised or equipped with more details. Then, they think of how to carefully bridge lower levels to upper levels where the structure is less fine-grained and more accessible and more hospitable to intervention and modification. These bridges—which are essentially mixed-level in that they contain information regarding middle scales between the bottom and the top—are called approximation techniques. These are procedures by which engineers circumvent the messy problems of physics without forgetting about them. Such techniques allow engineers to modify a given system optimally without always the need to deal with all sorts of details which make intervention fundamentally impractical from an applied perspective, from the computational cost standpoint, etc.

Here, however, a problem arises that André Carus, in his critique of Wilson’s work, has elaborated with the utmost lucidity. What is this problem? It is the idea that engineering conceived this way would be anti-Enlightenment in the sense that all we can ever do is to reform our local concepts and descriptive pragmatic resources in a piecemeal manner, without hoping to achieve unification. We can no longer have ambitious concepts that can be applied across the board—those global concepts treasured by philosophers such as the Copernican imperative, reason, freedom, etc. Our situation is similar to that of a child who plays in the tub and is in command of a rubber duck. But, of course, the picture of reality is more like that a river where torrential flows, undertows, and chaotic behaviours take hold of the rubber duck. In order to make sure this rubber duck sails in the river, we can no longer adopt a global concept of sail or navigation. We should have atlases of local theory façades which are responsive to such turbulent quandaries. And of course, to conform to such a picture of reality, we can only develop local concepts and heuristic norms which are informational packages that reflect varying and non-unifiable perspectives such as the concept of hardness—as for example applied to a metal beam—which fundamentally varies across different scale-lengths of the metal structure.

While I have a sympathy for such view, I believe Carus is right. Our encounters with reality are not merely such heuristic or pragmatic devices. Engineers always have a main solution—a global concept—in mind. Then they try to bring various real-time scenarios under it such that neither the global concept nor local pragmatic concepts are mutually exclusive but are rather mutually positively constraining and self-reinforcing. Engineering, in this sense, is about the commensuration of the local and the global, the ideal and the messy, the strategic and the tactical. Engineering, therefore, incorporates two senses of the Enlightenment’s rational reconstruction of the world or—to use Carnap’s later term—explication. One in the sense of realism and one in the sense of idealism, naturalism and constructivism. To reengineer and recognize reality, one can neither adopt a universal concept or paradigm nor just local and perspectival concepts. Both the overarching paradigm and local malleable solution are needed.

Now, as you asked, how do we adapt this engineering paradigm to politics? My friend Ray (Brassier) cautioned me regarding this unconditional espousal of engineering as a political method. I fully agree with him. Politics fundamentally differs from engineering from the perspective of norms of political action. The philosophically and politically informed engineering as a political method is predicated on the hard labour of politics which, to a great degree, consists of diagnosing our current situation and then deciding how should we move forward, the work necessary for arriving the global concept. However, I do disagree with the idea that unlike the realm of politics where “what ought to be done” is a matter of antagonism and consensus-building, engineering is centred on a pre-established conventional norm (i.e., this is what the system should do, or this is the agreed upon norm by which the system should behave). Even in engineering, we know that the system can have multiple diverging trajectories of evolution. There is no pre-established norm or consensus as what the system is and how it should behave. For engineers, there is no pre-established function of a given system since such functions do change over time and in accordance with local contexts. Modelling a system is as daunting a task for engineers as it is for political theorists and activists to diagnose pathologies of society, and to find a way to eliminate them. Reality is not a given totality: sometimes you should approach it as a black box that can only be unveiled by systematically playing or intervening with it. Other times, you should do the hard work of modelling under epistemological constraints. All in all, the task is to integrate global concepts with contrasting local concepts.

So yes, in response to your question I take the paradigm of engineering as a profoundly composite—epistemological and practical—way of thinking about the world. And this also leads me to finally answer the question you posed earlier regarding what can be the concrete way of getting political ambitions done. Our first step in a concrete political project should be focused on diagnosing the precise causal mechanism responsible for the pathologies of individuation, to detect the levels at which such mechanism are entrenched, and then proceed to develop tools to intervene at those exact levels—like an engineer. If you don’t have the adequate tools to intervene at that level, then devise approximation techniques, resolve the problem at a different level. And, again like an engineer, attempt to lay out the logic(s) of existing worlds at different scales. Make new tools to construct new worlds from the detritus of the old one. The new different world is not a miracle or a religious afterlife, it is a world engineered from what is available to us. To recapitulate, we need to first understand the plural logics of this world almost like the multi-level ontologies of information science to even think what ought to be done and decide exactly what methods or tools at what level should be exercised.

### Cap good

#### Capitalist market forces are the best chance to solve climate change---we have time for transition which is occurring globally. The alternative is impossible condemns billions to suffering and starvation.

Hill ‘20 [Victor; 11/3/20; Financial Economist with the International Finance Corporation at the World Bank, lead writer for Master Investor, holds degrees from the University of Oxford, Institut Européen d'Administration des Affaires, and Canterbury Christ Church University; "Only capitalism will save the planet," https://masterinvestor.co.uk/economics/only-capitalism-will-save-the-planet/]

While the global coronavirus pandemic has diverted attention away from the fraught issue of climate change and what to do about it, the environmental activism of groups such as Extinction Rebellion (XR) has continued to simmer. In fact, this year XR has blended with the Black Lives Matter (BLM) movement such that explicitly anti-capitalist environmental protest and anti-patriarchal, anti-colonial wokery have become intimately entwined. The underlying message is: If you want to save the planet you have to change the system. In practice, all protest movements have many threads – just look at the two-year campaign of the gilets jaunes in France – but the unifying thread is always resentment.

The irony is that both aspects of this counterculture are out-of-date. Rapid advances in technology, facilitated by the free market, have transformed the climate conversation. Whatever Mr Trump’s rhetoric on the issue (and he may well be in the departure lounge by the time you read this), the big energy companies, backed by a raft of environmentally conscious investors, are already transitioning towards renewable and zero-fossil fuel energy precisely because it is now economically viable to do so. And in that process, they are making money. Win-win.

Outright climate change denial was always a marginal school of thought. Thinking people – of which the business and investment community – understand well that manmade carbon emissions increase the concentration of CO2 in the atmosphere and thus precipitate a greenhouse effect by which the Earth’s atmosphere and seas warm up. That said, there is a respectable scientific debate about how quickly that process is taking place and how quickly it will cause irreversible results such as desertification. And it is perfectly legitimate to question the climate models which climate scientists construct to estimate these outcomes, since many have questionable inputs and methodologies. Claims that we have ten years left to save the planet can and should be challenged, though that should not be an argument for further delay in taking action.

The global policy framework has been constructed by the ongoing work of the Intergovernmental Panel on Climate Change (IPCC), an agency of the United Nations (UN). This body laid down two years ago that our target should be to limit the rise in ambient temperature to no more than 1.5 Celsius above pre-industrial levels. That said, there are many climate rebels who believe that this level will itself be disastrous to human and animal life; and still others who claim that even this target is entirely unrealistic given the direction of travel.

Ms Thunberg and her disciples would have us shut down the carbon-based economy forthwith. That would cause unparalleled economic disruption, mass unemployment, poverty, adverse health outcomes and – let us be honest – starvation. No mainstream politician is going to get behind that.

Zion Lights is a writer who has been an environmental campaigner all her adult life. She doesn’t drive, fly or eat meat. In April 2018 she joined XR because she thought it was evidence-based. She soon found that many of its claims were indefensible. She wrote recently:

That is the single biggest problem with most environmental groups: they don’t offer realistic solutions to the very real climate change threat. What they offer, if you follow their arguments to their logical conclusion, is eco-austerity: that we should all use less energy, stop going on holiday, live in colder homes, and so on[i].

In the latest papal encyclical published on 04 October (the feast day of St. Francis of Assisi), Fratelli Tutti (Brothers All), Papa Francisco wrote that the Covid-19 pandemic had proven that the “magical theories” of market capitalism have failed and that the world needs a new type of politics that promotes dialogue and solidarity. (Perhaps the unjustified restrictionism pursued by First Minister Drakeford in Wales?)

In fact, much as I respect Catholic social teaching (having been brought up with it), the best chance we have to solve the immense challenge of climate change and other environmental problems (such as plastic waste in the oceans) is to harness market forces. In this way, the profit motives of finance and technology will re-engineer the global economy completely.

Big money already decided that the fossil fuel economy is doomed and that renewable energy is the future long before Dame Emma Thompson swept in from LA (business class, of course) to gesticulate on Oxford Street, in those languorous pre-Covid days. The billionaire Davos Boys have been preaching climate orthodoxy for years. And the Great Transition is already well underway.

Renewable profitability

The good news is (don’t tell XR) that the United Kingdom has managed to reduce its carbon emissions by over 40 percent since 1990 by all but phasing out coal and investing massively in renewable power generation. As I write this on a blustery day in late October, according to the GB National Grid Status website, coal powered generation is contributing precisely zero to UK power generation. The UK has the world’s largest offshore wind power market with capacity still increasing rapidly. Earlier this year the UK government effectively dropped the ban on onshore wind turbine arrays in the drive to reach net zero carbon emissions by 2050.

As the shift from carbon-heavy sources to carbon-free electricity generation has accelerated so economies of scale have kicked in and new technologies have come online. Recent data from Bloomberg New Energy Finance shows that the latest generation of solar and wind power plants can produce electricity cheaper than the most modern coal plants even without subsidy for two thirds of the global population. The price of solar panels has dropped by almost 90 percent over the past decade. By mid-decade, solar and wind power will outcompete all existing coal plants on price – at which point a swath of coal plants will be deemed uneconomic and closed.

The economics of energy storage – battery technology – are also improving. On 22 September Tesla (NASDAQ:TSLA) unveiled its new battery known as the 4680[ii]. This fuel cell reportedly offers six times the power of Tesla’s previous cells, and five times the energy capacity. The company confirmed that the new cell measures 46 millimetres by 80 millimetres – hence the name. The iconic automaker says that these new fuel cells will be able to increase the range of a vehicle by 16 percent – that could be up to about 500 miles for its latest models. That kind of range makes medium-distance travel without recharging (say, London to Edinburgh in a UK context) quite feasible.

Red China goes green

China currently has new coal plants under construction which will have a capacity of another 94 Gigawatts of electricity per annum. China already emits more CO2 than all of Europe and America combined. But China now has a target of going carbon neutral by 2060, and by so aspiring has upped the moral ante with Mr Trump’s America. Now, some analysts predict that China may abandon its programme of building coal-fired power stations as much on economic grounds as on environmental ones.

China might yet gain a strategic advantage from global warming. Last month the UK First Sea Lord, Admiral Tony Radakin (the military head of the Royal Navy), warned that the melting of ice in the Arctic would create new maritime trade routes across the top of the world – the Arctic Ocean – which would halve the transit time between East Asia and Western Europe. China already has, according to the Pentagon, the world’s largest navy with 350 warships and submarines. That opens the prospect of Chinese naval vessels being able to penetrate the North Atlantic rapidly, and possibly threatening the European and American undersea cable network.

Hydrogen in three colours

The downside with the current generation of electric vehicles is that they require batteries which use expensive rare earth minerals of which lithium, and which are costly and messy to recycle at the end of their economic life. The extraction of these rare earth minerals in countries such as the Democratic Republic of Congo (DRC) is itself a cause of environmental degradation and carbon emissions. That is why there is renewed focus of attention on hydrogen.

Hydrogen comes in three colours. Gray hydrogen is made using fossil fuels like oil and coal, which emit CO2 into the air as they combust. The blue variety is made in the same way, but carbon capture prevents CO2 being released, enabling the captured carbon to be safely stored deep underground or utilised in industry. BP (LON:BP.) is working on that. As its name suggests, green hydrogen is the cleanest variety, producing zero carbon emissions. It is produced by electrolysis powered by renewable energy i.e. offshore wind.

The holy grail in energy now is to extract hydrogen cheaply and cleanly from water by electrolysis (i.e. separating the hydrogen and carbon atoms). Hitherto the energy required to perform the electrolysis has been unequal to the energy value of the hydrogen thus produced. That could be about to change.

Bill Brown, founder of NET Power has claimed that his firm’s techniques can produce clean hydrogen at 0.57 cents a kilo. This is a developmental technology based on the Allam Cycle which has been around in theory for some time.

Hydrogen can power vehicles, trains, ships and even aeroplanes. When hydrogen is ignited the only by-product is water. Hydrogen could also be used to facilitate the manufacture of steel, cement, glass, chemicals and fertilisers. Goldman Sachs reckons that, if the efficiency of hydrogen electrolysis could be sufficiently improved, then about 45 percent of all global carbon emissions could be eliminated.

Electric cars

Some estimates suggest that electric battery-powered cars could compete on price with conventional cars powered by internal combustion engines (ICEs) as soon as 2024. That is one reason why Tesla shares have rocketed this year. But even if you are not a true believer in Tesla, consider that established automotive giants such as Volkswagen and Daimler-Benz are fully committed to the phase-out of ICEs. In Germany, sales of electric and hybrid cars overtook diesel cars for the first time last month.

I’ll have a lot more to say about the outlook for electric cars soon.

From coal to wind

Dalmellington in Ayrshire, Scotland, was once known as a coal-mining town. But in future it is likely to be known as the location of a 50-turbine wind farm. The new 240 Megawatt facility will be built and run by Vattenfall (owned by the Kingdom of Sweden). But the array will be owned by the infrastructure fund, Greencoat UK Wind PLC(LON:UKW), which has acquired the project for £320 million.

Greencoat has emerged as a growing renewables fund which is now included in the FTSE-250 index and which has a market capitalisation of around £2.5 billion – that’s more than the better-known UK energy company Centrica PLC (LON:CAN), the owner of British Gas. The fund has acquired 36 wind power sites which collectively produce enough electricity to power about one million homes – that’s about five percent of all wind power generated in the UK. Some of those arrays were acquired from Scottish & Southern Energy (LON:SSE). Wind power now accounts for about 20 percent of Britain’s total electricity consumption.

Greencoat’s strategy is to encourage energy giants to green up their portfolios by taking all the development risk. It then buys the asset from the generator and pockets the cash flow arising. Greencoat UK Wind is run by Greencoat Capital, a specialist investor in renewable energy which has £5 billion of assets under management across both wind and solar energy. Greencoat raised £375 million from investors in May 2019.

A report last year by the research firm, Hardman & Co. found that returns for listed renewable energy funds over five years approached 10 percent. Such funds often carry a share price premium over their net asset value. At a moment when the share prices of the oil majors are under pressure and when BP and Shell have slashed their dividends, Greencoat’s 4.8 percent dividend yield is pleasing.

Nuclear

The latest thinking is that carbon-free energy capacity could be ramped up quickly by means of a cluster of British designed and manufactured small modular reactors (SMRs) which have a footprint smaller than two football pitches. A consortium of Rolls Royce (LON:RR), WS Atkins (LON:ATK), Laing O’Rourke (LON:JLG) and the National Nuclear Laboratory is in the vanguard of this technology. Rolls-Royce has experience and expertise in building nuclear reactors to power Britain’s fleet of nuclear submarines, so this is not new technology. Reportedly, the UK government is considering the injection of up to £2 billion of state funds to invigorate the concept – assuming it is permitted to do so by the EU (if there is an agreement).

The idea is that by 2050 more than 12 of these SMRs will be operational in the UK, each with a capacity of about 440 Megawatts – so about one seventh of the conventional nuclear plant currently under construction at Hinkley Point, Somerset. Hinkley Point C is a project led by France’s EDF (EPA:EDF), the costs of which have spiralled up to an estimated £22.5 billion. Cost considerations have caused Toshiba (TYO:6502) and Hitachi (TYO:6501) to pull out of projects to build nuclear plants in Wales and Cumbria. In contrast, SMRs might have a price tag of around £2 billion each.

SMRs are easier to switch on and off than conventional large-scale reactors; thus, they can be held on standby for when wind and solar power wanes. Thereafter, the remaining gas turbine plants that are currently used for that purpose can be phased out. But it does not follow that the new roll-out of SMRs would entail the closure of Britain’s conventional large-scale nuclear reactors which, as I write, are supplying 17.2 percent of total power to the national grid.

A US consortium, NuScale, is also looking at SMRs with a capacity of 60 Megawatts.

The fate of the oil majors

I wrote in the February 2020 edition of the MI magazine that the oil majors are here to stay. I meant by that that there would still be continued demand for oil, if much attenuated, after the transition to a net-zero carbon economy, not least because of the need for oil in petroleum derivatives (of which plastic). I did not foresee even then that the economic case for renewables would advance quite as rapidly as it has done this year; nor was it then apparent how the coronavirus pandemic would reduce the global demand for oil, at least in the short-term.

Another reason why the oil majors may not go extinct quite yet is that they have embraced carbon capture and storage (CCS). Indeed, they have become advocates of high carbon pricing, calculating that it will mobilise technology to accelerate CCS. Under US legislation enacted under the auspices of the US Department for Energy, operators can claim $50 for each tonne of CO2 sequestered underground and $35 per tonne if pumped back into declining wells.

A number of large players, including Saudi Aramco (TADAWUL:2222), ExxonMobil (NYSE:XOM), BP (LON:BP.), Shell (LON:RDSA), Total (LON:TTA) and others, have jointly formed the Oil and Gas Climate Initiative(OGCI) to drive CCS projects. The OGCI is a consortium that aims to accelerate the industry response to climate change. OGCI member companies explicitly support the Paris Agreement and its goals.

Just as with wind power and solar, the costs of CCS are in free fall. ExxonMobil has teamed up with FuelCell Energy to extract CO2 using carbonate fuel cells. Total, Shell and Equinor (NYSE:EQNR) are part of the Longship project in Norway which is planning to take CO2 captured in Europe’s industrial heartlands and pipe it to storage caverns beneath the North Sea. It hopes to lock in eight million tonnes of CO2 per year by the middle of this decade, for which they will charge around €60 per tonne. Memoranda have already been signed with ArcelorMittal and Heidelberg Cement.

Cement is responsible for an estimated eight percent of global carbon emissions. Under the auspices of the OGCI, a venture with LafargeHolcim, the materials giant, uses CO2 rather than water to cure concrete at much lower temperatures than in conventional manufacture, thereby breaking down the CO2 molecules and turning carbon into a form of glue. This enables a 70 percent reduction in CO2 emissions and an 80 percent reduction in water use.

In terms of their market capitalisations, ExxonMobil, BP and Shell combined are now worth less than Tesla alone. Exxon was once the world’s largest company by market cap. As I write it is worth just $136 billion against Tesla’s $390 billion.

The oil price is down from around $53 a barrel 12 months ago to around $37 today. That is partly a function of reduced global demand arising from the lockdowns across the world; but one should not assume that it will rebound even if the pandemic is behind us one year from now. That means that a lot of new exploration and drilling activity will be regarded as uneconomic – and a lot of known reserves will remain beneath the Earth for evermore. But if the oil majors can really crack the challenge of CCS and prospectively begin to reduce the volume of CO2 in the atmosphere, they will succeed in reinventing themselves.

#### Capitalism's sustainable and comparatively preferable to alternatives.

Schrager **‘**20 [Allison; Winter 2020; Ph.D. in Economics from Columbia University, Senior Fellow at the Manhattan Institute; "Why Socialism Won't Work," https://foreignpolicy.com/2020/01/15/socialism-wont-work-capitalism-still-best/]

WITH INCREASINGLY UBIQUITOUS IPHONES, internet, central air conditioning, flat-screen TVs, and indoor plumbing, few in the developed world would want to go back to life 100, 30, or even 10 years ago. Indeed, around the world, the last two centuries have brought vast improvements in material living standards; billions of people have been lifted from poverty, and life expectancy across income levels has broadly risen. Most of that progress came from capitalist economies.

Yet those economies are not without their problems. In the United States and the United Kingdom, the gap between the rich and poor has become intolerably large as business owners and highly educated workers in urban areas have become richer while workers' wages in rural areas have stagnated. In most rich countries, more trade has brought a bigger, better variety of goods, but it has also displaced many jobs.

With social instability in the form of mass protests, Brexit, the rise of populism, and deep polarization knocking at the capitalist economies' doors, much of the progress of the last several decades is in peril. For some pundits and policymakers, the solution is clear: socialism, which tends to be cited as a method for addressing everything from inequality and injustice to climate change.

Yet the very ills that socialists identify are best addressed through innovation, productivity gains, and better rationing of risk. And capitalism is still far and away the best, if not only, way to generate those outcomes.

TODAY'S SOCIALISM IS DIFFICULT TO DEFINE. Traditionally, the term meant total state ownership of capital, as in the Soviet Union, North Korea, or Maoist China. Nowadays, most people don't take such an extreme view. In Europe, social democracy means the nationalization of many industries and very generous welfare states. And today's rising socialists are rebranding the idea to mean an economic system that delivers all the best parts of capitalism (growth and rising living standards) without the bad (inequality, economic cycles).

But no perfect economic system exists; there are always trade-offs--in the most extreme form between total state ownership of capital and unfettered markets without any regulation or welfare state. Today, few would opt for either pole; what modern socialists and capitalists really disagree on is the right level of government intervention.

Modern socialists want more, but not complete, state ownership. They'd like to nationalize certain industries. In the United States, that's health care--a plan supported by Democratic presidential candidates Elizabeth Warren (who does not call herself a socialist) and Bernie Sanders (who wears the label proudly). In the United Kingdom, Labour Party leader Jeremy Corbyn, who was trounced at the polls in mid-December, has set his sights on a longer list of industries, including the water, energy, and internet providers.

Other items on the socialist wish list may include allowing the government to be the primary investor in the economy through massive infrastructure projects that aim to replace fossil fuels with renewables, as Green New Deal socialists have proposed. They've also floated plans that would make the government the employer of a majority of Americans by offering guaranteed well-paid jobs that people can't be fired from. And then there are more limited proposals, including installing more workers on the boards of private companies and instituting national rent controls and high minimum wages.

For their part, modern capitalists want some, but less, state intervention. They are skeptical of nationalization and price controls; they argue that today's economic problems are best addressed by harnessing private enterprise. In the United States, they've argued for more regulation and progressive taxation to help ease inequality, incentives to encourage private firms to use less carbon, and a more robust welfare state through tax credits. Over the past 15 years, meanwhile, capitalist Europeans have instituted reforms to improve labor market flexibility by making it easier to hire and fire people, and there have been attempts to reduce the size of pensions.

No economic system is perfect, and the exact right balance between markets and the state may never be found. But there are good reasons to believe that keeping capital in the hands of the private sector, and empowering its owners to make decisions in the pursuit of profit, is the best we've got.

ONE REASON TO TRUST MARKETS is that they are better at setting prices than people. If you set prices too high, many a socialist government has found, citizens will be needlessly deprived of goods. Set them too low, and there will be excessive demand and ensuing shortages. This is true for all goods, including health care and labor. And there is little reason to believe that the next batch of socialists in Washington or London would be any better at setting prices than their predecessors. In fact, government-run health care systems in Canada and European countries are plagued by long wait times. A 2018 Fraser Institute study cites a median wait time of 19.8 weeks to see a specialist physician in Canada. Socialists may argue that is a small price to pay for universal access, but a market-based approach can deliver both coverage and responsive service. A full government takeover isn't the only option, nor is it the best one.

Beyond that, markets are also good at rationing risk. Fundamentally, socialists would like to reduce risk--protect workers from any personal or economywide shock. That is a noble goal, and some reduction through better functioning safety nets is desirable. But getting rid of all uncertainty--as state ownership of most industries would imply--is a bad idea. Risk is what fuels growth. People who take more chances tend to reap bigger rewards; that's why the top nine names on the Forbes 400 list of the richest Americans are not heirs to family dynasties but are self-made entrepreneurs who took a leap to build new products and created many jobs in the process.

Some leftist economists like Mariana Mazzucato argue that governments might be able to step in and become laboratories for innovation. But that would be a historical anomaly; socialist-leaning governments have typically been less innovative than others. After all, bureaucrats and worker-corporate boards have little incentive to upset the status quo or compete to build a better widget. And even when government programs have spurred innovation--as in the case of the internet--it took the private sector to recognize the value and create a market.

And that brings us to a third reason to believe in markets; productivity. Some economists, such as Robert Gordon, have looked to today's economic problems and suggested that productivity growth

--the engine that fueled so much of the progress of the last several decades--is over. In this telling, the resources, products, and systems that underpin the world's economy are all optimized, and little further progress is possible.

But that is hard to square with reality. Innovation helps economies do more with fewer resources--increasingly critical to addressing climate change, for example--which is a form of productivity growth. And likewise, many of the products and technologies people rely on every day did not exist a few years ago. These goods make inaccessible services more available and are changing the nature of work, often for the better. Such gains are made possible by capitalist systems that encourage invention and growing the pie, not by socialist systems that are more concerned with how the existing pie is cut. It is far too soon, in other words, to write off productivity.

Here, it is worth considering the lessons of a previous productivity boom: the Industrial Revolution. As the economist Joel Mokyr has shown, it took new innovations like the steam engine more than 100 years to appear in productivity estimates. The same could be happening today with smartphones and the internet. Meanwhile, even as that upheaval transformed the human experience, creating a more comfortable existence for most everyone, it was also messy and disruptive. The early part of that innovative cycle--like others since--displaced existing workers while the gains flowed to the owners of capital first, causing social instability.

**Key to tech---that solves the environment and proves it’s sustainable**

**Bilgili et al 16** Faik BILGILI, Emrah KOCAK, AND Ümit BULUT 16. \*PhD in Economics, The City University of New York and Istanbul University; professor of Economics, Erciyes University, Turkey. \*\*Researcher, Evran University. \*\*\*PhD in Economics, Gazi University and Professor of Economics, Ahi Evran University. “The dynamic impact of renewable energy consumption on CO2 emissions: A revisited Environmental Kuznets Curve approach.” Renewable and Sustainable Energy Reviews 54(Feb): 838-9. Emory Libraries.

* Transition to service sector
* More resources for R+D
* Income level increases---demands on policymakers

Some seminal papers reveal that, within the process of economic growth, environmental pollution level first scales up and later scales down. This is an inverted U-shaped relationship between GDP per capita and pollution level (Grossman and Krueger [3,4], Panayotou [5], Shafik [6], Selden and Song [7]). Since this relationship resembles the relationship between GDP per capita and income inequality produced by Kuznets [8], Panayotou [5] calls it Environmental Kuznets Curve (EKC). According to the EKC hypothesis, the level of environmental pollution initially intensifies because of economic growth, later tampers after GDP per capita reaches a threshold value (Panayotou [5], Suri and Chapman [9]; Stern [10]). Therefore, this hypothesis implies a dynamic process in which structural change occurs together with economic growth (Dinda [2]). Grossman and Krueger [3] first clarify how the EKC arises. They explore that economic growth affects environmental quality through three channels: (i) scale effect, (ii) structural effect, and (iii) technological effect. Fig. 1 presents the EKC within the periods of (i), (ii) and (iii). According to the scale effect, given the level of technology, more resources and inputs are employed to produce more commodities at the beginning of economic growth path. Hence, more energy resources and production will induce more waste and pollutant emissions, and the level of environmental quality will get worse (Torras and Boyce [11], Dinda [2], Prieur [12]). The structural effect states that the economy will have a structural transformation, and economic growth will affect environment positively along with continuation of growth. In other words, as national production grows the structure of economy changes, and the share of less polluting economic activities increases gradually. Besides, an economy experiences a transition from capital-intensive industrial sectors to service sector and reaches technology-intensive knowledge economy (the final stage of the structural change). Due to the fact that technology-intensive sectors utilize fewer natural sources, the impact of these sectors on environmental pollution will be less. The last channel of the growth process is the technological effect channel. Since a high-income economy can allocate more resources for research and development expenditures, the new technological processes will emerge. Thus, the country will replace old and dirty technologies with new and clean technologies, and environmental quality will deepen (Borghesi [13], Copelan and Taylor [14]). Consequently, environmental pollution initially increases and later decreases as a result of scale, structural and technological effect emerging along with growth path. Some studies of EKC hypothesis consider income elasticity of clean environment demand (Beckerman [15], Selden and Song [16], McConnel [17], Panayotou [18], Carson et al. [19], Brock and Taylor [20]). Accordingly, the share of low-income people’s expenditures for food and basic necessities is higher than that of high-income societies’ expenditures for the same type of commodities (Engel’s Law). As income level and life standards rise in conjunction with economic growth, the societies’ demand for clean environment advances. Besides, societies make often pressure on policy makers to protect the environment through new regulations. One might argue that, because of these reasons, clean environment is a luxury commodity and the demand elasticity of clean environment is higher than unity (Dinda [2]).

#### Spreading capitalism creates global prosperity and environmental sustainability. Abandoning it is disastrous.

Rhonheimer, 20—teaching professor at the Pontifical University of the Holy Cross (Martin, “Capitalism is Good for the Poor – and for the Environment,” <https://austrian-institute.org/en/subjects-en/catholic-social-doctrine-2/capitalism-is-good-for-the-poor-and-for-the-environment/>, dml)

It is not social policy but capitalism that has created today’s prosperity.

What is important is that what made today’s mass prosperity possible – a phenomenon unprecedented in history – was not social policy or social legislation, organised trade union pressure, or corrective interventions in the capitalist economy, but rather market capitalism itself, due to its enormous potential for innovation and the ever-increasing productivity of human labour that resulted from it.

Increasing prosperity and quality of life are always the result of increasing labour productivity. Only increased productivity enabled higher social standards, better working conditions, the overcoming of child labour, a higher level of education, and the emergence of human capital. This process of increasing triumph over poverty and the constantly rising living standards of the general masses is taking place on a global scale – but only where the market economy and capitalist entrepreneurship are able to spread.

From industrial overexploitation of nature to ecological awareness

The first phase of industrialisation and capitalism was characterised by an enormous consumption of resources and frequent overexploitation of nature, which soon gave the impression that this process could not be sustainable. Since the end of the 19th century, disaster and doom scenarios have repeatedly been put forward, but in retrospect they have proved to be wrong: The combination of technological innovation, market competition, and entrepreneurial profit-seeking (with the compulsion to constantly minimise costs) have meant that these scenarios never occurred. The ever-increasing population has been increasingly better supplied thanks to innovative technologies, ever-increasing output with lower consumption of resources less harmful to the environment – e.g. less arable land in agriculture, or oil and electricity instead of coal for rapidly increasing mobility. More recent disaster scenarios, such as those spread by reputable scientists since the late 1960s and in the 1970s, have also proved to be inaccurate.

The reason things developed differently was the always underestimated innovative dynamism of the capitalist market economy, a growing ecological awareness and, as a result, legislative intervention that took advantage of the logic of market capitalism: As a result of the ecological movement that had come out of the United States since 1970, wise legislation began to use the price mechanism to apply market incentives to internalize negative externalities. Environmental pollution was given a price-tag.

This led to an enormous decrease in air pollution and other ecological consequences of growth, which is only possible in free, market-based societies, because the production process here is characterized by competition and constant pressure to reduce costs, i.e. to the most profitable use of resources. On the other hand, all forms of socialism, i.e. a state-controlled economy, have proved to be ecological disasters and have left behind destruction of gigantic proportions, without providing the population with anything that is near comparable in prosperity, often even by destroying existing prosperity, such as happened in Venezuela.

Capitalist profit motive combined with digitalization as a solution: Increasing decoupling of growth and resource consumption

Moreover, technological innovations combined with capitalist profit-seeking and market competition have led to a new and surprising phenomenon over the past decades, which is still hardly noticed in the public debate: the decoupling of growth and resource consumption (“dematerialization”). In a wide variety of industrial sectors, the developed countries, above all the U.S., are now achieving ever greater productive output with increasingly fewer resources. This has a lot to do with technology, especially the digitalization of the economy and of our entire lives.

As the well-known MIT professor Andrew McAfee shows in his book More from Less, published in October 2019, this process also follows the logic of capitalist profit maximization. To get it going, we do not need politics, even though wise, properly incentivizing legislation can be helpful and sometimes necessary. Above all, however, it is the combination of technological innovation, capitalist profit-seeking, and market-based entrepreneurial competition that will also solve the problem of man-made global warming.

In addition, property rights and their protection are decisive for the careful use of natural resources. And where this is not possible, legal support for collective self-governing structures, in accordance with the principle of subsidiarity, are important—as is analysed by Nobel Economic Prize winner Elinor Ostrom. By contrast, the growing ideologically motivated anti-capitalist eco-activism, and the policies influenced by it, are leading in the wrong direction, distracting precisely from what would be best for the climate and the environment—and distracting us from what could help protect us against the inevitable consequences of global warming.

#### Only capitalism can solve environmental risk.

Hill ‘20 [Victor; 11/3/20; Financial Economist with the International Finance Corporation at the World Bank, lead writer for Master Investor, holds degrees from the University of Oxford, Institut Européen d'Administration des Affaires, and Canterbury Christ Church University; "Only capitalism will save the planet," https://masterinvestor.co.uk/economics/only-capitalism-will-save-the-planet/]

While the global coronavirus pandemic has diverted attention away from the fraught issue of climate change and what to do about it, the environmental activism of groups such as Extinction Rebellion (XR) has continued to simmer. In fact, this year XR has blended with the Black Lives Matter (BLM) movement such that explicitly anti-capitalist environmental protest and anti-patriarchal, anti-colonial wokery have become intimately entwined. The underlying message is: If you want to save the planet you have to change the system. In practice, all protest movements have many threads – just look at the two-year campaign of the gilets jaunes in France – but the unifying thread is always resentment.

The irony is that both aspects of this counterculture are out-of-date. Rapid advances in technology, facilitated by the free market, have transformed the climate conversation. Whatever Mr Trump’s rhetoric on the issue (and he may well be in the departure lounge by the time you read this), the big energy companies, backed by a raft of environmentally conscious investors, are already transitioning towards renewable and zero-fossil fuel energy precisely because it is now economically viable to do so. And in that process, they are making money. Win-win.

Outright climate change denial was always a marginal school of thought. Thinking people – of which the business and investment community – understand well that manmade carbon emissions increase the concentration of CO2 in the atmosphere and thus precipitate a greenhouse effect by which the Earth’s atmosphere and seas warm up. That said, there is a respectable scientific debate about how quickly that process is taking place and how quickly it will cause irreversible results such as desertification. And it is perfectly legitimate to question the climate models which climate scientists construct to estimate these outcomes, since many have questionable inputs and methodologies. Claims that we have ten years left to save the planet can and should be challenged, though that should not be an argument for further delay in taking action.

The global policy framework has been constructed by the ongoing work of the Intergovernmental Panel on Climate Change (IPCC), an agency of the United Nations (UN). This body laid down two years ago that our target should be to limit the rise in ambient temperature to no more than 1.5 Celsius above pre-industrial levels. That said, there are many climate rebels who believe that this level will itself be disastrous to human and animal life; and still others who claim that even this target is entirely unrealistic given the direction of travel.

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Big money already decided that the fossil fuel economy is doomed and that renewable energy is the future long before Dame Emma Thompson swept in from LA (business class, of course) to gesticulate on Oxford Street, in those languorous pre-Covid days. The billionaire Davos Boys have been preaching climate orthodoxy for years. And the Great Transition is already well underway.

Renewable profitability

The good news is (don’t tell XR) that the United Kingdom has managed to reduce its carbon emissions by over 40 percent since 1990 by all but phasing out coal and investing massively in renewable power generation. As I write this on a blustery day in late October, according to the GB National Grid Status website, coal powered generation is contributing precisely zero to UK power generation. The UK has the world’s largest offshore wind power market with capacity still increasing rapidly. Earlier this year the UK government effectively dropped the ban on onshore wind turbine arrays in the drive to reach net zero carbon emissions by 2050.

As the shift from carbon-heavy sources to carbon-free electricity generation has accelerated so economies of scale have kicked in and new technologies have come online. Recent data from Bloomberg New Energy Finance shows that the latest generation of solar and wind power plants can produce electricity cheaper than the most modern coal plants even without subsidy for two thirds of the global population. The price of solar panels has dropped by almost 90 percent over the past decade. By mid-decade, solar and wind power will outcompete all existing coal plants on price – at which point a swath of coal plants will be deemed uneconomic and closed.

The economics of energy storage – battery technology – are also improving. On 22 September Tesla (NASDAQ:TSLA) unveiled its new battery known as the 4680[ii]. This fuel cell reportedly offers six times the power of Tesla’s previous cells, and five times the energy capacity. The company confirmed that the new cell measures 46 millimetres by 80 millimetres – hence the name. The iconic automaker says that these new fuel cells will be able to increase the range of a vehicle by 16 percent – that could be up to about 500 miles for its latest models. That kind of range makes medium-distance travel without recharging (say, London to Edinburgh in a UK context) quite feasible.

Red China goes green

China currently has new coal plants under construction which will have a capacity of another 94 Gigawatts of electricity per annum. China already emits more CO2 than all of Europe and America combined. But China now has a target of going carbon neutral by 2060, and by so aspiring has upped the moral ante with Mr Trump’s America. Now, some analysts predict that China may abandon its programme of building coal-fired power stations as much on economic grounds as on environmental ones.

China might yet gain a strategic advantage from global warming. Last month the UK First Sea Lord, Admiral Tony Radakin (the military head of the Royal Navy), warned that the melting of ice in the Arctic would create new maritime trade routes across the top of the world – the Arctic Ocean – which would halve the transit time between East Asia and Western Europe. China already has, according to the Pentagon, the world’s largest navy with 350 warships and submarines. That opens the prospect of Chinese naval vessels being able to penetrate the North Atlantic rapidly, and possibly threatening the European and American undersea cable network.

Hydrogen in three colours

The downside with the current generation of electric vehicles is that they require batteries which use expensive rare earth minerals of which lithium, and which are costly and messy to recycle at the end of their economic life. The extraction of these rare earth minerals in countries such as the Democratic Republic of Congo (DRC) is itself a cause of environmental degradation and carbon emissions. That is why there is renewed focus of attention on hydrogen.

Hydrogen comes in three colours. Gray hydrogen is made using fossil fuels like oil and coal, which emit CO2 into the air as they combust. The blue variety is made in the same way, but carbon capture prevents CO2 being released, enabling the captured carbon to be safely stored deep underground or utilised in industry. BP (LON:BP.) is working on that. As its name suggests, green hydrogen is the cleanest variety, producing zero carbon emissions. It is produced by electrolysis powered by renewable energy i.e. offshore wind.

The holy grail in energy now is to extract hydrogen cheaply and cleanly from water by electrolysis (i.e. separating the hydrogen and carbon atoms). Hitherto the energy required to perform the electrolysis has been unequal to the energy value of the hydrogen thus produced. That could be about to change.

Bill Brown, founder of NET Power has claimed that his firm’s techniques can produce clean hydrogen at 0.57 cents a kilo. This is a developmental technology based on the Allam Cycle which has been around in theory for some time.

Hydrogen can power vehicles, trains, ships and even aeroplanes. When hydrogen is ignited the only by-product is water. Hydrogen could also be used to facilitate the manufacture of steel, cement, glass, chemicals and fertilisers. Goldman Sachs reckons that, if the efficiency of hydrogen electrolysis could be sufficiently improved, then about 45 percent of all global carbon emissions could be eliminated.

Electric cars

Some estimates suggest that electric battery-powered cars could compete on price with conventional cars powered by internal combustion engines (ICEs) as soon as 2024. That is one reason why Tesla shares have rocketed this year. But even if you are not a true believer in Tesla, consider that established automotive giants such as Volkswagen and Daimler-Benz are fully committed to the phase-out of ICEs. In Germany, sales of electric and hybrid cars overtook diesel cars for the first time last month.

I’ll have a lot more to say about the outlook for electric cars soon.

From coal to wind

Dalmellington in Ayrshire, Scotland, was once known as a coal-mining town. But in future it is likely to be known as the location of a 50-turbine wind farm. The new 240 Megawatt facility will be built and run by Vattenfall (owned by the Kingdom of Sweden). But the array will be owned by the infrastructure fund, Greencoat UK Wind PLC(LON:UKW), which has acquired the project for £320 million.

Greencoat has emerged as a growing renewables fund which is now included in the FTSE-250 index and which has a market capitalisation of around £2.5 billion – that’s more than the better-known UK energy company Centrica PLC (LON:CAN), the owner of British Gas. The fund has acquired 36 wind power sites which collectively produce enough electricity to power about one million homes – that’s about five percent of all wind power generated in the UK. Some of those arrays were acquired from Scottish & Southern Energy (LON:SSE). Wind power now accounts for about 20 percent of Britain’s total electricity consumption.

Greencoat’s strategy is to encourage energy giants to green up their portfolios by taking all the development risk. It then buys the asset from the generator and pockets the cash flow arising. Greencoat UK Wind is run by Greencoat Capital, a specialist investor in renewable energy which has £5 billion of assets under management across both wind and solar energy. Greencoat raised £375 million from investors in May 2019.

A report last year by the research firm, Hardman & Co. found that returns for listed renewable energy funds over five years approached 10 percent. Such funds often carry a share price premium over their net asset value. At a moment when the share prices of the oil majors are under pressure and when BP and Shell have slashed their dividends, Greencoat’s 4.8 percent dividend yield is pleasing.

Nuclear

The latest thinking is that carbon-free energy capacity could be ramped up quickly by means of a cluster of British designed and manufactured small modular reactors (SMRs) which have a footprint smaller than two football pitches. A consortium of Rolls Royce (LON:RR), WS Atkins (LON:ATK), Laing O’Rourke (LON:JLG) and the National Nuclear Laboratory is in the vanguard of this technology. Rolls-Royce has experience and expertise in building nuclear reactors to power Britain’s fleet of nuclear submarines, so this is not new technology. Reportedly, the UK government is considering the injection of up to £2 billion of state funds to invigorate the concept – assuming it is permitted to do so by the EU (if there is an agreement).

The idea is that by 2050 more than 12 of these SMRs will be operational in the UK, each with a capacity of about 440 Megawatts – so about one seventh of the conventional nuclear plant currently under construction at Hinkley Point, Somerset. Hinkley Point C is a project led by France’s EDF (EPA:EDF), the costs of which have spiralled up to an estimated £22.5 billion. Cost considerations have caused Toshiba (TYO:6502) and Hitachi (TYO:6501) to pull out of projects to build nuclear plants in Wales and Cumbria. In contrast, SMRs might have a price tag of around £2 billion each.

SMRs are easier to switch on and off than conventional large-scale reactors; thus, they can be held on standby for when wind and solar power wanes. Thereafter, the remaining gas turbine plants that are currently used for that purpose can be phased out. But it does not follow that the new roll-out of SMRs would entail the closure of Britain’s conventional large-scale nuclear reactors which, as I write, are supplying 17.2 percent of total power to the national grid.

A US consortium, NuScale, is also looking at SMRs with a capacity of 60 Megawatts.

The fate of the oil majors

I wrote in the February 2020 edition of the MI magazine that the oil majors are here to stay. I meant by that that there would still be continued demand for oil, if much attenuated, after the transition to a net-zero carbon economy, not least because of the need for oil in petroleum derivatives (of which plastic). I did not foresee even then that the economic case for renewables would advance quite as rapidly as it has done this year; nor was it then apparent how the coronavirus pandemic would reduce the global demand for oil, at least in the short-term.

Another reason why the oil majors may not go extinct quite yet is that they have embraced carbon capture and storage (CCS). Indeed, they have become advocates of high carbon pricing, calculating that it will mobilise technology to accelerate CCS. Under US legislation enacted under the auspices of the US Department for Energy, operators can claim $50 for each tonne of CO2 sequestered underground and $35 per tonne if pumped back into declining wells.

A number of large players, including Saudi Aramco (TADAWUL:2222), ExxonMobil (NYSE:XOM), BP (LON:BP.), Shell (LON:RDSA), Total (LON:TTA) and others, have jointly formed the Oil and Gas Climate Initiative(OGCI) to drive CCS projects. The OGCI is a consortium that aims to accelerate the industry response to climate change. OGCI member companies explicitly support the Paris Agreement and its goals.

Just as with wind power and solar, the costs of CCS are in free fall. ExxonMobil has teamed up with FuelCell Energy to extract CO2 using carbonate fuel cells. Total, Shell and Equinor (NYSE:EQNR) are part of the Longship project in Norway which is planning to take CO2 captured in Europe’s industrial heartlands and pipe it to storage caverns beneath the North Sea. It hopes to lock in eight million tonnes of CO2 per year by the middle of this decade, for which they will charge around €60 per tonne. Memoranda have already been signed with ArcelorMittal and Heidelberg Cement.

Cement is responsible for an estimated eight percent of global carbon emissions. Under the auspices of the OGCI, a venture with LafargeHolcim, the materials giant, uses CO2 rather than water to cure concrete at much lower temperatures than in conventional manufacture, thereby breaking down the CO2 molecules and turning carbon into a form of glue. This enables a 70 percent reduction in CO2 emissions and an 80 percent reduction in water use.

In terms of their market capitalisations, ExxonMobil, BP and Shell combined are now worth less than Tesla alone. Exxon was once the world’s largest company by market cap. As I write it is worth just $136 billion against Tesla’s $390 billion.

The oil price is down from around $53 a barrel 12 months ago to around $37 today. That is partly a function of reduced global demand arising from the lockdowns across the world; but one should not assume that it will rebound even if the pandemic is behind us one year from now. That means that a lot of new exploration and drilling activity will be regarded as uneconomic – and a lot of known reserves will remain beneath the Earth for evermore. But if the oil majors can really crack the challenge of CCS and prospectively begin to reduce the volume of CO2 in the atmosphere, they will succeed in reinventing themselves.

### Cap sustainable

#### Capitalism's sustainable and comparatively preferable to alternatives.

Schrager **‘**20 [Allison; Winter 2020; Ph.D. in Economics from Columbia University, Senior Fellow at the Manhattan Institute; "Why Socialism Won't Work," https://foreignpolicy.com/2020/01/15/socialism-wont-work-capitalism-still-best/]

WITH INCREASINGLY UBIQUITOUS IPHONES, internet, central air conditioning, flat-screen TVs, and indoor plumbing, few in the developed world would want to go back to life 100, 30, or even 10 years ago. Indeed, around the world, the last two centuries have brought vast improvements in material living standards; billions of people have been lifted from poverty, and life expectancy across income levels has broadly risen. Most of that progress came from capitalist economies.

Yet those economies are not without their problems. In the United States and the United Kingdom, the gap between the rich and poor has become intolerably large as business owners and highly educated workers in urban areas have become richer while workers' wages in rural areas have stagnated. In most rich countries, more trade has brought a bigger, better variety of goods, but it has also displaced many jobs.

With social instability in the form of mass protests, Brexit, the rise of populism, and deep polarization knocking at the capitalist economies' doors, much of the progress of the last several decades is in peril. For some pundits and policymakers, the solution is clear: socialism, which tends to be cited as a method for addressing everything from inequality and injustice to climate change.

Yet the very ills that socialists identify are best addressed through innovation, productivity gains, and better rationing of risk. And capitalism is still far and away the best, if not only, way to generate those outcomes.

TODAY'S SOCIALISM IS DIFFICULT TO DEFINE. Traditionally, the term meant total state ownership of capital, as in the Soviet Union, North Korea, or Maoist China. Nowadays, most people don't take such an extreme view. In Europe, social democracy means the nationalization of many industries and very generous welfare states. And today's rising socialists are rebranding the idea to mean an economic system that delivers all the best parts of capitalism (growth and rising living standards) without the bad (inequality, economic cycles).

But no perfect economic system exists; there are always trade-offs--in the most extreme form between total state ownership of capital and unfettered markets without any regulation or welfare state. Today, few would opt for either pole; what modern socialists and capitalists really disagree on is the right level of government intervention.

Modern socialists want more, but not complete, state ownership. They'd like to nationalize certain industries. In the United States, that's health care--a plan supported by Democratic presidential candidates Elizabeth Warren (who does not call herself a socialist) and Bernie Sanders (who wears the label proudly). In the United Kingdom, Labour Party leader Jeremy Corbyn, who was trounced at the polls in mid-December, has set his sights on a longer list of industries, including the water, energy, and internet providers.

Other items on the socialist wish list may include allowing the government to be the primary investor in the economy through massive infrastructure projects that aim to replace fossil fuels with renewables, as Green New Deal socialists have proposed. They've also floated plans that would make the government the employer of a majority of Americans by offering guaranteed well-paid jobs that people can't be fired from. And then there are more limited proposals, including installing more workers on the boards of private companies and instituting national rent controls and high minimum wages.

For their part, modern capitalists want some, but less, state intervention. They are skeptical of nationalization and price controls; they argue that today's economic problems are best addressed by harnessing private enterprise. In the United States, they've argued for more regulation and progressive taxation to help ease inequality, incentives to encourage private firms to use less carbon, and a more robust welfare state through tax credits. Over the past 15 years, meanwhile, capitalist Europeans have instituted reforms to improve labor market flexibility by making it easier to hire and fire people, and there have been attempts to reduce the size of pensions.

No economic system is perfect, and the exact right balance between markets and the state may never be found. But there are good reasons to believe that keeping capital in the hands of the private sector, and empowering its owners to make decisions in the pursuit of profit, is the best we've got.

ONE REASON TO TRUST MARKETS is that they are better at setting prices than people. If you set prices too high, many a socialist government has found, citizens will be needlessly deprived of goods. Set them too low, and there will be excessive demand and ensuing shortages. This is true for all goods, including health care and labor. And there is little reason to believe that the next batch of socialists in Washington or London would be any better at setting prices than their predecessors. In fact, government-run health care systems in Canada and European countries are plagued by long wait times. A 2018 Fraser Institute study cites a median wait time of 19.8 weeks to see a specialist physician in Canada. Socialists may argue that is a small price to pay for universal access, but a market-based approach can deliver both coverage and responsive service. A full government takeover isn't the only option, nor is it the best one.

Beyond that, markets are also good at rationing risk. Fundamentally, socialists would like to reduce risk--protect workers from any personal or economywide shock. That is a noble goal, and some reduction through better functioning safety nets is desirable. But getting rid of all uncertainty--as state ownership of most industries would imply--is a bad idea. Risk is what fuels growth. People who take more chances tend to reap bigger rewards; that's why the top nine names on the Forbes 400 list of the richest Americans are not heirs to family dynasties but are self-made entrepreneurs who took a leap to build new products and created many jobs in the process.

Some leftist economists like Mariana Mazzucato argue that governments might be able to step in and become laboratories for innovation. But that would be a historical anomaly; socialist-leaning governments have typically been less innovative than others. After all, bureaucrats and worker-corporate boards have little incentive to upset the status quo or compete to build a better widget. And even when government programs have spurred innovation--as in the case of the internet--it took the private sector to recognize the value and create a market.

And that brings us to a third reason to believe in markets; productivity. Some economists, such as Robert Gordon, have looked to today's economic problems and suggested that productivity growth--the engine that fueled so much of the progress of the last several decades--is over. In this telling, the resources, products, and systems that underpin the world's economy are all optimized, and little further progress is possible.

But that is hard to square with reality. Innovation helps economies do more with fewer resources--increasingly critical to addressing climate change, for example--which is a form of productivity growth. And likewise, many of the products and technologies people rely on every day did not exist a few years ago. These goods make inaccessible services more available and are changing the nature of work, often for the better. Such gains are made possible by capitalist systems that encourage invention and growing the pie, not by socialist systems that are more concerned with how the existing pie is cut. It is far too soon, in other words, to write off productivity.

Here, it is worth considering the lessons of a previous productivity boom: the Industrial Revolution. As the economist Joel Mokyr has shown, it took new innovations like the steam engine more than 100 years to appear in productivity estimates. The same could be happening today with smartphones and the internet. Meanwhile, even as that upheaval transformed the human experience, creating a more comfortable existence for most everyone, it was also messy and disruptive. The early part of that innovative cycle--like others since--displaced existing workers while the gains flowed to the owners of capital first, causing social instability.

#### Capitalism is adaptable.

Álvaro Leandro and Ález Ruiz 20, Leandro is an Economist in the Research Department of CaixaBank and has a Master’s Degree in International Trade, Finance and Development at the Barcelona Graduate School of Economics & Ruiz is a Senior Economist in the Research Department of Caixa Bank and has a Doctor in Economics from the Universitat Autònoma de Barcelona, 7-7-2020, "Capitalism: crisis? What crisis?," CaixaBank Research, <https://www.caixabankresearch.com/en/economics-markets/activity-growth/capitalism-crisis-what-crisis>

Capitalism: dysfunctions and shocks are not the same thing

In short, it seems unquestionable that we are in a phase of growing disaffection with capitalism and that this disaffection is geographically widespread (even reaching the epicentre of the system, the US). It is also apparent, however, that the current phase is not so different from other peaks of disaffection in previous eras. That said, the criticisms of capitalism have taken somewhat different forms in each period in history. What forms are they taking today?

When we review the multiple debates and articles on this topic, a series of common factors begin to emerge: lower economic growth than in the past; stagnation, if not decline, in productivity; increased inequality in income and opportunity; a predominance of short-termism; an inability to internalise negative externalities (such as the environmental impact) and, finally, a certain degree of financial instability that refuses to budge.

This hotchpotch of the evils of capitalism, when presented in this way, offers few clues as to the underlying trends. If we read a little deeper into it, however, we can see that this list combines factors of a very different nature. Specifically, it includes two types of elements.

The first type consists of what we could call structural dysfunctions of capitalism. The market economy is a system which, by its very nature, has a number of characteristics that have undesirable effects. In the case of capitalism, these are the so-called market failures – exchanges for which the price mechanism fails to provide accurate information on their social benefits and costs and which require public intervention to correct them insofar as possible. This category includes the regulation of negative externalities, such as pollution. Another factor that falls within this category of structural dysfunctions would be the tendency for short-termism to predominate. The fact that there are dysfunctions inherent in capitalism is not something new – in fact, many of the institutions we have established actually strive to minimise these effects. For instance, giving the central banks independence is an attempt to respond to the short-sightedness of monetary policy makers. Similarly, the creation of a market for CO₂ emissions is intended to help internalise the social costs generated by the pollution that companies produce.

The second block of «evils» is different. When it is said that capitalism no longer works (which essentially translates as «we are not growing like we used to» and/or «it only benefits a few»), what is really happening is something quite different. In fact, the reality is that we are currently going through a historic phase of accelerated change, dominated by elements such as the technological leap, the intensification of globalisation, demographic ageing and the environmental transition. At this historic turning point, capitalism is certainly acting as an intermediary in the face of this series of shocks and trends, but it cannot be considered the ultimate cause. This does not mean that such mediation is automatic or neutral, as not all forms of capitalism are equal (and here we come to the key point of our diagnosis of the «crisis» of capitalism).

This means, for instance, that one of the main sticking points in the debate – when certain economies seem unable to reconcile economic growth and redistribution (or to combat inequality) – is not such an obvious trade off in reality, since other countries seem to have managed to find a reasonable balance.

Capitalism: an adaptive system

Our thesis is that these differences between different forms of capitalism matter - and a lot. Although the defence of this thesis will be the subject of the following three articles, we would like to give our readers a little spoiler. The basic premise is that, while there are certain core characteristics that are shared by all capitalist economies, in practice there are a number of differences between countries (or, strictly speaking, between groups of countries) which end up forming a series of clearly differentiated varieties of capitalism, and these varieties work better or worse depending on the characteristics of the environment or the moment in history in question. For instance, and of particular importance in the present climate, the system’s ability to combat pandemics is not going to be the same in one variety of capitalism as it is in another.

In fact, the existence of different varieties of capitalism between different countries points towards a fundamental feature of this economic system: its capacity to adapt and evolve. In the face of criticisms from those who understand the capitalist system as something monolithic and immutable, a historical review allows us to dismiss this static view since, as we will make clear in our final article, today’s capitalism and that of 1945 present many differences. Therefore, and to convince you, dear reader, we ask you to accompany us in the following articles of the Dossier. Let us delve into this enriched view of capitalism (capitalisms, in reality) in order to better understand the causes and consequences of this complex interrelationship between global trends, economic systems and prosperity.

#### Pro-competitive capitalism is sustainable AND self-correcting.

Matthew Wilburn King 21, PhD from the University of Cambridge in Geography and an international consultant and conservationist and chairman of the Common Foundation, 5-26-21, “Why the next stage of capitalism is coming,” BBC, https://www.bbc.com/future/article/20210525-why-the-next-stage-of-capitalism-is-coming

Nearly 250 years ago, the economist and philosopher Adam Smith wrote The Wealth of Nations, in which he described the birth of a new form of human activity: industrial capitalism. It would lead to the accumulation of wealth beyond anything that he and his contemporaries could have imagined.

Capitalism has fuelled the industrial, technological and green revolutions, reshaped the natural world and transformed the role of the state in relation to society. It has lifted innumerable people out of poverty over the last two centuries, significantly increased standards of living, and resulted in innovations that have radically improved human well-being, as well as making it possible to go to the Moon and read this article on the internet.

However, the story is not universally positive. In recent years, capitalism's shortcomings have become ever-more apparent. Prioritising short-term profits for individuals has sometimes meant that the long-term well-being of society and the environment has lost out – especially as the world has faced the Covid-19 pandemic and climate change. And as political unrest and polarisation around the world have shown, there are growing signs of discontent with the status quo. In one 2020 survey by the marketing and public relations firm Edelman, 57% of people worldwide said that "capitalism as it exists today does more harm than good in the world".

Indeed, if you judge by measures such as inequality and environmental damage, "the performance of Western capitalism in recent decades has been deeply problematic", the economists Michael Jacobs and Mariana Mazzucato wrote recently in the book Rethinking Capitalism.

However, that does not mean there are no solutions. "Western capitalism is not irretrievably bound to fail; but it does need to be rethought," argue Jacobs and Mazzucato.

So, will capitalism as we know it continue in its current form – or might it have another future ahead?

Capitalism has spawned thousands of books and millions of words, and so it would be impossible to explore all its facets. That said, we can start to understand where capitalism could be headed in the future by exploring where it began. This tells us that capitalism hasn't always worked the way it does today ­– particularly in the West.

Between the 9th and 15th Centuries, autocratic monarchies and ecclesiastical hierarchies dominated Western society. These systems began to fall away as people increasingly asserted their right to individual liberty. This push for a greater focus on the individual favoured capitalism as an economic system because of the flexibility it allowed for private property rights, personal choice, entrepreneurship and innovation. It also favoured democracy as a governing system for its focus on individual political freedom.

The shift toward greater individual liberty changed the social contract. Previously, many resources were provided by those in power (land, food and protection) in exchange for significant contributions from citizens (for instance, from slave labour to hard labour with little pay, high taxes and unquestioning loyalty). With capitalism, people expected less from governing authorities, in exchange for greater civil liberties, including individual, political and economic freedom.

But capitalism would evolve significantly over the following centuries – and particularly so during the second half of the 20th Century. After World War Two, the Mont Pelerin Society, an economic policy think tank, was founded with the goal of addressing the challenges confronting the West. Its specific focus was on defending the political values of an open society, rule of law, freedom of expression and free market economic policies – central tenents of classical liberalism.

Its ideas eventually gave rise to "supply-side economics". This was the belief that lower taxes and minimal regulation of the free market would lead to the most economic growth – and, therefore, better lives for all. In the 1980s, coupled with the emergence of political neoliberalism, supply-side economics became a priority for the US and many European governments.

This newer strain of capitalism has led to increased economic growth worldwide, while lifting a substantive number of people out of absolute poverty. But at the same time, critics argue that its tenets of lowering taxes and deregulating business has done little to support political investment in public services, such as crumbling public infrastructure, improving education and mitigating health risks.

Perhaps most significantly, in many developed nations late-20th Century capitalism has contributed to a significant gap between the wealth of the richest and poorest people, as measured by the Gini Index. And in some countries, that gap is growing ever-wider. It's particularly stark in the US, where the poorest individuals have seen no real income growth since 1980, while the ultra-rich at the top have seen their income grow by around 6% per year. The richest billionaires in the world are almost all based in the US, and have amassed staggering fortunes, while at the same time the median US household income has risen only modestly since the turn of the century.

The inequality gap may matter more than some politicians and corporate leaders would like to believe. Capitalism may have lifted millions of people around the world out of absolute poverty, but inequality can be corrosive within a society, says Denise Stanley, a professor of economics at California State University-Fullerton. "Absolute poverty is basically folks are able to get… $4 per day per person. It’s a threshold measure," she explains, but relative poverty can unbalance a society over the long-term. Even if the economy is growing, income inequality and stagnant wages can make people feel less secure as their relative status in the economy diminishes. Behavioural economists have shown that "our status compared to other people, our happiness, is derived more by relative measures and distribution then by absolute measures. If that’s true then capitalism has a problem," says Stanley.

Inequality can unbalance a society over the long-term

As a result of rising inequality, "people have less trust in institutions and experience a sense of injustice", according to the Edelman report. But the impact on people's lives may go deeper. Capitalism in its current form is destroying the lives of many working-class people, argue the economists Anne Case and Sir Angus Deaton in their book Deaths of Despair and the Future of Capitalism. Over "the past two decades, deaths of despair from suicide, drug overdose, and alcoholism have risen dramatically, and now claim hundreds of thousands of American lives each year", they write.

The 2007-2008 financial crisis exacerbated these problems. The crisis was brought on by excessive deregulation, and hit the working class in developed nations particularly hard. The subsequent bailouts of big banks led to resentment and "helped fuel the rise of the… polarised politics we’ve seen over the last decade", according to Richard Cordray, the first director of the US Consumer Financial Protection Bureau (CFPB) and author of Watchdog: How Protecting Consumers Can Save Our Families, Our Economy, and Our Democracy.

Liberal democracies may now be at an inflection point, where citizens contest today’s capitalist norms with greater political intensity worldwide.

J Patrice McSherry, a professor of political science at Long Island University in New York, has observed this change in Chile, for instance. "Social mobilisation began with a rise in subway fares in October 2019, sparking broad-based protests that convoked more than one million people in demonstrations," she says. "The social movement has exposed the deep sources of discontent in Chile: entrenched and growing inequality, the ever-rising cost of living, and extreme privatisation in one of the world’s most neoliberal states."

Those grievances can be traced back to the late 20th Century, when Chile's authoritarian government introduced constitutional reforms that "institutionalised the economic and political domination of the dictatorship and enshrined a neoliberal framework that erased the role of the state in social and economic areas. It restricted political participation, gave the [political] right disproportionate power, and installed a tutelary role for the armed forces," writes McSherry in an article for the North American Congress on Latin America, a non-profit organisation which tracks trends in the region.

Similarly, the Yellow Vest movement that started in France in 2018 was initially about the increased cost of fuel for commuters, but quickly broadened to include grievances similar to those in Chile, the cost of living, growing inequality, and a demand for government to stop ignoring the needs of ordinary citizens.

And in the US, the political movement which spawned Trumpism is arguably fuelled by economic inequality just as much as ideology. Among voters who have lost out due to globalisation, the Trump administration won widespread political support for its more closed approaches to global trade, including withdrawal from the Trans-Pacific Partnership and retaliatory tariffs on Chinese, Indian, Brazilian and Argentinian goods and services imported into the US. Even the US's allies were targeted by this agenda, including Europe, Canada, and Mexico.

Economies cannot become completely divorced from the demands of democratic majorities

While one response to the downsides of capitalism in its current form is for nations to take a defensive posture, seeking to protect themselves by minimising external ties, protectionism "is short-sighted, particularly when it comes to trade," according to Anahita Thoms, head of Baker McKenzie's International Trade Practice in Germany and Young Global Leader of the World Economic Forum. "While it may bring some temporary benefits, in the long-term it endangers the global economy as a whole and threatens to undo decades of economic progress. It is crucial to maintain investment-friendly, open markets," says Thoms.

A central challenge for governments in the 21st Century will be to work out how to balance these long-term benefits of global trade with the short-term harms that globalisation can bring to local communities affected by low wages or unemployment. Economies cannot become completely divorced from the demands of democratic majorities who seek jobs, affordable housing, education, healthcare and a clean environment. As the Chilean, Yellow Vest and Trumpist movements show, many people are asking for change to the existing system so that it accounts for these needs, rather than only enriching private interests.

In sum, it may be time to reconsider the social contract for capitalism, so that it becomes more inclusive of a broader set of interests beyond individual rights and liberties. This is not impossible. Capitalism has evolved before, and if it is to continue into the longer-term future, it can evolve again.

The future of capitalism

In recent years, various ideas and proposals have emerged that aim to rewrite capitalism's social contract. What they have in common is the idea that businesses need more varied measures of success than simply profit and growth. In business, there's "conscious capitalism", inspired by the practices of so-called "ethical" brands. In policy, there's "inclusive capitalism", advocated by both the Bank of England and The Vatican, which advocates harnessing "capitalism for good". And in sustainability, there's the idea of "doughnut economics", a theory proposed by economist and author Kate Raworth, which suggests that it's possible to thrive economically as a society while also staying within social and planetary boundaries.

Then there's the "Five Capitals" model articulated by Jonathan Porritt, the author of Capitalism As If The World Matters. Porritt calls for the integration of five pillars of human capital – natural, human, social, manufactured, and financial capital – into existing economic models.

One tangible example of where companies are beginning to embrace the Five Capitals is the B-Corporation movement. Certified companies sign up to a legal obligation to consider "the impact of their decisions on their workers, customers, suppliers, community, and the environment". Their ranks now include major corporations such as Danone, Patagonia, and Ben & Jerry's (which is owned by Unilever).

This approach has become increasingly mainstream, reflected in a 2019 statement released by over 180 corporate CEOs redefining "the purpose of a corporation". For the first time, CEOs representing Wal-Mart, Apple, JP Morgan Chase, Pepsi, and others acknowledged that they must redefine the role of business in relation to society and the environment.

Their statement proposes that companies must do more than deliver profits to their shareholders. In addition, they must invest in their employees and contribute to the improvement of the human, natural and social elements of capital that Porritt refers to in his model, rather than the sole focus on financial capital.

In a recent interview with Yahoo Finance on the future of capitalism, the executive chairman of Best Buy, Hubert Joly, said that "what has happened is that for 30 years, from the 1980s to 10 years ago, we’ve had this singular focus on profits that has been excessive and has caused a lot of these issues. We need to unwind a bit of these 30 years. If we have a refoundation of business, it can be a refoundation of capitalism as well... I think this can be done, this has to be done."

A new direction

More than three decades ago, the United Nations Brundtland Commission wrote in "Our Common Future" that there was ample evidence that social and environmental impacts are relevant and need to be incorporated into development models. It is now obvious that these issues must also be considered within the social contract underpinning capitalism, so that it is more inclusive, holistic and integrated with basic human values.

Ultimately, it is worth remembering that citizens in a capitalist, liberal democracy are not powerless. Collectively, they can support companies aligned with their beliefs, and continuously demand new laws and policies which transform the competitive landscape of corporations so that they might improve their practices.

When Adam Smith was observing nascent industrial capitalism in 1776, he could not foresee just how much it would transform our societies today. So it follows that we might be similarly blind to what capitalism could look like in another two centuries. However, that does not mean we should not ask how it might evolve into something better in the nearer term. The future of capitalism and our planet depend on it.