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**Innovation Adv**

**Advantage One: Innovation**

**Broad Parker immunity discourages disruptive healthcare innovation**

**Sage 17** (William Sage, James R. Dougherty Chair for Faculty Excellence in the School of Law and Professor of Surgery and Perioperative Care in the Dell Medical School, University of Texas at Austin; and David Hyman Professor at Georgetown University School of Law, “Antitrust as Disruptive Innovation in Health Care: Can Limiting State Action Immunity Help Save a Trillion Dollars?” Loyola University Chicago Law Journal, Pages 731-734, modified for ableist language indicated by strikethrough and [brackets]) MULCH

Physicians possess this power for a simple reason: the body of doctrines and practices that we call “health law” systematically supports it. Laws protect the public from individuals and therapies not controlled by physicians, and discourage medical self-help. Laws fund physicians’ tools and assure their quality—though unfortunately not their value. Laws mandate and subsidize insurance coverage for the treatments physicians recommend**. Laws insulate physicians from corporate structures and contractual norms**. Laws mediate disputes between physicians and patients based on professional standards. Laws apply medical criteria to most ethical issues. Finally, **laws such as those challenged in North Carolina State Board delegate substantial rule making and disciplinary authority to state licensing boards** (i.e., to entities populated from, and controlled by, the medical profession). States typically justify this abdication of direct oversight in terms of physicians’ scientific expertise, and their ethical duty to heal, not harm, patients.

Both individually and collectively, these **laws profoundly distort competition in health care and severely hamper the market’s ability to generate the benefits of competition** that we see in other industries. Production remains fragmented. Prices are both inflated and arbitrary— and price competition is minimal (when it even exists at all). There are many barriers to competitive entry—even to deliver the most basic services. Geographic markets are needlessly small and are surprisingly concentrated. Supply bottlenecks are common, often to the **mutual benefit of large health insurers and dominant health care providers.** And innovation is limited to the sorts of inputs that fit into existing production processes—mainly drugs, diagnostics, and medical devices.

The result is that our health care system almost never trades in the types of consumer products that dominate other costly, complex, technologically sophisticated industries. Instead of fully assembled products accompanied by a strong performance warranty, patients are expected to pay for disaggregated professional process steps (including procedures and consultations) to which billing codes have been assigned, and for equally atomized inputs and complements to those professional processes (such as diagnostic tests and surgical supplies). Health insurance agglomerates these unstructured procedural steps and physical inputs into “covered benefits,” but it does not assemble them into actual, useful products—and only a few true Health Maintenance Organizations (“HMOs”) provide comprehensive prepaid care.

The past decade has witnessed growing agreement regarding both the necessary attributes of a high-performing health care system,17 and the managerial strategies for achieving them.18 Much less attention has been paid to the legal obstacles that have long hindered attempts to redesign acute and complex care—let alone to moving the locus of basic care “upstream,” where it can be communally or self-administered, rather than professionally controlled. As currently constituted, American health law presents concrete structural impediments to accomplishing these consensus health policy goals, and also creates opportunities for incumbent providers to delay or sabotage such efforts.

C. Anticompetitive Effects of Medical Licensing The deep legal architecture of health care strongly favors physician self-regulation, and furthers physicians’ professional insularity and self interest. Physician-controlled medical licensing boards have attracted criticism for decades. Milton Friedman famously wrote in 1962: I am . . . persuaded that [restrictive] licensure has reduced both the quantity and quality of medical practice; . . . that it has forced the public to pay more for less satisfactory medical service[;] and that it has ~~retarded~~ **[slowed] technological development** both in medicine itself and in the organization of medical practice.19

At the time he made it, Friedman’s harsh economic critique of occupational licensing was not widely shared (except among other libertarians). Professional elites were thought to represent a progressive, prosperous alternative to industrial commodification and the supposed exploitation of labor. To be sure, there was some recognition that the professions might use ethical codes to pursue their own economic selfinterest.20 But mainstream economists such as Kenneth Arrow still believed that collective professionalism improved the marketability of health care by fostering the trust needed to overcome medical uncertainty and informational asymmetry between physicians and patients.21 More recently, a wide array of voices have questioned the economics, and even the justice, of professional privilege.22 In 2015, the Obama Administration issued a report on occupational licensing, finding that “licensing can . . . reduce employment opportunities and lower wages for excluded workers, and increase costs for consumers,” and that “the costs of licensing fall disproportionately on certain populations.”23

To be sure, medical licensing laws are not solely to blame for health care’s competitive shortcomings. Other federal and state regulations and subsidies bear responsibility as well. Still, licensing boards set the tone for the rest of health law as gatekeepers into the health professions and arbiters of practice once admitted. These boards determine the permitted scope of practice, confer authority to write prescriptions, police departures from conventional patterns of care, respond to complaints by licensees about outsiders, and decide when (and, usually, when not) to take disciplinary action against a licensed professional.

From a health policy perspective, physician-imposed barriers to market entry and innovation—typically enforced by a professional licensing board—are the most pernicious practice. Licensing boards set standards for acceptability and impose discipline on licensees who violate their dictates. Unlicensed practice is a criminal act. These entry barriers not only deter novel approaches from new directions, such as telehealth and various “upstream” self-care modalities, but they also **discourage existing competitors from adopting practices introduced to the market by disruptive innovators**.

**Disruptive innovation in healthcare solves pandemics**

**Shaikh 15** (Affan T. Shaikh, Professor at Emory’s school of public health Lisa Ferland, Robert Hood-Cree, Loren Shaffer, and Scott J. N. McNabb, September 23rd 2015, “**Disruptive Innovation Can Prevent the Next Pandemic**” NCBI <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4585064/>) MULCH

Public health surveillance (PHS) is at a tipping point, where the application of novel processes, technologies, and tools promise to vastly improve efficiency and effectiveness. Yet twentieth century, entrenched ideology and lack of training results in slow uptake and resistance to change. The term **disruptive innovation** – used to describe advances in technology and processes that change existing markets – is useful to describe the transformation of PHS. Past disruptive innovations used in PHS, such as distance learning, the smart phone, and field-based laboratory testing have outpaced older services, practices, and technologies used in the traditional classroom, governmental offices, and personal communication, respectively. Arguably, the greatest of these is the Internet – an infrastructural innovation that continues to enable exponential benefits in seemingly limitless ways. Considering the Global Health Security Agenda and facing emerging and reemerging infectious disease threats, evolving environmental and behavioral risks, and ever changing epidemiologic trends, PHS must transform. Embracing disruptive innovation in the structures and processes of PHS can be unpredictable. However, it is **necessary to strengthen and unlock the potential to prevent, detect, and respond.**

Introduction

Fifty-two years ago, Alexander Langmuir articulated our modern understanding of public health surveillance (PHS) – the systematic collection, consolidation and evaluation, and dissemination of data (1). In this workflow process, public health provides epidemiologic intelligence to assess and track conditions of public health importance, define public health priorities, evaluate programs, and conduct public health research (2). However, amid this rapidly changing world, PHS has remained sluggish and hindered by the impediments of siloed, vertical (outcome-specific) systems, inadequate training and technical expertise, different information and communication technology (ICT) standards, concerns over data sharing and confidentiality, poor interoperability, and inadequate analytical approaches and tools (3–7).

Gaps and impediments in PHS have become increasingly evident to the world in the wake of the largest Ebola epidemic ever – in which these challenges impacted our ability to prevent, detect, and respond. Under the looming threat of MERS-CoV, leishmaniasis, influenza, multidrug-resistant tuberculosis, and plague**, the global public health community now realizes the urgent need to address shortcomings in PHS.** Properly preparing for the next major outbreak hinges on our willingness to transform; the consequences of not doing so are dire.

**Transforming PHS to meet the needs of the twenty-first century requires novel approaches**. A helpful concept to understand and chart this future is disruptive innovation – a term first introduced by Clayton Christensen to describe innovations in technology and processes that disrupt existing markets (8). Disruptive innovations occur when advances in technologies or processes create markets in existing industries. This differs from sustaining innovations, where existing practices are incrementally improved to meet the demands of existing customers; in contrast, newly introduced innovations with disruptive potential (typically unrefined, simple, and affordable in character) target lower-end market needs or create entirely new market segments. As sustaining innovations improve disrupting technologies or processes, **these new innovations will meet increasingly greater needs, capture greater market share, and eventually reshape the industry.** Christensen uses the example of increasingly smaller disk sizes in the hard disk drive industry, the introduction of hydraulic technology in the mechanical excavator industry, and the rise of minimills in the steel industry to demonstrate the impact of disruptive innovations (8). Here, we describe the need for disruptive innovation in PHS and identify opportunities for disruption in PHS structures and processes.

**Capacity for innovation solves invisible thresholds for existential pandemics – they’re coming now – new 400 year study + statistical methods**

**Penn 21** (Michael Penn, Director of Communications, Marketing and Alumni Relations, Duke Global Health Initiative, citing William Pan, Ph.D., associate professor of global environmental health at Duke, Marco Marani, adjunct professor at Duke department of Global Health, where he previously was a professor of civil and environmental engineering and Anthony Parolari, Ph.D., of Marquette University, is a former Duke postdoctoral researcher, Gabriel Katul, Ph.D., the Theodore S. Coile Distinguished Professor of Hydrology and Micrometeorology at Duke, “Statistics Say Large Pandemics Are More Likely Than We Thought” Duke Global Health Institute, <https://globalhealth.duke.edu/news/statistics-say-large-pandemics-are-more-likely-we-thought>) CULTIV8

The COVID-19 pandemic may be the deadliest viral outbreak the world has seen in more than a century. But statistically, such **extreme events aren’t as rare as we may think**, asserts a new analysis of novel disease outbreaks over the past **400 years**.

The study, appearing in the Proceedings of the National Academy of Sciences the week of Aug. 23, used a newly assembled record of past outbreaks to estimate the intensity of those events and the yearly probability of them recurring.

It found the probability of a pandemic with similar impact to COVID-19 is about 2% in any year, meaning that someone born in the year 2000 would have about a 38% chance of experiencing one by now. **And that probability is only growing**, which the authors say highlights the need to adjust perceptions of pandemic **risks** and expectations for **preparedness**.

“The most important takeaway is that **large pandemics** like **COVID**-19 and the Spanish flu **are relatively likely,”** said William Pan, Ph.D., associate professor of global environmental health at Duke and one of the paper’s co-authors. **Understanding that pandemics aren’t so rare** should **raise** the **priority** of efforts to **prevent** and **control** them **in the future, he said.**

The study, led by Marco Marani, Ph.D., of the University of Padua in Italy, used **new statistical methods** to measure the scale and frequency of disease outbreaks for which there was no immediate medical intervention over the past four centuries. Their analysis, which covered a murderer’s row of pathogens including plague, smallpox, cholera, typhus and novel influenza viruses, found considerable variability in the rate at which pandemics have occurred in the past. But they also identified patterns that allowed them to describe the probabilities of similar-scale events happening again.

In the case of the deadliest pandemic in modern history – the Spanish flu, which killed more than 30 million people between 1918 and 1920 -- the probability of a pandemic of similar magnitude occurring ranged from 0.3% to 1.9% per year over the time period studied. Taken another way, those figures mean it is statistically likely that a pandemic of such extreme scale would occur within the next 400 years.

“ The most important takeaway is that large pandemics like COVID-19 and the Spanish flu are relatively likely. WILLIAM PAN — ASSOCIATE PROFESSOR OF GLOBAL ENVIRONMENTAL HEALTH

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But the data also show **the risk of intense outbreaks is growing rapidly**. Based on the increasing rate at which novel pathogens such as SARS-CoV-2 have broken loose in human populations in the past 50 years, the study estimates that the probability of novel disease outbreaks **will likely grow three-fold in the next few decades.**

Using this increased risk factor, the researchers estimate that a pandemic similar in scale to COVID-19 is likely within a span of 59 years, a result they write is “much lower than intuitively expected.” Although not included in the PNAS paper, they also calculated the probability of a pandemic capable of **eliminating** all **human life**, finding it **statistically likely** within the next 12,000 years.

That is not to say we can count on a 59-year reprieve from a COVID-like pandemic, nor that we’re off the hook for a calamity on the scale of the Spanish flu for another 300 years. **Such events are equally probable in any year during the span**, said Gabriel Katul, Ph.D., the Theodore S. Coile Distinguished Professor of Hydrology and Micrometeorology at Duke and another of the paper’s authors.

“When a 100-year flood occurs today, one may erroneously presume that one can afford to wait another 100 years before experiencing another such event,” Katul says. “This impression is false. One can get another 100-year flood the next year.”

As an environmental health scientist, Pan can speculate on the reasons outbreaks are becoming more frequent, noting that population **growth**, changes **in** food **systems**, environmental degradation and more **frequent contact** between humans and disease-harboring animals all may be significant factors. He emphasizes the statistical analysis sought only to characterize the risks, not to explain what is driving them.

But at the same time, he hopes the study will spark deeper exploration of the factors that may be making devastating pandemics more likely – and how to counteract them.

**“This points to the importance of early response to disease outbreaks and building capacity for pandemic surveillance at the local and global scales, as well as for setting a research agenda for understanding why large outbreaks are becoming more common**,” Pan said.

**Disease is a non-liner existential risk – precautionary principle key**

**Diamandis 21** (Eleftherios P. Diamandis, Division Head of Clinical Biochemistry at Mount Sinai Hospital and Biochemist-in-Chief at the University Health Network and is Professor & Head, Clinical Biochemistry, Department of Laboratory Medicine and Pathobiology, University of Toronto, Ontario, Canada, April 14th 2021, “The Mother of All Battles: Viruses vs. Humans. Can Humans Avoid Extinction in 50-100 Years?” modified to fix author typo [“could result n” 🡪 “could result in” <https://www.preprints.org/manuscript/202104.0397/v1>) MULCH

The recent SARS-CoV-2 pandemic, which is causing COVID 19 disease, has taught us unexpected lessons about the **dangers of human extinction through highly contagious and lethal diseases.** As the COVID 19 pandemic is now being controlled by various isolation measures, therapeutics and vaccines, it became clear that our current lifestyle and societal functions may not be sustainable in the long term. **We now have to start thinking and planning on how to face the next dangerous pandemic,** not just overcoming the one that is upon us now. Is there any evidence that even worse pandemics could strike us in the **near future** and threaten the **existence of the human race**? The answer **is unequivocally yes.** It is not necessary to get infected by viruses of bats, pangolins and other exotic animals that live in remote forests in order to be in danger. Creditable scientific evidence indicates that the human gut microbiota **harbor billions of viruses** which are capable of affecting the function of vital human organs such as the immune system, lung, brain, liver, kidney, heart etc. It is possible that the development of pathogenic variants in the gut can lead to contagious viruses which can cause pandemics, leading to destruction of vital organs, causing death or various debilitating diseases such as blindness, respiratory, liver, heart and kidney failures. **These diseases could result [in] the complete shutdown of our civilization and probably the extinction of human race**. In this essay, I will first provide a few independent pieces of scientific facts and then combine this information to come up with some (but certainly not all) hypothetical scenarios that could cause human race misery, even extinction. I hope that these scary scenarios will trigger preventative measures that could reverse or delay the projected adverse outcomes.

**Independently, health innovation solves ABR – more market access is key**

**McMurry-Heath 9/16** (Michelle McMurry-Heath is president and CEO of the Biotechnology Innovation Organization, and lives in Washington, D.C. Tomaras is chief scientific officer at Forge Therapeutics, and lives in San Diego, September 16th 2021, “Opinion: Antibiotic-resistant superbugs are a ticking time bomb in global health care” San Diego Union Tribune, <https://www.sandiegouniontribune.com/opinion/commentary/story/2021-09-16/superbug-drugs-therapy-antibiotics>) MULCH

**The global health-care system faces a ticking time bomb.**

Deadly bacteria and fungi are evolving to resist all current antimicrobials. If that happens, everything from chemotherapy to routine surgeries will become extraordinarily risky, since patients’ weakened immune systems won’t be able to fight off these dangerous infections, and existing medicines will be of little use. The United Nations estimates that without new antibiotics, by 2050, superbugs **could kill 10 million people a year.**

We don’t know exactly when our last antibiotics will lose their efficacy. We don’t know which strain of “superbug” will push us past the tipping point**. But we do know that America’s small biotechnology firms house some of the brain power to avert this disaster**.

These firms and their scientists — many based here in California — are battling hard against this microscopic enemy. But small biotechnology firms are not just fighting microbial evolution; they are also grappling with a broken antibiotics market whose inefficiencies are putting millions of lives at risk.

Antibiotics are expensive to develop, costing upwards of $1 billion per new medicine. But doctors only prescribe advanced new antibiotics sparingly — because every dose gives bacteria a chance to evolve and become resistant. And most patients only need antibiotics for a few days, unlike insulin or statins, which many chronic disease patients need to take every day for years or even decades.

Because of the high research and development costs and low probability of earning a financial return on antibiotics, many large pharmaceutical companies have pivoted away from antibiotics development. Since the 1980s, **the number of major drug companies developing new antibiotics has fallen from 18 to three.**

**Antibiotic resistant superbugs and zoonotic viruses are catastrophic risks that guarantee extinction.**

**Victor 20** — Gavin Victor, Pioneer Journalist and Philosophy Research Assistant for Whitman College, 2020 (“Forget coronavirus: Worry about antibiotic resistance instead,” *Whitman Wire*, March 12th, Available Online at https://whitmanwire.com/opinion/2020/03/12/forget-coronavirus-worry-about-antibiotic-resistance-instead/, Accessed 07-02-2021)

A survey of experts from the “Future of Humanity Institute” at the University of Oxford states that there is a 19 percent chance of **human extinction** before 2100. If this is the risk of our extinction, then consequently, an extreme decrease in quality of life is much more likely, too. Among the many risks within contemporary life, issues surrounding **antibiotic resistance** are almost completely unacknowledged, incredibly dangerous and subject to change with only slight cultural and industrial shifts. The WHO claims that, “without urgent action, we are heading towards a post-antibiotic era, in which common infections and minor illnesses can once again kill.” The UN claims that by 2050, ten million people will die **every year** from antibiotic-resistant diseases – which is more than the current figure for cancer.

Antibiotic resistance stems from the misuse of antibiotics. The more we use antibiotics, the more we allow bacteria to build up a tolerance to them. We have already seen the advent of MRSA and antibiotic-resistant salmonella. The most obvious fix for this is to only prescribe antibiotics when absolutely necessary, which doctors are beginning to do. Humans, however, only use 20 percent of the antibiotics manufactured. The rest are consumed constantly by animals waiting for slaughter in massive feeding operations. Lance Price, an expert on bacteria resistant “superbugs”, claims that our food system’s predication on a constant use of antibiotics for animals is a recipe for disaster, because it uses antibiotics in a way that will inevitably lead to antibiotic resistance.

As with almost all recent disease outbreaks – like Swine-flu, MERS and SARS – COVID-19 is zoonotic, meaning that it originated in animals. Not only did these diseases originate in animals but in a particular species of animals that inhabit unnatural conditions for the sake of humans: including Swine-flu from pigs, MERS from camels, as well as SARS and COVID-19 likely originating from bats. While viruses are not the same problem as is antibiotic resistance, overlap between them indicates that top priority global health issues are stemming from our failure to have a healthy relationship with animals. We get zoonotic diseases as a result of exploitative and unnatural relationships with animals.

We need to use the fear generated by COVID-19 to jump start legitimate action in order to **mitigate the fallout** from catastrophes right around the corner. The fact that we turn a blind eye to pandemics that are becoming more and more inevitable is a sign that we shouldn’t trust our natural tendency to just “deal with it later.” Dealing with it later, dealing with the pandemics that are coming, doesn’t work. We should be scared – but of much more than COVID-19.

**Disease framing promotes beneficial preparation, not a securitized response**

**Saksena 11** Mita – Former Lecturer, Jai Hind College, Bombay University. Also former Research Assistant University of Madras, Project on Implementation of Regulatory and Distributive Policies in Tamil Nadu Joint Project between University of Oslo and University of Madras. Dissertation was overseen and approved by Professor Paul A. Kowert, Associate Professor, Department of Politics and International Relations Florida International University. This Thesis is written by Mita Saksena – the author now holds a Ph.D. in International Health & Human Rights from Florida International University “Framing Infectious Diseases and U.S. Public Opinion” A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in International Relations – <http://search.proquest.com/docview/952533573>

Two hypotheses were tested in this chapter. First, frames represented prominently in the media will tend to mobilize public support **for policies associated with those frames**. This study indicates that the biomedical frame was the predominant frame in media reports in the sampled period 2004–2007 (Tables 5.4–5.9 and Figure 5.1-5.3). The study also highlights a strong correlation between the biomedical frame and the American public’s worry about the disease and their concern about the likelihood that the disease would strike the United States. The surveys were conducted mainly between December 2005 and in 2006 and the beginning of 2007. Figure 5.1 clearly indicates that between 2005 and the second quarter of 2007, the volume of stories that discussed the impact of avian flu on the United States and the globe as a whole increased. In the second quarter of 2007 all articles dealt with the impact of the disease on the United States. In February 2005, a news story reported that at the national meeting of the American Association for the Advancement of Science, scientists stated that they believed it highly likely that a virus that has swept through chickens and other poultry in Asia would genetically change into a flu that can be transmitted among people.38 At the same time, Cambodia and Indonesia reported their first human cases of avian flu, which turned out to be fatal.39 By November 2005, the WHO's official count of human cases of H5N1 reached 122, with 62 deaths in Vietnam, Thailand, Indonesia, and Cambodia.40 This was followed by news reports of the spread of avian flu to countries such as China, the Russian Federation, Turkey, Italy, and many other countries around the globe. This was also a time when the United States President and Congress launched several initiatives. The Pandemic and All Hazards Preparedness Act was adopted by Congress in December 2006. With this law, Congress mandated for the first time in United States history that the federal government prepare a National Health Security Strategy to guide improvement of the country’s public health emergency preparedness and response capabilities. The second hypothesis tested was that when the biomedical and economic frames dominate media coverage, which is the most common scenario, people will be more worried about the disease. They will be likely to support potentially inconvenient policies intended to address the dangers of the disease. The survey reports show high support for **vaccine production** and **research** and willingness on the part of the American public to undertake precautionary measures to deal with the disease. **The public did not see** the human rights and **security frames as relevant**. The security frame was more prominent in media stories about bird flu than it was for SARS. It did not, however, show any significant correlation with worries about bird flu. The human rights frame was not very prominent in news stories about bird flu. Part of the reason for this is that the bird flu did not infect humans in the United States, **and there were no** major **issues arising over** access to antiviral drugs and vaccines or about **quarantine and isolation**.

**Narrowing Parker immunity empowers the FTC to challenge anticompetitive business sanctioned by state regulatory schemes. Those stifle innovation – incumbent regulations are outdated and block new entrants.**

**Crane 19** [Daniel A. Crane, Frederick Paul Furth Sr. Professor of Law, University of Michigan, 60 Wm. & Mary L. Rev. 1175, 2019, Lexis]

INTRODUCTION

This Article's intended audience holds a common view that state and local governments frequently adopt anticompetitive regulations for the benefit of economic special interests and that these acts of **cronyism** are **pernicious to democracy, consumers, and economic efficiency**. 1 In other words, the costs to society of these regulations far outweigh any reasonable benefits. A wise, beneficent, and all-knowing Platonic guardian of the state would have little trouble in striking down such regulations.

A further point of general consensus might relate to the **particularly pernicious effect** of anticompetitive state and local regulation in **stifling new production innovation**. In a variety of ways, our constitutional order is stodgy. Its conservatism lends a hand to the beneficiaries of incumbent technologies as they seek to deploy state power to block or to slow the advent of new technologies that may eventually displace the old, thereby preventing a realignment of wealth and position. In recent years, innovative technologies developed by companies such as Tesla, Uber, Lyft, and Airbnb have encountered determined opposition from purveyors of predecessor technologies, who have often used state and local regulation to thwart innovation. 2

So much for the common ground. Where consensus quickly fragments is on the question of what, if anything, to do about such regulations given that wise, beneficent, and all-knowing Platonic guardians of the state are in short supply. In the imperfect messiness that is liberal democracy, we frequently accept a host of comparatively petty inconveniences--political and economic--in order to preserve larger values. Just as we tolerate many market failures because the attempt at a regulatory fix might aggravate matters, we may have to tolerate some political failures on the same grounds.

[\*1178] Much of the difficulty has to do with the fact that while there might be a broad consensus that state and local governments enact many unjustifiable anticompetitive regulations, there is not a clear consensus on which ones they are. The experience with economic substantive due process in the late nineteenth and early twentieth centuries, epitomized in Lochner v. New York, 3 has left the American political psyche gun-shy about permitting judges to strike down protectionist economic regulations on constitutional grounds. Shortly after getting out of the Lochner business, the Supreme Court announced that it would not get into the same business under the guise of the antitrust laws. 4 Over time, the development of the Parker state action doctrine allowed the courts to play a somewhat expanded role with respect to anticompetitive state and local regulations, but the zone of judicial review remains relatively constricted. 5

The purpose of this Article is to compare the deployment of constitutional and antitrust tools to scrutinize potentially anticompetitive state and local regulations against the backdrop of the ubiquitous concern about "Lochnerizing" under the auspices of either constitutional or statutory authority. Here is the question in a nutshell: If one believes that courts (or perhaps federal administrative agencies) should do somewhat more than they currently do to scrutinize and potentially invalidate anticompetitive state and local regulations, which lever should they pull--constitutional doctrines, antitrust preemption, or both? Because there are some overlapping, and some separate, institutional constraints and potential pathologies between constitutional and antitrust law, it is important to compare the two tools before deploying them.

This Article is organized as follows: Part I diagnoses the underlying features of democratic government that produce anticompetitive regulation. Some of this story is quite familiar, but I present some new observations with respect to the role of technological incumbency as a strong factor in invoking regulation to thwart innovation.

[\*1179] Part II explores the historical, ideological, and institutional foundations of the current legal doctrines with respect to constitutional and antitrust scrutiny of anticompetitive regulations. It shows that, despite the narrowing of Parker immunity in recent decades and some recent revival of equal protection and substantive due process as constraints on anticompetitive regulation, a good deal of anticompetitive state and local regulation remains impervious to legal challenge.

Part III compares the potential efficacy and pitfalls of deploying constitutional or antitrust doctrines as checks on anticompetitive state and local regulations. It considers: (1) the reach and domain of constitutional and antitrust theories; (2) the ways in which each theory could accommodate genuine and sufficient justifications for the challenged regulations; (3) ways in which the antitrust and constitutional tools differ substantively and procedurally; and (4) ways in which the two theories might interact.

I. WHY ANTICOMPETITIVE REGULATION SUCCEEDS

This Article opened with the assumption that a wide universe of unjustified state and local anticompetitive regulation exists that a benevolent Platonic guardian of the state would instantly nullify. Given this conceit, the presence of such regulations necessarily represents democratic failures, as democracy should, in principle, strive for laws that confer positive, rather than negative, public benefit. What, then, accounts for the pervasive existence of these undesirable regulations? The answer comes in two parts--a generic (and largely familiar) story concerning anticompetitive regulations as a whole, and a more specific story concerning the battle between incumbent and innovative technologies.

A. The Generic Story

The generic story is largely familiar from public choice theory and the literature on the Parker state action doctrine. Democratic processes systematically fail to overcome two embedded hurdles to matching regulatory schemes to broad public preferences: (1) the asymmetrical distribution of costs and benefits of anticompetitive [\*1180] regulations, and (2) the externalization of costs on populations outside the boundaries of the relevant democratic unit. 6 In tandem, these hurdles to democratic correction of cronyistic dispensations of monopoly power by governmental regulators perpetuate regulatory schemes that a broad majority of citizens would vote to overturn if they understood the issue and were sufficiently motivated to invest political energy in correcting it. 7 The first democratic deficit, well documented in public choice literature, arises because producers typically receive a much more concentrated benefit from anticompetitive regulations in comparison to the relatively unconcentrated cost imposed on consumers. 8 A small band of producers may lobby aggressively to enact or maintain an anticompetitive scheme that permits the producers to collect significant monopoly rents. 9 Those rents, in turn, may be spread across thousands or millions of consumers, each one paying a relatively small increase in rent. 10 Collective action constraints--the cost of mobilizing consumer sentiment and action to oppose the regulation--give the producers a systematic advantage in maintaining the regulation. 11 As John Shepard Wiley explained in bringing public choice theory literature to bear on Parker immunity questions: [I]f the group [of consumers] is large, individual members have little incentive to participate because participation is personally costly and contributes little to the group's chances for successful joint action. Small groups encounter fewer of such problems. If group members behave in this rational self-interested manner, then "there is a systematic tendency for exploitation of the great by the small"; less numerous, more intensely concerned special [\*1181] interests can predictably outmatch more numerous, more mildly concerned consumer or "public" interests in legislative or regulatory fora--even though the actions of special interests impose a net loss on society. 12 The second deficit arises when governmental units--whether state or local--externalize the costs of the anticompetitive regulation outside their jurisdiction. The classic example is Parker itself, in which 90 percent of the raisins subject to California's agricultural cartel mandate were sold outside of California. 13 Out-of-state consumers could not be counted on to mobilize democratically to oppose the California regulation, as they had no political voice in California. 14 Many similar examples of jurisdictional cost externalization have been documented. 15 One arose in an important Supreme Court decision on state action immunity, Town of Hallie v. City of Eau Claire. 16 Hallie, Seymour, Union, and Washington were unincorporated towns adjacent to the city of Eau Claire, Wisconsin. 17 Their citizens could not vote in Eau Claire, but Eau Claire wanted to annex those territories into its boundaries, possibly through coercive means. 18 Eau Claire received federal funds to build a sewage treatment plant in its service area, which covered the four towns, then refused to supply sewage treatment services to the towns. 19 However, the city did agree to provide treatment services to certain homeowners in the towns if a majority of area voters voted by referendum to allow Eau Claire to annex their homes and to commit to use Eau Claire's sewage and transportation services. 20 The towns claimed this scheme was designed to keep the other towns from effectively competing with Eau Claire's sewage collection and transportation services. 21 The scheme also possibly allowed the [\*1182] city to raise costs for nonresidents while at the same time leveraging the higher prices to bring the nonresidents (and presumably their property taxes) into the city. 22 Although the city's motivation was ultimately political rather than narrowly economic, it used an anticompetitive strategy to dump monopoly costs on nonresidents who could not vote to rescind the regulations until they joined the city, at which point the question would be moot. 23 Together, these two deficits--asymmetrical costs and benefits to both producers and consumers and cost externalization--explain why democratic processes often fail to weed out anticompetitive regulations. Without concerted efforts by champions of consumer interests to overcome collective action problems and mobilize support for regulatory reform, the regulatory barriers to competition can linger indefinitely. As discussed next, these failures of democratic self-correction are exacerbated by regulations that entrench incumbent technologies at the expense of innovation.

B. Additional Considerations Affecting Product Market Innovation

Many of the contemporary regulatory battles between old and new technologies (particularly those involving the sharing economy) can be understood as follows. The incumbent regulatory scheme arose many decades ago and may well have been legitimately justified (in the sense of not imposing more costs than benefits) at the time of its adoption. 24 Our hypothesized Platonic guardian might even have approved of it at the time of its adoption. 25 The passage of time and advent of new technologies has now eroded the original basis of the regulation, and our Platonic guardian would therefore want the regulation rescinded or reformed. However, incumbent firms succeed in **blocking or slowing innovative competition** by circling the wagons around the **incumbent regulatory schemes**. 26 In [\*1183] these wars, the incumbents have a decisive advantage for at least three structural reasons.

First, if the incumbent regulatory scheme has allowed the incumbent firms to collect monopoly rents, then there may be a sharp asymmetry of incentives between old and new firms. 27 This is the same asymmetry that attends any struggle between incumbent monopolists and new competitive entrants: the monopolist is seeking to protect a large market share at a monopoly price, whereas the new entrant can only hope to gain a smaller market share at a competitive price. 28 Because the incumbent has more to gain than the new entrant has to lose, the incumbent will be willing to spend more to entrench the regulatory monopoly than the new entrant will be to challenge it. 29 This, in turn, **discourages potential new entrants** from investing in innovative new technologies and mounting political and market-oriented challenges to the incumbents. 30

Second, the incumbents have the advantage of status quo biases and fears about the consequences of technological change. 31 Costs of the existing system--to human safety, for example--may be seen as an inevitable baseline, whereas potential risks from the new technology may be seen as incremental threats. 32 Hence, risks and costs of the existing system may be undercounted or not counted at all, while risks and costs of the new system will be made to bear the full weight of their risks and costs.

For example, in recent months there have been widely reported stories of Uber drivers sexually abusing passengers. 33 These stories rarely report the base rate of abuse by taxi drivers or public transit [\*1184] workers, who might well present similar risks to passengers. 34 Similarly, the news media seem to wait with bated breath to report every accident involving a driverless vehicle 35 --even ones where the vehicle was stationary and hit by another at-fault vehicle--without reporting the base rate of nearly 40,000 deaths a year from human-driven vehicles. 36 The focus of news reporting seems to be on the incremental risks created by automated driving without regard to the baseline number of deaths that automated driving might diminish. 37 In principle, regulators should compare the likely risks of allowing new technologies to those of perpetuating the incumbent technology, but they often default to some version of the precautionary principle, insisting that new technologies prove their safety and efficacy in an absolute rather than comparative sense. 38 Given this baseline asymmetry, proponents of new technologies frequently must overcome significant regulatory hurdles not faced by incumbent technologies. Or, incumbent technologies may persuade regulators to force new technologies to play by rules that favor the incumbent technologies--a form of raising rivals' costs and creating regulatory entry barriers. 39

Finally, incumbents enjoy the generic benefits of incumbency in a structurally conservative constitutional and political system. The multiple "veto gates" to reform legislation--structural factors such as bicameralism, presentment, filibusters, and committee structures 40 --empower technological incumbents to ride the status quo for years or decades after our hypothetical Platonic guardian would have instituted public-minded reforms. 41

[\*1185] In combination, these three factors create additional barriers to the expected flow of democratic processes toward majoritarian equilibria--that is to say, equilibria that favor consumers' interests in competition and innovation over those of producers in capturing monopoly rents. In light of these factors and the collective action and cost externalization factors discussed earlier, 42 it is unsurprising that regulation serves as a barrier to innovation.

C. An Illustration from Automobile Distribution

The ongoing story of Tesla's efforts to break into the American automobile market illustrates the stickiness of incumbent regulations. 43 For a variety of business reasons, when Tesla entered the market in 2012, it decided that it would have to sell its all-electric vehicles (EVs) directly to consumers, meaning that it would have to open its own showrooms and service centers rather than outsourcing that function to franchised dealers. 44 Among other things, Tesla believed that traditional dealerships would be reluctant and ill-positioned to sell EVs and that Tesla therefore could not expect to convince already skeptical customers to buy EVs unless it opened its own retail facilities. 45 Since the mid-twentieth century, however, most states have adopted laws intended to protect dealers from unfair exploitation by manufacturers. 46 Among the provisions in many of these state statutes is a prohibition on a manufacturer opening its own showrooms and service centers. 47 In many states, manufacturers are required to distribute through independent dealers only. 48

Legislatures adopted these direct distribution prohibitions at a time when American car manufacturing was dominated by the "Big Three" (Chrysler, Ford, and General Motors) and many dealers were [\*1186] "mom and pop" businesses. 49 State legislatures were convinced that the dominant manufacturers were taking advantage of their franchisees by selling cars through their company-owned stores at lower prices than the dealers could afford to charge given the wholesale prices charged by the manufacturers. 50 The direct distribution prohibitions were justified as correcting a severe imbalance in bargaining power leading to contracts of adhesion and unfair exploitation in manufacturer-dealer relations. 51

Assuming that dealer protection rationale made sense in circa 1950, its basis has almost entirely vanished today. With the advent of competition from Europe and Asia, the Big Three are no longer dominant. 52 Dealers have many choices of automobile franchisors and hence considerably more power in negotiations over franchise terms. Further, the dealers are no longer mostly mom and pops. 53 Rather, most dealers are organized into multi-dealer groups, many with hundreds of millions or billions of dollars in annual revenue. 54 Indeed, some of the largest dealer groups have more annual revenue than Tesla. 55 Most significantly, the dealer protection rationale has nothing to do with a company such as Tesla that does not seek to distribute through dealers at all. 56 No dealers, no dealer exploitation.

Recognizing that the dealer protection rationale that justified the original statutes no longer works, the dealers have attempted to recast the direct distribution prohibitions as consumer protection decisions. 57 They have argued that forcing consumers to buy automobiles from dealers rather than from manufacturers will lead to more price competition, and hence lower prices, and prevent [\*1187] consumers from manufacturer exploitation. 58 These consumer protection arguments have been roundly rejected by economists, 59 the Federal Trade Commission (FTC), 60 and major proconsumer groups such as the Consumer Federation of America, Consumer Action, Consumers for Automobile Reliability and Safety, and the American Antitrust Institute. 61 Nonetheless, the dealers have succeeded in using the existing structure of dealer protection laws to block or slow Tesla's direct distribution program in a number of states. 62

The Tesla story evidences most of the factors that contribute to the persistence of anticompetitive regulations. The dealers have a concentrated interest in preserving their protected position, while the costs of that protectionism are spread out over millions of consumers. In the state with arguably the most pernicious record with respect to direct distribution reform--Michigan--there is a record of antireform advocacy by a leading incumbent--General Motors--and acquiescence by the political class to protect an in-state champion against an out-of-state challenger. 63 Even though consumers complain more about car dealers than about any other business, indicating the baseline system is not particularly attractive to them, 64 the dealers have invoked fears about the risks of direct distribution in opposition to legislative reforms. And legislative [\*1188] inertia has slowed the consideration of reform bills in some states, extending the incumbent regulatory scheme long past its reasonable expiration date. 65

The structural factors weighing against proconsumer and pro-innovation reforms will not block Tesla forever. The company has already seen significant successes in some state legislatures and courts and is progressively penetrating the market. 66 Yet it would be misguided to consider the company's eventual success a reason not to worry about the structural factors entrenching anticompetitive regulations, especially those foreclosing innovation. No monopoly is permanent--even the most persistent are eventually eroded. 67 Innovative technologies will almost always find a way out eventually, despite incumbent machinations. 68 What incumbents can buy is not monopoly in perpetuity but in extension. 69 Those years or decades of extension are **costly to society**. They represent significant **overcharges to consumers**, **misallocations of social resources** and, in the extreme, **impairment to health and safety**-- even **lives lost.** 70

Not every instance of anticompetitive state or local regulation exhibits the full set of explanatory factors discussed in this Article as cleanly as the ongoing Tesla saga does. Yet the Tesla story is more paradigmatic than idiosyncratic. Across the economy, incumbent technologies are structurally advantaged to deploy regulatory forces to stifle or slow innovation.

[\*1189] II. CONSTITUTIONAL AND ANTITRUST PRINCIPLES AS A CHECK ON ANTICOMPETITIVE REGULATION

If democratic processes fail to check anticompetitive state and local regulations on a systematic basis, then what can be done about it? Among the potential tools are institutional efforts to address the quality of legislation and regulation through democratic processes, such as creating governmental competition advocacy bodies within state and local governments or using federal purse strings to incentivize state and local governments to reevaluate their regulations. These democratic options are important, but they often fall prey to the pathologies of democratic decision making identified earlier. 71 Competition advocates--whether in government or in the private sector--often face formidable structural barriers to advancing the procompetition interest: entrenched incumbent monopolies, difficulties in mobilizing consumer support given the often diffuse nature of consumer harm, and institutional biases against change. 72

In addition to the democratic options, there are what could be styled counterdemocratic possibilities, insofar as they involve the use of courts or agencies to strike down anticompetitive statutes and regulations as inconsistent with some overarching norm of federal law, whether statutory or constitutional. 73 These counterdemocratic possibilities often do not run into the same structural status quo biases as the democratic possibilities do. For example, advocates of a legal theory for overruling an anticompetitive state or local regulation do not have to mobilize broad political support for their position or surmount the "veto gates" 74 built into ordinary political processes. Rather, they typically only have to persuade a small set of elite decision makers that their position is legally correct. It is with these counter-democratic possibilities that this Article is primarily interested.

[\*1190] The counterdemocratic or countermajoritarian quality of these deployments of judicial review is what places their use in some doubt, 75 even granting the assumption that they are targeting objectively undesirable regulations. 76 In the arc of American history, the courts have vacillated in their willingness to engage in such judicial review since the mid-twentieth century. Late nineteenth and early twentieth century courts were willing to engage in broad judicial review of economic regulation, 77 but the tide turned strongly against such review in the mid-twentieth century. 78 Only in recent years have glimmers of a return to some form of strong judicial review of anticompetitive regulations made a reappearance. 79

A. Lochner, anti-Lochner, and Parker

The stage for the current constellation of judicial doctrines and attitudes towards federal judicial review of anticompetitive state and local regulations was set through the progression of Lochner-era substantive due process, the anti-Lochner constitutional revolution of 1937, and the extension of anti-Lochner sentiment to federal antitrust law in the creation of Parker's state action immunity doctrine in 1943. 80 In 1905, the Supreme Court in Lochner struck down a New York law regulating bakeshop working hours on substantive due process grounds, 81 over Justice Oliver Wendell Holmes's famous objection that "[t]he Fourteenth Amendment does not enact Mr. Herbert Spencer's Social Statics." 82 During the Progressive and New Deal eras, Lochner and Lochnerism were broadly vilified for interfering with progressive reforms and substituting judges' economic views for those of legislatures. 83 In the New Deal constitutional revolution associated with the year 1937 (although spanning a few years in either direction), the Supreme [\*1191] Court announced it was getting out of the Lochner business--that it would not strike down economic legislation simply on the grounds that it was, in the judgment of the court, ill-considered. 84 Over time, it became clear that the anti-Lochner jurisprudence extended to nakedly anticompetitive regulations adopted to favor economic special interests to the detriment of the consuming public. In cases such as Williamson v. Lee Optical 85 and Ferguson v. Skrupa, 86 there was a fairly apparent record that the regulations in question had been adopted to stifle competition and benefit economic special interests, but the courts refused to create an exception to the anti-Lochner doctrine on those grounds. 87 In Williamson, the Court acknowledged that the "Oklahoma law may exact a needless, wasteful requirement in many cases," but insisted that the "day is gone when this Court uses the Due Process Clause of the Fourteenth Amendment to strike down state laws, regulatory of business and industrial conditions, because they may be unwise, improvident, or out of harmony with a particular school of thought." 88 Rather, the Court held that "[f]or protection against abuses by legislatures the people must resort to the polls, not to the courts." 89 In 1943, the Supreme Court in Parker v. Brown also made clear that it would not permit the federal Sherman Act to be used as an end-run around the anti-Lochner cases. 90 Parker involved both dormant commerce clause and Sherman Act challenges to California's Agricultural Prorate Act, which forced farmers into a marketing plan that effectively operated as an output reduction cartel run by farmers. 91 The Supreme Court rejected both challenges. 92 Finding "nothing in the language of the Sherman Act or in its history which suggests that its purpose was to restrain a state or its officers or agents from activities directed by its legislature," 93 the Court created a doctrine of state action immunity for anticompetitive state [\*1192] and local laws. 94 The effect of this ruling was to restrict the Sherman Act's coverage solely to purely private conduct. 95 Anticompetitive schemes orchestrated by the state would be excluded from judicial review. 96 As Judge Merrick Garland has observed, Parker is best understood as a continuation of the post-1937 jurisprudence rejecting Lochner: Parker v. Brown was much less a case about judicial faith in economic regulation than it was a case about judicial respect for the political process. Parker was indeed a child of its times, but the most salient element of that historical context was the Court's recent rejection of the Lochner-era doctrine of substantive due process, under which federal courts struck down economic regulations they viewed as unreasonably interfering with the liberty of contract. Having only just determined not to use the Constitution in that manner, the Court was not about to resurrect Lochner in the garb of the Sherman Act. 97

B. The Potential for an Increased Level of Judicial Scrutiny

As of 1943, one would have been justified in believing that, at least from the perspective of federal judicial review, anticompetitive state and local regulations would receive a free pass unless they [\*1193] committed certain egregious violations, such as disadvantaging "discrete and insular minorities" 98 or discriminating against out-of-state commerce. 99 But the judicial impulse to cast a stern glance at perniciously anticompetitive regulations could not be forever stifled, and before long cracks began to appear in the courts' anti-Lochnerian resolve.

Antitrust law and its state action immunity doctrine were the first to move in a significantly more interventionist direction. By the time of the Midcal decision, the state action immunity doctrine had been narrowed to permit judicial scrutiny unless the state regulation met a two-part test: (1) clear and affirmative expression of the anticompetitive policy by the sovereign state itself, and (2) active supervision of the policy's implementation by state actors. 100 Under this structure, the courts have invalidated a number of anticompetitive state regulatory schemes--most recently the practice of delegating regulatory power to occupational licensing boards staffed with potentially self-interested industry participants. 101

The Midcal test invokes a democracy-reinforcement theory of antitrust judicial review. 102 States may enact anticompetitive regulations so long as they take conspicuous responsibility for them. 103 If the state can be obviously identified with the scheme, then perhaps citizens will "vote out the bums" if the costs to consumers are too high. 104 Alas, many anticompetitive regulations escape Midcal's net because of the systemic factors identified in the previous section. 105 Even when a state conspicuously takes ownership of an anticompetitive scheme, democratic processes may fail to provide a remedy because of the asymmetry of costs and benefits [\*1194] between producers and consumers, the externalization of costs outside the voting jurisdiction, and the entrenched advantage of technological incumbency. 106

In light of the limited efficacy of Midcal's regime, one could consider additional ways to increase the level of antitrust scrutiny of anticompetitive state and local regulations. Commentators have proposed various such doctrinal approaches to invigorate antitrust preemption. For example, courts might adopt a cost-externalization test, which would invalidate regulatory schemes that externalize a disproportionate share of monopoly overcharges outside the boundaries of the political district enacting the regulation. 107 Or, as I have proposed elsewhere, they might read the Parker doctrine as entirely inapplicable to enforcement actions by the FTC--a legal question that the Supreme Court has held is still open. 108 In the event that the courts hold Parker inapplicable to the FTC, the Commission might play a significantly enhanced role in checking anticompetitive abuses by state and local governments.

Despite calls for a broader use of federal antitrust law to police anticompetitive state and local regulations, the Supreme Court continues to refine the Parker doctrine with an eye on Lochner. Then-Justice Rehnquist once worried that the Court should not "engage in the same wide-ranging, essentially standardless inquiry into the reasonableness of local regulation that th[e] Court … properly rejected" in terminating Lochnerism. 109 In his dissenting opinion in Community Communications Co. v. City of Boulder, Justice [\*1195] Rehnquist warned about the risks of opening up antitrust review of municipal regulations in a way that would require cities to justify their regulations, and the courts, in turn, to weigh those justifications. 110 Rehnquist wrote:

If the Rule of Reason were "modified" to permit a municipality to defend its regulation on the basis that its benefits to the community outweigh its anticompetitive effects, the courts will be called upon to review social legislation in a manner reminiscent of the Lochner era. Once again, the federal courts will be called upon to engage in the same wide-ranging, essentially standardless inquiry into the reasonableness of local regulation that this Court has properly rejected. Instead of "liberty of contract" and "substantive due process," the procompetitive principles of the Sherman Act will be the governing standard by which the reasonableness of all local regulation will be determined. Neither the Due Process Clause nor the Sherman Act authorizes federal courts to invalidate local regulation of the economy simply upon opining that the municipality has acted unwisely. The Sherman Act should not be deemed to authorize federal courts to "substitute their social and economic beliefs for the judgment of legislative bodies, who are elected to pass laws." The federal courts have not been appointed by the Sherman Act to sit as a "superlegislature to weigh the wisdom of legislation." 111

Also in the shadow of Lochner, recent years have shown glimmers of a reinvigoration of constitutional doctrines checking anticompetitive abuses by state and local governments. The negative or dormant commerce clause--limited by the Parker Court on anti-Lochner grounds--has occasionally been deployed to invalidate not only anticompetitive regulatory schemes 112 that discriminated against out-of-state interests, but also, on occasion, those that impose significant burdens on interstate commerce without a sufficient justification. 113 As of this writing, Tesla is testing the limits of these [\*1196] doctrines in its challenge to Michigan's direct distribution law. 114 Its complaint for injunctive relief asserts:

[Michigan's] [p]articularly egregious protectionist legislation … blocks Tesla from pursuing legitimate business activities and subjects it to arbitrary and unreasonable regulation in violation of the Due Process Clause of the Fourteenth Amendment; subjects Tesla to arbitrary and unreasonable classifications in violation of the Equal Protection Clause of the Fourteenth Amendment; and discriminates against interstate commerce and restricts the free flow of goods between states in violation of the dormant Commerce Clause. 115

Thus far, Tesla has survived a motion to dismiss in federal court and won a key discovery motion seeking automobile dealers' communications concerning the Michigan ban on direct distribution. 116

Perhaps even more significant have been a handful of court of appeals decisions applying equal protection principles to invalidate anticompetitive regulations designed solely to protect a discrete group of economic actors from competition--although there remains a circuit split over this practice. Morbidly, the most significant cases have all been related to funeral parlors and casket sales.

In 2004, the Tenth Circuit in Powers v. Harris rejected a constitutional challenge to an Oklahoma statute that limited casket sales to licensed funeral parlors. 117 The court accepted the premise that the statute had no genuine health and safety rationale and was "a classic piece of special interest legislation designed to extract monopoly rents from consumers' pockets and funnel them into the coffers of a small but politically influential group of business people--namely, Oklahoma funeral directors." 118 Nonetheless, the court held its hands were tied by the anti-Lochner cases--particularly [\*1197] Williamson and Ferguson, which also involved (arguably) nakedly parochial anticompetitive regulations. 119

On the other hand, in their own casket cases, the Fifth and Sixth Circuits invalidated the anticompetitive schemes on equal protection grounds, holding that "protecting a discrete interest group from economic competition is not a legitimate governmental purpose" and therefore fails even rational basis review. 120 This exercise of what Judge Ginsburg calls "rational basis with economic bite" could grow into a significant check on anticompetitive state and local regulation if utilized more expansively. 121 If this Article's premise is valid--that regulations designed solely to protect "discrete interest group[s] from economic competition" 122 are pervasive--then the federal courts have their work cut out for them if they take up the casket maxim with seriousness.

However, it is far from certain that they will or should. Despite the movement towards enhanced scrutiny of anticompetitive economic cronyism just described, the ghosts of Lochner continue to loom large. Even judges unsympathetic to the casket regulations may be concerned about the prospect of unelected judges substituting their own economic preferences for those of democratically elected representatives. In Powers, the Tenth Circuit listed a series of classically anti-Lochner rationales (including a rejection of the role of the Platonic guardian hypothesized in this Article) for refusing to embrace the Sixth Circuit's antiparochialism principle:

First, in practical terms, we would ~~paralyze~~ state governments if we undertook a probing review of each of their actions, constantly asking them to "try again." Second, even if we assumed such an exalted role, it would be nothing more than substituting our view of the public good or the general welfare for that chosen by the states. As a creature of politics, the definition of the public good changes with the political winds. There simply is no constitutional or Platonic form against which [\*1198] we can (or could) judge the wisdom of economic regulation. Third, these admonitions ring especially true when we are reviewing the regulatory actions of states, who, in our federal system, merit great respect as separate sovereigns. 123

So here is the question for those who accept this Article's central premise regarding the prevalence of anticompetitive state and local regulation and yet worry, like the Powers court, about a return to Lochner: If one is interested in pulling additional judicial levers to scrutinize anticompetitive state and local regulations, but worried about returning to Lochnernism, how do the constitutional and antitrust levers compare? Are both equally susceptible to misuse and abuse, is one less risky than the other, and are there limits that could be placed on both to cabin their potential risks? This Article's final Part compares the constitutional and antitrust tools as potential foils to anticompetitive state and local regulation to help answer these questions.

III. COMPARING THE RISKS AND LIMITS OF THE CONSTITUTIONAL AND ANTITRUST TOOLS

A. Limiting the Scope of Judicial Review to Regulations Affecting Competition

The fear of a return to Lochnerism is in large part a fear that judicial review of economic regulatory decisions is a Pandora's box that, once open, would quickly unleash a full-scale movement toward a substitution of judicial economic philosophies for those of the democratically responsive branches. 124 Hence, in the current constellation of Lochner-phobia, it is important to explain how any doctrine that invites increased judicial scrutiny of economic regulation would be cabined or restrained by a workable limitation principle. Both the antitrust and constitutional tools under consideration embody such a limitation principle insofar as they do not propose universal federal scrutiny of all undesirable state economic regulation. Instead, they limit the scrutiny to regulations that harm [\*1199] competition for the benefit of identifiable special interests. In other words, the prima facie case in either event requires demonstration of competitive harm as opposed to merely social undesirability. 125 The "competitive harm" limitation principle excludes from judicial review a wide set of regulations and hence limits the range of judicial interference with state regulatory schemes. Many cronyist regulations line the pockets of politically connected special interests without necessarily impairing competition. Consider, for example, a city ordinance that required disposal of a certain kind of medical waste at a pharmacy. Assume further that the waste in question could be safely disposed of through ordinary garbage collection, and the sole purpose of the scheme in question was to provide pharmacies with an opportunity to charge a fee for collecting the waste. Our hypothesized Platonic guardian would wish to overturn that regulation but could not do so on the constitutional or antitrust grounds under consideration because the regulation in question does not limit competition in any important sense. Rather than stifling competition in a legitimate market, it creates a new market for an undesired and unnecessary service. Lochner-phobes may wonder whether this limitation principle is limited enough. Although the limitation carves off a large swath of cronyist regulations from review, it still includes a relatively large universe of regulations, creating the possibility that judges will have a free hand to strike down many important state regulatory programs in the name of enhanced competition. Those less worried about Lochner and more willing to encourage judicial review of economic regulation may worry that the limitation principle is too limited and that it would allow a vast universe of cronyist regulation to escape judicial scrutiny on the same grounds that much cutthroat business behavior escapes antitrust scrutiny today--it may be unethical or undesirable, but does not fall within the purview of the antitrust laws because it does not impair general market competitiveness. 126 [\*1200] Limiting the scope of judicial review to economic regulations impairing competition also raises a question of legal principle. As to antitrust, it is easy to justify such a principle. Notwithstanding Oliver Wendell Holmes's protestation that the Sherman Act "says nothing about competition," 127 a century of judicial construction has oriented the antitrust laws towards a singular focus on competition. 128 On the other hand, it is not obvious that constitutional scrutiny should rise or fall on the effects a cronyist regulation has on competition. It may be true that "protecting a discrete interest group from economic competition is not a legitimate governmental purpose," 129 but it seems equally true that dispensing economic rents to favored discrete interest groups more generally is also not a legitimate government purpose. In either case, the argument for limiting judicial review is not that the set of targeted regulations is constitutionally legitimate, but that the process of separating sheep from goats is fraught with the potential for judicial usurpation.

B. Considering Governmental Justifications for Restraints on Competition

Assuming that judicial review of anticompetitive state and local regulations is to occur with some degree of bite, the fighting question may often become how to evaluate the state's proffered justifications for the restraint on competition. Both antitrust and constitutional tools would need to allow ample room for the state to demonstrate verifiable justifications for the challenged regulations. To put this point in antitrust parlance, there are no per se unlawful state restraints on competition--the state's reasons for regulating will always be up for review in judicial or administrative proceedings challenging their validity. [\*1201] The critical question is how much interrogation into the state's proffered justifications a court or reviewing agency would, could, or should undertake. In conventional post-Lochner terms, economic regulations were subjected to no more than rational basis review--an exceedingly deferential standard of review. 130 The state did not have to advance any empirical support for its proffered justifications and, indeed, did not have to advance any justifications at all. 131 Judges were supposed to uphold the regulation if they could conceive of any justification that might plausibly support it: A State, moreover, has no obligation to produce evidence to sustain the rationality of a statutory classification. "[A] legislative choice is not subject to courtroom factfinding and may be based on rational speculation unsupported by evidence or empirical data." A statute is presumed constitutional, and "[t]he burden is on the one attacking the legislative arrangement to negative every conceivable basis which might support it," whether or not the basis has a foundation in the record. Finally, courts are compelled under rational-basis review to accept a legislature's generalizations even when there is an imperfect fit between means and ends. A classification does not fail rational-basis review because it "is not made with mathematical nicety or because in practice it results in some inequality." 132 That sort of rational basis review is far from the sort of review conducted by the Craigmiles and St. Joseph Abbey courts in striking down the Tennessee and Louisiana casket rules. 133 Those courts required evidentiary support for states' claimed justifications and subjected the states' claims to rigorous cross-examination for logical consistency. 134 In the Sixth Circuit case--Craigmiles--the court rejected the state's arguments that the casket regulation protected casket quality and public health, made it more feasible for casket sellers to advise bereaved families about which casket was most suitable for their needs, and protected against sharp business [\*1202] dealing. 135 The court found these arguments inconsistent with the state's own regulatory practices and unsupported by any record evidence. 136 Similarly, in the Fifth Circuit case--St. Joseph Abbey--the court repeated the familiar proposition that "rational basis review places no affirmative evidentiary burden on the government," but quickly added that "plaintiffs may nonetheless negate a seemingly plausible basis for the law by adducing evidence of irrationality." 137 The court then inquired into evidentiary support for the state's proferred "rational bases." 138 For example, on the ostensible consumer protection rationale for prohibiting casket sales except by licensed funeral parlors, the court observed that the FTC had largely rejected this argument as an empirical matter, noting that the FTC found "insufficient evidence that … third-party sellers of funeral goods are engaged in widespread unfair or deceptive acts or practices" and that the empirical "record [is] 'bereft of evidence indicating significant consumer injury caused by third-party sellers.'" 139 This form of review resembles antitrust litigation, where once a plaintiff raises a prima facie case of anticompetitive effect (outside of per se rules, where no justifications are allowed), the defendant typically can proffer procompetitive justifications but bears the burden of offering evidentiary support. 140 Although giving lip service to the norms of rational basis review, these courts were in fact taking a hard look at the states' proffered justifications once the regulation in question appeared prima facie to meet the description of a measure designed to protect "discrete interest group[s] from economic competition." 141 Inquiries into offsetting justifications for prima facie suspect conduct raise two doctrinal-analytical questions: (1) how tight must the fit between means and ends be in order for the conduct in question to survive scrutiny, and (2) once the conduct has been shown to advance legitimate ends, should its harms be balanced against its [\*1203] benefits, or should it simply be deemed lawful without any balancing? 142 Both constitutional and antitrust tools for addressing anticompetitive regulation would need to address these questions. As to the first question--the required tightness of means-ends fit--both constitutional and antitrust law already contain suitable doctrines. Moving up the ladder of scrutiny from rational basis review, intermediate scrutiny in constitutional law (such as that applicable to content-neutral restrictions on speech) requires that the restriction in question advance important governmental interests and not burden the protected interest (speech in the speech cases, competition in competition cases) more than necessary to further these interests. 143 The fit between means and ends need be only "reasonable," not strictly necessary or essential. 144 Unless the constitutional limitation on anticompetitive cronyism should fall into the more stringent strict scrutiny category--a very doubtful possibility--this sort of fit between regulatory means and ends would seem applicable. Antitrust law shares a similar approach to the less restrictive alternative analysis under the rule of reason, and it too would presumably apply to government restraints on competition under an expanded form of judicial review. 145 As explained in the Justice Department and FTC competitor collaboration guidelines, a reasonable, but not essential, fit between means and ends is required to credit proffered justifications for prima facie anticompetitive agreements: The Agencies consider only those efficiencies for which the relevant agreement is reasonably necessary. An agreement may be "reasonably necessary" without being essential. However, if the participants could have achieved or could achieve similar efficiencies by practical, significantly less restrictive means, then the Agencies conclude that the relevant agreement is not [\*1204] reasonably necessary to their achievement. In making this assessment, the Agencies consider only alternatives that are practical in the business situation faced by the participants; the Agencies do not search for a theoretically less restrictive alternative that is not realistic given business realities. 146 A potential difference between constitutional and antitrust analysis might arise on the second important means-ends question--whether to balance harms against benefits of the regulatory restriction. For example, suppose that a regulation limiting ride-sharing services resulted in some small safety benefit to customers but an arguably much greater harm to customers in the form of diminished choice of service options and higher prices. Should a reviewing court or agency balance the safety enhancements against the harms to competition, or should it rather conclude that, having shown a legitimate reason for its existence, the regulation should stand? Although intermediate scrutiny in constitutional law is often described as a "balancing test," courts do not generally engage in explicit balancing after passing the less restrictive alternatives inquiry. 147 Some degree of value judgment must be embedded in the inquiry into whether the state's interest is sufficiently "important," but it is rare to see a court say, in effect, that although the state's interest is concededly important and the regulation at stake is reasonably related to it, the harms caused by the regulation outweigh its benefits. 148 For purposes of the principle against protecting "discrete interest group[s] from economic competition," it seems apparent that there is no room for balancing at all, as a state [\*1205] regulation that serves some legitimate end by definition is not "simple economic protectionism." 149 By contrast, antitrust law is, in principle, supposed to require open-ended balancing at this final step: "if the monopolist's procompetitive justification stands unrebutted, then the plaintiff must demonstrate that the anticompetitive harm of the conduct outweighs the procompetitive benefit." 150 If followed in state action doctrine cases, this sort of balancing could precipitate serious accusations of Lochnerizing, as it would put judges in the position of substituting their own preferences for market outcomes over the state's legitimate regulatory objectives. Fortunately, although antitrust law nominally calls for balancing, courts typically do not engage in it. 151 Even in Microsoft--the case that most explicitly and authoritatively called for final-stage balancing--the D.C. Circuit engaged in very little, if any, true balancing. 152 Perhaps because of the incommensurability between anticompetitive or procompetitive effects or concern about chilling procompetitive conduct, courts tend to exonerate competitive behavior that is necessary to procompetitive effects without asking whether the harms outweigh the benefits. 153 In order to stave off Lochnerizing concerns, any expanded antitrust review of state and local regulations might need to formalize this practice doctrinally: Once a state demonstrates that the regulation in question is reasonably tailored to achieve some legitimate governmental objective, [\*1206] antitrust does not require balancing of the harms to competition against the legitimate governmental objectives. A final question unique to antitrust review is whether, when it comes to means-ends review, the catalogue of permissible ends is limited to those recognized by antitrust law as "procompetitive." One of the important doctrinal and policy structures of antitrust law is a division of the world into virtues that are said to be "procompetitive" and those that are not. 154 To count as a legitimate virtue in the antitrust domain, an effect must be "procompetitive," meaning that it must work to enhance or improve market competition. 155 Supposed benefits of a restraint that assume that competition is itself the problem in need of curtailment are labeled with the epithet of "ruinous competition" theories and are dismissed as inconsistent with the Sherman Act's procompetition policy. 156 While this single-minded devotion to competition may make sense as to the world of private restraints, it is less clear that it can be applied sensibly to governmental regulation. Do governments not have the right to take the view that competition of certain types causes social evils that should be curtailed? For example, many regulatory restrictions on alcohol and tobacco distribution are designed to decrease competition and hence reduce output as compared to that which would be obtained in a competitive market. 157 While it may be undesirable for private actors to limit harmful output through private means, the state's police power surely includes the right to do so, including by limiting competition. 158 This suggests that the range of regulatory interests [\*1207] states might legitimately advance in support of challenged regulations would be broader than those deemed "procompetitive" in conventional antitrust analysis. Opening the door to a wider scope of justifications in cases where the restraint on competition is imposed by governmental rather than private actors would appear on first impression to favor the government. Such a widening of the rule of reason, however, raises precisely the Lochnerizing concern raised by Justice Rehnquist in his previously quoted City of Boulder dissent. 159 If courts were called upon to balance health and safety benefits against traditional competition concerns around prices and innovation, then they might well slip into a Lochnerizing mold. But perhaps such concerns could be abated by limiting the reviewing court or agency's role to determining whether the regulation in question actually supported the state's proffered goals. As long as the goals were permissible (that is, not simply protecting discrete interest groups from competition as a form of political patronage) and the regulations were reasonably related to the goals, the reviewing court or agency would not inquire more broadly into the regulation's overall desirability.

C. Institutional and Procedural Distinctions

Antitrust preemption and constitutional review are differently situated in one significant way: Constitutional equal protection, substantive due process, and dormant commerce clause principles are privately enforceable by any party that meets the Article III standing requirements--which, in this context, means at least anyone directly affected by a regulation impairing competition. 160 Antitrust has its own private right of action standing rules, 161 as well as an additional institutional feature that might significantly limit some of the abuses associated with Lochnerizing. One proposed route for **increasing** the preemptive **scope** of federal antitrust law over anticompetitive state and local regulation is to hold the [\*1208] Parker doctrine inapplicable to the FTC. 162 This would give the FTC enhanced power to challenge anticompetitive state and local regulations. Not only would this **limit** the incidence of challenges to state regulation (the FTC Act is not privately enforceable and only the Commission can initiate an action under the Act), 163 but it would also put the Commission itself, rather than an Article III court, in the position of making an initial decision on the case. An Article III court could ultimately become involved, as adverse Commission decisions are appealable to any federal court of appeal in which the case could have been initially brought. 164 However, lodging the antitrust review function in the FTC would grant the Commission an initial regulatory review function and the power to make factual findings subject to "substantial evidence" review. 165

**Plan**

The United States Federal Government should substantially increase prohibitions on anticompetitive business practices of the private sector by narrowing the state action immunity doctrine.

**Federalism Adv**

**Advantage Two: Federalism**

**Nextgen tech is emerging at an exponential rate – effective state regulatory experimentation avoids downsides and maximize the benefits of AI and nano**

**McGinnis 11**(John, George C. Dix Professor of Law, Northwestern Law School, “LAWS FOR LEARNING IN AN AGE OF ACCELERATION,” <http://scholarship.law.wm.edu/cgi/viewcontent.cgi?article=3404&context=wmlr>)

The twenty-first century’s information age has the potential to usher in a more harmonious and productive politics. People often disagree about what policies to adopt, but the cornucopia of data that modern technology generates can allow them to better update their beliefs about policy outcomes on the basis of shared facts. In the long run, convergence on the facts can lead incrementally to more consensus on better policies. More credible factual information should over time also help make for a less divisive society, because partisans cannot as easily stoke social tensions by relying on false facts or exaggerated claims to support conflicting positions. Thus, a central task of contemporary public law is to **accelerate a politics of learning** whereby democracy improves a public reason focused on evaluating policy consequences. Government should be shaped into an instrument that learns from the analysis of policy consequences made available from newly available technologies of information.1 Greater computer capacity is generating more empirical analysis.2 The Internet permits the rise of prediction markets that forecast policy results even before the policies are implemented.3 The Internet also creates a dispersed media that specializes in particular topics and methodologies, gathers diverse information, and funnels salient facts about policy to legislators and citizens.4 But a public reason focused on policy consequences will **improve only if our laws facilitate it**. For instance, constitutional federalism must be reinvigorated to permit greater experimentation across jurisdictions, because with the rise of empiricism, **decentralization** has more value for social learning today than ever before.5 Congress should include mandates for experiments within its own legislation making policy initiatives contain the platforms for their own selfimprovement.6 Creating a contemporary politics of democratic updating on the basis of facts is a matter both of great historical interest and of enormous importance to our future. In the historical sweep of ideas, a government more focused on learning from new information moves toward fulfilling the Enlightenment dream of a politics of reason—but a reason based not on the abstractions of the French Revolution, but instead on the hard facts of the more empirical tradition predominating in Britain. By displacing religion from the center of politics, the Enlightenment removed issues by their nature not susceptible to factual resolution, permitting a focus on policies that could be improved by information.7 The better democratic updating afforded by modern technology can similarly increase social harmony and prosperity by facilitating policies that actually deliver the goods. For the future, a more consequentially informed politics is an **urgent necessity**. The same technological acceleration that potentially creates a more information-rich politics also generates a wide range of technological innovation—from nanotechnology to biotechnology to [AI] artificial intelligence. Although these technologies offer unparalleled benefits to mankind, **they may also create catastrophic risks**, such as rapid environmental degradation and new weapons of mass destruction.8 Only a democracy able to rapidly assimilate the facts is likely to be able to **avoid disaster** and reap the benefits inherent in the technology that is transforming our world at a faster pace than ever before. Every industry that touches on information—book publishing, newspapers, and college education to name just a few—is undergoing a continuous series of revolutionary changes as new technology permits delivery of more information more quickly at lower cost. The same changes that are creating innovation in such private industries can also quickly create innovation in social governance. But the difference between information-intensive private industries and political institutions is that the latter lack the strong competitive framework for these revolutions to occur spontaneously. This Essay thus attempts to set out a blueprint for reform to make better use of some available information technologies. Part I describes the reality of technology acceleration as the acceleration both creates the tools for democratic updating and prompts its necessity. Technological acceleration is the most important development of our time—more important even than globalization. Although technologists have described and discussed its significance, its implications for law and political structure have been barely noticed. Part II briefly discusses how better social knowledge can change political results. A premise of the claim is that some political disagreements revolve about facts, not simply values. As a result, better social knowledge can help democracies design policies to achieve widely shared goals. Social knowledge energizes citizens to act on those encompassing interests, like improved public education, because they come to better recognize the policy instruments to advance those interests. Better social knowledge provides better incentives for citizens to vote on these interests. Part III considers the mechanisms for creating a contemporary politics of democratic updating that begins to meet the needs of the age of accelerating technology. It focuses on two of the new resources that can have substantial synergies in improving social common knowledge and shows how an increase in common knowledge can systematically improve political results by providing better incentives for citizens to work for encompassing social goods. First, Part III considers the improvement in empirical analysis of social policy that flows from increasing computational capacity. It then discusses how specialized and innovative media does much more than disseminate opinions: it widely distributes facts and factual analysis. The combination of these technologies can better discipline experts and representatives, providing stronger incentives for them to update on the basis of new facts. Part IV discusses the information-eliciting rules that will maximize the impact of new technologies of information. These steps include a program of restoring, where possible, governmental structures that permit appropriate **decentralization for experimentation**, empirical testing, and learning. Congress and regulatory agencies should structure legislation and regulations to include social experiments when such experiments would help resolve disputed matters of policy. The Supreme Court should generally refrain from imposing new substantive rights for the nation so that it is easier to evaluate the consequences of different **bundles of rights chosen by the states**. But it should also protect the dispersed media, like blogs, from discriminatory laws, because this dispersed media plays a crucial role in modern policy evaluation. In short, the Supreme Court needs to emphasize a jurisprudence fostering social discovery and the political branches need to create frameworks for better social learning. Constitutive structures encouraging and evaluating experimentation become more valuable in an age where better evaluation of social experiments is possible. I. TECHNOLOGICAL ACCELERATION It is the premise of this Essay that technological acceleration is occurring and that our political system must adapt to the world it is creating. The case for technological acceleration rests on three mutually supporting kinds of evidence. First, from the longest-term perspective, epochal change has sped up: the transitions from hunter-gatherer society to agricultural society to the industrial age each took progressively less time to occur, and our transition to an information society is taking less time still. Second, from a technological perspective, computational power is increasing exponentially, and increasing computational power facilitates the growth of other society-changing technologies like biotechnology and nanotechnology. Third, even from our contemporary perspective, technology now changes the world on a yearly basis both in terms of hard data, like the amount of information created, and in terms of more subjective measures, like the social changes wrought by social media. From the longest-term perspective, it seems clear that technological change is accelerating and, with it, the basic shape of human society and culture is changing.9 Anthropologists suggest that for 100,000 years, members of the human species were hunter-gather- ers.10 About 10,000 years ago humans made a transition to agricultural society.11 With the advent of the Industrial Revolution, the West transformed itself into a society that thrived on manufacturing.12 Since 1950, the world has been rapidly entering the information age.13 Each of the completed epochs has been marked by a transition to substantially higher growth rates.14 The period between each epoch has become very substantially shorter.15 Thus, there is reason to extrapolate to even more and faster transitions in the future. This evolution is consistent with a more fine-grained evaluation of human development. Recently, the historian Ian Morris has rated societies in the last 15,000 years on their level of development through objective benchmarks, such as energy capture.16 The graph shows relatively steady, if modest, growth when plotted on a log linear scale, but in the last 100 years development has jumped to become sharply exponential.17 Morris concludes that these patterns suggest that there may be four times as much social development in the world in the next 100 years than there has been in the last 14,000.18 The inventor and engineer Ray Kurzweil has dubbed this phenomenon of faster transitions “the law of accelerating returns.”19 Seeking to strengthen the case for exponential change, he has looked back to the dawn of life to show that even evolution seems to make transitions to higher organisms ever faster.20 In a more granulated way, he has considered important events of the last 1000 years to show that the periods between extraordinary advances, such as great scientific discoveries and technological inventions, have decreased.21 Thus, both outside and within the great epochs of recorded human history, the story of acceleration is similar. The technology of computation provides the second perspective on accelerating change. The easiest way to grasp this perspective is to consider Moore’s Law. Moore’s Law—named after Gordon Moore, one of the founders of Intel—is the observation that the number of transistors that can be fitted onto a computer chip doubles every eighteen months to two years.22 This prediction, which has been approximately accurate for the last forty years,23 means that almost every aspect of the digital world—from computational calculation power to computer memory—is growing in density at a similarly exponential rate.24 Moore’s Law reflects the rapid rise of computers to become the fundamental engine of mankind in the late twentieth and early twenty-first centuries.25 The power of exponential growth is hard to overstate. As the economist Robert Lucas has said, once you start thinking about exponential growth, it is hard to think about anything else.26 The computational power in a cell phone today is a thousand times greater and a million times less expensive than all the computing power housed at MIT in 1965.27 Projecting forward, the computing power of computers **twenty-five years from now** is likely to prove a million times more powerful than computing power today. To be sure, many people have been predicting the imminent death of Moore’s Law for a substantial period now,29 but it has nevertheless continued. Intel—a company that has a substantial interest in accurately telling software makers what to expect—projects that Moore’s Law will continue at least until 2029.30 Ray Kurzweil shows that Moore’s Law is actually part of a more general exponential computation growth that has been gaining force for over a 100 years.31 Integrated circuits replaced transistors that previously replaced vacuum tubes that in their time had replaced electromechanical methods of computation.32 Through all of these changes in the mechanisms of computation, its power increased at an exponential rate.33 This perspective suggests that other methods under research—from **carbon nanotechnology to optical computing to quantum computing—are likely to continue growing exponentially** even when silicon-based computing reaches its physical limits.34 Focusing on the exponential increase in hardware capability may actually understate the acceleration in computational capacity in two ways. First, a study considering developments in a computer task using a benchmark for measuring computer speed over a fifteen-year period suggests that the improvements in software algorithms improved performance even more than the increase in hardware capability.35 Second, computers are interconnected more than ever before through the Internet, and these connections increase collective capacity, not only because of the increasing density among computer connections, but because of the increasing density of connections among humans made possible by computers. The salient feature of computers’ exponential growth is their tremendous range of application compared to previous improvements. Almost everything in the modern world can be improved by adding an independent source of computational power. That is why computational improvement has a far greater social effect than improvements in technologies of old. Energy, medicine, and communication are now being continually transformed by the increase in computational power.36 As I will discuss in Part II, even the formulation of new hypotheses in natural and social science will likely be aided by computers in the near future. The final perspective on accelerating technology is the experience that the contemporary world provides. Technology changes the whole tenor of life more rapidly than ever before. At the most basic level, technological products change faster.37 Repeated visits to a modern electronics store—or even a grocery store—reveal a whole new line of products within very few years. In contrast, someone visiting a store in 1910 and then again in 1920—let alone in 1810 and 1820—would not have noticed much difference. Even cultural generations move faster. Facebook, for instance, has changed the way college students relate in only a few years,38 whereas the tenor of college life would not have seemed very different to students in 1920 and 1960. Our current subjective sense of accelerating technology is also backed by more objective evidence from the contemporary world. Accelerating amounts of information are being generated.39 Information, of course, is a proxy for knowledge. Consistent with this general observation, we experience exponential growth in practical technical knowledge, as evidenced by the rise in patent applications.40 Thus, the combination of data from our present life, together with the more sweeping historical and technological perspectives, makes a compelling case that technological acceleration is occurring. It is this technological acceleration that creates both the capacity and the need for improving collective decision making. As technology accelerates, it creates new phenomena, from climate change to biotechnology to artificial intelligence of a human-like capacity. **These technologies may themselves have very large positive or negative externalities and may require government decisions** about their prohibition, regulation, or subsidization to forestall harms and capture their full benefits. They may also cause social dislocations, from unemployment to terrorism, that also require certain collective decisions. Society can best handle these crises not only by making better social policy to address them directly but by improving social policy more generally to create both more resources and more social harmony to endure them. Thus, society must deploy information technology in the service of democratic updating if it is to manage technological acceleration

**U.S. model is key to stable nano---checks gray goo, super-weapons, and eco-collapse**

**Dennis 6** (Lindsay V., JD Candidate – Temple University School of Law, “Nanotechnology: Unique Science Requires Unique Solutions”, Temple Journal of Science, Technology & Environmental Law, Spring, 25 Temp. J. Sci. Tech. & Envtl. L. 87, Lexis)

Nanotechnology, a newly developing field merging science and technology, promises a future of open-ended potential. [6](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n6) Its scientific limits are unknown, and its myriad uses cross the boundaries of the technical, mechanical and medical fields. [7](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n7) Substantial research [8](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n8) has led scientists, [9](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n9) politicians [10](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n10) and academicians [11](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n11) to believe that nanotechnology has the potential to profoundly change the economy and to improve the national standard of living. [12](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n12) In addition, nanotechnology may touch every facet of human life because its products cross the boundaries of the most important industries, including electronics, biomedical and pharmaceutical  [\*89]  industries, and energy production. [13](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n13) In the future, nanotechnology could ensure longer, healthier lives with the reduction or elimination of life-threatening diseases, [14](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n14) a cleaner planet with pollution remediation and emission-free energy, [15](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n15) and the innumerable benefits of increased information technology. [16](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n16) However, certain uses, such as advanced drug delivery systems, [17](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n17) have given rise to an ethical debate similar to that surrounding cloning and stem cell research. [18](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n18) Moreover, some analysts have theorized that nanotechnology may endanger humankind with more **dangerous warfare** and weapons of **terrorism**, [19](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n19) and that nanotechnology may lead to artificial intelligence beyond human control. [20](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n20) The widespread use of nanotechnology far in the future threatens to alter the societal framework and create what has been called **"gray goo."** [21](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n21) Because nanotechnology has the potential to improve the products that most of us rely on in our daily lives, but also **imperil society** as we know it, we should research, monitor and **regulate** nanotechnology for the public good with trustworthy systems, and set up pervasive controls over its research, development, and deployment. In addition, its substantial impacts on existing regulations should be ascertained, and solutions incorporated into the regulatory framework. This paper addresses these concerns and provides potential solutions. Part I outlines the development of nanotechnology. Parts II and III explore the current and theoretical future applications of nanotechnology, and its potential side-effects. Then, Part IV analyzes the government's current role in monitoring nanotechnology, and the regulatory mechanisms available to manage or eliminate the negative implications of nanotechnology. Part V considers the creation of an Emerging Technologies Department as a possible solution to maximize the benefits and minimize the detrimental effects of nanotechnology. Lastly, Part VI examines certain environmental regulations to provide an example of nanotechnology's impact on existing regulatory schema.  [\*90]  Part I: Nanotechnology Defined   Nanoscience is the study of the fundamental principles of molecules and structures with at least one dimension roughly between 1 and 100 nanometers (one-billionth of a meter, or 10[su'-9']), otherwise known as the "nanoscale." [22](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n22) Called nanostructures, these are the smallest solid things possible to make. [23](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n23) Nanofabrication, or nanoscale manufacturing, is the process by which nanostructures are built. [24](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n24) Top-down nanofabrication creates nanostructures by taking a large structure and making it smaller, whereas bottom-up nanofabrication starts with individual atoms to build nanostructures. [25](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n25) Nanotechnology applies nanostructures into useful nanoscale devices. [26](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n26) The nanoscale is distinctive because it is the size scale where the properties of materials like conductivity, [27](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n27) hardness, [28](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n28) or melting point [29](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n29) are no longer similar to the properties of these same materials at the macro level. [30](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n30) Atom interactions, averaged out of existence in bulk material, give rise to unique properties. [31](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n31) In  [\*91]  nanotech research, scientists take advantage of these unique properties to develop products with applications that would not otherwise be available. [32](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n32) Although some products using nanotechnology are currently on the market, [33](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n33) nanotechnology is primarily in the research and development stage. [34](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n34) Because nanoparticles are remarkably small, tools specific to nanotechnology have been created to develop useful nanostructures and devices. [35](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n35) Two techniques exclusive to nanotechnology are self-assembly, and nanofabrication using nanotubes and nanorods. [36](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n36)  [\*92]  In self-assembly, particular atoms or molecules are put on a surface or preconstructed nanostructure, causing the molecules to align themselves into particular positions. [37](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n37) Although self-assembly is "probably the most important of the nanoscale fabrication techniques because of its generality, its ability to produce structures at different length-scales, and its low cost," [38](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n38) most nanostructures are built starting with larger molecules as components. [39](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n39) Nanotubes [40](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n40) and nanorods, [41](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n41) the first true nanomaterials engineered at the molecular level, are two examples of these building blocks. [42](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n42) They exhibit astounding physical and electrical properties. [43](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n43) Certain nanotubes have tensile strength in excess of 60 times high-grade steel while remaining light and flexible. [44](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n44) Currently, nanotubes are used in tennis rackets and golf clubs to make them lighter and stronger. [45](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n45) Part II: Nanotechnology's Uses   Researching and manipulating the properties of nanostructures are important for a number of reasons, including, most basically, to gain an understanding of how matter is constructed, and more practically, to use these unique properties to develop unique products. [46](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n46) Nanoproducts can be divided into four general categories: [47](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n47) smart materials, [48](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n48) sensors, [49](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n49) biomedical applications, [50](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n50) and optics and electronics. [51](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n51)  [\*93]  A "smart" material incorporates in its design a capability to perform several specific tasks. [52](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n52) In nanotechnology, that design is done at the molecular level. [53](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n53) Clothing, enhanced with nanotechnology, is a useful application of a smart material at the nanoscale. Certain nano-enhanced clothing contains fibers that have tiny whiskers that repel liquids, reduce static and resist stains without affecting feel. [54](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n54) Nano-enhanced rubber represents another application of a nanoscale smart material. [55](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n55) Tires using nanotech-components increase skid resistance by reducing friction, which reduces abrasion and makes the tires last longer. [56](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n56) The tires may be on the market "in the next few years" according to the National Nanotechnology Initiative (NNI). [57](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n57) Theoretically, this rubber could be used on a variety of products, ranging from tires to windshield wiper blades to athletic shoes. [58](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n58) A more complex nanotechnology smart material is a photorefractive polymer. [59](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n59) Acting as a nanoscale "barcode," these polymers could be used as information storage devices with a storage density exceeding the best available magnetic storage structures. [60](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n60) Nano-sensors may "revolutionize much of the medical care and the food packaging industries," [61](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n61) as well as the environmental field because of their ability to detect toxins and pollutants at fewer than ten molecules. [62](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n62) As the Environmental Protection Agency (EPA) recognizes: Protection of human health and ecosystems requires rapid, precise sensors capable of detecting pollutants at the molecular level. Major improvements in process control, compliance monitoring, and environmental decision-making could  [\*94]  be achieved if more accurate, less costly, more sensitive techniques were available. Nanotechnology offers the possibility of sensors enabled to be selective or specific, detect multiple analytes, and monitor their presence in real time. [63](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n63) Examples of research in sensors include the development of nano-sensors for efficient and rapid biochemical detection of pollutants; sensors capable of continuous measurement over large areas; integration of nano-enabled sensors for real-time continuous monitoring; and sensors that utilize "lab-on-a-chip" technology. [64](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n64) All fundamental life processes occur at the nanoscale, making it the ideal scale at which to fight diseases. [65](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n65) Two quintessential examples of biomedical applications of nanotechnology are advanced drug delivery systems and nano-enhanced drugs. [66](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n66) The promise of advanced drug delivery systems lies in that they direct drug molecules only to where they are needed in the body. [67](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n67) One example is focusing chemotherapy on the site of the tumor, instead of the whole body, thereby improving the drug's effectiveness while decreasing its unpleasant side-effects. [68](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n68) Other researchers are working to develop nanoparticles that target and trick cancer cells into absorbing certain nanoparticles. [69](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n69) These nanoparticles would then kill tumors from within, avoiding the destruction of healthy cells, as opposed to the indiscriminate damage caused by traditional chemotherapy. [70](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n70) Nano-enhanced suicide inhibitors [71](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n71) limit enzymatic activity by forcing naturally occurring enzymes to form bonds with the nanostructured molecule. [72](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n72) This may treat conditions such as epilepsy and depression because of the enzyme action component involved in these conditions. [73](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n73) Lastly, nanotechnology has the potential to revolutionize the electronics and optics fields. [74](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n74) For instance, nanotechnology has the potential to produce clean,  [\*95]  renewable solar power. [75](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n75) Through a process called artificial photosynthesis, solar energy is produced by using nanostructures based on molecules which capture light and separate positive and negative charges. [76](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n76) Certain Swiss watches and bathroom scales are illuminated through a nanotech procedure that transforms captured sunlight into an electrical current. [77](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n77) In the electronics field, nanostructures offer many different ways to increase memory storage by substantially reducing the size of memory bits and thereby increasing the density of magnetic memory, increasing efficiency, and decreasing cost. [78](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n78) One example is storing memory bits as magnetic nanodots, which can be reduced in size until they reach the super-paramagnetic limit, the smallest possible magnetic memory structure. [79](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n79) Advances in electronics and computing brought on by nanotechnology could allow reconfigurable, "thinking" spacecraft. [80](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n80) Some uses of nano-products already on the market include suntan lotions and skin creams, tennis balls that bounce longer, faster-burning rocket fuel additives, and new cancer treatments. [81](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n81) Solar cells in roofing tiles and siding that provide electricity for homes and facilities, and the prototypic tires, supra, may be on the market in the next few years. [82](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n82) The industry expects advanced drug delivery systems with implantable devices that automatically administer drugs and sensor drug levels, and medical diagnostic tools such as cancer-tagging mechanisms to be on the market in the next two to five years. [83](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n83) It is nearly impossible to foresee what developments to expect in nanotechnology in the decades to come. [84](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n84) Nonetheless, the book Engines of Creation presented one vision of the possibilities of advanced nanotechnology. [85](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n85) Nano-machines could be designed to construct any product, from mundane items such as a chair, to exciting items such as a rocket engine. [86](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n86) These "assemblers" could also be programmed to build copies of themselves. [87](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n87) Known as "replicators," these nano-machines could alter the world by producing an exponential quantity of themselves that are to be put to work as assemblers. [88](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n88) The development of assemblers could advance the space  [\*96]  exploration program, [89](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n89) biomedical field, [90](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n90) and even repair the damage done to the world's ecological systems. [91](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n91) Over time, production costs may sharply decrease because the assemblers will be able to construct all future products from an original blueprint at virtually no additional cost. [92](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n92) Part III: Nanotechnology's Side-Effects   With the good, however, comes the bad. The "gray goo problem," the most well-known unwanted potential consequence of the spread of nanotechnology, [93](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n93) arises when replicators and assemblers produce almost anything, and subsequently spread uncontrolled, **obliterating** natural organisms and replacing them with nano-enhanced organisms. [94](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n94) A more foreseeable issue is **environmental contamination**. [95](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n95) The EPA noted   As nanotechnology progresses from research and development to commercialization and use, it is likely that manufactured nanomaterials and nanoproducts will be released into the environment... . The unique features of manufactured nanomaterials and a lack of experience with these materials hinder the risk evaluation that is needed to inform decisions about pollution prevention, environmental clean-up and other control measures, including regulation. Beyond the usual concerns for most toxic materials ... the adequacy of current toxicity tests for chemicals needs to be assessed ... . To the extent that nanoparticles  [\*97]  ... elicit novel biological responses, these concerns need to be accounted for in toxicity testing to provide relevant information needed for risk assessment to inform decision making. [96](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n96)   In addition, nanotechnology could change the face of **global warfare** and **terrorism**. [97](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n97) Assemblers could be used to duplicate existing weapons out of superior materials, and chemical and biological weapons could be created with nano-enhanced components. [98](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n98) Modern detection systems would be inadequate to detect nano-enhanced weapons built with innocuous materials such as carbon. [99](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n99) Luckily, nanotechnology offers responses to these problems, and researchers are already tackling these issues. [100](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n100) "Labs-on-a-chip," a sensor system the size of a microchip, could be woven into soldiers' uniforms to detect toxins immediately. [101](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n101) Adding smart materials could make soldiers' uniforms resistant to certain chemical and biological agents. [102](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n102) Nanotechnology also enhances threats against citizens. Drugs and bugs (electronic surveillance devices) could be used by police states to monitor and control its citizenry. [103](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n103) Viruses could be created that target specific genetic characteristics. [104](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n104) Not only is the development of technologically advanced, devastating weaponry itself a hazardous effect of nanotechnology, but also, millions of dollars have already been spent researching potential uses of nanotechnology in the military sphere, [105](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n105) thus diverting funds from more beneficial uses such as biomedical applications and clean energy. However, these negative effects are not inevitable. By analyzing the scope of potential drawbacks accompanying these research investments, lawmakers can institute regulatory controls that could mitigate these problems.  [\*98]  Part IV: Maximizing Benefits, Minimizing Catastrophe   To minimize or eliminate the problems associated with nanotechnology, while maximizing the beneficial effects, nanotechnology research and development should be monitored and regulated by "trustworthy systems." [106](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n106) Currently, the federal government oversees a massive funding and research program with the purpose of "**ensuring United States global leadership** in the development and application of nanotechnology." [107](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n107) Nonetheless, as nanotechnology becomes more prevalent, more thorough regulation may be necessary. [108](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n108) Nanotechnology may greatly impact some of the largest revenue producing industries in the United States, such as the pharmaceutical and medical fields, utilities and power generation, and computer electronics. [109](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n109) Thus, it is clear that nanotechnology will likely touch every facet of human life. In addition, these powerful industries have been known to promote profits over human safety, [110](http://www.lexis.com/research/retrieve?cc=&pushme=1&tmpFBSel=all&totaldocs=&taggedDocs=&toggleValue=&numDocsChked=0&prefFBSel=0&delformat=XCITE&fpDocs=&fpNodeId=&fpCiteReq=&brand=&_m=82ab008e42cdd5d1d23cfd1d96b430bb&docnum=5&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-zSkAb&_md5=f86737f923f2df1de12147f84a019421&focBudTerms=Nanotechnology%3A+Unique+Science+Requires+Unique+Solutions&focBudSel=all#n110) one of the reasons for their stringent regulation.  [\*99]

**Only existential impact---that outweighs**

**Bostrom 2** – Nick Bostrom, Professor of Philosophy at Oxford University, “Existential Risks: Analyzing Human Extinction Scenarios and Related Hazards”, Journal of Evolution and Technology, 9(1), http://www.nickbostrom.com/existential/risks.html

1.2 Existential risks In this paper we shall discuss risks of the sixth category, the one marked with an X. This is the category of global, terminal risks. I shall call these existential risks. **Existential risks** are **distinct** from global endurable risks. Examples of the latter kind include: threats to the biodiversity of Earth’s ecosphere, moderate global warming, global economic recessions (even major ones), and possibly stifling cultural or religious eras such as the “dark ages”, even if they encompass the whole global community, provided they are transitory (though see the section on “Shrieks” below). To say that a particular global risk is endurable is evidently not to say that it is acceptable or not very serious. A world war fought with conventional weapons or a Nazi-style Reich lasting for a decade would be extremely horrible events even though they would fall under the rubric of endurable global risks since humanity could eventually recover. (On the other hand, they could be a local terminal risk for many individuals and for persecuted ethnic groups.) I shall use the following definition of existential risks: Existential risk – One where an adverse outcome would either annihilate Earth-originating intelligent life or permanently and drastically curtail its potential. An existential risk is one where humankind as a whole is imperiled. Existential disasters have major adverse consequences for the course of human civilization for all time to come. 2 The unique challenge of existential risks Risks in this sixth category are a recent phenomenon. This is part of the reason why it is useful to distinguish them from other risks. We have not evolved mechanisms, either biologically or culturally, for managing such risks. Our intuitions and coping strategies have been shaped by our long experience with risks such as dangerous animals, hostile individuals or tribes, poisonous foods, automobile accidents, Chernobyl, Bhopal, volcano eruptions, earthquakes, draughts, World War I, World War II, epidemics of influenza, smallpox, black plague, and AIDS. These types of disasters have occurred many times and our cultural attitudes towards risk have been shaped by trial-and-error in managing such hazards. But tragic as such events are to the people immediately affected, in the big picture of things – from the perspective of humankind as a whole – even the worst of these catastrophes are **mere ripples** on the surface of the great sea of life. They haven’t significantly affected the total amount of human suffering or happiness or determined the long-term fate of our species. With the exception of a species-destroying comet or asteroid impact (an extremely rare occurrence), there were probably no significant existential risks in human history until the mid-twentieth century, and certainly none that it was within our power to do something about. The first manmade existential risk was the inaugural detonation of an atomic bomb. At the time, there was some concern that the explosion might start a runaway chain-reaction by “igniting” the atmosphere. Although we now know that such an outcome was physically impossible, it qualifies as an existential risk that was present at the time. For there to be a risk, given the knowledge and understanding available, it suffices that there is some subjective probability of an adverse outcome, even if it later turns out that objectively there was no chance of something bad happening. If we don’t know whether something is objectively risky or not, then it is risky in the subjective sense. The subjective sense is of course what we must base our decisions on.[2] At any given time we must use our best current subjective estimate of what the objective risk factors are.[3] A much greater existential risk emerged with the build-up of nuclear arsenals in the US and the USSR. An all-out nuclear war was a possibility with both a substantial probability and with consequences that might have been persistent enough to qualify as global and terminal. There was a real worry among those best acquainted with the information available at the time that a nuclear Armageddon would occur and that it might annihilate our species or permanently destroy human civilization.[4] Russia and the US retain large nuclear arsenals that could be used in a future confrontation, either accidentally or deliberately. There is also a risk that other states may one day build up large nuclear arsenals. Note however that a smaller nuclear exchange, between India and Pakistan for instance, is not an existential risk, since it would not destroy or thwart humankind’s potential permanently. Such a war might however be a local terminal risk for the cities most likely to be targeted. Unfortunately, we shall see that nuclear Armageddon and comet or asteroid strikes are mere preludes to the existential risks that we will encounter in the 21st century. The special nature of the challenges posed by existential risks is illustrated by the following points: · Our approach to existential risks cannot be one of trial-and-error. There is no opportunity to learn from errors. The reactive approach – see what happens, limit damages, and learn from experience – is unworkable. Rather, we must take a proactive approach. This requires foresight to anticipate new types of threats and a willingness to take decisive preventive action and to bear the costs (moral and economic) of such actions. · We cannot necessarily rely on the institutions, moral norms, social attitudes or national security policies that developed from our experience with managing other sorts of risks. Existential risks are a different kind of beast. We might find it hard to take them as seriously as we should simply because we have never yet witnessed such disasters.[5] Our collective fear-response is likely ill calibrated to the magnitude of threat. · Reductions in existential risks are global public goods [13] and may therefore be undersupplied by the market [14]. Existential risks are a menace for everybody and may require acting on the international plane. Respect for national sovereignty is not a legitimate excuse for failing to take countermeasures against a major existential risk. · If we take into account the welfare of **future generations**, the harm done by existential risks is **multiplied** by another factor, the size of which depends on whether and how much we discount future benefits [15,16]. In view of its undeniable importance, it is surprising how little systematic work has been done in this area. Part of the explanation may be that many of the gravest risks stem (as we shall see) from anticipated future technologies that we have only recently begun to understand. Another part of the explanation may be the unavoidably interdisciplinary and speculative nature of the subject. And in part the neglect may also be attributable to an aversion against thinking seriously about a depressing topic. The point, however, is not to wallow in gloom and doom but simply to take a sober look at what could go wrong so we can create responsible strategies for improving our chances of survival. In order to do that, we need to know where to focus our efforts. 3 Classification of existential risks We shall use the following four categories to classify existential risks[6]: Bangs – Earth-originating intelligent life goes extinct in relatively sudden disaster resulting from either an accident or a deliberate act of destruction. Crunches – The potential of humankind to develop into posthumanity[7] is permanently thwarted although human life continues in some form. Shrieks – Some form of posthumanity is attained but it is an extremely narrow band of what is possible and desirable. Whimpers – A posthuman civilization arises but evolves in a direction that leads gradually but irrevocably to either the complete disappearance of the things we value or to a state where those things are realized to only a minuscule degree of what could have been achieved. Armed with this taxonomy, we can begin to analyze the most likely scenarios in each category. The definitions will also be clarified as we proceed. 4 Bangs This is the most obvious kind of existential risk. It is conceptually easy to understand. Below are some possible ways for the world to end in a bang.[8] I have tried to rank them roughly in order of how probable they are, in my estimation, to cause the extinction of Earth-originating intelligent life; but my intention with the ordering is more to provide a basis for further discussion than to make any firm assertions. 4.1 **Deliberate misuse of nanotechnology** In a mature form, molecular nanotechnology will enable the construction of bacterium-scale self-replicating mechanical robots that can feed on dirt or other organic matter [22-25]. Such replicators could eat up the biosphere or destroy it by other means such as by poisoning it, burning it, or blocking out sunlight. A person of malicious intent in possession of this technology might cause the extinction of intelligent life on Earth by releasing such nanobots into the environment.[9] The technology to produce a destructive nanobot seems considerably easier to develop than the technology to create an effective defense against such an attack (a global nanotech immune system, an “active shield” [23]). It is therefore likely that there will be a period of vulnerability during which this technology must be prevented from coming into the wrong hands. Yet the technology could prove hard to regulate, since it doesn’t require rare radioactive isotopes or large, easily identifiable manufacturing plants, as does production of nuclear weapons [23]. Even if effective defenses against a limited nanotech attack are developed before dangerous replicators are designed and acquired by suicidal regimes or terrorists, there will still be the danger of an arms race between states possessing nanotechnology. It has been argued [26] that molecular manufacturing would lead to both arms race instability and crisis instability, to a higher degree than was the case with nuclear weapons. Arms race instability means that there would be dominant incentives for each competitor to escalate its armaments, leading to a runaway arms race. Crisis instability means that there would be dominant incentives for striking first. Two roughly balanced rivals acquiring nanotechnology would, on this view, begin a massive buildup of armaments and weapons development programs that would continue until a crisis occurs and war breaks out, potentially causing **global terminal destruction**. That the arms race could have been predicted is no guarantee that an international security system will be created ahead of time to prevent this disaster from happening. The nuclear arms race between the US and the USSR was predicted but occurred nevertheless. 4.2 Nuclear holocaust The US and Russia still have huge stockpiles of nuclear weapons. But would an all-out nuclear war really exterminate humankind? Note that: (i) For there to be an existential risk it suffices that we can’t be sure that it wouldn’t. (ii) The climatic effects of a large nuclear war are not well known (there is the possibility of a nuclear winter). (iii) Future arms races between other nations cannot be ruled out and these could lead to even greater arsenals than those present at the height of the Cold War. The world’s supply of plutonium has been increasing steadily to about two thousand tons, some ten times as much as remains tied up in warheads ([9], p. 26). (iv) Even if some humans survive the short-term effects of a nuclear war, it could lead to the collapse of civilization. A human race living under stone-age conditions may or may not be more resilient to extinction than other animal species. 4.3 We’re living in a simulation and it gets shut down A case can be made that the hypothesis that we are living in a computer simulation should be given a significant probability [27]. The basic idea behind this so-called “Simulation argument” is that vast amounts of computing power may become available in the future (see e.g. [28,29]), and that it could be used, among other things, to run large numbers of fine-grained simulations of past human civilizations. Under some not-too-implausible assumptions, the result can be that almost all minds like ours are simulated minds, and that we should therefore assign a significant probability to being such computer-emulated minds rather than the (subjectively indistinguishable) minds of originally evolved creatures. And if we are, we suffer the risk that the simulation may be shut down at any time. A decision to terminate our simulation may be prompted by our actions or by exogenous factors. While to some it may seem frivolous to list such a radical or “philosophical” hypothesis next the concrete threat of nuclear holocaust, we must seek to base these evaluations on reasons rather than untutored intuition. Until a refutation appears of the argument presented in [27], it would intellectually dishonest to neglect to mention simulation-shutdown as a potential extinction mode. 4.4 Badly programmed superintelligence When we create the first superintelligent entity [28-34], we might make a mistake and give it goals that lead it to annihilate humankind, assuming its enormous intellectual advantage gives it the power to do so. For example, we could mistakenly elevate a subgoal to the status of a supergoal. We tell it to solve a mathematical problem, and it complies by turning all the matter in the solar system into a giant calculating device, in the process killing the person who asked the question. (For further analysis of this, see [35].) 4.5 Genetically engineered biological agent With the fabulous advances in genetic technology currently taking place, it may become possible for a tyrant, terrorist, or lunatic to create a doomsday virus, an organism that combines long latency with high virulence and mortality [36]. Dangerous viruses can even be spawned unintentionally, as Australian researchers recently demonstrated when they created a modified mousepox virus with 100% mortality while trying to design a contraceptive virus for mice for use in pest control [37]. While this particular virus doesn’t affect humans, it is suspected that an analogous alteration would increase the mortality of the human smallpox virus. What underscores the future hazard here is that the research was quickly published in the open scientific literature [38]. It is hard to see how information generated in open biotech research programs could be contained no matter how grave the potential danger that it poses; and the same holds for research in nanotechnology. Genetic medicine will also lead to better cures and vaccines, but there is no guarantee that defense will always keep pace with offense. (Even the accidentally created mousepox virus had a 50% mortality rate on vaccinated mice.) Eventually, worry about biological weapons may be put to rest through the development of nanomedicine, but while nanotechnology has enormous long-term potential for medicine [39] it carries its own hazards. 4.6 Accidental misuse of nanotechnology (“gray goo”) The possibility of accidents can never be completely ruled out. However, there are many ways of making sure, through responsible engineering practices, that species-destroying accidents do not occur. One could avoid using self-replication; one could make nanobots dependent on some rare feedstock chemical that doesn’t exist in the wild; one could confine them to sealed environments; one could design them in such a way that any mutation was overwhelmingly likely to cause a nanobot to completely cease to function [40]. Accidental misuse is therefore a smaller concern than malicious misuse [23,25,41]. However, the distinction between the accidental and the deliberate can become blurred. While “in principle” it seems possible to make terminal nanotechnological accidents extremely improbable, the actual circumstances may not permit this ideal level of security to be realized. Compare nanotechnology with nuclear technology. From an engineering perspective, it is of course perfectly possible to use nuclear technology only for peaceful purposes such as nuclear reactors, which have a zero chance of destroying the whole planet. Yet in practice it may be very hard to avoid nuclear technology also being used to build nuclear weapons, leading to an arms race. With large nuclear arsenals on hair-trigger alert, there is inevitably a significant risk of accidental war. The same can happen with nanotechnology: it may be pressed into serving military objectives in a way that carries unavoidable risks of serious accidents. In some situations it can even be strategically advantageous to deliberately make one’s technology or control systems risky, for example in order to make a “threat that leaves something to chance” [42].

**Defense doesn’t assume interactions of multiple simultaneous threats**

**Pamlin, 15 --** Dennis Pamlin, Executive Project Manager of the Global Risks Global Challenges Foundation, and Stuart Armstrong, James Martin Research Fellow at the Future of Humanity Institute of the Oxford Martin School at University of Oxford, Global Challenges Foundation, February, http://globalchallenges.org/wp-content/uploads/12-Risks-with-infinite-impact.pdf

If a safe **a**rtificial **i**ntelligence is developed, this provides a **great resource for improving outcomes and mitigating all types of risk**.585 **A**rtificial **i**ntelligence risks **worsening nanotechnology risks**, by allowing nanomachines and weapons to be designed with intelligence and without centralised control, **overcoming the main potential weaknesses** of these machines586 by putting planning abilities on the other side. **Conversely, nanotechnology abilities worsen artificial intelligence risk**, by giving AI extra tools which it could use for developing its power base.587 Nanotechnology and synthetic biology could allow the efficient creation of vaccines and other tools to **combat global pandemics**.588 Nanotechnology’s increased industrial capacity could allow the creation of large amounts of efficient solar panels to **combat climate change**, or even potentially the efficient scrubbing of CO2 from the atmosphere.589 Nanotechnology and synthetic biology are sufficiently closely related 590 (both dealing with properties on an atomic scale) for methods developed in one to be ported over to the other, potentially **worsening the other risk.** They are sufficiently distinct though (a mainly technological versus a mainly biological approach) for countermeasures in one domain not necessarily to be of help in the other. Uncontrolled or malicious synthetic pathogens could **wreak great damage on the ecosystem**; conversely, controlled and benevolent synthetic creations could act to **improve and heal current ecological damage**.

**Strong risk reduction key to prevent AI-driven extinction---it’s uniquely likely, but success solves every impact**

**Pamlin, 15 --** Dennis Pamlin, Executive Project Manager of the Global Risks Global Challenges Foundation, and Stuart Armstrong, James Martin Research Fellow at the Future of Humanity Institute of the Oxford Martin School at University of Oxford, Global Challenges Foundation, February, http://globalchallenges.org/wp-content/uploads/12-Risks-with-infinite-impact.pdf

Despite the uncertainty of when and how AI could be developed, there are reasons to suspect that an AI with human-comparable skills would be a **major risk factor**. AIs would immediately benefit from improvements to computer speed and any computer research. They could be trained in specific professions and **copied at will, thus replacing most human capital in the world, causing potentially great economic disruption**. Through their **advantages in speed and performance**, and through their **better integration** with standard computer software, they could **quickly become extremely intelligent** in one or more domains (research, planning, social skills...). If they became skilled at computer research, the recursive self-improvement could generate what is sometime called a “singularity”, 482 but is perhaps better described as an “intelligence explosion”, 483 with the AI’s intelligence **increasing very rapidly.**484 Such extreme intelligences could **not easily be controlled** (either by the groups creating them, or by some international regulatory regime),485 and would probably act in a way to boost their own intelligence and **acquire maximal resources** for almost all initial AI motivations.486 And if these motivations do not detail 487 the survival and value of humanity in exhaustive detail, the intelligence will be **driven to construct a world without humans** or without meaningful features of human existence. This makes extremely intelligent AIs a **unique risk**,488 in that **extinction is more likely than lesser impacts**. An AI would only turn on humans if it foresaw a likely chance of winning; otherwise it would remain fully integrated into society. And if an AI had been able to successfully engineer a civilisation collapse, for instance, then it **could certainly drive the remaining humans to extinction**. On a more positive note, an intelligence of such power could **easily combat most other risks** in this report, making extremely intelligent AI into a **tool of great positive potential** as well.489 **Whether such an intelligence is developed safely depends on how much effort is invested in AI safety** (“Friendly AI”)490 **as opposed to simply building an AI**.49

**Mapping the dangers of emerging tech, isn’t apocalyptic or techno-optimistic – rather, key to mobilize activism**

**Athanasiou 21** (Tom Athanasiou, Executive Director at EcoEquity, MA Philosophy of Ecology, Western Institute for Social Research, “Avoiding a ‘Ghastly Future’ — and a few responses,” Ecoequity, 3-16-2021, https://www.ecoequity.org/2021/03/avoiding-a-ghastly-future-and-the-responses/)

I should say that I’m deliberately ignoring the epistemological nihilism of Trump and his people. What I’m rather talking about is the **danger** that many reasonable folks – who live in a reality-based world but have **resisted acknowledging that we’re now facing a true emergency**, in terms of, say, **wanting to balance their concern with environmental destruction with** their **desire to just get on with their lives** – are now admitting to themselves that things are worse than they’d thought. But **rather than pivoting to** any kind of **positive activism**, they’re turning to despair and (I’ve stolen the term from one Lajos Brons) “**apocalyptic fatalism**”. More succinctly, they’re going directly from denial to despair.

My precise claim is that as denialism has been generalized (Paul Krugman: “A party starts out complaining that taxes are too high; after a while it begins claiming that climate change is a giant hoax; it ends up believing that all Democrats are Satanist pedophiles.”) despair has become the defining mood, the lurking presence, the specific danger. This mood was evident at your webinar, in the presentations and especially in the chat stream, wherein I read a good bit of fatalism, apocalyptic and otherwise. I didn’t see Jonathan Franzen in the audience, but he was there in spirit.

Is “underestimating” still the defining problem? I don’t think so. I’m sure there’s still an optimism bias, but my sense is that even the solar revolution **people**, who these days aggressively present as being quite optimistic, tend to **see their optimism as strategic**. They think it will help open doors and **create a sense of new possibilities**, and I think they’re right, or at least that they could be. This is an **important** and **challenging** point, **particularly for those** of us who have long been **critical of techno-optimism**. **But** given that the dogs of fascism are again in the streets, I **don’t** think this is something to **be blithely dismissive of**.

In any case, it didn’t seem to me that the folks at your webinar needed to be told how bad things are. What they very much did **need** was **help** **believing**, **visualizing**, and **creating**, an **alternative to fatalism** that **does not soft-pedal the science**. And I don’t believe they got what they needed.

**The real question**—as any young climate activist will tell you—**is “What are we’re going to do”?**  In that regard, I was quite alienated by a bit of snide webinar chat about the Green New Deal (someone called it a “big can kicking fest”). And there was also something worse, as I recall. Something reminiscent of Rees’s aggressively tone-deaf reference to “humanity’s plague phase”. I got the impression of a sprawling, sometimes incoherent community that prides itself on its hard-nosed refusal to believe that any future in which we’re not doomed to the ghastly is still actually possible.

Such a **certainty is absolutely self-defeating**. At the domestic level, the Green New Deal is the most promising organizing framework we’ve had in a very long time, and at the international level, the climate justice movement is working hard to develop a new politics of radical inclusion and fair shares. At your webinar, catching a glimpse of a very different milieu in which goals like inclusive justice and sustainability are supported in the abstract, but also dismissed as pointless and delusional . . . Well, let’s just say the combination struck me as being unhealthy, if not twisted.

One obvious step forward would be to **clarify** the **distinction** between **apocalyptic fatalism** and **humanistic, science-based warnings**. It seems to me that they **tend to run together**, including in Northern California circles, and that the resulting blur does not at all serve our purposes. Indeed, I’d go so far as to say that the **bearers of (scientific) bad news** should go out of their way to **\*explicitly\* distance** themselves from the voices of misanthropy and **apocalyptic fatalism**, whether they be in the audience or in their own heads. This means, among much else, a commitment to greater precision when it comes to teasing apart the impacts of population and consumption. The consumption of the rich has reached altogether exterminist levels, and I propose a moratorium on references to “growth” than do not spotlight this fact.

We only **need** two things **to save ourselves and** our **civilization**. The first is a grand **green-tech**nology **revolution**, though as noted above, this is challenging to discuss in a disciplined manner because **the tech we need is actually showing up**, **and we absolutely must embrace it**, but it’s **hard** to do so without flirting, or **appearing to flirt**, with **techno-optimism**. The second is a **high-trust, high-coop**eration **world** and this (and not technology) is our great challenge. I’m not going to go off on this in any detail, but I will note that no highly cooperative world is possible at today’s levels of extreme inequality, and that unless our political projects center this rather obvious fact they are going to fail. Deservedly.

**Independently, effective regulations solve extinction**

**Matus 14** [Kira Matus, PhD, Havard University. Associate Head and Associate Professor, Division of Public Policy, Hong Kong University of Science and Technology. "Existential risk: challenges for risk regulation." Risk and Regulation (Winter 2014). https://futureoflife.org/data/documents/Existential%20Risk%20Resources%20(2015-08-24).pdf?x93895]

There is a trend in many areas towards attention to ‘big’ risks. Financial regulation has become increasingly concerned with so‐called systemic risks. Others, and not just Hollywood blockbusters, have been attracted to the study of **civilization‐destroying catastrophic risks.** Indeed, the OECD has become increasingly interested in ‘high level’ risks and ways in which different national governments seek to prepare for and manage actual events, such as the aftermath of major earthquakes, or the response to a terrorist attack. The notion of ‘existential’ risk might be adding to the cacophony of emerging ‘big’ risk concerns. However, existential risk deserves special attention as it fundamentally adds to our understanding of particular types of risks, and it also challenges common wisdom regarding actions designed to support continued survival.

What is existential risk? We can approach this question by looking at several attributes. The first attribute is what, in fact, is at risk. One set of existential risks are those that threaten survival. These are the acute catastrophes, i.e. the idea that particular events’ impacts are likely to extinguish civilization. Such risks have been identified when it comes to **asteroids**, **nuclear war**, and other **largescale events** that undermine the possibility for survival in general, or, at least, in large regions. A second set is based on the idea that existential risks are not just about physical survival, but about the survival of ways of life. In other words, certain risks are seen as threatening established ways of doing things, cultures, social relationships, and understandings of the ‘good life’. There is, of course, much disagreement about what the good life constitutes, and therefore there will always be disagreement as to what exactly an existential risk constitutes.

A second attribute is the degree to which an existential risk is triggered by a single catastrophic incident. Existential risks arise not merely from one‐off large incidents, such as earthquakes, tsunamis, nuclear meltdowns or, indeed, asteroid hits. Rather, existential risks are about complex, inter‐related processes that result in cascading effects that move across social systems. The overall impact of these system changes could result in the types of physical or cultural destruction that is the focus of the first two perspectives.

Whether triggered by catastrophic events or complex cascades, standard operating procedures are unlikely to be sufficient for dealing with existential risks; instead, this is a space in which improvisation and **creativity are required**. A third attribute of **existential risks** is the **challenge** they present to **standard approaches to risk regulation**. Existential risks are defined by their cross‐systematic nature; a failure within one system (say, finance) has not just catastrophic implications for the sector in question, but threatens the survival of another system (say, the environment, as funding for particular measures dries up). In other words, the focus of existential risks is not just on the systemic level, it focuses on the cross‐ systemic dimension that is even more difficult to predict and assess than attempts aimed at establishing activities that are of ‘systemic’ relevance by regulatory systems that tend to be narrowly focused and independent from each other. Existential risks are characterized by a fourth feature, namely the idea that existential risks lead to responses based upon fear. Individuals are confronted with fears about their survival (death) and about the meaning of their lives. This aspect of existential risk is particularly troublesome in an age of low trust in authority and, consequently, a political style that is intolerant of ‘blame free’ spaces. In the absence of confidence in public authority, few options remain. For some, the solution will rely on framework plans, pop intellectuals and other fashionable ideas that seem to offer redemption from the fear of extinction. Others will prefer to ‘go it alone’ and seek to develop their own plans for survival, noting that risk taking is, after all, an individual choice. Others, again, will deny the legitimacy of public authority and veer towards those choices that have been legitimized by their own communities. Finally, some will deny that existential risks exist in the first place. In other words, individual responses to existential risks vary considerably and pose challenges for any risk management and communication strategy.

**The Court has recently narrowed Parker immunity to limit deference to the states in antitrust law**

**Allensworth 16** [Rebecca Haw Allensworth, Associate Professor of Law, Vanderbilt Law School; J.D., Harvard Law School; M.Phil, University of Cambridge; B.A., Yale University, October 2016, ARTICLE: THE NEW ANTITRUST FEDERALISM, 102 Va. L. Rev. 1387]

Introduction

IN just three relatively obscure antitrust cases, 1

[Footnote 1] N.C. State Bd. of Dental Exam'rs v. **FTC**, **135** S. Ct. 1101 (2015) [hereinafter NC Dental]; FTC v. Phoebe Putney Health Sys., Inc., 133 S. Ct. 1003 (2013); FTC v. Ticor Title Ins. Co., 504 U.S. 621 (1992).

the U.S. Supreme Court has quietly **revolutionized** how states and the federal government share power. These cases addressed a doctrine - unfamiliar to those outside of the field of antitrust law - that grants "state action" immunity from federal antitrust liability 2 and thus marks the **thin line** that insulates state regulation from **wholesale invalidation** through federal antitrust lawsuits. 3 For decades, the Court conceived of this line, and the "antitrust federalism" it effected, as a formal question about where the state ended and antitrust liability began. This was the old antitrust federalism: a boundary-drawing exercise that gave strong deference to state regulation. The Court's state action revolution ushers in a new antitrust federalism, one that all but dispenses with the notion of separate spheres in favor of something **less deferential to the states** - procedural review of state regulation.

Antitrust federalism may be less familiar than its constitutional cousin, but it is just as important - **if not more so** - **to the state-federal balance of power**. The Sherman Act forbids anticompetitive restraints of trade and monopolization of markets, and it does not seem to limit these prohibitions to private citizens and corporations. 4 Because regulation often tinkers with the free market economy and tends to create competitive winners and losers, Sherman Act liability for state conduct would severely restrict a state's ability to regulate within its borders. 5 So when [\*1390] the Court extended the reach of the Sherman Act - along with all federal regulation passed under the Commerce Clause - during the New Deal, 6 it became necessary to define an exemption for "state action" or risk the demise of state regulatory autonomy altogether. And state action immunity from the Sherman Act was born. 7

**But, the current interpretation fails to account for interstate spillovers. Limiting Parker is crucial to establish federal role limiting regulatory externalities**

**Sack 21** [John Sack, J.D., Duke Law School, Class of 2022, B.S. University of Michigan, 2019, 2021 https://scholarship.law.duke.edu/cgi/viewcontent.cgi?article=1196&context=djclpp\_sidebar]

III. DOCTRINAL CRITICISM

Although the Court has continued to re-affirm Parker v. Brown’s central holding, many have criticized the Parker doctrine. Both scholars and the Federal Trade Commission (FTC) have highlighted problems with the doctrine and offered a number of solutions for how to remedy its faults.63

The first common critique of the doctrine is that it does not account for **out-of-state economic effects**. Unless a regulation runs afoul of another constitutional barrier, no consideration of interstate spillovers applies.64 One need not look farther than Parker itself to see how the state action doctrine can **impose costs** on out-of-state residents, even though those residents have diminished political capital in the state. At the time Parker was decided, between 90 and 95 percent of raisins produced in California entered interstate commerce and California provided almost all of the nation’s raisins.65 Most American raisin consumers lived outside of California and had no political means to oppose the state’s legislative program, yet they bore the costs of California’s state-sanctioned monopoly.66

Second, similar concerns about **political representation** animate critiques of Parker immunity. The policy at issue in Parker restricted output and artificially raised prices, two results federal antitrust law generally seeks to prohibit.67 Although the benefits of such a program were borne almost exclusively by California, the costs of the program were incurred by raisin consumers across the nation.68 The political incentives to promote such a program follow closely with economic costs and benefits.69 California raisin producers have a strong incentive to lobby their own government to install such a program, but it would be nearly impossible for non-California residents to challenge such a policy through the normal political channels.70 The government of California is **not the appropriate body** to properly weigh the benefits to in-state raisin producers with the costs to out-of-state consumers, yet the Parker doctrine grants California per se immunity on federalism grounds.71 Although the California program was implicitly endorsed by Congress, one is just as likely to find similar programs with no similar implicit endorsement.72

The U.S. Constitution embodies a system of **federalism** where the federal government is sovereign in some respects, and the several states are sovereign in others.73 This system of federalism gives states the power to regulate local matters and the federal government the power to regulate issues that states are less suited to regulate.74 **When costs spill over** into other states, **the national government becomes the appropriate body** to regulate the costs and benefits of such a program.75 The Court has recognized such spillover effects, and how political actors, even government entities, can act solely in self-interest.76 Such **state self-interest** can directly harm consumers outside of its territorial jurisdiction.77

Parker immunity, as it stands, **runs counter** to longstanding ideals of **national unity** that harken back to the Founding era. The law has long prohibited states from imposing excessive costs on the nation as a whole, solely for the purpose of furthering its own intrastate policy interests. McCulloch v. Maryland illustrates the Court’s wariness of self-serving state action.78 In McCulloch, Chief Justice Marshall held that states may not tax the national bank, as they would be wielding power against the whole of the United States, even though the whole of the United States is not represented by each state.79 Similar to a state tax being problematic since it is the part acting on the whole, anticompetitive restraints by the states would unduly impose costs on the nation. The people of the United States, acting through Congress, christened competition and free markets through the Sherman Act.80 Just as one state could not tax the resources of the United States, one state should not be allowed to use state policy to **burden** the national economy. Because the potential costs to state-created monopolies are so high,81 federal policy should prohibit states from allocating those costs beyond their borders. Any state that wishes to impose monopoly costs outside of its borders to benefit itself and undermine competition should be **carefully scrutinized** when it does so. This scrutiny would not be fatal-in-fact for the legislation, but it should be enough for states to second-guess an attempt to enrich itself to the detriment of its sister states.

IV. PROPOSED SOLUTIONS

The Sherman Act, and specifically Parker immunity, should be interpreted in light of the above concerns. After all, the Sherman Act is the standard-bearer for the U.S. free market system, and so our interpretation of it should evolve with our understanding of constitutional principles and economic conditions.82 Justice Burger’s concurrence in City of Lafayette elaborates on this point:

Our conceptions of the limits imposed by federalism are bound to evolve, just as our understanding of Congress’ power under the Commerce Clause has evolved. Consequently, since we find it appropriate to allow the ambit of the Sherman Act to expand with evolving perceptions of congressional power under the Commerce Clause, a similar process should occur with respect to “state action” analysis under Parker. That is, we should not treat the result in the Parker case as cast in bronze; rather, the scope of the Sherman Act’s power should parallel the developing concepts of American federalism.83

As states impose costs on each other through state-sanctioned monopolies, the Court’s understanding of federalism and the Commerce Clause counsels scrutiny of the Parker doctrine. An entirely new doctrine is not necessary to curtail Parker immunity. Rather, the issue can be resolved by applying Parker immunity in light of the American dual system of federalism and the Commerce Clause. Modern scholarship critiques the lack of concern for interstate spillovers. By that token, the modern Parker doctrine fails to account for economic efficiency and undermines political representation values meant to be protected by **federalism**.84 So while scholars almost universally recognize that interstate economic spillovers are problematic, there is no consensus on what remedy is most appropriate.

**The aff preserves state authority to enforce antitrust but absent clarification on the transboundary effects from broad Parker immunity turf wars cause enforcement failures**

**Kobayashi 20** [Bruce H. Kobayashi, George Mason University, Antonin Scalia Law School Professor, 10-4-2020 https://gaidigitalreport.com/2020/10/04/exemptions-and-immunities/#\_ftn92]

B. Spillover Effects and Antitrust Federalism

The current state action doctrine does not enable jurisdictional competition or promote the principles of **federalism** because it does not account for the **spillover effects** of anticompetitive state regulation. Judge Easterbrook examined the Court’s state action holdings and found that the Court’s rulings were indifferent as to whether the effects of the regulation were actually internalized by the regulating state.[91] Allowing states to enact anticompetitive legislation reduced the extent and effectiveness of **competition among the states**, and thereby increased the cost of exit and relocation.[92]

This nature of the spillover effect is exemplified in Parker v. Brown.[93] The state action doctrine was used to uphold a California regulation which authorized a raisin cartel. California raisin growers benefited greatly from that ability to price fix. However, over 90% of the grapes were exported outside of California—nationally and internationally—making the impact of the California raisin regulation reach beyond state lines.[94] The regulation harmed a large number of consumers outside of California while only benefiting a small number of private interest parties within the state.

State action doctrine, although meant to preserve that state’s independence, actually allows the state to reap the benefits of the anticompetitive regulation while displacing the costs onto other states.[95] Therefore, it is worth considering if the current state action doctrine should be thought of differently, in a way that fully takes into accounts issues of federalism. Judge Easterbrook proposes a state action rule which considers the spillover effect of anticompetitive state regulation. Instead of examining clear articulation and active supervision, the Court would uphold an anticompetitive state regulation as long as its anticompetitive effects are internalized by that state’s residents.[96] Aligning state action doctrine with the economics of federalism will not only **maintain states’ roles** in antitrust, but also ensure that state antitrust exemptions have a diminished negative impact on consumer welfare. Analyzing the anticompetitive overcharge of regulations is also more administrable than attempting to analyze the regulations under the dormant Commerce Clause.[97] Considered under Easterbrook’s approach, Parker’s California raisin prorate program would be subject to antitrust scrutiny because the regulation’s costs were not internalized.

State regulation of seemingly local competition is likely to effect more than just the economy of that specific state. When states grant antitrust immunities in situations involving interstate commerce, the state is exporting the anticompetitive effects of its regulations to citizens outside its own borders. Without accounting for the federal interest in an integrated national economy, state action doctrine far surpasses its narrow purpose of supervising local competition.

C. The Appropriate Role of State Attorneys General in Federal Antitrust Disputes

Federalism most often refers to the vertical relationship between the federal government and the states. Divergent viewpoints among antitrust enforcers can **strain the system**, thus comity and deference are **crucial** to efficient antitrust enforcement. A merger or acquisition is often scrutinized by multiple enforcers with multi-dimensional relationships.

For example, the Sprint/T-Mobile merger involved the Antitrust Division and Federal Communications Commission, who share a horizontal relationship, and state attorneys general, with which the federal agencies share a vertical relationship. Disagreement between enforcers may occur at either level.[98] The merger between the two telecommunications firms was cleared by the FCC, the Antitrust Division, and ten state attorneys general.[99] Although a settlement agreement—which required divestitures—was in the process of being approved, several other state attorneys general filed a lawsuit to block the merger anyway.[100] Assistant Attorney General Makan Delrahim questioned the relief sought by the states,[101] citing the federal agencies’ expertise in the matter.[102] He noted that “a minority of states and the District of Columbia” were “trying to undo [the nationwide settlement],” a situation he believed was “odd.”[103] Delrahim reaffirmed states’ rights to sue for antitrust violations but criticized their attempt to seek relief inconsistent with the federal government’s settlement.[104]

States may also enter settlement agreements with merging parties that are repugnant to sound antitrust enforcement. For example, in UnitedHealth Group/Sierra Health Services, the Nevada Attorney General required the merged firm to submit $15 million in charitable contributions which were not related to any antitrust violation.[105] Similarly, Massachusetts entered a settlement agreement with two hospitals that required increased spending on select programs and the creation of other projects and programs unrelated to antitrust concerns.[106]

On the other hand, state antitrust enforcement can play a useful role in supplementing federal antitrust enforcement. First, the use of state autonomy within a federal system allows state and local governments to act as social “laboratories,” where laws and policies are created and tested at the state level of the democratic system, in a manner similar (in theory, at least) to the scientific method.[107] Thus, even if states enter into agreements with merging parties that the federal authorities view as anticompetitive or that impose ineffective remedies for the anticompetitive effects that would be generated by the merger, the information generated by such actions can be invaluable inputs into retrospective analyses of the competitive effects of mergers. These analyses are based on causal empirical designs which require both observation of post-merger price and quality effects from consummated mergers and the ability to compare these effects with a credible control group.[108] For example, state interventions such as COPA or Certificate on Need Laws that allow hospital mergers that generate competitive effects in local geographic markets facilitate retrospective studies of hospital mergers that can be used to validate and improve the economic models and other tools used to predict merger effects.[109]

Second, in a system of federalism, the state enforcement of both the state and federal antitrust laws can be a **valuable** complementary resource that supplements scarce federal resources. **Conflicts** between the federal and state antitrust authorities are generated by the use of a cooperative or “marble cake” approach to federalism, where the tasks of the state and federal agencies are relatively **undefined**, overlapping, and **imperfectly coordinated**. In contrast, a “dual” or “layer cake” federalism approach, where power is divided **ex-ante** between the federal and state governments in clearly defined terms, can mitigate direct conflicts between state and federal authorities discussed above.

**Failure to hold states accountable for spillovers destroys optimal state experimentation – correctly “right sizing” regulation impossible without accounting for externalities in interjurisdictional competition**

**Adler 20** [Jonathan H. Adler, Case Western University School of Law, 2020 <https://scholarlycommons.law.case.edu/cgi/viewcontent.cgi?article=3058&context=faculty_publications>]

The race-to-the-bottom theory presumes that interjurisdictional competition creates a prisoner’s dilemma for states. Each state wants to attract industry for the economic benefits that it provides. Each state also wishes to maintain an optimal level of environmental protection. However, in order to attract industry, the theory holds, states will lower environmental safeguards so as to reduce the regulatory burden they impose upon firms. This competition exerts downward pressure on environmental safeguards as firms seek to locate in states where regulatory burdens are the lowest, and states seek to attract industry by lessening the economic burden of environmental safeguards. Because the potential benefits of lax regulation are concentrated among relatively few firms, these firms can effectively oppose the general public’s preference for environmental protection regulation. This will lead to social welfare losses even if environmental harm does not spill over from one state to another. The result, according to the theory, is the systematic under-regulation of environmental harms, and a need for federal intervention.26

The race-to-the-bottom theory may have had some basis in the 1960s and 1970s, but there is little reason to believe that this dynamic inhibits state regulatory efforts today, particularly given how aggressive many states are in environmental policy. **Empirical evidence** that states race to relax their environmental regulations in pursuit of outside investment **is decidedly lacking**. If the prospect of interstate competition discourages state-level environmental regulation, it is hard to explain why state environmental regulation often preceded federal intervention and why many states adopt more stringent measures than federal regulations require. Numerous studies have been conducted attempting to determine whether a race-to-the-bottom can be observed in the context of environmental regulation, and they have generally failed to find any evidence that environmental quality worsens when states are given more flexibility to set their own priorities.27 Indeed, some studies have \found **precisely the opposite:** that when states have more flexibility to set their own environmental priorities they increase their efforts.28

None of the above should be taken as an argument against all federal environmental regulation. For just as the federal government is overly interventionist in localized environmental concerns, the federal government is unduly absent in areas where a federal presence is most necessary. That is, the undue centralization of some environmental concerns co-exists with substantial federal abdication from concerns the federal government should be addressing. The federal government devotes relatively little of its regulatory resources on those matters for which the federal government possesses a comparative advantage and abdicates its responsibility to provide the data and knowledge base necessary for successful environmental regulation at all levels of government.

It is often remarked that environmental problems do not respect state borders. This is unquestionably true, and the observation provides ample justification for federal measures to address **transboundary pollution problems**.29 Where pollution or other environmental problems span jurisdictional borders there is less reason to believe state and local jurisdictions will respond adequately.

Consider a simple transboundary pollution problem involving two states, A and B. When economic activity in State A causes pollution in State B, State A is unlikely to adopt measures to prevent the resulting environmental harm because it would bear the primary costs of any such regulatory measures, without capturing the primary benefits. Put simply, State A is unlikely to impose costs on itself to benefit State B. Absent some external controls or dispute resolution system, the presence of **interstate spillovers** can actually encourage polices that externalize environmental harms, such as subsidizing development near jurisdictional borders so as to ensure that environmental harms fall disproportionately “downstream.” Policymakers in State B may wish to take action, but they will be unable to control pollution created in State A without State A’s cooperation. Even where polluting activity imposes substantial environmental harm within State A, the **externalization** of a portion of the harm is likely to result in the adoption of **less optimal** environmental **controls**.

**Only federal legal remedies solve – failure to explicitly narrow Parker over-immunizes private entities and chills state action**

**Weber 16** [Jayme Weber, University of Arizona, James E. Rogers College of Law, J.D., 2016 https://www.cato.org/sites/cato.org/files/pubs/pdf/teladoc-285th-cir-29.pdf]

III. REFUSING SELF-INTERESTED BOARDS IMMUNITY FROM ANTITRUST LIABILITY IS FULLY CONSISTENT WITH FEDERALISM

“Federal antitrust law . . . is ‘as important to the preservation of economic freedom and our free-enterprise system as the Bill of Rights is to the protection of our fundamental personal freedoms.’” Dental Exam’rs, 135 S. Ct. at 1109 (quoting United States v. Topco Assocs., Inc., 405 U.S. 596, 610 (1972)). Every business, regardless of its size, is guaranteed the freedom “to assert with vigor, imagination, devotion, and ingenuity whatever economic muscle it can muster.” Topco, 405 U.S. at 610. Antitrust laws—particularly the Sherman Act—are “the Magna Carta of free enterprise,” and play a crucial role in upholding the national policy of economic freedom for anyone wishing to compete in the marketplace. Id.

In line with this national policy, the states clearly have an interest in preventing anticompetitive behavior and fostering robustly competitive markets within and across their borders. State governments also have an interest in reserving the ability to create regulatory subdivisions to which they can delegate some of their authority to accomplish specific tasks. At times, the states may deem it appropriate to design a regulatory body to deliberately exempt it from antitrust laws to achieve a specialized purpose.

States may confer antitrust liability on regulatory bodies—but only under certain conditions. Applying the state-action immunity doctrine **too broadly** and giving private actors a **limitless ability to claim** antitrust **immunity for themselves** would empower state-created cartels to “make economic choices counseled solely by their own parochial interests and without regard to their anticompetitive effects,” disrupting the free enterprise system that protects the national policy of economic freedom. Lafayette, 435 U.S. at 408.

Furthermore, broad application of the Parker-immunity doctrine would **actually undermine the states’ ability** to effectively delegate authority to specialized or local regulatory bodies by endowing these bodies with an antitrust immunity that **state governments may have never meant to give** them. “Neither federalism nor political responsibility is well-served by a rule that essential national policies are **displaced** by state regulations intended to achieve more limited ends.” Ticor, 504 U.S. at 636. The doctrine enables states to create regulatory subdivisions that do not interfere with the interest in preserving the benefits of competition. By “adhering in most cases to fundamental and accepted assumptions about the benefits of competition within the framework of the antitrust laws,” courts actually increase rather than diminish the states’ regulatory flexibility. Id. State legislatures may wish to make broad delegations of authority to their political subdivisions in order to maximize the benefits of the specialized governance those bodies offer— but that does not necessarily mean that state legislatures **always** want to give those entities the ability to violate the federal antitrust laws.

“When a state grants power to an inferior entity, it presumably grants the power to do the thing contemplated, but not to do so anticompetitively.” Phillip E. Areeda & Herbert Hovenkamp, Antitrust Law ¶ 225a, at 131 (3d ed. 2006). Relying on the backdrop of the national policy favoring competition, states may enact such broad delegations that are nevertheless intended to create specific and narrow, rather than general and wide-reaching, regulatory schemes. Giving regulatory agencies state-action immunity too readily would **undermine states’ ability to do so**, creating the hazard that legislatures will **inadvertently authorize anticompetitive conduct**. State legislatures cannot possibly anticipate every potential anticompetitive consequence of these delegations of authority and explicitly disavow antitrust immunity for every one. “‘No legislature . . . can be expected to catalog all of the anticipated effects’ of a statute delegating authority to a substate governmental entity.” Phoebe Putney, 133 S. Ct. at 1012 (quoting Hallie, 471 U.S. at 43).

If a state intends a specific anticompetitive result, it may clearly articulate that result—or make it plainly foreseeable, see id. at 1011—giving voters the chance to oppose immunity-creating legislation before it becomes law and making it easier to hold legislators accountable. Otherwise, states would be **impeded in their freedom of action** because they would have to act “in the shadow of state-action immunity whenever they enter[ed] the realm of economic regulation.” Ticor, 504 U.S. at 636. The **limited** and careful **application** of the state-action immunity doctrine gives states **the most freedom** in delegating power and crafting regulatory entities, ensuring legislatures that they will not **accidentally confer immunity** and allow regulatory bodies to go **rogue** with **anticompetitive conduct** that deviates from the states’ interest of preserving robust marketplace competition for the benefit of their residents.

**Biden’s XO empirically denies any FTC Parker links and more restrictions coming**

**Bulusu 21** [Siri Bulusu, Reporter Bloomberg Law, 7-12-2021 https://news.bloomberglaw.com/antitrust/worker-license-rules-emerge-as-ftc-competition-oversight-priority]

President Joe Biden’s order, signed Friday, calls on the **F**ederal **T**rade **C**ommission to boost labor market competition by **writing new rules** that limit “unnecessary, cumbersome” licensing requirements, often imposed by states’ regulatory boards and quasi-public organizations.

“Some overly restrictive occupational licensing requirements can impede workers’ ability to find jobs and to move between states,” according to the order. The order comes amid a flurry of lawsuits against state or state-backed licensing bodies that accuse them of violating antitrust law by imposing expensive fees or threatening to shut down out-of-state businesses. The text of the order didn’t include specific directions for federal antitrust agencies. But the FTC’s anticipated actions and possible rulemaking could lead to streamlined licensing requirements across states, eliminating demands for worker information unrelated to the job, enforcement of interstate commerce rules, and levying of punitive fines, market watchers say. Licenses are expensive and requirements vary among states, even in the same industry. Reining in the requirements could remove a significant employment barrier, particularly for military families and others who frequently move between states or offer services across state lines. But it also could shift states’ calculations in cracking down on frauds and impostors. Cosmetology licenses can cost up to $15,000 and sometimes years of study, said Dick Carpenter, a senior director of strategic research for the Institute for Justice. Other jobs, ranging from public health and safety positions to interior designers, barbers, and manicurists, also require licensing. “Without any kind of standardization of different licensing requirements—even if you have the same requirements in different jurisdictions—you still have to get a license for each jurisdiction, which impedes an employee’s ability to be mobile,” said Tracey Diamond, a partner at Troutman Pepper LLP’s labor and employment practice.

Potential FTC Moves

The FTC’s options include **writing new rules** or **heightening enforcement** of interstate commerce rules in areas where they overlap with antitrust violations, labor market watchers say. Under this principle, restricting labor through onerous licensing requirements would be tantamount to limiting movement of services across borders.

“In the past, occupational licensing was a matter overseen by the Department of Labor, but they don’t quite have the teeth that the Federal Trade Commission has in terms of working in specific locations,” said Morris Kleiner, a University of Minnesota professor of labor policy.

The FTC could turn its limited resources toward scrutinizing occupational licensing programs that narrow the practice scope of a certain profession and limit competition, Kleiner said.

How the commission interprets which licensing requirements are “unnecessary” could be scrutinized. Those could include common requirements such as citizenship and a clean criminal record, said Bobby Chung, a postdoctoral research associate at the University of Illinois at Urbana-Champaign who focuses on licensing. .

“The required training, education and exams should confer the relevant skill sets,” Chung said. “If not, I would regard those requirements as unnecessary.” The agency also may impose specific guidelines that limit fees or frequency of license renewal, Kleiner said. “But more importantly, the FTC’s guidelines could be aimed specifically at states that have ratcheted up their requirements,” he said.

Gaining Attention

Burdensome licensing requirements have increasingly come under federal scrutiny as the labor market has shifted away from manufacturing jobs to service-oriented professions. States began imposing licensing requirements in order to protect consumers from bad actors and standardize services. “Licenses create a monopoly of workers who can provide a service,” Kleiner said. “But if you provide those services without a license, the police powers of the state can arrest and severely fine those individuals.” In 2020, roughly 23% of workers were required to have a license, according to the Bureau of Labor Statistics. Over the years, many states, including Arizona, Connecticut, Nebraska, and Tennessee, have modified their rules to lower what they considered to be burdensome barriers to obtaining licenses. Biden’s move is part of states’ broader push for changes, Carpenter said. “There is a momentum building to raise awareness to the issue.” Advocates for change also cite underemployment and unemployment stemming from the burdensome licensing requirements, as well as allegations that certain industries create occupational licensing to limit competition. Immigrants also can be affected by the licensing requirements, particularly if they hold foreign degrees but are performing lesser-skilled jobs in the U.S., according to a 2017 study by the Migration Policy Institute. Licensing particularly hurts foreign nationals with temporary work visas whose immigration status impedes them from seeking a license to work within their specialty, Chung said. That in turn impedes their path to permanent residency or citizenship, he said.

State Action

The FTC has struggled to rein in licensing practices with antitrust violations partly because public entities, like state-controlled licensing boards, can claim **state action immunity**. Such immunity authorizes a state to carry out certain legitimate government functions, often in regulated industries that require licensing.

“Many of these state certifications don’t violate antitrust law and that’s because of this doctrine that displaces antitrust law,” said Jesse Markham, a partner at Baker & Miller PLLC’s San Francisco office. “And that’s why these certification requirements exist with impunity.”

In 2015, the Supreme Court ruled in **N**orth **C**arolina State Board of Dental Examiners v. FTC that the state board was operated by market participants. Without active supervision from the state, the board couldn’t claim state action immunity from federal antitrust actions.

The ruling unleashed **“dozens of lawsuits"**—seeking antitrust treble damages—against individual members of licensing boards, according an October 2020 statement from Reps. Mike Conaway (R-Texas), Jamie Raskin (D-Md.), and David Cicilline (D-R.I.) in support of a bill they introduced to shield board members from such suits.

Qualifying for state action immunity largely depends on whether a board is a true government actor or a private market participant. But this delineation becomes more complex if there’s a **blurred line** between a state agency handling its own actions or a private group acting under state guidance.

How the **FTC** handles that **blurred line** will be one issue the agency tackles as it implements the president’s order.

**The antimonopoly tradition doesn’t entrench capitalism it mobilizes reform coalitions, and it’s compatible with the goals of redistribution**

**Berk 19** [Gerald Berk, Professor of Political Science at the University of Oregon, 11-25-2019, "Antimonopoly and the Democrats," Dissent Magazine, <https://www.dissentmagazine.org/online_articles/antimonopoly-and-the-democrats>]

Democrats are waking up to the realities of **economic power**. Less than a **decade ago**, the subject was **taboo**. Even with the economy in **ruins**, Democratic leadership saw **no option** beyond neoliberalism. But since the 2016 primaries, a **split** has opened up in the **party**. With it has come a **resurgence** of **antimonopoly politics** that neoliberal leaders can no longer **ignore**.

At first blush, it looks like **antimonopoly** heightens the conflict between **socialists** committed to **overcoming** **capitalism** and establishment centrists seeking to **save** **it** from populist attacks on the left and right. But antimonopoly once **contributed** to **mobilization**, **coalition building**, and sustained **reform** across the liberal-left spectrum, and it might do so again **today**.

The Antimonopoly Tradition

**Democracy** and **markets** are fragile and demanding systems, easily corrupted by formidable concentrations of power. The **antimonopoly tradition** recognizes this fragility, and it makes no sharp distinction between **economic** and **political** **power**. Excessive concentrations of **political power** undermine **economic prosperity** no less than excessive concentrations of **economic** **power** corrupt **democracy**. The problem for law and public policy in a democracy with markets seems simple: how to check the constant tendency to concentrated power. There’s no clear-cut way to do that, because those who seek to attain power and lock in privilege are endlessly inventive. Under the right conditions, institutions designed to check power can be used to opposite ends. As a result, antimonopoly is far more than an **ideology**. It is a **political project** that requires **vigilance**, **action**, and constant **adaptation**.

Reformers have drawn on the **antimonopoly tradition**—which is far more wide-ranging than **just antitrust**, a set of **policies** designed to prevent **predatory competition** and break up **concentrations** of **economic power**—throughout U.S. history. In the 1830s, Jacksonians used it to authorize privatization, dismantling the Second Bank of the United States because it locked in the privilege of an overweening aristocracy. **Abolitionists** in the 1840s and 1850s drew on the antimonopoly tradition to dismantle the **slave power**. In the 1880s, populists enacted **state antitrust** laws to check the growth of corporate power. In the first decades of the twentieth century, Progressives went further, breaking up corporate power and boosting countervailing forces in government, unions, and proprietary enterprise. In the **New Deal**, the antimonopoly tradition broke the power of banks and industrial corporations and paved the way for **regulation**, **collective bargaining**, and **welfare provision**. In the **1940s**, liberals drew on it to outlaw **discriminatory pricing** and check the predatory power of chain stores. In the 1950s and 1960s, antitrust administrators broke up **patent monopolies**, opening the way to high technology.

The antimonopoly tradition, as this sketch demonstrates, has enabled **diverse** **political** **projects**. In the first Gilded Age, it provided a challenge to **laissez-faire** **constitutionalism**—the legal doctrine that markets were autonomous from politics, and that property and contracts always protected individual liberty. In today’s Gilded Age, the antimonopoly tradition confronts **market fundamentalism**: the belief that liberty is best realized in **market transactions** insulated from democratic interference; that it is possible to organize markets effectively without government supervision; and that we ought not worry about **concentrations** of economic power, either because they are **efficient** or **temporary**.

The turn to market fundamentalism had a **major impact** on the practice of antitrust, severing it from its roots in the antimonopoly tradition. The University of Chicago–trained lawyer Robert Bork, who published The Antitrust Paradox in 1978, convinced Reagan’s Justice Department that antitrust blocked efficient forms of business organization. Left alone, corporations and capital markets could decide better than government regulators whether mergers, hostile takeovers, outsourcing, or breaking up and selling off corporate assets would serve consumers. If the result was concentrated power, so be it. In time, the Democrats agreed that the **only** **goal** of **antitrust** was to protect **consumers**. By 1992, antitrust had disappeared from their platform for the first time in a century.

The resurgence of the **antimonopoly tradition** among Democrats indicates a **sea change** in how they approach economic governance. Rather than limiting debate to after-the-fact **redistribution**, they have begun to ask how **markets** and business **organizations** can be structured to **check concentration**s of power. Many Democrats are converging on a platform to rebuild a more democratic economy, even as they disagree in fundamental ways over what that means, who should benefit, and how to achieve it. Still, the antimonopoly tradition’s **shared appeal** could open new possibilities for **party politics** and **reform**. This might seem **overly optimistic**, but a closer look at how the **antimonopoly tradition** has informed three ideological factions within the Democratic Party—democratic socialists, (neo)liberals, and antimonopolists proper—illustrates the potential for a **broader politics** focused on challenging concentrated power and building a more democratic economy.

**Especially in the context of state action immunity, the link to neoliberalism is reductionist and can’t explain US-EU divergences**

**Foster 19** [Chase Michael Foster was a Doctoral Candidate at Harvard University at the time of this dissertation. The author has served as a Election Observer (OSCE, ODIHR) in Moldova, Belarus, Russia, Georgia and as a Teaching Assistant at the Harvard Kennedy School of Government. At the time of this writing, the author held a MPP (Democracy, Politics, and Institutions) from the Harvard Kennedy School of Government. “The Politics of Delegation: Constitutional Structure, Bureaucratic Discretion, and the Development of Competition Policy in the United States and the European Union, 1890-2017” – Doctoral dissertation to The Department of Government, Harvard University, Graduate School of Arts & Sciences. In partial fulfillment of the requirements for the degree of Doctor of Philosophy in the subject of Government - January 2019 - #E&F –https://dash.harvard.edu/bitstream/handle/1/41121359/FOSTER-DISSERTATION-2019.pdf?sequence=1]

**Ideational Theories**

Any analysis of the change in antitrust enforcement over time must begin with a consideration of ideas. Most of the existing social scientific scholarship on competition policy emphasizes the role of changing **economic paradigms** in spurring the transformation of European and American competition policy. A number of scholars of American antitrust have explained the **dramatic decrease** in antitrust **enforcement** as stemming from the shift in authority from lawyers to economists at the antitrust agencies (Eisner 1991). Others have emphasized the institutionalization of Chicago School-inspired economic ideas within antitrust jurisprudence (Ergen and Kohl 2017; Davies 2010; Pitofsky 2008). Both of these sets of accounts capture an important component of the shift. As theories of economic efficiency changed in the US academy during the 1960's and 1970's, much of the postwar enforcement program was delegitimized. Beginning in the early 1970's, both the prevailing judicial opinion on antitrust and the enforcement program of the antitrust agencies dramatically shift, leading to a precipitous drop in enforcement output, especially in areas such as vertical restraints, monopolies, and exclusionary practices.

The **increase** in the intensity of European enforcement has also been explained as the result of ideational change. Some EU scholars have argued that the institutionalization of neoliberal economic ideas in European regulatory law has led to the intensification of regulatory enforcement (Thatcher 2013; Buch-Hansen and Wigger 2010; Wigger 2008). Concomitant to the Single European Act, the European competition directorate began to more intensely apply competition rules, and to shift its enforcement focus to state aid, publicly-owned companies, and the promotion of competition in previously protected network industries (Quack and Djelic 2005). During the late 1990's, competition law modernization led to a more neoliberal approach to the evaluation of market competition, while also expanding the breadth and intensity of enforcement (Wigger and Nolke 2007).

While each of these accounts points to some of the real ways that ideational change affected competition policy in each system, **there are problems with explaining opposite trends as the result of the same paradigm shift**. An **ideas-only** approach leaves us in the awkward position of explaining both the increase in the intensity of competition enforcement in the EU and the decrease in antitrust enforcement in the US as resulting from the same (or similar) neoliberal policy paradigm. While any analysis of competition policy developments must account for ideational change, we need to understand why the same set of ideas has produced different patterns of enforcement in Europe and the United States.

Additionally, there are **empirical gaps** in the **ideational explanation.** Certainly, the influence of the Chicago School **cannot account** for why US regulators have failed to follow much of the neoliberal prescription for liberalization and industrial policy. Chicago School economists, after all, have long supported the application of antitrust in these areas (Van I lorn 2015; McChesney 1986; Bork 1978). Moreover, there is no shortage of classically-trained economists in the European competition system.

**2ac wake round 2**

**innovation**

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**RECNA, et al 20** (Research Center for the Abolition of Nuclear Weapons, Nagasaki University (RECNA); the Asia-Pacific Leadership Network (APLN); and Nautilus Institute; “Pandemic Futures and Nuclear Weapon Risks: The Nagasaki 75th Anniversary Pandemic–Nuclear Nexus Scenarios,” 12-17-2020, p.7-10, <http://nautilus.org/wp-content/uploads/2020/12/Pandemic-Futures-Nuclear-Risks-v5.pdf>)

The Challenge: **Multiple Existential Threats** The relationship between pandemics and war is as long as human history. Past pandemics have **set the scene for wars** by weakening societies, undermining resilience, and **exacerbating** **civil** and **inter-state** **conflict**. Other disease outbreaks have erupted during wars, in part due to the appalling public health and battlefield conditions resulting from war, in turn sowing the seeds for new conflicts. In the post-Cold War era, pandemics have spread with unprecedented speed due to increased mobility created by globalization, especially between urbanized areas. Although there are positive signs that scientific advances and rapid innovation can help us manage **pandemics**, it is likely that deadly infectious viruses **will be a challenge for years to come**. The **COVID-19** is the most demonic pandemic threat in modern history. It has erupted at a **juncture** of **other existential global threats**, most importantly, **accelerating climate change** and **resurgent nuclear threat-making**. The most important issue, therefore, is how the coronavirus (and future pandemics) will increase or decrease the risks associated with these twin threats, climate change effects, and the next use of nuclear weapons in war.[5] Today, the nine nuclear weapons arsenals not only can annihilate hundreds of cities, but also cause **nuclear winter** and **mass starvation** of a billion or more people, if not the **entire human species**. Concurrently, climate change is enveloping the planet with more frequent and intense storms, accelerating sea level rise, and advancing rapid ecological change, expressed in unprecedented forest fires across the world. **Already stretched to a breaking point in many countries**, the **current pandemic** may **overcome resilience** to the point of **near** or actual **collapse** of **social**, economic, and **political order**. In this extraordinary moment, it is timely to reflect on the existence and **possible uses** of **w**eapons of **m**ass **d**estruction **under pandemic conditions**—most importantly, **nuclear** weapons, but also **chemical** and **biological** weapons. Moments of extreme crisis and vulnerability can **prompt aggressive** and **counterintuitive** actions that in turn may **destabilize already precariously balanced threat systems**, underpinned by conventional and **nuclear** weapons, as well as the threat of weaponized **chemical** and **biological** technologies. Consequently, the **risk of the use** of weapons of mass destruction (**WMD**), especially **nuclear weapons**, **increases** at such times, possibly **sharply**. The **COVID-19** pandemic is clearly driving **massive, rapid, and unpredictable changes** that will redefine every aspect of the human condition, including WMD—just as the world wars of the first half of the 20th century led to a revolution in international affairs and entirely new ways of organizing societies, economies, and international relations, in part based on nuclear weapons and their threatened use. In a world reshaped by pandemics, nuclear weapons—as well as correlated non-nuclear WMD, **nuclear alliances**, **“deterrence” doctrines**, operational and **declaratory policies**, nuclear **extended deterrence**, organizational practices, and the **existential risks posed** by retaining these capabilities —are **all up for redefinition**. A pandemic has potential to **destabilize** a **nuclear-prone conflict** by incapacitating the supreme nuclear commander or commanders who have to issue nuclear strike orders, creating uncertainty as to who is in charge, how to handle nuclear mistakes (such as **errors**, **accidents**, **tech**nological **failures**, and **entanglement** with conventional operations gone awry), and opening a brief opportunity for a **first strike** at a time when the **COVID-infected state** may **not** be **able to retaliate** efficiently—or at all—due to leadership confusion. In some nuclear-laden conflicts, a state might **use a pandemic as a cover** for **political or military provocations** in the belief that the adversary is distracted and partly disabled by the pandemic, **increasing the risk of war** in a nuclear-prone conflict. At the same time, a pandemic may lead nuclear armed states to increase the isolation and sanctions against a nuclear adversary, making it even harder to stop the spread of the disease, in turn creating a **pandemic reservoir** and transmission risk back to the nuclear armed state or its allies. In principle, the common threat of the pandemic might induce nuclear-armed states to reduce the tension in a nuclear-prone conflict and thereby the risk of nuclear war. It may cause nuclear adversaries or their umbrella states to seek to resolve conflicts in a cooperative and collaborative manner by creating habits of communication, engagement, and mutual learning that come into play in the nuclear-military sphere. For example, militaries may cooperate to control pandemic transmission, including by working together against criminal-terrorist non-state actors that are trafficking people or by joining forces to ensure that a new pathogen is not developed as a bioweapon. **To date**, however, the COVID-19 pandemic has increased the isolation of some nuclear-armed states and provided a **textbook case** of the **failure** of states **to cooperate** to overcome the pandemic. **Borders** have slammed **shut**, **trade shut down**, and **budgets blown out**, creating **enormous pressure** to **focus on** immediate **domestic priorities**. **Foreign policies** have become markedly **more nationalistic**. **Dependence on nuclear weapons** may **increase** as states seek to buttress a global re-spatialization[6] of all dimensions of human interaction at all levels to manage pandemics. The effect of nuclear threats on leaders may **make it** less likely—or even **impossible**—to achieve the kind of concert at a global level needed to respond to and **administer an effective vaccine**, making it harder and even impossible to revert to pre-pandemic international relations. The result is that some states may **proliferate** their own nuclear weapons, further reinforcing the **spiral of conflicts** contained by nuclear threat, with **cascading effects** on the **risk of nuclear war**.

**federalism**

**A2: Circumvention – A2: 11th Amendment**

**Reach of the 11th is extremely limited**

**Page & Lopatka 19** [William H. Page, Marshall M. Criser Eminent Scholar, University of Florida Levin College of Law, and John E. Lopatka, A. Robert Noll Distinguished Professor of Law, Penn State Law, ’19, Parker v. Brown, The Eleventh Amendment, and Anticompetitive State Regulation, 60 Wm. & Mary L. Rev. 1465 (2019), https://scholarship.law.wm.edu/wmlr/vol60/iss4/10

The state action doctrine and the Eleventh Amendment both provide a version of sovereign immunity from the federal antitrust laws for state-connected anticompetitive conduct.289 But these immunities have evolved separately, and they now vary in the scope of their protection.290 State action immunity would leave some conduct exposed to the full range of remedies available under the antitrust statutes that the Eleventh Amendment protects. At first glance, this enforcement gap would seem to create a substantial risk that serious anticompetitive conduct will go undeterred, especially because the state actors protected by the Eleventh Amendment wield the power of the government in pursuing their objectives. **On closer examination, however, the risk proves modest.** The Eleventh Amendment itself **does not preclude all remedies** against state actors.291 It permits **private injunctive actions** against state officials and **federal actions** for any remedy against state governmental entities and their officials.292 It does not preclude actions against private antitrust violators enabled by state actors.293 It has nothing to say about actions under state antitrust laws in state courts.294 Eleventh Amendment immunity, **with all these limitations**, seems less costly than eliminating the immunity or eliminating its limitations.

**t-priv**

**Private Sector – 2AC**

**We meet – the plan text specifies the application to the private sector**

**Public-private distinction in Parker is unanswered – our whole argument is that MORE antitrust violations should be considered private and then prohibited**

**Safvati 16** [Sina Safvati, J.D., University of California, Los Angeles, School of Law, with honors, 2016 B.A., University of California, Los Angeles, summa cum laude, 2012 CLERKSHIPS U.S.C.A., 9th Circuit U.S.D.C., Southern District of Florida, https://www.uclalawreview.org/wp-content/uploads/2019/09/Safvati-63-4-update.pdf]

The public-private distinction has caused **much uncertainty** in the field of Parker immunity from federal antitrust laws.1 Due to federalism concerns, the U.S. Supreme Court held in Parker v. Brown that states as sovereigns are exempt from federal antitrust law.2 The question of when **other entities** acting under the auspices of state power are similarly exempt, however, **remains largely unanswered**. At which point does an entity gain sufficient “publicness” to obtain Parker immunity?3

[Footnote 3] See IA PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW: AN ANALYSIS OF ANTITRUST PRINCIPLES AND THEIR APPLICATION ¶ 226b (3d ed. 2006) (“[D]etermining whether an actor is **sufficiently ‘public’** so as not to require supervision has often proven **difficult**.”).

In North Carolina Board of Dental Examiners v. FTC, the Supreme Court recently attempted to bring clarity to this question in the context of a state occupational licensing board, labeled a state agency under state law.4 The Court held that the board, a decisive coalition of whose members were active members of the industry they were charged with regulating, was a private entity for purposes of Parker immunity.5

In 1950, about 5 percent of the American workforce occupied a job that required a state license.6 Today, that figure has skyrocketed to about one-third of the American workforce.7 Current market participants have incentives to lobby state legislatures to create these highly specialized licensing boards.8 The vast majority of state occupational boards consist of financially interested market participants.9 That anticompetitive policies have been on the rise can hardly be a surprise given the makeup of these boards.10

The role of Parker immunity for state occupational licensing boards therefore becomes a pivotal question. Are such entities exempt from federal antitrust law? To arrive at an answer, two threshold questions must be asked. First, does a particular state occupational licensing board fall under the “private” or “quasipublic” category in Parker immunity analysis? Second, if a board falls under the “private” category, what type of showing will suffice to satisfy the active state supervision requirement?

The Court’s decision in North Carolina Board of Dental Examiners has reinvigorated antitrust suits against state licensing boards. For example, Teladoc, a company within the telehealth industry that is committed to using telecommunication technologies to provide health care services, has brought claims against the Texas Medical Board, asserting that it had committed a violation of antitrust law for its formal rulemaking that required face-to-face visitation before a physician could issue a prescription to a patient.11 The parties stipulated that because the board was “largely composed of market participants,” the Texas Medical Board was a private entity, subject to the active state supervision requirement.12 In addition, state bar associations are now under attack from businesses like LegalZoom that offer legal document-preparation services and present a threat to licensed attorneys.13 In light of the North Carolina Board of Dental Examiners decision, the North Carolina Bar, controlled by active market participants, was forced to settle an antitrust suit brought by LegalZoom, permitting the online provider of legal services to continue operating in the state.14

States have scrambled to make recommendations and issue administrative rules and executive orders to adjust to this new antitrust reality. Oklahoma’s Governor issued an executive order concluding that sufficient statutory safeguards were in place for boards’ rulemaking powers but that procedural safeguards were insufficient to show active supervision for licensure or prohibition actions.15 Accordingly, the Governor ordered all non-rulemaking actions proposed by any state board controlled by active market participants to submit licensure or prohibition actions to the Office of the Attorney General for review.16 The Alabama State Board of Medical Examiners has issued an emergency rule suspending enforcement of telehealth rules immediately and seeking passage of a telehealth statute in light of the litigation brought against the Texas Medical Board.17 The Office of the Attorney General in California has issued an opinion examining the active state supervision requirement and identifying measures the legislature should take to reduce the risk of antitrust claims.18

Amid these developments, however, **confusion in Parker immunity doctrine persists**. The **uncertainty** stems from the Court’s failure to formally adopt the two principles that have shaped Parker immunity jurisprudence since its inception: financial disinterest and political accountability. In pursuit of much-needed doctrinal clarity, this Comment makes a descriptive case, inspired by Professor Einer Elhauge’s seminal article on Parker immunity,19 that Parker immunity jurisprudence has been shaped by inquiring into the functional purposes the public-private distinction serves in the context of delegating state power to municipalities, prototypical state agencies, and private entities. Two principles have shaped Parker immunity jurisprudence: (1) delegation of state power compromises political accountability, and (2) delegation of regulatory authority sacrifices the essential attribute of states as disinterested government agencies looking to the public good, rather than private gain.20

**Parker immunity shields private entities in anticompetitive behavior – it’s not only when state is acting as sovereign**

**Safvati 16** [Sina Safvati, J.D., University of California, Los Angeles, School of Law, with honors, 2016 B.A., University of California, Los Angeles, summa cum laude, 2012 CLERKSHIPS U.S.C.A., 9th Circuit U.S.D.C., Southern District of Florida, https://www.uclalawreview.org/wp-content/uploads/2019/09/Safvati-63-4-update.pdf]

Based in part on the fear that States might “confer antitrust immunity on private persons by fiat,”24 the Supreme Court clarified in later decisions that the automatic exemption from federal antitrust law applies only when the state is acting as a sovereign—when the anticompetitive decision is expressly made by a state legislature or state supreme court.25 In the case of political subdivisions and private entities, the Parker immunity exemption applies only if the entity makes a sufficient showing that the anticompetitive decision was in fact one of the sovereign.26 Through its subsequent jurisprudence, the Court defined three distinct categories in the Parker-immunity inquiry.

The first category is reserved for cases in which the sovereign directly and expressly made the anticompetitive action, limited to actions of the state legislature or state supreme court.27 Parker immunity automatically applies in such cases.28 The second category (“quasi-public”)29 is reserved for cases in which a municipality or a “prototypical state agency”30 has engaged in anticompetitive conduct.31 When municipalities seek Parker immunity, the anticompetitive conduct must have been pursuant to a clearly articulated state policy to displace competition.32 The third category is reserved for instances in which **private entities** have engaged in anticompetitive conduct. When private entities seek Parker state-action immunity, they must show both that the challenged conduct was pursuant to a clearly articulated state policy and that it was actively supervised by the state itself.33 In the 2014–2015 term, the Supreme Court held in North Carolina Board of Dental Examiners v. FTC that a state occupational licensing board comprised of a “controlling number” of “active market participants” was private and subject to the active supervision requirement.34

[Footnote 33] E.g., Cal. Retail Liquor Dealers Ass’n v. Midcal Aluminum, Inc., 445 U.S. 97, 105–06 (1980) (holding that the private wine price-setting scheme could not benefit from Parker immunity because although the scheme was pursuant to a clearly articulated state policy, the state did not engage in any “pointed reexamination” of the program and thus did not satisfy the active state supervision prong); see also S. Motor Carriers Rate Conference, Inc. v. United States, 471 U.S. 48, 56–57 (1985).

**Private sector is not “controlled” by state**

**JTP 21** (Java T Point, https://www.javatpoint.com/public-sector-vs-private-sector)

The **public sector** is the sector which includes both **public companies** and **services**. In other words, the public sector is the sector that is under government's control. The public sector includes agencies, enterprises, banks, companies, etc., that are controlled by the government. Some examples of the public sector include infrastructure, sewers, public transit, healthcare, goods, services, etc. The public sector is made of three parts, i.e., the judiciary, legislative, and executive. These three segments combine and make the private sector. One of the major aims of the public sector is to have a balance between economy and wealth. The public sector is under the state control. More or less, the companies and agencies under the public sector are **owned by the state**. Now, let us look at some contrasting points between these sectors.

Private Sector

The **private sector** is defined as the **sector** wherein the **economy** is controlled by **private groups**. In layman's terms, a **private sector** is the sector that is **not under the control of the state**. Private sectors are run by companies yielding profits. The private sector can also be called as the citizen sector. Examples of the private sector are ICICI Bank, ITC Limited, HDFC Bank, etc. Apart from the banks, the proprietors, businessmen, accountants, SMEs, etc., are some other examples of the private sector. The major objective of the private sector is to earn maximum profits and have sole ownership or control. The private banks have better management systems, due to which they are able to yield more profits. Some of the private companies include Vitol, Koch Industries, Huawei, etc.

**We meet – Parker immunity shields private entities**

**It’s best---**

**Education---scope of state action immunity is vital question in antitrust enforcement---**Crane & Sack

**Aff flex---“expand the scope” massively constrains the aff---innovation prevents a sitting duck for PICs**

**Overlimits---they box out nuanced immunity debates and force repetitive, stale, giant innovation debates**

**Solves ground---stable direction of increasing prohibitions ensures links**

**Functional limits check---few advocates, advantages, and short list of “core” legislation**

No link to effects impact – the direct result of the plan is increased prohibitions on private entities by limiting their immunity

They misread the phrase in context – the rez prohibits “practices” those are being done by the private sector even if they’re sanctioned by the public sector

**Reasonability best – competing interps cause a race to the bottom and substance crowd-out**

**Cap K**

**2AC – SAI – Long**

**Framework—debate is about the plan’s desirability—key to fairness because the plan is the locus of aff offense and there are infinite arbitrary neg frameworks**

**The K’s a cookie-cutter over simplification to say that all scholarship or all subjectivity is neoliberal – it elides the nuance necessary to win the alt**

**Watts 21** [Galen Watts is Guest Professor with Special Appointment and Banting Postdoctoral Fellow, based at KU Leuven, “Are you a neoliberal subject? On the uses and abuses of a concept” 8-6-2021 Sage Journals]

On neoliberalism (4): What is a ‘neoliberal subject’?

Admittedly, scholarship on ‘neoliberal subjects’ varies in its theoretical sophistication and empirical support. Moreover, as social scientists have become increasingly familiar with the theoretical frameworks informing neoliberalisms (2) and (3), the number of empirical studies making use of one or both of these conceptions has grown exponentially. So, let me be clear: in what follows, my concern is with a particular type of social scientific scholarship on neoliberalism (4) and the distinct errors and oversimplifications it perpetrates. What distinguishes this type of scholarship is that it seeks not merely to critique the ideal typical notion of a ‘neoliberal subject’ (as defined by neo-Marxists and/ or Foucaultians), but also to demonstrate empirically the extent to which either/both neoliberalisms (2) and (3) have successfully penetrated into the psychic and embodied lives of actual individuals, by means of three discursive criteria: within this scholarship, neoliberal subjects are (a) those who invoke the language of personal responsibility or have been ‘responsibilized’; (b) those who value autonomy and speak in the language of individualism; and (c) those who employ the rhetorics of authenticity and selfrealization, and who conceive of their self as a thing to be worked on and improved. The problem with these criteria, we shall see, is that they are excessively broad, multivalent and insufficient to prove what they purport to.

Personal responsibility and responsibilization. Sociologists seem to agree on the ‘centrality of the discourse of personal responsibility in the neoliberal era’ (Foster, 2016, p. 94). As Luxton (2010, p. 180) illustratively remarks in Neoliberalism in Everyday Life, ‘The extent to which people accept personal responsibility both reveals the depth to which neoliberal ideologies have penetrated personal life and shows the centrality of such ideologies for the success of neoliberalism’. Indeed, if one had to boil what it means to be a ‘neoliberal subject’ down to a single concept, ‘responsibilization’ – the process whereby individuals are ‘made responsible’ for their choices and actions, while the state increasingly surrenders responsibility for their health, economic security and well-being – would be a legitimate candidate. Across a range of studies, scholars claiming allegiance to either/both neo-Marxist and Foucaultian theoretical traditions more and more interpret invocations of ‘personal responsibility’ as evidence of ‘neoliberalism’. For instance, in her analysis of the popular memoir Eat, Pray, Love, authored by Elizabeth Gilbert, Williams (2014, p. 620) finds in the book’s pages what she refers to as a ‘neoliberal spiritual subject’ on the grounds that this subject ‘is held responsible for putting in the “work” necessary to be happy and healthy’. And paying homage to Foucault, Williams writes that reading Gilbert’s popular memoir calls to mind ‘the neoliberal vision of the individual as entrepreneur of the self’ (2014, p. 625). Similarly, in his study of mindfulness programs in UK schools, Reveley (2016, p. 498, p. 499) draws on a synthesis of neo-Marxist and Foucaultian approaches, which he argues hold that ‘neoliberalism’s ideological correlates are personal autonomy, self-reliance, and responsibility’ in order to make the case that these programs responsibilize individual subjects because they make them ‘responsible for their own emotional well-being’. Reveley (2016, p. 498) further contends that mindfulness ‘is a practical technique that transmits the neoliberal self-responsibilizing impulse down to young people’. And in her study of Mexican migrants participating in an English language program, Ullman (2012, p. 463), drawing explicitly on the work of Harvey and Rose, argues that because her study participants view learning English as their own personal responsibility, they are repeating a ‘neoliberal mantra’. While I do not doubt the affinities between neoliberalisms (1), (2) and (3) and the rhetoric of personal responsibility, there are real problems with using the existence of the latter as evidence of the former. For one, there is nothing inherently ‘neoliberal’ about the discourse of personal responsibility, given its semantic approval by a whole gamut of other ideologies and political rationalities – be they, conservative, communitarian, civic republican and social democratic. Indeed, personal responsibility is a deeply entrenched value in democratic societies, widely considered integral to being a moral agent (Mounk, 2017, p. 160). For another, scholars have shown that in many texts alleged to disseminate ‘neoliberal discourse’, there often exist alternative conceptions of responsibility at play (e.g. Trunka & Trundle, 2014; Sletto & Nygren, 2016). Of course, an objection might be that whether or not individuals subscribe to alternative conceptions of responsibility, the fact of neoliberalism (1) cannot be dismissed. In other words, processes of responsibilization are taking place and these conditions force individuals to ‘become responsible’, regardless of their convictions. There is undoubtedly truth in this. As the Welfare State has been dismantled, leaving populaces increasingly unprotected and insecure, individuals have done what any and all humans do in the face of change: adapt. Thus, it is reasonable to conjecture that in order to ‘get by’ in these precarious times, we must become, to some extent, self-responsible subjects and furthermore, that reading Eat, Pray, Love, learning to practice mindfulness and accepting responsibility for learning English in some sense encourages and bolsters this process. Yet, even if the above story is correct, it is still not the case that what we end up with are going to be ‘neoliberal subjects’ if by this we mean something that bears some clear relation to neoliberalism (2), or even neoliberalism (3). Recall that neoliberalism (2) presumes a degree of popular, if alienated, consent; neoMarxist scholars presume that neoliberal ideology exists as doxa, in Bourdieu’s sense, informing common-sense understandings. But as Davies (2014, p. 316) remarks, there is a heated debate ‘as to whether neoliberalism is “alive,” “dead” or in some paradoxical “zombie” state’. While Don Kalb (2012, p. 319) contends that ‘neoliberalism, in whatever hybrid or even “parasitic” ... form, appears as less intellectually convincing, popularly legitimate, and more openly and radically confronted than ever in the last three decades’. In agreement, I would argue that neoliberal ideology is, in fact, extremely contested and actually not widely adhered to by ordinary citizens (even in the most ‘neoliberal’ country – America (see Saad, 2019)), so it seems unwarranted to treat the mere fact of adaptation as evidence of a wholesale embrace of neoliberal ideology. Indeed, we need to make space for the distinction proposed by Hilgers between ‘neoliberal dispositions’ and ‘dispositions produced by neoliberalism’ (2013, p. 85). But what of neoliberalism (3)? Arguably these case studies offer clear instances of neoliberal discourses and governmental technologies, which encourage individuals to become ‘entrepreneurs of the self’. But can we even say this much? Recall that, for Foucault, the new homo oeconomicus is the ultimate market actor, one who seeks opportunities for self-investment at every turn. It seems to me that this is patently not what we find in these case studies – or, more charitably, the evidence for this claim is rather weak. For why should we assume with Williams and Reveley that thinking one should bear some responsibility for one’s health and happiness is necessarily evidence of neoliberal reason? This stretches the notion of homo oeconomicus beyond anything resembling what one finds in Foucault’s writings. Or, consider how Ullman goes about identifying the ‘neoliberal mantra’ of the Mexican migrants she studied. One of her interviewees, Raul, informed her that he had a ‘failure of the will/una falta de voluntad’ because he only watched an hour of the English language program he had purchased. When asked why he did this, Raul responded that ‘it was boring’ (Ullman, 2012, p. 463) Ullman interprets this as follows: ‘This interpretation takes the program itself, its quality and the effectiveness of its pedagogical approach, out of the conversation, and makes learning English solely an individual responsibility’ – which, in Ullman’s view, is clearly ‘neoliberal’ (2012, p. 463). But is this conclusion justified? Is it really ‘neoliberal’ to feel one has failed personally because one got bored and failed to do one’s homework? Again, this is a long way from the figure of homo oeconomicus identified by Foucault. Still, there is another claim, implicit in Ullman’s analysis, which is worthy of consideration, as it has become increasingly common: discourses are allegedly ‘neoliberal’ to the extent that they obscure the structural dimensions of social life – that is, to the extent that they are methodologically individualistic.

Autonomy and individualism. Next to the discourse of personal responsibility, scholars tend to zero in on the language of autonomy and individualism as proof of ‘neoliberal subjectivity’. In fact, processes of responsibilization and ‘autonomization’ are generally considered discursively tethered, if not complementary. For instance, in their analysis of Norwegian and Turkish media discourse, Tu¨rken et al. (2016, p. 37), drawing on the work of Foucault and Rose, identify the normalization of ‘a responsible subject who needs “self-control” in order to “take charge of” and “to be able to live life”’ They write, ‘Different voices in our data discursively construct the individual as an autonomous subject who is encouraged to “take action”, “take personal responsibility”, and “work hard” to achieve a “happy life” (2016, pp. 37–38), thereby concluding that mainstream media discourse in these countries serves to disseminate ‘neoliberal thinking’ (2016, p. 35). In their study of psychotherapeutic discourse Lamarre et al. (2019, p. 239) write, ‘Neoliberal governmentality can be seen as a “conduct of conduct” (Foucault, 2008) or a strategic creation of a specific form of subjectivity’ (p. 239). They argue that psychotherapeutic discourse normalizes and produces this ‘normative neoliberal subjectivity’ which they characterize as ‘autonomous, freely choosing subjects continuously involved in self-improvement’ (2019, p. 244). They conclude, ‘Psychotherapy is inevitably informed by and potentially further perpetuates neoliberal ideology’ (Lamarre et al., 2019, p. 242). And in his study of ‘workplace spirituality’, invoking a synthesis of neoMarxist and governmentality approaches, LoRusso (2020, p. 6) contends that workplace spirituality is a ‘technology of the self’ which ‘produces the quintessential capitalist subject, a radically individualist subject for whom reality is itself merely the results of individual choices about how it is to be experienced’. Thus, for LoRusso, what makes ‘spirituality’ neoliberal is the fact that it promotes a ‘program of individual rather than social change’ (LoRusso, 2017, p. 68). Now, just as with the blanket condemnation of ‘personal responsibility’, the problem with automatically subsuming the language of autonomy and individualism under the conceptual umbrella of ‘neoliberalism’ is that it ignores Durkheim’s (1969) key insight that individualism is both a collective and polyvalent discourse, holding widely divergent consequences depending on how it is interpreted. Indeed, it is well established within sociology that there exist multiple individualisms, rooted in distinct cultural traditions (Bellah et al., 1985). Thus, as Barnett (2005, p. 11) fittingly cautions, by subsuming all individualistic rhetoric under the category ‘neoliberalism’ scholars theorize out of sight alternative political rationalities that, while wedded to the value of individual autonomy, may conceptualize this ideal in quite different ways. Moreover, as cultural sociologists have shown, individuals adopt different technologies, devices and discourses in different contexts, adapting them to their particular aims and present circumstances (Swidler, 1986). So, while it might be true that, in some instances, individuals invoke a methodologically individualistic discourse which exalts the individual over the social, it is theoretically naı¨ve to suppose that, by necessity, this discourse is always and everywhere invoked by said individual. As Scharff (2016, p. 115) remarks, ‘entrepreneurial discourses are negotiated in contexts that provide a range of discourses’. Accordingly, it seems reasonable to question any necessary connection between individualistic talk and endorsement of neoliberalism (2). Still, could we not plausibly interpret these case studies as instances of neoliberalism (3)? That is, as genealogical attempts to trace the forms of neoliberal reason underlying the governmental technologies and discourses of media, psychotherapy and workplace spirituality? Much as before, it is not clear that what we find in these case studies is in fact the kind of neoliberal reason of which Foucault has written, since mere talk of individual autonomy and free choice is insufficient evidence of homo oeconomicus. But even were we to accept this claim, it seems to me that these case studies do not actually limit themselves to neoliberalism (3), but rather make the leap to neoliberalism (4). The shift from neoliberalism (3) to neoliberalism (4) is subtle, but significant. It is characterized by a shift from the genealogical and textual analyses of Foucault and early governmentality scholars like Rose – which sought merely to chart the emergence of new discourses and associated technologies – to empirical analyses of how these discourses and technologies are allegedly internalized by actual subjects. Again, Foucault did not conceive of homo oeconomicus as a real empirical subject. Moreover, early governmentality scholars did ‘not suppose that governmental rationalities automatically determine subjectivities’ (Barnett et al., 2008, p. 629), nor did they concern themselves with the way specific discourses or technologies are implemented, adopted or refused by actual persons (Rose et al., 2006, p. 100). However, this epistemic humility has become increasingly rare in recent years – as these case studies aptly illustrate. For instance, Lamarre et al. write, ‘Following poststructuralist lines of thought, we might understand the power of the neoliberal capitalist state as both restrictive and Watts 11 productive, but always shaping what we know and how we know ourselves to be’ (2019, p. 239, emphasis added). While LoRusso maintains that, ‘At the individual level, these discourses penetrate, possess, and produce the expectations and dispositions of persons’ such that workplace spirituality ‘reshapes employees into willing participants in a neoliberal social order’ (LoRusso, 2020, p. 23, 13, emphasis added). Interestingly, Tu¨rken et al. (2016, p. 43) are more cautious. They conclude their study: ‘Although media is a powerful tool to disseminate meaning and thereby influence subjectivity in society, people do negotiate their own understandings and may even oppose media’s positioning of subjecthood’, adding, ‘The present study does not investigate how media discourse on self-development is negotiated by the readers’. And yet, after noting this critical and consequential limitation of their research, only a few lines below they boldly assert a claim for which they have provided little actual evidence: ‘the dominant individualistic subject of contemporary society is reproduced and refashioned as an entrepreneur of herself’ (Tu¨rken et al., 2016, p. 44). Accordingly, for these scholars, the homo oeconomicus identified by Foucault is no longer a mere speculative fiction of the human capital theorist’s making, but allegedly captures the psychic and embodied life of the majority of people in the twenty-first century.

The problem is that this methodological leap – from neoliberalism (3) to neoliberalism (4) – is frequently **not warranted**. As Tu¨rken et al. would admit, discourse analysis of media articles, psychotherapeutic manuals and workplace spirituality texts does not provide us with a transparent window into the psychic lives of individuals – what many accounts of ‘neoliberal subjectivity’ claim to have accessed. Indeed, the **presumption** that ‘publicly observable rationalities, procedures and techniques of state and non-state actors can be read as proxies for processes of subject-formation’ is **simply untenable** (Barnett et al., 2008, p. 626). And as Scharff (2016, p. 108) usefully reminds us, ‘there has been **little empirical research** that explores the contours of entrepreneurial subjectivity and, even more specifically, its psychic life’.

Here, then, we confront the gap between neoliberalism (3) and neoliberalism (4): It is one thing to identify discourses, technologies and apparatuses – it is something else entirely to contend that they actually induce subject-formation (Barnett, 2005, p. 10). Now, this is not to say that neoliberalism (3) cannot lead to neoliberalism (4). On the contrary, I do not doubt that neoliberal discourses have been internalized by some, shaping their behaviour and self-understanding. **But** the fact of the matter is these representative studies provide **little evidence** to show this. Furthermore, other empirical studies **make clear** that the story is **far more complicated**, involving **processes** of discursive contestation and refusal which are too often ignored. For instance, upon conducting interviews with freelance journalists about how they respond to popular ‘personal branding’ discourses within their industry, Vallas and Christin (2018, p. 24) found that ‘interviewees respond to entrepreneurial discourse in a multiplicity of ways, defying characterization in simple or uniform terms’. They also found that national cultural repertoires, occupational norms and the degree of material precarity experienced by these journalists considerably shapes the extent to which they become the ‘enterprising self’ naturalized in neoliberal reason (Vallas & Christin, 2018, p. 28). And in his qualitative study of how middle-class individuals read self-help books, Lichterman (1992, p. 422) writes, ‘They read books ambivalently, and in ongoing relation to other frameworks for situating personal selfhood in a social context’, thereby concluding, ‘We can not assume in advance that we know how strong or how unified an ideological message it is that self-help book readers read out of their self-help books’ (1992, p. 423). Houghton usefully explicates the implications that follow from these insights:

This difference between the actual and the ideal is a point that is at times forgotten in Foucauldian accounts of subjectivity: the extent to which individuals become a certain type of subject is always an empirical question, hence the need for empirical research. So, while we can talk of neoliberal subjects, **this is not to say** agents will operate **exclusively** through that frame. (Houghton, 2019, p. 622)

Ironically, while this might be typical of contemporary ‘Foucaultian accounts of subjectivity’, they actually conflict with the work of Foucault himself. As Green (2010, p. 318) notes, in his mature work Foucault endorsed the view that ‘disciplinary power is both more complex in its effect and perhaps less effective in subjectification than proposed by popular post-structural approaches’. It would seem, then, that even Foucault would have had trouble accepting much scholarship that claims to have identified neoliberalism (4).

Authenticity and self-realization. According to many sociologists, the ‘entrepreneurialization of subjectivity’ (Christiaens, 2019, p. 95) veils itself most conspicuously behind the language of authenticity and self-realization. The idea is that to speak, as so many today do, of the importance of ‘realizing one’s potential’, ‘improving oneself’ and ‘seeking personal growth’, is to have subjected oneself to neoliberal governmentality. To give some examples: in his analysis of the emerging discipline of Happiness Studies Binkley (2011, p. 383), an avowed disciple of Foucault, contends that ‘the current discourse on happiness’ serves as a technology of ‘neoliberal subjectification’. He writes, ‘To govern oneself through the maximization of one’s potential for happiness is to govern oneself as a subject of neoliberal enterprise’ (2011, p. 340). In their analysis of self-help discourse, Erjavec and Volcic (2009, p. 139), citing Wacquant and other neo-Marxists, critique ‘the (neo)liberal imperative of constant retraining, a “just-keep-on-learning” mentality, selfdevelopment and individual responsibility’. And in her study of contemporary spirituality, Altglas (2018, p. 87), drawing on Foucault and Rose, writes that ‘Spirituality’ entails ‘accepting the necessity for the individual to commit to a process of change, learning, and progress – what “spiritual seekers” and their teachers call “working on oneself”‘. She concludes, ‘Spirituality as self-discipline and the kind of self it celebrates... constitutes a particular way to exert power in affinity with neoliberalism’s political and economic mechanisms of privatisation’ (2018, p. 95). The notion that the rhetorics of authenticity and self-realization signal a ‘neoliberal subject’, while theoretically provocative, is problematic. For one, as Laidlaw (2015, p. 913) reminds us, ‘The idea of taking the self as a project of self-discovery in the West goes back at least to Stoicism and has been there in Asia in Buddhism and Confucianism for centuries’. In fact, the conviction that each individual has a potential that is unique to them, and that it is their life’s vocation to realize this is arguably constitutive of the modern identity (Taylor, 1989). So, why should we assume that maximizing one’s Watts 13 potential for happiness, a ‘keep-on-learning’ mentality, or continually seeking to develop one’s self are distinctly ‘neoliberal’? There seems to me no necessary connection between these qualities and endorsement of neoliberalism (2). Nor do I see a necessary connection between these features and the ‘entrepreneur of the self’ naturalized in human capital theory. Again, one potential response is that I have made an error in presuming that these scholars do, in fact, assume the success of these technologies and discourses in constituting or subjectifying actual individuals. Perhaps their only concern is with the governmental technologies and discourses themselves. That is, perhaps they are not endorsing neoliberalism (4), but rather limiting their analyses to neoliberalism (3). On this modified account, the claim would be that positive psychology, self-help and spiritual books function as technologies and devices of neoliberal governmentality, which naturalize ‘neoliberal discourse’, given their naturalization of the ideal of a self-responsible, autonomous and self-realizing subject. While this claim may be more modest, it is still not without issues. And the reason for this is that it is not merely neoliberalism which presupposes and prescribes the ideal of a self-responsible, autonomous and self-realizing subject, but that this has also been a staple of liberalism since its inception, given its critique of excessive government (Burchell, 1993). Indeed, it is for precisely this reason that Rose made sure to distinguish between ‘neoliberalism’ – which he views as a ‘highly specific rationality’ (Rose et al., 2006, p. 97) – and ‘advanced liberalism’ – which he views as ‘something with a more general salience, which underpins mentalities of government from all parts of the political spectrum’ (Rose, 1996, p. 60). In other words, according to Rose, while a neoliberal programme may well find alignment with advanced liberal forms of rule, it would be wrong to reduce the latter to the former. It should not surprise us, then, that Rose has offered strong words against what he refers to as

a kind of **cookie-cutter typification** or explanation, a tendency to identify **any** programme with neo-liberal **elements** as **essentially** neo-liberal, and to proceed as if this subsumption of the **particular** under a more general category provides a sufficient account of its nature or explanation of its existence. (Rose et al., 2006, p. 98).1

Furthermore, it is critical to note that Rose, like Foucault, has long distanced himself from the kind of socio-critique implicit in neoliberalism (2). And the reason for this is that he seems to think, given that advanced liberalism is the regnant form of political rule, we are all subject to it in one way or another (Barry et al., 1996).

Where does this leave us? I would put it this way: If we accept that neoliberalism (1) has created socio-economic conditions that have forced individuals to adapt and thereby become, to some extent, self-responsible subjects, then it might well be that all of us, simply by virtue of inhabiting these social conditions, have become ‘neoliberal subjects’. Indeed, if we accept Rose’s claim that we are all subject to advanced liberal forms of rule, then this would seem a natural corollary. However, the difficulty with this conception of ‘neoliberal subject’ is that it is not clear what ‘neoliberal’ in this instance actually means. It is clearly not neoliberalism (2), since this would entail not just adaptation, but acquiescence such that we, as individuals, had accepted the basic tenets of neoliberal 14 European Journal of Social Theory XX(X) ideology. Nor is it clear that it entails neoliberalism (3), which entails having one’s subjectivity constituted by neoliberal reason. Thus, it seems to me far more accurate to say that we are all (or most us, anyway) liberal subjects – those who, in one way or another, conceive of ourselves as self-responsible, autonomous and self-realizing subjects. Though it goes without saying that such a claim is not all that illuminating.

Conclusion

Let me be clear: I do not doubt that, in some cases, neoliberalisms (1), (2) and (3) have led to the production of actual ‘neoliberal subjects’ – that is, living breathing homo oeconomicus. For instance, I would conjecture that the world of corporate finance is probably densely populated with such subjects (e.g. Neely, 2020). And indeed, in my own research, I have found that Charismatic Christians who subscribe to ‘prosperity gospel’ approximate the ‘enterprising self’ normalized in human capital theory (Watts, forthcoming). However, I am **quite sceptical** of the claim that neoliberal subjects populate each and **every** social sphere, as if we are **all** in the thralls of neoliberal ideology, or govern ourselves exclusively according to the dictates of neoliberal reason. That said, this obviously remains an urgent research question. But if we are to pursue it, we require a methodological approach that is sensitive to institutional **specificities**, the extent to which discourses are **polyvalent**, and the **complexities** involved in the production of psychic and embodied subjectivities, not just a loose discourse analysis of governmental texts.

Why? **For both academic and political reasons**. First, the academic: to the extent that neoliberalisms (1), (2) and (3) exist, it only **muddies the water** to overinterpret them. Indeed, we would do better to practice **analytic precision** when labelling something (or someone) ‘neoliberal’. This is especially the case when researching across national contexts: it is simply not accurate that every citizen of Western liberal democracies is equally ‘neoliberal’, either in the sense that they adhere to neoliberal ideology or that they live according to neoliberal reason. And as a growing number of scholars have maintained, it is misleading to interpret the subjective lives of citizens of East Asia and the Global South as wholly colonized by either neoliberalisms (2) or (3) (Ferguson, 2009; Parnell & Robinson, 2012). However, even within specific national contexts, we must make sure to recognize that identities and discourses are multiple, such that mere invocations of aspects of ‘neoliberal discourse’ should not be taken as evidence of a comprehensive ‘neoliberal subjectivity’. In short, if our aim as social scientists is to capture the complexity, richness and diversity of subjective life in the twenty-first century, then we ought to broaden the ‘repertoire of subjectivity’ (Green, 2010, p. 331) carried in our analytic toolboxes.

Second, the political: for those of us who find something abhorrent about neoliberalisms (1), (2) and (3), it may actually **undermine our cause** to repeatedly give the impression that one or either of these have seeped into the subjectivities of **everyone** presently living. One reason for this is that to the extent that we overlook, or dismiss, **extant alternative** social and moral forms, we may **unwittingly serve to bolster neoliberal ideology** and reason, aiding and abetting their spokespeople in their goal of global domination. Indeed, John Welsh (2020, p. 68) suggests that if we are to oppose neoliberalism in all of its forms, academics **must** begin to ‘**introduce contingency** back into the interstices of this seemingly impenetrable edifice’. Interestingly, this strategy actually aligns with the mature work of Foucault, for whom scholarship should seek to disrupt that which is taken for granted. Drawing on this Foucaultian legacy, Cornelissen (2018, p. 144) convincingly argues that ‘resistance should be given a more prominent analytical role in the critique of neoliberalism’, adding, ‘resistance is not secondary to the elaboration of alternatives; rather, moments of refusal must guide the formulation of alternative analyses’. Cornelissen concludes, ‘what is at stake politically is our capacity to imagine practices or **resistance** to neoliberalism and to take seriously those modalities of resistance that already exist’. I could not agree more. And for this reason, I think we should be far more careful when invoking the monolithic notion of a ‘neoliberal subject’.

**Perm – do plan and all non-competitive parts of the alt**

**1. disease reps good – saksena**

**2. tech optimism - Athanasiou – impact Matus**

**3. reform coalitions – Berk – perm’s k2 it – Schram**

**No link – K’s links are reductionist and don’t assume the plan or the perm**

**Foster ev cites divergence between EU and US actions – debunking tropes like “competition policy” or “State-Reformism” links.**

***Strict* EU or *lax* US enforcement get equally spun as driven by or propping up neolib. Let’s finish foster first**

**Foster 19** [Chase Michael Foster was a Doctoral Candidate at Harvard University at the time of this dissertation. The author has served as a Election Observer (OSCE, ODIHR) in Moldova, Belarus, Russia, Georgia and as a Teaching Assistant at the Harvard Kennedy School of Government. At the time of this writing, the author held a MPP (Democracy, Politics, and Institutions) from the Harvard Kennedy School of Government. “The Politics of Delegation: Constitutional Structure, Bureaucratic Discretion, and the Development of Competition Policy in the United States and the European Union, 1890-2017” – Doctoral dissertation to The Department of Government, Harvard University, Graduate School of Arts & Sciences. In partial fulfillment of the requirements for the degree of Doctor of Philosophy in the subject of Government - January 2019 - #E&F –https://dash.harvard.edu/bitstream/handle/1/41121359/FOSTER-DISSERTATION-2019.pdf?sequence=1]

While each of these accounts points to some of the real ways that ideational change affected competition policy in each system, **there are problems with explaining opposite trends as the result of the same paradigm shift**. An **ideas-only** approach leaves us in the awkward position of explaining both the increase in the intensity of competition enforcement in the EU and the decrease in antitrust enforcement in the US as resulting from the same (or similar) neoliberal policy paradigm. While any analysis of competition policy developments must account for ideational change, we need to understand why the same set of ideas has produced different patterns of enforcement in Europe and the United States.

Additionally, there are **empirical gaps** in the **ideational explanation.** Certainly, the influence of the Chicago School **cannot account** for why US regulators have failed to follow much of the neoliberal prescription for liberalization and industrial policy. Chicago School economists, after all, have long supported the application of antitrust in these areas (Van I lorn 2015; McChesney 1986; Bork 1978). Moreover, there is no shortage of classically-trained economists in the European competition system.

**Those conclusions exist in cognitive dissonance. Contingent deployments of law that don’t throw the baby out with the bathwater is best**

**Foster 19** [Chase Michael Foster was a Doctoral Candidate at Harvard University at the time of this dissertation. The author has served as a Election Observer (OSCE, ODIHR) in Moldova, Belarus, Russia, Georgia and as a Teaching Assistant at the Harvard Kennedy School of Government. At the time of this writing, the author held a MPP (Democracy, Politics, and Institutions) from the Harvard Kennedy School of Government. “The Politics of Delegation: Constitutional Structure, Bureaucratic Discretion, and the Development of Competition Policy in the United States and the European Union, 1890-2017” – Doctoral dissertation to The Department of Government, Harvard University, Graduate School of Arts & Sciences. In partial fulfillment of the requirements for the degree of Doctor of Philosophy in the subject of Government - January 2019 - #E&F –https://dash.harvard.edu/bitstream/handle/1/41121359/FOSTER-DISSERTATION-2019.pdf?sequence=1]

The **Implications for Public Policy**

Finally, this study has implications for several policy questions of relevance to students of the American and European regulatory states. The traditional view among regulatory scholars in both the United States and Europe is that political control helps to increase democratic legitimacy. Among many Americanists, political control is seen as the only thing preventing regulatory capture and bureaucratic degeneration (e.g. Miller 2005; Epstein and O'i Ialloran 1999).'' And much of the reform program of the last century has focused on the need to constrain federal bureaucrats in the name of democratic accountability—whether through procedural rights that mostly empower industry vis-a-vis government (Grisinger 2012) 'private attorneys general' provisions that allow citizen groups to participate in enforcement directly (Burke 2002), or cost-benefit analysis that structures decision-making (Sunstein 1993).

In a different vein, the European Union is seen as having a "democratic deficit", in part, because the Commission and other technocrats possess extensive discretionary authority. While it is recognized that technocratic policymaking can increase regulatory effectiveness, many reformers think this 'output legitimacy' is limited by the weak degree of' input legitimacy.' Consequently, the institutional reforms most often proposed are to limit bureaucratic discretion and push European policymaking processes to look more like those found in the United States: to increase private enforcement opportunities (Kclcmen 2006), to expand administrative procedure limitations (Meuwese et al. 2009), to enlarge the power of the European Parliament (Follesdal and Hix 2006), and to create a directedly elected European executive.

The findings of the dissertation provide some reason to **challenge** the presumption that constraining the Commission would lead to **more** democratic **legitimacy**. As we have seen in the analysis of US antitrust enforcement, extensive political controls over regulatory decision-making may, in some circumstances, undermine regulatory effectiveness, while providing little by way of increased democratic legitimacy. If there is one consistent theme across the long history of the US antitrust system, it is dissatisfaction, expressed by politicians and economic interests coming **from a variety of ideological positions**. While political controls have, on the one hand, ensured that antitrust regulators were not overzealous in their enforcement. On the other hand, it has arguably led to underenforcement, as regulators have found it too difficult to use the law to address a range of economic challenges. Even during periods when the law has been actively applied, the pattern of enforcement has been volatile, providing little by way of rationalization in the economy or consistent limits on corporate behavior.

Furthermore, as we have seen in the analysis of European competition policy, much of the regime's apparent success stems from bureaucratic discretion. Examining the competition policy field, I have shown that the Commission's broad discretionary authority has allowed it to apply competition law in ways that fostered economic cooperation, contributed to economic development, held companies accountable and benefited consumers.

At the same time, we have seen how the Commission's decision-making has, at certain moments, lacked political accountability. Additionally, in its eagerness to use whatever vehicle appears available to advance the integration project, the Commission may have over-emphasized liberalization at the expensive of other goals (Jabko 2006). Consequently, the focus on negative integration may, in certain respects, created a 'neoliberal' bias in policymaking (e.g. Hopner and Schafer 2012).

Yet, in seeking to improve accountability, European policymakers **should not throw out the bureaucratic baby with the neoliberal bathwater**. As the "guardians of the Treaty", the Commission's agenda setting authority and monitoring powers, along with the European Court of Justice's power of judicial review, have arguably been the sine qua non for the process of European integration. As we have seen in the case of competition, the bureaucratic discretion and semi-autonomous structure of its decision-making process has, in certain respects, facilitated the regime's effectiveness, allowing the law to be applied to new economic challenges as they emerged. Increased accountability measures may be needed, but in pursuing these reforms, policymakers should be careful not to undermine the Commission's independence and the significant capacity and expertise that has been built up over the years.

The study also has policy implications for **the design of the US antitrust system**. As Robert Kagan has frequently emphasized, in addition to its myriad problems, American adversarial legalism also has strengths, not least the many opportunities the system presents to private actors who are overlooked by the state to seek justice. Another "strength of the weak state/' is the way it encourages a high degree of regulatory compliance (Dobbin and Sutton 1998). Cognizant that **law can be enforced from all directions**, companies may become more likely to comply with regulator)' rules, and even go beyond them, internalizing regulatory norms in their own internal policies and procedures. Such a system has arguably worked quite well in the development of capital markets, the rooting out of foreign corruption, and the protection of consumers against fraud.

But within regulatory arenas such as antitrust where compliance is not usually a matter of following or not following hard-lined rules, the American structure is hardly ideal. As we have seen in this study, when applied to complex economic problems, the adversarial legal system is marred with problems. Whether addressing problems presented by economic concentration, regulatory liberalization, or new technologies, it has been difficult for antitrust authorities to direct the law toward a consistent, coherent purpose. And it has been far too easy for the regime to be deployed toward the self-interested goals of **organized interests** or the **parochial concerns** of Congress.

**Consequently,** **within** fields such as **antitrust,** reforms **should be considered** that increase bureaucratic discretion. One idea would be to increase the funding available to both antitrust agencies, so they can play a more active role studying new industries and monitoring new market developments. Another would be to make it possible to pursue some enforcement through administrative actions, which are not as easily gamed by large corporations armed with teams of lawyers. Political principals could also delegate to the PTC the authority to write competition rules to promote liberalization in markets dominated by **incumbent companies** or within other **emerging sectors**. **Eliminating** some of the **exemptions** for regulated sectors and **state-sponsored activity**, while reducing the number of incentives that encourage private litigation **would** also **be salutary**. Finally, Congress should do what it can, within its constitutional limitations, to reduce the 'race to the bottom' in public subsidies. As the European model demonstrates, state aid rules need not eliminate public involvement in the economy. However, they can provide an important constraint on **beggar-thy-neighbor policies** that **leave everyone but large companies** worse off.

**Independently, the aff is an anti-racist approach to antitrust – Parker immunity blocks enforcement of anticompetitive practices sanctioned by state licensing boards. These boards entrench incumbent interests and exclude communities that lack socio-economic privilege**

**Weissmann ‘21**

Shoshana Weissmann, Senior Manager, Digital Media, Communications; Fellow, 3-11-2021 – modified for language that may offend - https://www.rstreet.org/2021/03/11/we-need-antitrust-reform-for-the-little-guy/

Overhauling antitrust is in vogue. Just last month the House Judiciary Committee launched a new series of hearings to flesh out potential changes to America’s current approach to antitrust enforcement. On Thursday, the Senate Judiciary Committee’s Subcommittee on Competition Policy, Antitrust, and Consumer Rights is having a hearing on antitrust reform. And, in a sign of the times, left-of-center advocates want to ensure antitrust enforcers adopt an “anti-racist” agenda that places marginalized communities at the **front of the discussion**.

So often when we ~~hear~~ (consider) about antitrust, we think about the government seeking to break up large corporate monopolies. Before Google and Facebook, it was Microsoft. Before that, Ma Bell. But there is plenty of anti-competitive behavior that takes place outside of the realm of big business, and there is a way to reform such behavior that also **places an emphasis** on protecting disadvantaged communities: Congress can overturn the “state action doctrine” as applied to occupational licensing boards. This doctrine has long allowed semi-governmental occupational licensing boards to act in a blatantly anti-competitive manner—one that has a **stark and disproportionate impact on** ~~minorities~~ **(those lacking socio-economic and-or racial privilege), the poor, and small-business entrepreneurs.**

The **overwhelming burden** these occupational licensing requirements place on these groups is **staggering**, keeping people from earning an honest living, providing for their families, and contributing to society in the profession of their choice. These requirements include expensive schooling to certify practical skills that can be learned in other ways, or policies that limit participation in fields in the name of “safety,” when those safety issues are overblown.

In the 1950s, 1 out of every 20 people in the United States needed a license to do his or her job. Today, it’s 1 out of every 4. From the Obama administration to President Donald Trump to President Joe Biden, virtually everyone recognizes that something is horribly amiss. Even the Federal Trade Commission (FTC) released a detailed report in 2018 highlighting the dangers of overly burdensome occupational licensing and its disproportionate negative effects.

Bad board behavior is **rampant**. In recent years, Arizona’s cosmetology board cracked down on a student helping his community by cutting hair for people experiencing homelessness. Had Republican Gov. Doug Ducey not stepped in to help, the student’s career could have been ruined. African hair braider Isis Brantley was once arrested for braiding hair without a cosmetology license—a license that wouldn’t have even taught her to braid hair. In Louisiana, elderly widow Sandy Meadows was prevented by the board from earning a living arranging flowers because Louisiana requires a license to do so and she couldn’t pass an exam with a lower pass rate than the state’s bar exam. When she died, she was living in poverty.

The **dirty open secret** of occupational licensing boards is that they are often composed almost exclusively of people in the industry who have a **direct stake** in keeping others out. Cosmetology boards are often stocked with salon owners, for example. This kind of **collusive**, **anticompetitive behavior** aimed at entrenching incumbents to the detriment of workers, consumers, and society more broadly is exactly why we have antitrust laws in the first place.

The problem isn’t that enforcers don’t want to act—it’s that they **can’t** because of the “**Parker**” or “state immunity” doctrine. For nearly 80 years, there have been **severe limits** on how federal agencies and private plaintiffs could enforce America’s antitrust laws against a state-sanctioned entity, like an occupational licensing board. Under this doctrine, states are overwhelmingly protected from any kind of antitrust scrutiny, minus a few narrow exceptions.

Thankfully, courts have somewhat pulled back on this doctrine in recent years. In 2015, in a case involving non-dentists who were offering inexpensive teeth-whitening services, the Supreme Court refused to extend this immunity to North Carolina’s state dental licensing board because it was not actively supervised by the government and was composed of self-interested market participants. This decision was a step in the right direction, although its holding was narrow and the Parker doctrine was left largely intact.

Excluding competitors and keeping new entrants out of the market without reason is anticompetitive and should be punished, even when given a state’s stamp of approval. With its laser focus on antitrust, Congress is well-suited to take up the mantle on this issue.

Congress should empower antitrust enforcers like the FTC and DOJ to bring suits against these **collusive bodies** for their blatantly anticompetitive conduct. It can do this by overturning the state action doctrine’s application to licensing boards and allowing courts to look behind the veil of these “governmental” boards to gauge meaningfully whether they are engaging in intentionally anticompetitive conduct.

**Scope of Practice – or “S.O.P.” – restrictions *block access* and *hamper options for patient health*.**

**LDI ‘20**

Internally quoting Dr. Margo Brooks Carthon - LDI Senior Fellow, a Nurse Practitioner, PhD, RN, FAAN, and is also an Associate Professor at Penn’s School of Nursing. The LDI is the Leonard Davis Institute of Health Economics at the University of Pennsylvania (Penn). Six expert panelists are quoted and we are quoting the section from Margo Brooks Carthon – “Scope of Practice Restrictions and Vulnerable Populations: LDI Virtual Conference Explores The Issue's Changing Dynamics” - November 21, 2020 - #E&F - https://ldi.upenn.edu/our-work/research-updates/scope-of-practice-restrictions-and-vulnerable-populations/

The most heavily publicized debates around the SOP issue over the last 60 years have been about **n**urse **p**ractitioner**s** whose work is often focused on underserved communities that lack the most basic kinds of medical care. Panelist and LDI Senior Fellow Margo Brooks Carthon, PhD, RN, FAAN, is an NP and health services researcher in that field. She is also an Associate Professor at Penn’s School of Nursing, and a core faculty member at the Penn Center for Health Outcomes Policy Research.

“There are over two hundred thousand NPs in the United States working under varying degrees of **s**cope **o**f **p**ractice restrictions, depending on the states where they’re employed,” **Carthon said.** “These barriers have implications for population health as well as health equity.”

“Twenty-two states and the District of Columbia fully license NPs to practice independently. Others require career-long collaborative agreements with a supervising physician. Some require a physician to review a percentage of NP charts — ten percent every year in Alabama and Georgia; twenty percent every 30 days in Tennessee. NPs are often limited in the distance they can be from a physician and are required to jump through other hoops just to provide basic care.”

**the approach of NPs to care is transformatively different and accounts for social and economic determinants of health outcomes**

**Trotter 20** [LaTonya J. Trotter, Assistant Professor of Sociology at Vanderbilt, More Than Medicine : Nurse Practitioners and the Problems They Solve for Patients, Health Care Organizations, and the State 2020]

When I first arrived at the Grove, I was taken aback by the kind of intensive management that happened in its exam rooms. Very little of the activity in the clinic looked anything like what I expected to see within the medical encounter. But after months of observation, my initial surprise had settled into expectation. The case of Ms. Payne was not an outlier. Nor was Michelle an organizational aberration. The knitting together she performed for Ms. Payne was emblematic of the work of all the Grove’s NPs—not only for patients undergoing low-risk surgeries but also for those living with end stage renal disease, struggling through the uncertainties of multiple sclerosis, or dying from cancer. After months of watching these NPs at work, I confess that I had started to take this state of affairs for granted: this was the work these NPs did; this was the work the Grove needed them to do. Michelle, however, may not have seen things in quite the same way. As we ended our last conversation about Ms. Payne, Michelle flashed a smile that was not really a smile and asked, “Now what part of all that was medical care?” Her question shook me out of my analytical complacency and, to a large extent, animates the questions at the heart of this account. How should we understand the care that NPs provide? And whose problems are they intended to solve?

From the ten-thousand-foot view of policy, the answers to both questions seem fairly clear. The care NPs provide should, ideally, be the same as that of physicians. Physician indignation notwithstanding, the scholarly consensus is that this is the case. Fifty years of research has demonstrated that patients who see NPs largely have the same outcomes as those who see physicians; when there is a discrepancy, it is usually in the NPs’ favor (Buerhaus et al. 2018; DesRoches et al. 2017; Horrocks, Anderson, and Salisbury 2002; Landsperger et al. 2016; Laurant et al. 2004; Lenz et al. 2004; Martínez-González et al. 2014; Mundinger et al. 2000; Naylor and Kurtzman 2010; Newhouse et al. 2011; Ohman-Strickland et al. 2008; Ramsay, McKenzie, and Fish 1982; Stanik-Hutt et al. 2013). This robust evidence of equivalence grounds our collective assumptions about what NPs are for: to fill in for the missing physician.

Nurse practitioners were, in fact, intentionally created to deal with the growing scarcity of primary care physicians. In the 1960s, that scarcity was triggered by increased demand for services caused by the baby boom and the creation of public health insurance in the form of Medicare and Medicaid (Fairman 2008; Silver, Ford, and Steady 1967). Today, that scarcity is exacerbated by our aging population and the expansion of insurance through the Patient Protection and Affordable Care Act. Meeting this growing demand comes with a cost for insurers as well as health care organizations. That NPs are cheaper to train and less costly to employ than physicians has led to their being championed by policy makers and economists alike.

The NP as policy solution rests on a logic of substitution: when physicians cannot be found or afforded, the NP is a reasonable facsimile. The story of Ms. Payne suggests an alternate view of NP utility. Although paying for medical care remains an issue for many, it was not one for Ms. Payne. Like most Americans, she became eligible for Medicare when she reached the age of sixty-five. However, despite having a payer for medical services, she did not always have access to the full range of assistance she required. Ms. Payne needed help getting back and forth to medical interventions such as her cataract surgery. She needed help adhering to medical regimens such as her postoperative care instructions. Even before any of this practical work commenced, she needed someone to help her think through the help she needed and to coordinate with a range of people and organizations to make it happen. None of this assistance is paid for by Medicare because none of it qualifies as medical care. Even if she qualified for public or charitable programs to meet these needs, accessing and navigating those resources would require both knowledge and time. Although much has been made of the physician shortage, Ms. Payne’s hurdles equally arose from the **scarcity of supportive care**.

Ms. Payne’s story is also an illustration of the intertwined problems of economic and social precarity. Ms. Payne was not only a beneficiary of Medicare; she was also a recipient of Medicaid. Because poverty is the primary eligibility criterion for Medicaid, we often think of it as health care for the poor. However, it might be more accurate to call it long-term care for the ~~disabled~~. While long-term care sometimes includes skilled nursing, it is primarily designed to assist with the activities of daily living, such as bathing, dressing, eating, and toileting. Because these services are excluded from Medicare, individuals and families have to pay for them on their own.

Few can shoulder these costs for years on end. In 2018, the yearly cost for forty hours a week of home care assistance was just under forty-six thousand dollars (Genworth 2018). These expenses are in addition to the mounting costs of medical care. Even the insured are expected to pay some portion of the costs of medications, hospitalizations, and provider visits. If nursing home placement becomes necessary, these costs can increase exponentially. In 2018, the annual cost of a semiprivate nursing home room was just over eighty-nine thousand dollars (Genworth 2018). While some may enter older adulthood in poverty, a great many others become poor as a consequence of failing health and mounting costs. For adults, it is often the combination of poverty and disability that results in eligibility for Medicaid. As a consequence, Medicaid 6 has become the single largest payer for long-term care in the US. In 2015, Medicaid paid for 36 percent of all home health care and 31.7 percent of all nursing home care (Burwell 2016).

Entering older adulthood intensifies not only economic needs but also social needs. In addition to paid care, most older adults rely on the unpaid assistance of family and friends (Freedman and Spillman 2014). Much of this assistance is material, such as help with transportation, grocery shopping, or household maintenance. Social support is also important. While aging itself does not increase social isolation, the illness and disability that often accompany it do (E. Y. Cornwell and Waite 2009a, 2009b; B. Cornwell, Laumann, and Schumm 2008). As one’s needs increase, the resources in one’s personal networks can become strained and sometimes exhausted. Medical vulnerability is often exacerbated by economic and social vulnerability, which in turn can negatively impact health and quality of life (Krause, Newsom, and Rook 2008; Newman 2003).

At the Grove, patients like Ms. Payne, faced with the **interconnected problems** of **aging**, **illness**, and **poverty**, turned to their NPs for a kind of work that was **more than medical care**. And at least some of the time, they found it. This book is an on-the-ground account of how a group of NPs cared for four hundred African American older adults living with poor health and limited economic resources. I followed these NPs as they saw patients, met with colleagues, and spoke with family. What I witnessed was **less a facsimile of physician practices than a transformation of them**. These NPs expanded the walls of the clinic to include **not just medical complaints** but a broad set of ~~indigenous~~ complaints. Patients presented with serious medical problems, such as congestive heart failure and diabetes, but they also brought a broader set of social and economic problems that, for them, were of equal importance. In response, the NPs practiced a professional openness to information and problems that are usually filtered out of the exam room. In response to this openness, patients and their families turned to the clinic as the place to get a diversity of needs met. Through this iterative cycle of openness and turning to, both the **encounter and the work performed** within it **were** **transformed**.

Clinic Work

The proposition that NPs are doing **different work** from physicians is grounded in a **broader** historical **distinction between medicine and nursing**. If physicians are the iconic providers of medical work, nurses are the iconic providers of **care work**. Broadly speaking, care work is defined as labor—paid and unpaid—that cares for members of society who cannot care for themselves because of age, illness, or disability (Duffy 2005; England 1992). While some scholars make further divisions between types of care work, what fundamentally distinguishes care work from other forms of labor is how it is performed and, often, who performs it (Duffy, Albelda, and Hammonds 2013; England 2005).7

Care work is based less on discrete services than on a **general responsiveness to the needs of a person**. In this way, care work is inherently relational. To use an example outside health care, kindergarten teachers are involved not just in educational instruction but in helping their charges eat, visit the toilet, and learn to socialize with one another. Moreover, how the work unfolds depends on the quality of the relationships that form between students, teachers, and parents. These features of the work cannot be separated from the fact that most care workers are women. Care work often overlaps with labor historically performed by women in the domestic sphere. Those who perform such work today continue to be marked by gender and the lower status associated with “women’s work” (Charles and Grusky 2005; England 2010; England, Budig, and Folbre 2002). Despite the gendered devaluation that comes with seeing nursing as care work, nurses continue to claim care as a category and relationship as a feature that distinguishes the practice of nursing from the practice of medicine (Apesoa-Varano 2007, 2016; Evans 1996; Radwin 1996; Tanner et al. 1993).

In this account, I advance the notion of clinic work to illustrate the ways in which the Grove’s NPs brought care work into the medical encounter. I employ this term for two reasons. First, it reflects the reality that the NPs’ work was different in both form and content from the medical work of their physician colleagues. This difference was a consequence not of formal role distinctions but of a very different embodiment of what it meant to address patient complaints. When family disagreements and economic challenges were allowed to enter the clinic as part of the problem of disease management, what “disease management” meant was fundamentally altered. The observation of this difference came not only from me but also from the physicians—the providers best situated to evaluate what medical work was and was not. However, the NPs did address bodily complaints. Moreover, they were held to account by billing paperwork that required their work be made visible as medical work. Because they were doing this work from within the medical visit, this expansive form of clinic work had consequences not only for constructions of NP work but also for changing expectations of the medical encounter.

Second, I use clinic work to underline the ways in which the NPs’ work invoked a different form of relationality—it was in deep relationship with the organization or clinic in which it was located. The Grove’s NPs worked in a context organized around teams. The traditional boundaries one might draw between forms of expertise were less apparent in this organizational context. For patients whose problems were defined as much by poverty as by illness, and whose care was as much a feat of coordination as one of curative treatment, the lines between medical problems, social problems, and organizational problems were not easy to draw. In order to understand the construction of clinic work, I had to account for the ways in which some problems became NP problems while others did not. I discovered that the transformation of the clinic encounter was about neither the rearrangement of tasks nor the renegotiation of turf alone, but rather the working out of much deeper questions about what these problems were, and who was responsible for solving them. The organizational context in which this working out occurred is as much a part of the story as the providers themselves.

Organizational Care Work

Forest Grove Elder Services is not an ordinary outpatient clinic. It is a federally backed policy experiment to evaluate whether a comprehensive care model could ameliorate the state’s economic burdens for long-term care. The pillars of the Grove’s cost savings are coordination and capitation. The team model was its primary strategy for coordinating care. Each team consisted of a mandated mix of providers who worked together not only to provide direct medical, nursing, and supportive care but also to coordinate access to specialists, home care aides, and a host of ancillary services. To pay for this care, the Grove received monthly per capita or per member payments instead of fee-for-service reimbursements. This system provided an incentive to control costs and incentivized preventive over interventionist forms of care. Yet the Grove still operated under the quasi-market logic of all US health care: if its members did not believe they were receiving quality care, they could take their Medicaid and Medicare insurance elsewhere. The Grove had to provide not just cheaper care, but care of sufficient quality to successfully compete with other health care organizations. In some ways, the Grove’s experimental objective was to figure out how to deliver care work under the aegis of medical care. Its mission of intensive management and service coordination necessitated a layered understanding of each patient that required it to be responsive to a broad and variable set of individual needs. Even speaking of its patients as “members” was a nod to the expectation of relationship and responsibility. How does an organization—whose payment structure and regulatory environment still make it primarily accountable for medical work—deliver on the promise of providing the kind of patient-centered relationality required of care work? At the Grove, the answer was through its NPs. One of the unique features of the Grove was that the NP, rather than the physician, was the formal head of the team. What it meant for the NPs to lead, however, was unclear. I observed that NP leadership was often reworked as NP responsibility. The NPs became solely responsible for ensuring that the Grove’s mission of coordination was achieved. Within the expansive category of clinic work, the NPs were expected to deal with a broad set of problems not only as a way of helping their patients but also as a way of managing “difficult patients” for their employer. Doing so was not a simple matter. Various departments inside the Grove had to work together for member care, and the Grove had to communicate with a range of external organizations and family members. Moreover, the work of coordination seemed to generate as many problems as it solved. For the NPs, solving member problems often involved helping them navigate the inefficiencies of the organizations in which they sought care—including those at the Grove. I argue that these NPs were not simply performing an expansive form of work on behalf of their patients; they were also providing an expansive form of organizational care work for their employer. As the NPs put out a range of social and organizational fires in the exam room, they were tasked with the invisible work of caring for the organization as they cared for patients. Clinic work was not in opposition to organizational demands but was partly constructed through the NPs’ responsiveness to them. Problems not solved within the exam room became organizational problems. Patients whose social problems were significant hurdles to medical stability might transition to higher and more expensive forms of care. Members who struggled to navigate the Grove’s inefficiencies might leave the program, expressing their dissatisfaction with the Grove in a way that was visible to the state. The NPs’ performance of organizational care work made them a different kind of provider to patients, as well as a different kind of worker for their employer. I entered the Grove attentive to the work of the NP. My main finding is that their labor became the primary means through which the Grove embodied its own mission of being a caring organization. How these NPs turned a broad set of concerns into clinic concerns reflected the expectations of their colleagues and employer as much as those of patients. I argue that these NPs were doing more than practicing medicine sprinkled with nurse-branded empathy; they were transforming the nature of the work itself.

Nursing’s Utility under State Retrenchment

In exploring how these NPs solved problems for members and their employing organization, I had to grapple with the larger context in which these problems came into being. Physician scarcity is often treated as a naturally occurring problem inherent to developed countries with high demand for medical care. Yet this scarcity is not simply a consequence of consumer demand; it is a consequence of inequality. Not everyone struggles to find a physician; those with the least lucrative problems and the fewest resources are the most likely to have trouble accessing physician care. Perhaps one might wish that physicians would behave more altruistically. However, I argue that this uneven distribution of workers and work is a consequence of state inaction rather than individual career choices. While the federal government has decried the physician shortage, it has largely taken a noninterventionist approach in addressing it. The state may coax or convince, but if physicians prefer dermatology to pediatrics, it will not compel. This reticence to use state power is not matched by a reticence to provide state funding. In 2015, the federal government provided 14.5 billion dollars to support medical residents working in teaching hospitals (Villagrana 2018). Even the economic disincentives to working in primary care are a function of state inattention. The comparative lucrativeness of specialty care is partly a consequence of unregulated prices. The federal government treats health care as a commodity and largely declines to interfere in the medical marketplace. It becomes impossible to understand the creation of NPs without placing them within the context of what the state has decided not to do. In the years since I began this research, I have often been asked how NPs in the US compare to those in other parts of the world. The simple answer is that there is no other country that uses NPs in quite the same way. Governments that are less reluctant to directly control costs and personnel have less need for this new provider. Some countries, such as Canada, the United Kingdom, and Australia, are in the process of experimenting with NPs. Referencing the US as a model, they are deploying NPs to counter physician shortages in medically underserved areas. However, the NPs’ extensive use and level of practice autonomy is a uniquely US phenomenon because the US is singular in having a ~~hands-off~~ approach to health care while largely financing its provision. In 2013, the federal government financed nearly two-thirds of all US health care (Himmelstein and Woolhandler 2016). In this context, the NP becomes a privatized, professional response to a set of policy problems that the state has declined to address through other means. The pairing of state financing with privatized solutions has come to characterize not just health care policy but the US welfare state more broadly. Since the 1980s, the US has been the chief evangelist and implementor of neoliberal policy reforms (Centeno and Cohen 2012). Most of these reforms have been directed at deregulating money and labor; however, the general tenet of favoring markets over state influence has had a significant impact on social policy. A move toward smaller government has resulted in the downsizing and privatization of state and federal safety-net programs (Morgen 2001; Smith and Lipsky 2009). The socially and economically vulnerable have been the chief casualties of this approach. But there have also been professional ones. Social workers were once the professional ~~foot~~ ~~soldiers~~ of the welfare state. In the early to mid-twentieth century, the robustness of professional social work reflected prevailing ideas about the state’s role in addressing the symptoms and structural causes of poverty. As the government established relief programs and national efforts such as the War on Poverty, it relied on social workers to carry them out (Ehrenreich 1985). However, the use of state power to address inequality has fallen out of favor. Many of the programs that social workers once implemented have languished or disappeared. Those that remain are increasingly privatized, with social work’s purview narrowed to policing client eligibility rather than providing therapeutic assistance or community development (Lipsky 1980; Schram and Silverman 2012; Smith and Lipsky 2009). With little to no state support, social work’s professional decline was all but inevitable. The story of social work’s falling fortunes is more than just an interesting piece of occupational history. Its diminished status reflects the state’s disavowal of any moral obligation to ameliorate social inequality. Although individual social workers continue to fight on behalf of their clients (Aronson and Smith 2010; Fabricant, Burghardt, and Epstein 2016), social work is in danger of becoming a disciplining agent of the state rather than the agent of social change its pioneers envisioned it to be (Schram and Silverman 2012; Soss, Fording, and Schram 2011). How this shift occurred is a question best addressed by historical analysis. But the logic of its reproduction can be understood through attention to the work that social workers do, and don’t do, within the multidisciplinary environment of a health care organization. The Grove was not unusual in employing NPs, but it was unusual in employing social workers. Social workers are a rarity in outpatient care because, usually, there is no payer for their work in this setting. At the Grove, social worker inclusion was required by the federal regulations that governed the program. Their presence raised an important question: How did the clinic encounter, rather than the social work encounter, come to be the appropriate location for the “sticky” problems of coordination and social precarity? I found that the social workers occupied a marginal position within an organization whose economic solvency was based on the performance of medical work. The logic of medical necessity that set priorities for the Grove’s resources led to an institutional disinvestment in both the social workers and their realm of expertise. The social workers found that what they thought of as real social work had been replaced by labor that was largely in service to state-required paperwork and the regulatory requirements of medical work. Comparing the plights of the Grove’s NPs and its social workers revealed that the appearance of social problems in the exam room was a function not just of NP professional openness within the clinic encounter, but of the lack of resources given to address these problems outside it. The federal government has largely withdrawn itself as a payer for the problems of poverty even as its financing of medical care has soared. I argue that the saliency of the NP is as much a story of welfare state retrenchment as one of economic utility. The hurdles faced by the Grove’s social workers illustrate the limitations of analyzing occupational strategies without placing them within a larger political economy. The NP as policy solution is based on the logic of substitution. Once we start interrogating this logic, a new set of questions arises. As the sociologist Everett Hughes (1970) observed, experts do not just solve our problems; they shape our conceptions of them. The NP might be the kind of solution that rearranges the problem in new ways. Accordingly, the chapters that follow do more than describe the work of a particular category of clinician. They provide a view, from the ground up, of a broader reorganization of medical labor and its relationship to the ever-shifting division between medical problems and social problems. Nurse practitioners are often thought of as filling in for the absent physician. Together, these pages make the case that NPs are just as often filling in for the absent state.

The arguments I make in this book speak to broad changes in health care delivery. Although these arguments are far-reaching in their implications, they are made through the materiality of Forest Grove Elder Services. The first chapters of the book speak directly to the idea of NPs as a policy solution. In part I, I situate the Grove as both a professional and an organizational solution to the problems of health care, old age, and poverty. The Grove and its NPs do not exist in a vacuum; they coexist in a policy environment in which both nursing and health care organizations are seeking to capitalize on state support. I illustrate that the expansion of nursing’s terrain is intertwined with changes in the organization and provision of care for older adults. I then describe the professional resources that these NPs used to construct a notion of clinic work within this expanded terrain. In following the journey of member problems—how they are generated, to whom they are brought, and who fixes them—I reveal organizational logics about the type of expertise the Grove collectively believed resided within the clinic. Part of the work of this section is to reinterpret the clinical encounter as more than a meeting between a medical provider and the patient’s chief complaint, but as an institutionally situated meeting of a range of complaints. I make the case for the NPs’ performance of organizational care work by paying attention to the work they do and contrasting it with the work the physicians do not.

In part II, I demonstrate how the new notion of clinic work effectively reconstructs physician understandings of what constitutes medical work. I begin by looking directly at the relationship between NPs and physicians. The NPs I followed had three distinct views of who physicians were in relationship to their own practice: consultants, captains, or teammates. These three framings led to very different ways of being what each considered a competent NP. I then investigate how the physicians reoriented their own domain of work in the face of the NPs’ view of their role. I pay particular attention to the unease experienced by physicians who found themselves working within NP-led teams, as well as how that unease was managed through actively relocating physician expertise outside the clinic. In doing so, I show that the NPs’ clinic work was a relational concept that required adjustments in how physicians understood their own work.

In part III, I consider how the expansion of clinic work is inextricably tied to the shrinking domain of social work, both as a profession and as an orientation to social problems. Empirically, I ground my analysis in the everyday work of the Grove’s social workers, who are positioned at the margins of an expanding clinic. I situate these observations within a broader view of social work’s precarious professional position. Part of the challenge of claiming expertise for social work is its location in the devalued world of social problems. In this section, I argue that the legitimacy of the NP is related to the delegitimization of social work. The different fates of these two professions do not simply represent a problem of professional strategy; rather, they reflect an unwillingness, in policy and in ideology, to recognize the economic and political character of social problems. I end by questioning professionalization more generally as a privatized response to collective concerns.

Through illustrating these arguments, this book is both a meditation on and an empirical excavation of the possibilities NPs are forging within the confines of the medical encounter. When NPs fill the space that physicians have absented, they are embodying a **different set of possibilities** for what the health care encounter could be. In doing so, they are positioned to make [recognizable] ~~visible~~ not just the scarcity of physician labor but that of **caring labor**. Although sometimes self-conscious of the claim, nursing still relies on care as the bedrock of its professional identity and legitimacy. To care is not empty rhetoric; it is work. And although it is usually seen as ancillary to the main stage of medical interventions, health care organizations have never been more reliant on such work. The Grove’s NPs may have been unique in the wealth of organizational resources available to them as they embodied nursing expertise. However, I believe they are not alone in being asked to solve different problems than their physician colleagues.

I suggest that, as providers with different professional experiences and held accountable to different expectations, NPs are opening the exam room to a different kind of clinical performance. Not only is this performance **reshaping** our ideas about **medical work**, but it is also a mirror that reflects how we choose to care for our most vulnerable citizens. In this account, I have avoided revisiting the question of what kind of work NPs should or should not do. Rather, I provide a closer look at the work they are actually doing, not just for their patients but for the health care organizations that employ them and for the state, which chooses to care in some ways but not others. In focusing on the work NPs do, I hope to both illuminate and trouble the relationship between who we think should solve our problems and what we understand those problems to be.

**Alt’s vague---no actor or mechanism---voting issue: jacks ground and means the alt doesn’t solve**

**No impact---it’s empirically denied, long time-frame, and perm solves**

**Alt fails---transition is impossible and causes conflict. Even if transition occurs, it doesn’t solve**

**Smith 19** [Noah; 4/5/19; Bloomberg Opinion columnist, former assistant professor of finance at Stony Brook University; "Dumping Capitalism Won’t Save the Planet," https://www.bloomberg.com/opinion/articles/2019-04-05/capitalism-is-more-likely-to-limit-climate-change-than-socialism]

It has become **fashionable** on social media and in certain publications to argue that **capitalism is killing the planet**. Even renowned investor Jeremy Grantham, hardly a radical, made that assertion last year. The **basic idea** is that the **profit motive** drives the **private sector** to **spew carbon** into the air with reckless abandon. Though many economists and some climate activists believe that the problem is best addressed by modifying market incentives with a carbon tax, many activists believe that the problem can’t be addressed **without rebuilding** the **economy** along centrally planned lines.

The climate threat is certainly dire, and carbon taxes are unlikely to be enough to solve the problem. But eco-socialism is probably **not** going to be an **effective method** of addressing that threat. **Dismantling** an **entire economic system** is **never easy**, and probably would **touch off armed conflict** and **major asdasd upheaval**. In the scramble to win those battles, even the socialists would almost certainly abandon their limitation on **fossil-fuel use** — either to support **military efforts**, or to keep the population from turning against them. The precedent here is the **Soviet Union**, whose multidecade effort to **reshape its economy** by **force** amid **confrontation** with the West led to profound **environmental degradation**. The world's climate does not have several decades to spare.

Even **without international conflict**, there’s **little guarantee** that moving away from capitalism would **mitigate our impact** on the environment. Since socialist leader Evo Morales took power in Bolivia, living standards have improved substantially for the average Bolivian, which is great. But this has come at the cost of higher emissions. Meanwhile, the capitalist U.S managed to **decrease its per capita emissions** a bit during this same period (though since the U.S. is a rich country, its absolute level of emissions is much higher).

In other words, in terms of **economic growth** and **carbon emissions**, Bolivia looks similar to more capitalist developing countries. That suggests that **faced with a choice** of enriching their people or helping to save the climate, even **socialist leaders** will often choose the former. And that same political calculus will probably hold in China and the U.S., the world’s top carbon emitters — leaders who demand **draconian cuts** in **living standards** in pursuit of environmental goals will have **trouble staying in power**.

The **best hope** for the climate therefore lies in **reducing the tradeoff** between **material prosperity** and **carbon emissions**. That requires **technology** — **solar**, **wind** and **nuclear power**, **energy storage**, **electric cars** and other vehicles, carbon-free cement production and so on. The **best climate policy** plans all involve **technological improvement** as a **key feature**.

**Conditionality is a voter---creates time and strategy skews, argumentative irresponsibility---dispo solves**

**Cap’s sustainable and ensures global prosperity and environmental protection**

**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**.

**T Private**

**Private Sector – We Meet – 1AR**

**It’s used to shield private parties**

**Hittinger 19** [Carl W Hittinger, BakerHostetler’s antitrust and competition practice national team leader, J.D., Temple University Beasley School of Law, September 2019 https://www.bakerlaw.com/webfiles/Litigation/2019/Alerts/GCR-Private-Antitrust-Litigation.pdf]

Since Parker, the Supreme Court has recognised at least three different situations where state action immunity may exist.4 First, a state’s own actions, such as legislative enactments, are considered ipso facto exempt from the antitrust laws.5 Second, government entities below the state level, such as municipalities, ‘receive immunity from antitrust scrutiny when they act pursuant to a “clearly articulated and affirmatively expressed” state policy to displace competition’.6 Third, **private parties** acting through state or local government entities may enjoy state action immunity, provided their conduct meets two prongs: the conduct is undertaken pursuant to a ‘clearly articulated and affirmatively expressed’ state policy, and is ‘actively supervised by the State itself ’, as the Supreme Court explained in California Retail Liquor Dealers Association v Midcal Aluminum, Inc. 7

This third situation – **private parties** acting within governmental entities – has **exploded in number** across the United States since Parker. Today, state and local governments frequently delegate the management of an array of public services, including water, sewer, schools, utilities and hospitals to boards, commissions or other quasi-government entities. Similarly, many states delegate the regulation of professions to boards consisting of participants in those professions – including regulatory or licensing boards for doctors, dentists, chiropractors, nurses, veterinarians, lawyers, architects, plumbers, engineers, brokers and accountants.8 California alone recently claimed to have 31 such boards,9 and studies have shown that market participants constitute a majority on most professional boards.10 In the course of their operations, these entities often award contracts, issue licences and impose discipline – all of which could be challenged as anticompetitive by the parties not awarded contracts, denied licences or subjected to discipline. Uncertainty with the panoply of claims in situations like these eventually led to the Supreme Court agreeing to review the state action immunity’s application to a state regulatory board comprising mostly private market participants who allegedly had acted to preclude competition under the guise of state authority

**It applies to private entities**

**Rosch 12** [J. Thomas Rosch, Commissioner, Federal Trade Commission 10-3-2012 https://www.ftc.gov/sites/default/files/documents/public\_statements/returning-state-action-doctrine-its-moorings/121003stateaction.pdf]

In its 1943 Parker v. Brown decision,9 the Supreme Court recognized the potential constitutional concerns raised by interpreting the federal antitrust laws to reach actions of states. The Parker case involved a challenge to a California regulatory system that restricted competition among growers of certain agricultural products for the express purpose of increasing prices and increasing the agricultural wealth of the state. Although such a program would undoubtedly violate the Sherman Act if done by private persons, the Court held that California’s program was not a conspiracy in restraint of trade because the antitrust laws did not “restrain state action or official action directed by a state.”10 As the Court explained, “[w]e find nothing in the language of the Sherman Act or in its history which suggests that its purpose was to restrain a state or its officers or agents from activities directed by its legislature.”11 Thus, under Parker, anticompetitive regulation will survive antitrust challenge as long as a court is satisfied that the restraint at issue is truly state action.12 This has come to be known as the state action doctrine, or Parker immunity.13

Subsequent Supreme Court cases have expanded the reach of the state action doctrine beyond state legislatures to other public entities and even **private entities**. In Hoover v. Ronwin, the Court held that the decisions of a state’s highest court are actions are those of the state and exempt from the federal antitrust laws.14 The same decision suggested, but did not decide, that decisions by a state’s governor may be actions of the state and likewise exempt.15

When **private actors** engage in conduct that otherwise would violate the antitrust laws, they too can avail themselves of state action protection as long as the state has put into place sufficient safeguards to assure that the private actors are pursuing state goals rather than their own.16 In Midcal, the Supreme Court held that the state action defense is available to private parties if they can show that the challenged restraint is (1) pursuant to a “clearly articulated and affirmatively expressed [] state policy” and (2) “actively supervised by the State itself.”17 The clear articulation requirement is “directed at ensuring that particular anticompetitive mechanisms operate because of a deliberate and intended state policy,”18 while “the requirement of active state supervision serves essentially an evidentiary function: it is one way of ensuring that the actor is engaging in the challenged conduct pursuant to state policy.”19

**Practices – 2AC**

**‘PRACTICES’---includes patterns of behavior by a single firm.**

James E. **Seibert 7**, US Magistrate Judge, US District Court, Northern District of West Virginia, “Wagner v. St. Paul Fire & Marine Ins. Co.,” 2007 U.S. Dist. LEXIS 117369, Lexis

Possible Ambiguities in Plaintiffs' Deposition Notice

Defendants argue paragraph a of the deposition notice is ambiguous. That paragraph stated testimony would be taken about Defendants' "claims handling and business practices utilized with respect to the insurance claims of plaintiffs in the underlying bodily injury [\*14] case." Defendants argue the term "business practices" is unclear. They also seek clarification regarding what "insurance claims" Plaintiffs made in the underlying case. Plaintiffs argue the "business practices" is not vague, but is rather well-established under West Virginia state law. Plaintiffs did not address Defendants' arguments about which insurance claims they made.

The Court agrees with Plaintiffs that the term "business practices" is **not vague or ambiguous** under West Virginia law. To succeed on a third party bad faith claim such as this one, Plaintiffs must demonstrate Defendants violated the law with **such frequency** as to demonstrate the conduct constituted a **general** business practice. Jenkins v. J.C. Penney Cas. Ins. Co., 167 W. Va. 597, 610, 280 S.E.2d 252, 260 (1981). The West Virginia Supreme Court later **defined** what **constitutes a** general **business practice** by holding that a plaintiff must prove

that the conduct in question constitutes **more than a single violation** of W. Va. Code § 33-11-4(9), that the violations arise from separate, discrete acts or omissions in the claim settlement, and that they arise from a **habit, custom, usage, or business policy** of the insurer, so that, viewing the conduct as a whole, the finder of fact is able to conclude that the **practice** or **practices** are [\*15] **sufficiently pervasive or sufficiently sanctioned by the** insurance **company** that the conduct can be **considered a** "general **business practice**" and can be **distinguished by fair minds from an isolated event**.

Holloman v. Nationwide Mut. Ins. Co., 217 W. Va. 269, 273, 617 S.E.2d 816, 820 (2005) (quoting Syl. Pt. 4, Dodrill v. Nationwide Mut. Ins. Co., 201 W. Va. 1, 491 S.E.2d 1 (1997)); see also Jackson v. State Farm Mut. Auto. Ins. Co., 215 W. Va. 634, 645-46, 600 S.E.2d 346, 357-58 (2004) (discussing how a plaintiff may show a general business practice). It is necessary for Plaintiffs to demonstrate a **business practice** in order to succeed on their claims. In giving notice of this topic for the deposition, Plaintiffs merely seek to find information to prove this element.

**CAP K**

**A2:Giroux**

1. Watts turns – says that rhetoric alone is insuffienct

**Alt fails---transition is impossible and causes conflict. Even if transition occurs, it doesn’t solve**

**Smith 19** [Noah; 4/5/19; Bloomberg Opinion columnist, former assistant professor of finance at Stony Brook University; "Dumping Capitalism Won’t Save the Planet," https://www.bloomberg.com/opinion/articles/2019-04-05/capitalism-is-more-likely-to-limit-climate-change-than-socialism]

It has become **fashionable** on social media and in certain publications to argue that **capitalism is killing the planet**. Even renowned investor Jeremy Grantham, hardly a radical, made that assertion last year. The **basic idea** is that the **profit motive** drives the **private sector** to **spew carbon** into the air with reckless abandon. Though many economists and some climate activists believe that the problem is best addressed by modifying market incentives with a carbon tax, many activists believe that the problem can’t be addressed **without rebuilding** the **economy** along centrally planned lines.

The climate threat is certainly dire, and carbon taxes are unlikely to be enough to solve the problem. But eco-socialism is probably **not** going to be an **effective method** of addressing that threat. **Dismantling** an **entire economic system** is **never easy**, and probably would **touch off armed conflict** and **major asdasd upheaval**. In the scramble to win those battles, even the socialists would almost certainly abandon their limitation on **fossil-fuel use** — either to support **military efforts**, or to keep the population from turning against them. The precedent here is the **Soviet Union**, whose multidecade effort to **reshape its economy** by **force** amid **confrontation** with the West led to profound **environmental degradation**. The world's climate does not have several decades to spare.

Even **without international conflict**, there’s **little guarantee** that moving away from capitalism would **mitigate our impact** on the environment. Since socialist leader Evo Morales took power in Bolivia, living standards have improved substantially for the average Bolivian, which is great. But this has come at the cost of higher emissions. Meanwhile, the capitalist U.S managed to **decrease its per capita emissions** a bit during this same period (though since the U.S. is a rich country, its absolute level of emissions is much higher).

In other words, in terms of **economic growth** and **carbon emissions**, Bolivia looks similar to more capitalist developing countries. That suggests that **faced with a choice** of enriching their people or helping to save the climate, even **socialist leaders** will often choose the former. And that same political calculus will probably hold in China and the U.S., the world’s top carbon emitters — leaders who demand **draconian cuts** in **living standards** in pursuit of environmental goals will have **trouble staying in power**.

The **best hope** for the climate therefore lies in **reducing the tradeoff** between **material prosperity** and **carbon emissions**. That requires **technology** — **solar**, **wind** and **nuclear power**, **energy storage**, **electric cars** and other vehicles, carbon-free cement production and so on. The **best climate policy** plans all involve **technological improvement** as a **key feature**.

**Sustainability---1AR**

**Try or die for sustainable growth – only innovation can solve in time** – prefer new IPCC report

**King and Lichtenstein 21** (David King, Founder and Chair, Centre for Climate Repair at Cambridge, University of Cambridge; and Jane Lichtenstein, Associate, Centre for Climate Repair at Cambridge, University of Cambridge; “Surviving the next 50 years is an existential crisis – 3 things we must do now,” The Print, 8-14-2021, https://theprint.in/opinion/surviving-the-next-50-years-is-an-existential-crisis-3-things-we-must-do-now/715069/)

The challenge of **surviving** the **next 50 years** is now seen as a **planet-wide existential crisis**; we need to work together urgently, just to secure a **short-term future** for human civilisation. Global weather patterns are violently disrupted: Greece burns; the south of England floods; Texas has had its coldest weather ever, while California and Australia suffer apocalyptic wild fires. All of these violent, record-breaking events are a direct result of rapid heating in the Arctic – occurring faster than in the rest of the world. A warm Arctic triggers new ocean and air currents that change the weather for everyone. The **only way** to **reverse** some of these catastrophic patterns, and to regain a kind of **stability** in climate and weather systems, is “**climate repair**” – a strategy we call “reduce, remove, repair” – which demands that we make **very rapid** progress to net zero global emissions; that there is **massive, active removal** of greenhouse gases from the atmosphere; and, in the first instance, that we **refreeze** the Earth’s poles and glaciers to correct the wild weather patterns, slow down ice-melt, stabilise sea level, and **break** the **feedback loops** that relentlessly accelerate global warming. There are **no either/or options**. Reducing emissions About 70% of world economies have **net zero emissions commitments** over varying timescales, but this has come **too late** to restore climate stability. The **IPCC** has asked for accelerated progress on this trajectory, but whatever happens, current emission rates of atmospheric greenhouse gases imply global warming of 1.5℃ by 2030 and well over 2℃ above pre-industrial level by the end of the century – a devastating outcome. In particular, **melting ice** and **thawing permafrost** are **considered inevitable** **even if rapid and deep CO2 emissions reductions are achieved**, with sea-level rise to **continue for centuries** as a result. **In every area of the world**, climate events will become **more severe** and **more frequent**, whether flooding, heating, coastal erosion or fires. There are definitely important steps that can still reduce the scale of this devastation, including **faster and deeper emissions reductions**. However, this is **not enough** on its own to **avert the worst**. Together there is **real evidence** that the **massive removal** of **g**reen**h**ouse **g**ases from the atmosphere and solutions such as **repairing** the Earth’s poles and glaciers could help humanity find a **surviv**able way out of this crisis. Removing greenhouse gases Taking CO2 and equivalent greenhouse gases out of the atmosphere, with the aim of getting back to 350ppm (parts per million) by 2100, involves creating new CO2 “sinks” – long-term stores from which CO2 cannot escape. Sinks operate at many scales, with forest planting, mangrove restoration, wetland and peat preservation all crucially important. **Very large projects**, such as the restoration of the Loess Plateau in China demonstrate **scalable** CO2 removal, with multiple add-on benefits of **food production**, **bio-d**iversity **enhancement** and **weather stabilisation**. **Habitat restoration** can also make economic sense. In the Philippines, mangrove is the focus of a cost-benefit analysis. Mangrove captures four times more carbon than the same area of rainforest, provides numerous ecosystem services and protects against flooding, conferring socio-economic benefits and significantly reducing the cost of dealing with extreme weather events. **Big new carbon sinks must be created** wherever safely possible, including in the oceans. Interventions that mimic natural processes, known to operate safely “in the wild”, are a workable starting point. Promotion of ocean pastures to restore ocean diversity and fish and whale stocks to the levels last seen 300 years ago is one such possibility – offering new sustainable food sources for humans, as well as contributing to climate ecosystem services and carbon sinks. In nature, sprinklings of iron-rich dust blow from deserts or volcanic eruptions, onto the surface of deep oceans, generating – in a matter of months – rich ocean pastures, teeming fish stocks and an array of marine wildlife. **Studies** of ocean kelp regeneration show the full range of real-life impacts, from increased protein sources for human consumption, to **restoration of pre-industrial levels** of ocean biodiversity and productivity, and extensive **carbon sequestration**. Extending the scale and number of ocean pastures could be achieved by systematically **scattering iron-rich dust** onto target areas in oceans around the world. The approach is intuitively scalable, and could sequester perhaps 30 billion tons per year of CO2 if 3% or so of the world’s deep oceans were to be treated annually. **Large-scale carbon-sink** creation of this kind is **pivotal** if the atmosphere is to return to pre-industrial CO2 levels. A **billion tons per year** of sequestration is the **minimum** threshold coordinated by the Centre for Climate Repair at Cambridge given the intensity of the climate crisis. While the scale of intervention is sometimes called “geoengineering”, the approach is closer to forest planting or mangrove restoration. The aim is to remove CO2 from the atmosphere using natural means, to return us to pre-industrial levels within a single generation. Repairing the planet The **immediate** challenge is to stabilise the planet, achieving a manageable equilibrium that gives a last chance to **shift** to renewable energy and towards a **circular global economy**, with new norms in urban, rural and ocean management. “Repairing” systematically seeks to **draw** the Earth **back** from climate **tipping points** (which, by definition, **cannot happen without direct effort**), providing a supporting framework in which “reduce” and “restore” can happen. Political and societal will is needed. The most urgent effort is to refreeze the Arctic, interrupting a bleak spiral of accelerating ice loss, sea-level rise – and the acceleration of climate change and violent global weather changes that they cause. Arctic temperatures have risen much faster (and increasingly so) than global average temperatures, when compared with pre-industrial levels. Figure 1 shows this clearly from 1850 to the present day. Melting Arctic ice embodies a powerful feedback force in climate change. White ice reflects the Sun’s energy away from the Earth before it can heat the surface. This is known as the albedo effect. As ice melts, dark-blue seawater absorbs increasing amounts of the Sun’s energy, warming increases, and ever-larger areas of ice disappear each summer, expanding the acceleration. Arctic temperatures govern winds, ocean currents and weather systems across the globe. A tipping point is passing: sea-ice loss is becoming permanent and accelerating; Greenland ice will follow and will eventually raise global sea-levels by over seven metres. Total loss may take centuries but, decade by decade, there will be relentless incremental impacts. By mid-century the melting will be irreversible, and sea-level rise alone will leave low-lying countries like Vietnam in desperate circumstances, with reductions to global rice production a certainty, many millions of climate refugees and no obvious pathway forward for such nations. Figure 1: comparison between average global temperature change, and change in the Arctic region from 1850 to present day. Provided by Nerilie Abram using IPCC data, ANU, Australia, 2021 The rapid Arctic temperature increase is matched by the rapid and accelerating loss in minimum (summer) sea-ice volume (Figure 2), which further accelerates the temperature rise in a spiral of reinforcing feedback loops. Figure 2: decline in annual minimum Arctic Sea ice volume 1980-2020. Provided by Nerilie Abram using IPCC data, ANU, Australia, 2021 It is **vital** to pivot the world back from this ice-melt **tipping point**, and to **repair** the Arctic **as rapidly as possible**. **Marine cloud brightening** in which floating solar-powered pumps spray salt upwards to brighten clouds and create a reflective barrier between the Sun and the ocean, is known to cool ocean surfaces and is a promising way to promote Arctic summer cooling. It mimics nature, and can be scaled up or down in a flexible way. Studies of marine cloud brightening, its climate impacts and interactions with human systems, are underway. As with promotion of ocean pastures, such solutions **must be critically analysed**, **but** there is **no longer any doubt** of their **crucial importance**. What we do in **the next five years determines the viability of humanity’s future**. Even if we narrow our aspirations to “survival”, fixing on a timescale of 50 years or so, the challenges are daunting. Humanity deserves better. We know what to do to be able to imagine thousands of years of human civilisation ahead, as well as behind us.

**Solves inequality**

\*answers Hickel

**Piper 21** (Kelsey, writing with Vox, citing Zeke Hausfather, climate scientist at the Breakthrough Institute, and Michael Mann, climatologist at Penn State, “Can we save the planet by shrinking the economy?,” 8/3/21, <https://www.vox.com/future-perfect/22408556/save-planet-shrink-economy-degrowth)//NRG>

There’s a lot of speculation here, and a lot of what degrowth’s critics would call hand-waving. Degrowth is fundamentally premised on the claim that we can cease to focus on growth while getting better than ever at addressing human needs. If that’s true, then that would certainly be great news. But in many ways, it’s a vision more **wildly optimistic** — disconnected from actual policy results — than any of the more standard “sustainable development” models degrowthers criticize for being out of touch. First, in the world today, there’s an **extremely strong** association between growth and welfare outcomes of every kind. GDP, while imperfect, is a better predictor of a country’s welfare state, outcomes for poor citizens in that country, and well-being measures like leisure time and life expectancy than any other measure. “GDP does leave out non-commercialized activities that are welfare-enhancing,” economist Branko Milanovic writes in a rebuttal of degrowth: It is, like every other measure, imperfect and one-dimensional. But ... it is imperfect at the edges while fairly accurate overall. Richer countries are countries that are generally better-off in almost all metrics, from education, life expectancy, child mortality to women’s employment etc. Not only that: richer people are also on average healthier, better educated, and happier. Income indeed buys you health and happiness. (It does not guarantee that you are a better person; but that’s a different topic.) The metric of income or GDP is strongly associated with positive outcomes, whether we compare countries to each other, or people (within a country) to each other. The things degrowthers care about — leisure time, health care, life expectancy — are strongly correlated with societal wealth. The generosity of a welfare state and the availability of transfers to a state’s poorest people are also strongly correlated with societal wealth. Innovation, discovery, invention, and medical technology improvements are also strongly correlated with societal wealth. The strong correlation between **child mortality** and GDP per capita is apparent on the above graph. There are some outliers — some countries outperform or underperform their GDP somewhat, in terms of preventing child deaths — but in general, wealth strongly predicts child survival. No single, simple medical intervention causes the difference. Wealthier societies on average get better health outcomes across the board. This graph looks at child mortality not just by comparing rich countries to poor ones but also by comparing countries over time, as they get richer: Getting richer improves outcomes for children. Leisure time, too, has increased — and hours worked have declined — as the world has gotten wealthier. It might be possible in principle to do better — to decouple, if you will, health and well-being from access to material resources, so that everyone is well-off with many fewer resources. But the examples degrowthers point to remain speculative ones; if we ought to be skeptical, as degrowthers argue we should be, about the decoupling of wealth from ecological impact, **we ought to be** at least as **skeptical about the prospects of decoupling wealth from living standards**.