## NU 1AC

### Plan

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

### Innovation – 1AC

#### Advantage One: Innovation

#### Innovation lags cause China conflict and existential threats

Suchodolsk 20 [Jeanne Suchodolsk, attorney with the United States Navy Office of General Counsel, December 2020 https://scholarship.law.unc.edu/cgi/viewcontent.cgi?article=1416&context=ncjolt]

Innovation, in particular, technology-based innovation, is the key driver for both economic competitiveness and national security. Other nations, with interests adverse to the United States, recognize this fact. In an increasingly interconnected world, nation states seek to accumulate innovation prowess, and hence economic strength, as a key element of their geopolitical power. Especially savvy nation states also pursue such ends as a mechanism to influence or diminish the national security and geopolitical power of the United States. There is no need to inflict upon the world the carnage of war if one’s geopolitical aims can be achieved via alternative competitive means.

Several authors suggest China’s long-term ambitions include unseating the United States as the world’s economic and political leader.1 More compelling than opinions, several United States (“U.S.”) government and private studies document a systematic and coordinated effort by China to achieve technical and economic dominance through misappropriation of U.S. technology.2 These efforts are additionally supported by a companion effort to weaken international economic institutions and norms designed to protect U.S. intellectual property and free trade.3 The Chinese tactics include illegal means, and sophisticated use of legal means, to misappropriate U.S. technology and weaken the U.S. innovation infrastructure including:

a) Leveraging the open university and laboratory ecosystem via direct sponsorship and engagement of Chinese nationals;4 b) Devaluing U.S. positions in patents and technology platforms;5 and c) Accessing private sector U.S. technology through acquisitions and ownership stakes in existing firms, funding of high-tech start-ups, and forced joint ventures and other contractual agreements as a prerequisite for entering the Chinese market.6 This particular form of competitive strategy targeting the innovation ecosystem in the United States is labeled by the Authors as “Innovation Warfare,”7 and it is defined as an executable competitive strategy: a) Reflecting an innovation, intellectual property, and technology strategy articulated and executed by the state (e.g. China); b) Using illegal means, political means, and legal economic activities—of the type previously residing solely in the province of commercial enterprise, to achieve the state’s objectives; c) Employing these economic and innovation activities to achieve both economic geopolitical power and to enhance military capabilities; and d) Functioning as a military, national security, and defense doctrine not solely as a reflection of the state’s economic policy goals nor commercial competition in the ordinary course.

Innovation Warfare does not just threaten American jobs and economic prosperity. By simultaneously co-opting and weakening the innovation capabilities of the United States, China seeks to advance its rise to world power. China’s prosecution of Innovation Warfare not only encompasses a rejection of a rules-based international order, but also poses an existential threat. A world where China dominates the technology landscape is not just about who earns the profits or prevails in an abstract geopolitical fight. According to the National Security Strategy of the United States of America (“National Security Strategy”), China pursues a world in which economies are less free, less fair, and less likely to respect human dignity and freedoms.8 China’s Innovation Warfare activities risk the type of economic and geopolitical aggressions that were a root cause of two World Wars.

#### Arguments that the US will continue to beat China in innovation are highly risky assumptions – the US is losing its edge and is in danger of failing

Atkinson 19 (Robert David Atkinson is a Canadian-American economist. He is president of the Information Technology and Innovation Foundation, a public policy think tank based in Washington, D.C., that promotes policies based on innovation economics. He was previously Vice President of the Progressive Policy Institute, Caleb Foote is a research assistant at the Information Technology and Innovation Foundation NOT the actor from The Kids are Alright, unfortunately :/ April 2019, “Is China Catching Up to the United States in Innovation?” Page 6, Information Technology and Innovation Foundation <https://projects.iq.harvard.edu/files/innovation/files/2019-china-catching-up-innovation.pdf>) MULCH

The second factor relates to national security and the defense industrial base—a critical issue for the United States as U.S. defense superiority is based is in largely part on technological superiority. American service men and women go into any conflict with the advantage of fielding technologically superior weapons systems. But sustaining that advantage depends on the U.S. economy maintaining global technological superiority, not just in defense-specific technologies, but in a wide array of dual-use technologies. To the extent the United States continues to lose technological capabilities to China, U.S. technological advantage in defense over China will diminish, if not evaporate, as U.S. capabilities whither and Chinese ones strengthen. It is certainly a highly risky proposition to assume the United States can continue its weapons systems superiority over the Chinese if: 1) the Chinese continue to advance, largely through unfair, predatory practices, at their current pace; and 2) the United States loses a moderate to significant share of its advanced technology innovation and production capabilities. As ITIF wrote in 2014, “The United States defense system is still the most innovative in the world, but that leadership is not assured and is in danger of failing. This decline is not only impacting defense innovation and capabilities, but also overall commercial innovation and U.S. competitiveness.

#### Specifically, 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.

#### New pandemics are coming and cause extinction – preventative measures solve

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.

#### 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

### Federalism – 1AC

#### 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 artificial intelligence is developed, this provides a great resource for improving outcomes and mitigating all types of risk.585 Artificial intelligence 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

#### AI-nano combo causes Universe extinction

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[Nick, Professor in the Faculty of Philosophy at Oxford University. He is the founding Director of the Future of Humanity Institute, Superintelligence: Paths, Dangers, Strategies, Oxford University Press, 2014]

An agent’s ability to shape humanity’s future depends not only on the absolute magnitude of the agent’s own faculties and resources—how smart and energetic it is, how much capital it has, and so forth—but also on the relative magnitude of its capabilities compared with those of other agents with conflicting goals. In a situation where there are no competing agents, the absolute capability level of a superintelligence, so long as it exceeds a certain minimal threshold, does not matter much, because a system starting out with some sufficient set of capabilities could plot a course of development that will let it acquire any capabilities it initially lacks. We alluded to this point earlier when we said that speed, quality, and collective superintelligence all have the same indirect reach. We alluded to it again when we said that various subsets of superpowers, such as the intelligence amplification superpower or the strategizing and the social manipulation superpowers, could be used to obtain the full complement. Consider a superintelligent agent with actuators connected to a nanotech assembler. Such an agent is already powerful enough to overcome any natural obstacles to its indefinite survival. Faced with no intelligent opposition, such an agent could plot a safe course of development that would lead to its acquiring the complete inventory of technologies that would be useful to the attainment of its goals. For example, it could develop the technology to build and launch von Neumann probes, machines capable of interstellar travel that can use resources such as asteroids, planets, and stars to make copies of themselves.13 By launching one von Neumann probe, the agent could thus initiate an open-ended process of space colonization. The replicating probe’s descendants, travelling at some significant fraction of the speed of light, would end up colonizing a substantial portion of the Hubble volume, the part of the expanding universe that is theoretically accessible from where we are now. All this matter and free energy could then be organized into whatever value structures maximize the originating agent’s utility function integrated over cosmic time—a duration encompassing at least trillions of years before the aging universe becomes inhospitable to information processing (see Box 7). The superintelligent agent could design the von Neumann probes to be evolution-proof. This could be accomplished by careful quality control during the replication step. For example, the control software for a daughter probe could be proofread multiple times before execution, and the software itself could use encryption and error-correcting code to make it arbitrarily unlikely that any random mutation would be passed on to its descendants.14 The proliferating population of von Neumann probes would then securely preserve and transmit the originating agent’s values as they go about settling the universe. When the colonization phase is completed, the original values would determine the use made of all the accumulated resources, even though the great distances involved and the accelerating speed of cosmic expansion would make it impossible for remote parts of the infrastructure to communicate with one another. The upshot is that a large part of our future light cone would be formatted in accordance with the preferences of the originating agent. This, then, is the measure of the indirect reach of any system that faces no significant intelligent opposition and that starts out with a set of capabilities exceeding a certain threshold. We can term the threshold the “wise-singleton sustainability threshold” (Figure 11):

#### 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.

### Uniqueness – 1AC

#### 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 Federal Trade Commission 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 North Carolina 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.

#### Court rulings on Parker empirically deny disad links

Grossman 15 [Jonathan M. Grossman, co-chair at Cozen O’Connor, Harvard Law School, J.D., 2000, 2-25-2015 https://www.cozen.com/news-resources/publications/2015/supreme-court-delivers-another-blow-to-state-action-antitrust-immunity]

Supreme Court Delivers another Blow to State Action Antitrust Immunity

Today’s Supreme Court decision in North Carolina State Board of Dental Examiners v. Federal Trade Commission1 is the second time in two years that the Court has spoken on the state action exemption to the federal antitrust laws, and the Court once again has made it clear that the days of an expansive interpretation of that exemption are over.

Under the state action exemption, which is based on the principles of state sovereign immunity, restraints imposed by a state as an act of government are exempt from federal antitrust laws. Parker v. Brown, 317 U.S. 341 (1943). Private parties carrying out a state’s regulatory program are also immune as long as the private party: 1) is acting pursuant to a “clearly articulated and affirmatively expressed … state policy;” and 2) is “actively supervised by the state itself.” Cal. Retail Liquor Dealers Ass'n v. Midcal Aluminum, 445 U.S. 97 (1980).

Today’s decision in NC Dental and the 2013 Supreme Court decision in Phoebe Putney2 each focused on one of the two prongs of the Midcal test, and each decision will have the effect of making it more difficult to extend the exemption beyond the state itself.

In NC Dental, the Court focused on the “active supervision” requirement and concluded that the North Carolina Board of Dental Examiners (the Board) did not meet that test. The controversy began in 2003 when non-dentists in North Carolina began to offer teeth-whitening services. The Board, which is designed as a state agency by statute, consisted of six licensed dentists, one licensed dental hygienist, and one consumer member; with the dentists and dental hygienists elected by their peers and the consumer member appointed by the governor of the state. The Board issued nearly 50 cease-and-desist letters to non-dentist providers that effectively resulted in the end of non-dentists providing teeth-whitening services in the state. In 2010, the Federal Trade Commission (FTC) issued an administrative complaint against the Board alleging that it had violated the FTC Act by excluding the non-dentist teeth-whitening providers. The Board argued that it was acting as a state agency and thus immune from federal antitrust laws. The FTC issued a final order against the Board and enjoined it from issuing further extrajudicial orders to teeth-whitening providers in North Carolina. The 4th Circuit denied the Board’s subsequent petition seeking review of the FTC order.3

In affirming the 4th Circuit decision, the Supreme Court held that a state board on which a controlling number of decision makers are active market participants in the occupation the board regulates must satisfy Midcal’s active supervision requirement in order to invoke antitrust immunity under the state action exemption. The Court noted that “when a State empowers a group of active market participants to decide who can participate in its market, and on what terms, the need for supervision is manifest.” Furthermore, while the Board did not argue that it was actively supervised by the state, the Court concluded its decision by reiterating the requirements of active state supervision: (1) the substance of the anti-competitive decision must be reviewed by a state supervisor; (2) the state supervisor must have the power to veto or modify decisions to ensure that they align with state policy; (3) the “mere potential for state supervision” is not a sufficient substitute for an actual decision by the state; and (4) the state supervisor may not be an active market participant.

The 2013 Phoebe Putney decision focused on the “clear articulation” prong of Midcal. That case arose out of a merger of a for-profit hospital with a hospital owned and operated by a county hospital authority (Authority), which was created by the state legislature but operated independently of the state government. The FTC alleged that the transaction was technically structured as an acquisition of the for-profit by the Authority, in a specific attempt to take advantage of the state action exemption. The 11th Circuit observed that Georgia’s Hospital Authorities Law granted hospital authorities the power to “operate projects” including hospitals, to “make and execute contracts and other instruments necessary to exercise the[ir] powers,” and to “acquire by purchase, lease or otherwise … projects.” Based on this broad language, the 11th Circuit found that the legislation clearly indicated that the Georgia Legislature anticipated that the powers it granted to the Authority would produce anti-competitive effects, and thus were a foreseeable result of the legislation and sufficient to meet the Midcal “clear articulation” test. The Supreme Court reversed, holding that the Georgia Legislature did not clearly articulate or affirmatively express a state policy to displace competition in the market for hospital services. The Court noted that the Authority needed to show not just that it had been delegated authority to act, but also that it was authorized to act or regulate in an anti-competitive manner.

The combined effect of NC Dental and Phoebe Putney is that any regulatory body that is not clearly part of the executive branch of a state will have a significantly higher burden to take advantage of the state action exemption. This will require state governments to review and reconsider the structure and procedures of such bodies and should force the bodies themselves to carefully consider whether the state action exemption applies before taking any action that might implicate the federal antitrust laws.

It will also mean that industry participants regulated by such quasi-governmental bodies likely will be emboldened to challenge more adverse actions in court. Given the prevalence of quasi-government entities in states – many of which include market participants – and that they regulate a wide variety of industries including energy, professional services, health care, transportation, and many others, these decisions will likely have significant policy and legal implications for years to come.

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#### 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.

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#### Perm: do both non-neolib economics out of nowhere has zero value---reform is best

Barry 7 – John Barry, Director of the Institute of Governance, Public Policy and Social Research and Co-Director of the Centre for Sustainability and Environmental Governance at Queen’s University Belfast [“Towards a Model of Green Political Economy: From Ecological Modernisation to Economic Security,” Int. J. Green Economics, Vol. 1, No. 3/4, p. 446-464, <http://www.inderscienceonline.com/doi/pdf/10.1504/IJGE.2007.013071>]

Economic analysis has been one of the weakest and least developed areas of broadly green/sustainable development thinking. For example, whatever analysis there is within the green political canon is largely utopian – usually based on an argument for the complete transformation of modern society and economy as the only way to deal with ecological catastrophe, an often linked to a critique of the socioeconomic failings of capitalism that echoed a broadly radical Marxist/socialist or anarchist analysis; or underdeveloped – due, in part, to the need to outline and develop other aspects of green political theory. However, this gap within green thinking has recently been filled by a number of scholars, activists, think tanks, and environmental NGOs who have outlined various models of green political economy to underpin sustainable development political aims, principles and objectives. The aim of this article is to offer a draft of a realistic, but critical, version of green political economy to underpin the economic dimensions of radical views about sustainable development. It is written explicitly with a view to encouraging others to think through this aspect of sustainable development in a collaborative manner. Combined realism and radicalism marks this article, which starts with the point that we cannot build or seek to create a sustainable economy ab nihlo, but must begin from where we are, with the structures, institutions, modes of production, laws and regulations that we already have. Of course, this does not mean simply accepting these as immutable or set in stone; after all, some of the current institutions, principles and structures underpinning the dominant economic model are the very causes of unsustainable development. We do need to recognise, however, that we must work with (and ‘through’ – in the terms of the original German Green Party’s slogan of ‘marching through the institutions’) these existing structures, as well as change and reform and in some cases, abandon them as either unnecessary or positively harmful to the creation and maintenance of a sustainable economy and society. Equally, this article also recognises that an alternative economy and society must be based in the reality that most people (in the West) will not democratically vote for a completely different type of society and economy. That reality must also accept that a ‘green economy’ is one that is recognisable to most people and that indeed safeguards and guarantees not just their basic needs but also aspirations (within limits). The realistic character of the thinking behind this article accepts that consumption and materialistic lifestyles are here to stay (so long as they do not transgress any of the critical thresholds of the triple bottom line) and indeed there is little to be gained by proposing alternative economic systems, which start from a complete rejection of consumption and materialism. The appeal to realism is in part an attempt to correct the common misperception (and self-perception) of green politics and economics requiring an excessive degree of self-denial and a puritanical asceticism (Goodin, 1992, p.18; Allison, 1991, p.170–178). While rejecting the claim that green political theory calls for the complete disavowal of materialistic lifestyles, it is true that green politics does require the collective reassessment of such lifestyles, and does require a degree of shared sacrifice. It does not mean, however, that we necessarily require the complete and across-the-board rejection of materialistic lifestyles. There must be room and tolerance in a green economy for people to live ‘ungreen lives’ so long as they do not ‘harm’ others, threaten long-term ecological sustainability or create unjust levels of socioeconomic inequalities. Thus, realism in this context is in part another name for the acceptance of a broadly ‘liberal’ or ‘post-liberal’ (but certainly not anti-liberal) green perspective.1

#### No war or root cause

Geras 5 (Norman, Emeritus Professor of Politics at the University of Manchester, "The Reductions of the Left," Dissent, 52:1, Winter, p. 57-58)

THE SECOND PART of the answer- to which I now turn—is a seeming lack of ability, of the imagination, to digest the meaning of the great moral and political evils of the world and to look at them unflinchingly. This is a complementary failure. Elsewhere I have argued that Marxism is as familiar as any other intellectual tradition with the realities of human violence and oppression and the more negative traits and potentialities in the makeup of human beings. At the same time, because of its Utopian aspiration—-which I do not mean in any pejorative sense—because of its progressive and meliorative impulse, there has always been a tendency within this tradi¬tion to minimize, or sometimes just deny, the independent force of such negative character¬istics. They come to be treated, genericallv, as the product of class societies and, today, as the product of capitalism. The affinity between this overall intellectual tendency within Marxist and other left thinking, and the practical reductionism I have just described—in which America is identified as the source of all worldly wrongs—should be transparent. The effect of the tendency, however, is, to denature what one is looking at when one looks at the horrors of the world: a massacre of in- nocents; a woman being beaten in a public place or hanged in a football stadium; a place in which a man can have his ears surgically re¬moved or his tongue cut out, or be broken and destroyed, to be followed by the next such vic-tim, and the next, in a continuous sequence ol atrocity; or a place in which a parent can be forced to watch her child tortured and mur¬dered in front of her; or a place in which a hus¬band can be forced to watch his wife repeat-edly raped; an "ethnic^leansing" or a genocide in progress, in which entire communities are pulled up by the roots-arid people are shot or hacked or starved to death by the thousands or the tens of thousands; mass graves opened to yield up their terrible story. The list, as anyone knows who keeps read¬ing when the overwhelming temptation is to look away, could be much extended. The items on it are moral and political realities in their own right. They need to be registered and fully recognized as such. To collapse them too quickly into their putative original causes, to' refer them immediately, or refer from them, to other things that have preceded them is not to give them their due as the specific phenomena they are, the horrors, tor those destroyed by them or enduring them, for those whose lives are torn and wrecked and filled with grief by them, are in a double sense reduced by this quick and easy reference back to something else, putatively their real cause or origin. Furthermore, not all the contributory causes of such grim events are of the type that the section of the left under discussion here likes to invoke—that is, causes arising else- where, either geographically (in the United States) or societally (in the dynamics of capi- talism). Moral and political evils of this order and I make no apology for calling them that— can and generally do have causes that are more local in a spatial sense; and they are governed or influenced by political, ideological, and moral specificities every bit as real as the capitalist economy. Not everything is systemic, in the sense of being an effect of pressures or ten¬dencies of economic provenance, whether from the global economy or from some more par¬ticular region of it. There are independent patterns of coercion and cruelty, both interper¬sonal and embedded within political structures; forms of authoritarian imposition; types of invasive assault and violence, at the micro-level and at the macro-level, involving large social forces.

#### Doing nothing’ sustains capitalism by demobilizing opposition

Taylor 5 (Justin, Oregon-Based Writer, “Zizek Seen Over the Handlebars”, CounterPunch, 2-25, http://joun.leb.net/taylor02262005.html)

Not really. I know Zizek hates self-described "Third Way" socialists, but condom sex-flawed as it may be-is a much better deal than either celibacy or pregnancy/AIDS/etc. Ditto for the marijuana question - pot makes a lovely compromise between the rigorous dangers of opium addiction and the flat-line of sobriety - but Zizek's dedication to his own hermeneutics have blinded him to the fact that "marijuana" is more than a shade in some conceptual spectrum; it is a actually-existing drug that is considered, consumed, and enjoyed on its own merits. (As to the decaf coffee, well I'm with him on this, but my grandparents seem to like the stuff so maybe Slavoj and I are both missing something.) Again - you agree with him at the beginning of "The Liberal Fake," which leads off Appendix I, and as he offers increasingly complex iterations of his argument you're still with him (for a theorist he's lucid), but then he suddenly declares, "Today's predicament is that, if we succumb to the urge of directly 'doing something' (engaging with the anti-globalist struggle, helping the poor), we will certainly and undoubtedly contribute to the reproduction of the existing order. The only way to lay the foundations for a true, radical change is to withdraw from the compulsion to act, to 'do nothing' ­ thus opening up the space for a different kind of activity." Who should do nothing? For how long? Who are "we" and why are "we" different from the anti-globalist movement? What of the sinister implication that the group "we" in this scenario is free of any poor people, leaving "us" the luxury of figuring out whether or not to help "them"? Since I like Zizek a lot, I'm going to let that indiscretion slide. Instead, let us attempt a Zizek-style reading of Zizek. I'm going to presume that his "we" covers Zizek himself and a generally like-minded readership. The seeming least common political denominator among "us" then, is that "we" are anti-capitalists. (Or theory-heads, maybe, but whatever.) Given that, is there not something wholly regressive in Zizek's "radical" notion that we should "do nothing"? Is he not merely advocating that we hurry-up and-wait for the collapse of the system and then scramble to fill in the power vacuum? If so, then he's just being silly. Marxism has described capitalism as being in its "late" or penultimate stage for going on 150 years now. But just like the thief in the night of Revelation 3:3, it seems we know not the hour at which critical mass will be reached and the Revolution come. Should we wait as long as the Christians have been waiting? Given that Zizek is also the primary exponent of the "radical core" of the "Christian legacy," (see his The Fragile Absolute) one might be rightly concerned that this is just what he has in mind. Of the anti-globalization movement, Zizek writes "perhaps, in the Deleuzian opposition between schizophrenia and paranoia, between the multitude and the One, we are dealing with two sides of the same coin." I'll give him this much: He's right that fighting the globalization of capitalism while still trying to retain it on a national level is a losing proposition. It's like dating a vampire on the condition that it behaves nicely and doesn't attack anybody. As Buffy and her friends learned time and time again, that's a dangerous game and it winds up getting people killed. On the other hand, the anti-globalization movement represents the most active faction of the Left right now, and there are plenty of dedicated anti-capitalists in said movement who don't deserve Zizek's derision, to say nothing of the scores who might be his allies if he would only have them. It's disappointing that he doesn't see the potential in that group, preferring instead to offer up odds on whether it will be Lenin or Jesus that returns first, seeing as how in his mythology they represent more or less the same thing. Meanwhile, in the real world, it seems more like he's waiting for Guffman. Given all of this, I hope Zizek won't be offended if I take up sides with the pragmatic incarnation of Critical Mass. Those battalions of punk rock kids on bicycles who organize interruptions to the traffic flow in cities all across the globe just to remind "us" how dependent "we" are on gas-guzzling, fume-spewing automobiles. Granted it's no October Revolution, and we all know bike tires come from the same nasty rubber plant as car tires, but it's anti-capitalist organization and mobilization in the public sphere and we should be happy about it - if nothing else at leasta person can stretch their legs, get their blood pumping, maybe make a friend.

#### “Doing nothing” blocks effective resistance, indefinitely postponing challenges to capital

Critchley 8 (Simon, Professor of Philosophy – New School for Social Research, “Violence, By Slavoj Zizek”, The Independent, 1-11, http://www.independent.co.uk/arts-entertainment/books/reviews/violence-by-slavoj-zizek-769535.html?r=RSS)

But whither all this dialectical brio? Ay, there's the rub. Zizek concludes with an apology for what he calls, following Walter Benjamin, "divine violence". The latter is understood theoretically as "the heroic assumption of the solitude of the sovereign decision". Practically, Zizek illustrates this with the Jacobin violence of Robespierre in France in the 1790s and the invasion of the dispossessed, a decade or so ago, descending from the slum favelas in Rio de Janeiro to disturb the peace of bourgeois neighbourhoods. But, in a final twist, Zizek counsels us to do nothing in the face of the objective, systemic violence of the world. We should "just sit and wait" and have the courage to do nothing: "Sometimes, doing nothing is the most violent thing to do". True enough, but what can this possibly mean? At the core of Zizek's relentless, indeed manic, production of books, articles and lectures is a fantasy, I think: what psychoanalysts would call an obsessional fantasy. On the one hand, the only authentic stance to take in dark times is to do nothing, to refuse all commitment, to be paralysed like Melville's Bartleby, the true hero of this book and others by Zizek. On the other hand, Zizek dreams of a divine violence, a cataclysmic, purifying violence of the sovereign ethical deed, something like that of Sophocles' Antigone. But Shakespearean tragedy is a more illuminating guide here than its ancient Greek predecessor. For Zizek is a Slovenian Hamlet, utterly **paralysed** but dreaming of an avenging violent act for which, finally, he lacks the courage. In short, behind its shimmering inversions, Zizek's work leaves us in a **fearful and fateful deadlock:** the only thing to do is to do nothing. We should just sit and wait. As the great Dane says, "Readiness is all". But the truth is that Zizek is never ready. His work lingers in **endless postponement and over-production.** He ridicules others' attempts at thinking about commitment, resistance and action (we have crossed swords recently) while doing nothing himself. What sustains his work is a dream of divine violence, cruelty and force. I hope that one day his dreams come true.

#### Their alternative creates a political void

Lau 7 (Matt, Ph.D. English – City University of New York, “I've Never Met a Man Who Knew So Much About Nothing”, The Advocate, February, http://gcadvocate.org/index.php?action=view&id=122)

For myself, I found the most interesting part of the end of the book to be not this analysis nor the equally illuminating discussion of failed Supreme Court nominee Robert Bork's political philosophy, but the enigmatic reflections on Bartleby. This is because, as anyone who has done as little as sit in one of his lectures knows, Zizek's love of negativity has for the most part inhibited him from anything like a prescriptive politics. As Iranian secret agent President Bush might say, "Does the opposition have a plan?" Finally, those "Beltway Insiders," the Hegelian-Lacanian-Marxists, can say, "Yes Mr. President, yes we do." And what is this plan? It's slogan is Bartleby's "I'd prefer not to." Or to put it in Seinfeldian, "Everyone's doing something, we'll do nothing!" Zizek's point is not that this is in-itself the answer, but the only way out of the deadlock between hegemony and its allotted "resistances." This is how we pass from a politics of "resistance or "protestation," which parasitizes upon what it negates, to a politics which opens up a new space outside the hegemonic position and its negation. We can imagine the varieties of such a gesture in today's public space: not only the obvious, "There are great chances of a new career here! Join us! -- "I'd prefer not to"; but also "Discover the depths of you true self, find inner peace!" -- "I'd prefer not to"; or "Are you aware how our environment is endangered? Do something for ecology!" -- "I would prefer not to." Zizek's point however is not that we must "clear the table" and then begin the (logically) positive work of building a new order. Bartleby's motto "is not so much the refusal of a determinate content as, rather, the formal gesture of refusal as such," not the starting point, "but a kind of arche, the underlying principle that sustains the entire movement: far from "overcoming" it, the subsequent work of construction, rather, gives body to it." Above all the targets of this arche-refusal are not the obvious villains of global capitalism, but the half measures meant to counteract it -- charitable giving being foremost among them. So what would such a movement look like in actual cases? Take voting in America for instance; as Zizek pointed out long ago, the choice for us is between Coke and Diet Coke. Sure Diet Coke won't start a war in Iraq; it's healthier than that. It will wage an economic one instead, via NAFTA, FTAA, and so forth. As Kerry was always implying in his election bid: I can ruthlessly pursue America's national interest even more efficiently than President Bush and his administration. So what is the way out of this forced, false choice? For Zizek, it is the negative one: DON'T VOTE. Take America's already existing, statistical apathy (around 50% voter turn out or near 60% when it all seems terribly important) and turn it into a statistical boycott (somewhere near the mid-30s in percentile). This would make our elections invalid according to international election authorities insofar as the result cannot be construed as the will of the majority of the people. Does that bear legally on our government? Of course not, but it would be a hell of a lot more interesting than voting either Democrat or Republican for another 150 years. The point would not be, however, to have a third party follow on this, but to continue the difficult work of negation, of restructuring the legal foundation of the country. Not just no more gerrymandering and lobbyists, but how about no more Senate or Presidency? "I'd prefer not to have a Monarch and a political aristocracy." Not just allowing unions and other measures for workers, but how about actually nationalizing industries? "I'd prefer not to be exploited for my labor time by self-interested companies. I'd prefer not to think that 'Greed is Good.'" Not just rent control, but how about a cessation of rents and mortgages? "I'd prefer to not to pay rent." Not just only making purchases from ecologically friendly companies, but how about not buying anything at all in the way of luxuries? "I'd prefer not to shop." From not voting, to not shopping, to not working, in all these cases we are not participating in the frenetic activities of contemporary life; but, at the same time, this negativity is in no way a return to a balanced, ordered, basically pre-modern, world. Rather, it beats capitalism at its own game of destabilization. The difficulty, of course, as Zizek himself acknowledges, is knowing what the effects of all this will be, what the "new" will actually look like. The other shortcoming of this prescription, I'm afraid, is that one could become terribly bored with all this refusing. But, then again, that could be a refreshingly new strategy for revolutionaries: boring their enemies to death.

#### Wholesale rejection of neoliberalism is impossible and insisting on theoretical purity dooms crucial short-term measures to avoid violence---it’s better to combine structural approaches with non-reformist reforms that propel mobilization.

Schram 15 – Sanford F. Schram, Visiting Professor of Social Work and Social Research at Bryn Mawr College, Professor of Political Science at Hunter College, PhD and MA in Political Science from St. Lawrence University, The Return of Ordinary Capitalism: Neoliberalism, Precarity, Occupy, p. 178-186 [language modified]

The Movement of Movements: The Occupy Left Versus the Organized Left

In the current era, there is much intellectual, if not political, credibility to be gained by refusing to practice the multilevel mobilizing of an Occupy Left and subsequent efforts like Black Lives Matter. There is a growing consensus that Occupy was a failure and its current extensions just fritter away energy that should be concentrated on building an organized Left that can push successfully for wholesale change.16 Some on the left refuse to work with diverse groups on their different issues in real time. Instead, they insist on taking the long view that says such work is a distraction to the larger and critical cause of organizing for fundamental transformation of the existing political economic system.

A major concern for this faction is maintaining the purity of the Left, striving to remain uncontaminated by the compromises of coalitional politics that are necessary when addressing the myriad of specific issues associated with the inequities of neoliberalism.17 In this way, activism remains true to the tradition of radical politics as it was practiced during the age of revolution and especially the heyday of communist organizing. Sometimes this nostalgia for the history of radical politics can lead to blaming the victim, this time not so much blaming the poor for their own poverty but blaming the subordinated for their failure to organize effectively to enact fundamental change.18 Sometimes, the nostalgia for “one big union” to challenge the capitalist power structure is born of letting historical understanding crowd out the exigencies of the moment. In discussing the problem of combining scholarship and activism among leftist academics in the humanities, Bruce Robbins makes a point that has direct relevance to the academics of the organized Left as I am characterizing it. He asserts: “One trap the Left faces, at least to the extent that that Left is located in the academy, is an overemphasis on making a political program out of what it already does for a living.”19 Robbins is talking about bringing too much history into efforts to mobilize people who are focused on immediate concerns. Knowing about the history of the labor movement surely could help members of the precariat think about how to address their plight; from the perspective of ordinary citizens, they may not be all that open to hearing all that history when they are mostly concerned about landing a job once their unemployment has been cut off and they have had to declare bankruptcy. The bottom-up perspective encourages us to see things the way they do. And that might mean pushing to raise the minimum wage rather than holding out for the demise of capitalism or the adoption of a basic income.

Too much history can be matched with too much theory.20 Too often today, the organized Left is joined by the theoretical Left. An overemphasis on theory produces what John Gunnell calls “epistemic privilege,” that is, the idea that theory comes first and underwrites and authorizes the action that follows. Exercising epistemic privilege involves unquestioned acceptance of the cliché that without a sound theory there can never be effective political action.21 Yet it is questionable to what extent we need to be able to theorize why things are the way they are to be able to do something about them. Theory is undoubtedly important for placing political action in context, deepening meaning, and clarifying the conditions of political possibility.22 Yet an overemphasis on theory can be politically [destructive] ~~paralyzing~~. The preoccupation with theory can undermine the needed focus on strategy,23 especially when theory is concerned with the big picture of understanding the current situation overall and over time, and strategy is more narrowly focused on what will connect with ordinary people’s immediate concerns as they struggle to cope with the effects of a neoliberalizing economy.24

In other words, being an academic can get in the way of being an activist. A preoccupation with theory can distract us from working to achieve modest but worthwhile reforms that directly address people’s immediate concerns. This is doubly unfortunate if those reforms actually work to lay the groundwork for larger, transformational change in the future. Epistemic privilege can lead us away from the radical incrementalism of making small, realistic changes now that can lay the groundwork for larger ones down the road.

In fact, the very idea of modest reform can be dismissed by those seeking more dramatic change because it poses the real possibility that it will defuse anger among the politically diverse precariat and thereby forestall the more dramatic systemic change that is needed to put the inequities of the new normal of neoliberalism safely behind us. While largely limited to the ruminations of bloggers, it seems that many on the left have their own crisis strategy that is premised on the idea that if things get bad enough, spreading from the lower to the middle classes, mass mobilization against the existing structure of power will finally gain traction and political transformation will result. Yet this crisis strategy is indebted to the very same dichotomous thinking that prevents some on the left from appreciating the value, and even the need, to mobilize on multiple levels. It is a crisis strategy that trades off addressing people’s immediate needs in the short run for building up popular support for more dramatic change in the long run. It pits a “politics of survival” against a “politics of social change,” seeing them as mutually exclusive.25

This bloggers’ crisis strategy, however, seems at best an imagined strategy that no one is really actively working to execute (especially since it would impose growing hardship on the very people whom the Left wants to help). Yet even those among the Occupy Left are vulnerable to this type of misplaced crisis thinking. Chris Hayes, in his otherwise thoughtful examination of U.S. politics in the current age of hyperinequality, looks to a radicalized middle class that has become frustrated with its ability to move ahead.26 Hayes writes:

Crisis is not something to be longed for or embraced: as we’ve seen, war, financial crisis, natural disaster visit their most punitive blows upon the weakest, the poorest, the least powerful members of society. But political crises, moments when the keystone of authority of some major governing institution is whisked away like a Jenga block, can produce a tumbling cascade of new forms of politics. We’ve been looking at the tower for so long we forget it’s made of blocks; we forget it can be put back together in a different way.27

Hayes sees the economic malaise spreading upward to the point that the privileged with resources can now be mobilized to redress the situation and push for dramatic change. While the middle classes can indeed be a source of change, especially today (see chapter 2), this type of top-down, elite-driven political mobilization is vulnerable to being defused by concessions for those higher up at the expense of those below them.

Yet a better crisis strategy actually was implemented. It was made famous by Richard Cloward and Frances Fox Piven as the central means of mobilizing support in the 1960s for reform of the welfare system and transition to a guaranteed income.28 It was premised on a win-win that saw a politics of survival and a politics of social change as working synergistically. Piven and Cloward premised their strategy on their research, which estimated that about half of those eligible for welfare nationwide were not receiving it. If everyone who was eligible enrolled it would overload the system, create a crisis, and force elites to consider moving to a better system such as a guaranteed income (now called a basic income). The strategy worked in good part, with millions of people getting public assistance and Congress twice voting on a guaranteed income plan that was proposed by President Richard Nixon. While the plan was never adopted, many people got aid in the process. Signing up people for welfare helped address their immediate needs while growing membership in the cause for welfare rights intensified concern in the public that something had to be done to transform the broken system of aiding the poor. A politics of survival and a politics of social change were not pitted against each other; choosing one over the other was not required. Instead, the real crisis strategy was premised on the idea the two could work together synergistically.

This confusion about what is an effective crisis strategy is premised on overly dichotomous thinking that leads many on the left away from multilevel mobilizing. It also might explain why they are often better at resisting anything less than total transformation to a new society than in finding ways to support improvements that reduce people’s suffering in the here and now. This resistance to reform also reflects nostalgic preoccupations with a lost past, when the revolution by the laboring classes was a real possibility. In contrast today the diverse people whose economic condition is made precarious by the changing economy are less available to be organized for mass mobilization on behalf of a fundamental transformation of the inequitable neoliberal political economy. As a result, many on the left are at risk of passing up on politics as it actually occurs today and instead contenting themselves with perfecting theoretical purity. Even left-leaning alternative political parties, such as the initially quite successful Working Families Party, get dismissed as not deserving of support as soon as the party makes questionable compromises as part of the effort to leverage power within the existing system.29 In the hothouse environment born of frustration over the Left’s inability to make a concerted and effective effort for transformational change, any misstep potentially becomes an excuse for continued inaction. Sometimes it seems the only political action the purists would support is a coup. They long for days when revolution was a real option. In this way, the Left continues to practice one of its more dominant forms of melancholia.

We may, however, come to look nostalgically on the academic Left, regardless of its disabling preoccupations. Today, that group is rapidly being replaced by academics fortunate enough to secure appointments but too insecure in them to dare to think of combining activism and scholarship.30 This new generation is not even positioned to freely protest its own plight in the face of the ongoing corporatization of the academy, let alone start to work with ordinary Americans outside the academy who suffer the worst effects of the inequitable neoliberal economy. Confronting growing professional and institutional pressures from performance measurement schemes to publish in “high-impact” journals (i.e., highly cited, not highly influential politically), many academics now must publish constantly; however, their work is often assiduously theoretical and methodically arcane, as well as apolitical and disconnected from ongoing political struggle. Many of these younger academics are of the Left in their hearts and minds, but not on the printed page or in the streets.

Too often an insistence on organizing only for dramatic change can lead to immobilization on the grounds that proposed actions are less than entirely consistent with some blueprint about what is to be done to produce long-term structural change of society. Instead activism should be more humble, accepting that not all contingencies can be anticipated and social movement mobilization is not entirely predictable and cannot be planned out before it occurs.31 In particular, the Left needs to stop making political action an either/or proposition and begin to think seriously about how political mobilization on multiple levels—protests, parties, policy, and program administration—can be made to work together to bring into being a better world for those suffering on the bottom of the socioeconomic ladder. Radical movement politics in a variety of forms is what is needed today. Efforts focused on dramatic regime change still have their place, especially when there is a gnawing need to call out injustice and identify its structural sources embedded in the very foundations of the existing neoliberalized society. Yet what are we to do in the meantime? Is it possible to help alleviate suffering even while we work for more fundamental change? The ongoing resistance to anything less than wholesale societal change stems from the fact that it poses a falsely stark choice between radical movement politics and more conventional electoral and policy politics. This kind of thinking is overly dichotomous and fails to appreciate that mobilizing for change to redress the injustices of the neoliberalized economy does not always involve seeing the options as mutually exclusive.32

In fact, many activists today appreciate and participate in the diversity of movements involved in creating noteworthy changes in cultural practices, social relations, economics and politics.33 Much of the energy of these movements comes from outside the academy where people are not weighed down with theoretical preoccupations. When big ideas, theory included, get to matter are when ordinary people confronting their difficulties in their everyday lives come to see the relevance of those ideas.34 Today, there is a veritable movement of movements where change efforts take a diversity of forms, with some even working with, rather than against, the market system in ways that create more freedom and less oppression for ordinary people.35 Just as we should not see protest politics and electoral politics as mutually exclusive, so should we learn to appreciate the value of a radical incrementalism that works to address people’s problems in the here and now, while laying the groundwork for larger political transformation in the future. The protest politics of Occupy Wall Street has contributed to creating a context for the electoral successes of candidates such as Bill de Blasio, who became mayor of New York City with the support of the Working Families Party, which has strong ties to Occupy movement participants.36 How de Blasio works with protest groups, including those that have become embroiled in the volatile issue of racialized policing, suggests real challenges but also hope for change.37 Radical incrementalism suggests just this kind of synergy. It combines a politics of survival with a politics of social change to get significant improvements in state policy, following the successful model of welfare mobilization in the 1960s.38

The Road to Radical Incrementalism

Radical incrementalism is not really an option: it is the prevailing reality of politics. It realistically recognizes the economic, social, and political constraints that limit mobilization on behalf of radical change. It also is based on an appreciation often shared by proponents for radical change that efforts at sustained political mobilization are not something that happen overnight. Instead, it works to help people in the short run within existing constraints but in ways that make more dramatic political transformation eventually more likely.

As much as people on the left hope for a radical swing away from neoliberal social welfare programming in the current era, the arc of history under U.S. capitalism suggests a more modest process of incrementalism. Incrementalism is defined in the public policy literature as a process of policymaking where a series of small remedial, corrective steps enable change in existing policy.39 Yet the criticism of incrementalism is that it amounts to no more than tinkering with the existing system in ways that do nothing more than fine-tune the status quo. Perfecting neoliberalism means little more than making the ascendant disciplinary regime more effective in managing the poverty population and by extension everyone else who is made economically precarious by the transformed economy.40 Incremental changes in neoliberal policies can result in nothing more than improving the system for embedding market logic more deeply into society and our daily lives.41 It could amount to no more than perfecting the system for incentivizing market-consonant behavior in ways that end up leaving most people having to make do with the inadequate resources and opportunities afforded them in a changing economy.

Nonetheless, especially in an age of extreme political polarization that begets policy gridlock, incrementalism may be the prevailing reality more than ever. Under these conditions, it may be that ideas about more dramatic change need to be tempered with the reality of working for more limited changes that nonetheless do more than reinforce the existing system.42 The issue then becomes how to practice a radical incrementalism.43 By “radical incrementalism,” I mean a process in which people push for change recognizing it will not necessarily be as large as they might like but also in which small changes can do more than fine-tune the existing system. Radical incrementalism is not about tweaking what is already in place to help perpetuate the status quo and the existing structure of power. It rejects changes that in all likelihood are going to lead to the continuation of the very problems that people are trying to address. Instead, the small changes of radical incrementalism lay the groundwork for further changes that over time can help build to a transformation of the existing structure of power, the source of the problems being attacked.44 The key then is that when pushing for change as activists we must be able to distinguish radical incrementalism from the status-quo-reinforcing incrementalism most often offered by elites. This is often not easy but the goal is to try as much as possible to resist the cooptation elites will seek to gain by making minimal concessions. That is the focus we need today in an era of political gridlock born of polarization that stems in no small part from the wealthy using their wealth to block constructive responses to address the problems extreme inequality creates.

André Gorz highlighted the challenge in distinguishing between status quo incrementalism and radical incrementalism in his own terms when he distinguished what he called “non-reformist reform” from “reformist reform.”45 Gorz recognized that what distinguished progressive reform from statusquo-reinforcing reform was not easy to always identify, but nonreformist reforms are the progressive reforms that are essentially laying the groundwork to get beyond the inequities of capitalism by restructuring power relations. More recently David Harvey has called for appreciating the value of what he calls “revolutionary reforms” that provide the basis for challenging capitalist power over time.46 Radical incrementalism similarly involves making small changes that lay the basis for restructuring embedded power relations that prevent more ambitious changes from happening.47

Radical incrementalism is focused on changing power relationships but it is not against the use of power, and it is focused on finding ways for government and the governance of populations to work to improve the lives of ordinary people. It does not simply resist oppressive state power, it seeks to bend it toward enhancing the conditions under which people live with, participate in, and benefit from state power. Radical incrementalism works to offer constructive answers to such questions as: what type of governance is appropriate for ordinary people today and how can we rework power relations to realize it?48

Radical incrementalism can be practiced on multiple levels and across different dimensions of the policy process. It can involve protest movements adroitly deciding to accept particular concessions elites offer to quell dissent.49 It can also involve participating in electoral campaigns for candidates who resist capitulating to conventional politics as usual. It can involve pushing for changes in public policy that redistribute power and lay the foundation for broader changes in the future. Reallocating resources, such as to improve wages so that people can do more than just survive but also be better positioned to participate in the political process, is but one example.

#### Cap’s sustainable and the alt causes transition wars

Mead, 12 -- Professor of Foreign Affairs and Humanities at Bard College [7/28/2012, Walter Russell, The American Interest, “The Energy Revolution 4: Hot Planet?” <http://blogs.the-american-interest.com/wrm/2012/07/28/the-energy-revolution-4-hot-planet/>]

Capitalism is not, Monbiot is forced to admit, a fragile system that will easily be replaced. Bolstered by huge supplies of oil, it is here to stay. Industrial civilization is, as far as he can now see, unstoppable. Gaia, that treacherous slut, has made so much oil and gas that her faithful acolytes today cannot protect her from the consequences of her own folly. Welcome to the New Green Doom: an overabundance of oil and gas is going to release so much greenhouse gas that the world is going to fry. The exploitation of the oil sands in Alberta, warn leading environmentalists, is a tipping point. William McKibben put it this way in an interview with Wired magazine in the fall of 2011: I think if we go whole-hog in the tar sands, we’re out of luck. Especially since that would doubtless mean we’re going whole-hog at all the other unconventional energy sources we can think of: Deepwater drilling, fracking every rock on the face of the Earth, and so forth. Here’s why the tar sands are important: It’s a decision point about whether, now that we’re running out of the easy stuff, we’re going to go after the hard stuff. The Saudi Arabian liquor store is running out of bottles. Do we sober up, or do we find another liquor store, full of really crappy booze, to break into? A year later, despite the success of environmentalists like McKibben at persuading the Obama administration to block a pipeline intended to ship this oil to refineries in the US, it’s clear (as it was crystal clear all along to anyone with eyes to see) that the world has every intention of making use of the “crappy liquor.” Again, for people who base their claim to world leadership on their superior understanding of the dynamics of complex systems, greens prove over and over again that they are surprisingly naive and crude in their ability to model and to shape the behavior of the political and economic systems they seek to control. If their understanding of the future of the earth’s climate is anything like as wish-driven, fact-averse and intellectually crude as their approach to international affairs, democratic politics and the energy market, the greens are in trouble indeed. And as I’ve written in the past, the contrast between green claims to understand climate and to be able to manage the largest and most complex set of policy changes ever undertaken, and the evident incompetence of greens at managing small (Solyndra) and large (Kyoto, EU cap and trade, global climate treaty) political projects today has more to do with climate skepticism than greens have yet understood. Many people aren’t rejecting science; they are rejecting green claims of policy competence. In doing so, they are entirely justified by the record. Nevertheless, the future of the environment is not nearly as dim as greens think. Despairing environmentalists like McKibben and Monbiot are as wrong about what the new era of abundance means as green energy analysts were about how much oil the planet had. The problem is the original sin of much environmental thought: Malthusianism. If greens weren’t so addicted to Malthusian horror narratives they would be able to see that the new era of abundance is going to make this a cleaner planet faster than if the new gas and oil had never been found. Let’s be honest. It has long been clear to students of history, and has more recently begun to dawn on many environmentalists, that all that happy-clappy carbon treaty stuff was a pipe dream and that nothing like that is going to happen. A humanity that hasn’t been able to ban the bomb despite the clear and present dangers that nuclear weapons pose isn’t going to ban or even seriously restrict the internal combustion engine and the generator. The political efforts of the green movement to limit greenhouse gasses have had very little effect so far, and it is highly unlikely that they will have more success in the future. The green movement has been more of a group hug than a curve bending exercise, and that is unlikely to change. If the climate curve bends, it will bend the way the population curve did: as the result of lots of small human decisions driven by short term interest calculations rather than as the result of a grand global plan. The shale boom hasn’t turned green success into green failure. It’s prevented green failure from turning into something much worse. Monbiot understands this better than McKibben; there was never any real doubt that we’d keep going to the liquor store. If we hadn’t found ways to use all this oil and gas, we wouldn’t have embraced the economics of less. True, as oil and gas prices rose, there would be more room for wind and solar power, but the real winner of an oil and gas shortage is… coal. To use McKibben’s metaphor, there is a much dirtier liquor store just down the road from the shale emporium, and it’s one we’ve been patronizing for centuries. The US and China have oodles of coal, and rather than walk to work from our cold and dark houses all winter, we’d use it. Furthermore, when and if the oil runs out, the technology exists to get liquid fuel out of coal. It isn’t cheap and it isn’t clean, but it works. The newly bright oil and gas future means that we aren’t entering a new Age of Coal. For this, every green on the planet should give thanks. The second reason why greens should give thanks for shale is that environmentalism is a luxury good. People must survive and they will survive by any means necessary. But they would much rather thrive than merely survive, and if they can arrange matters better, they will. A poor society near the edge of survival will dump the industrial waste in the river without a second thought. It will burn coal and choke in the resulting smog if it has nothing else to burn. Politics in an age of survival is ugly and practical. It has to be. The best leader is the one who can cut out all the fluff and the folderol and keep you alive through the winter. During the Battle of Leningrad, people burned priceless antiques to stay alive for just one more night. An age of energy shortages and high prices translates into an age of radical food and economic insecurity for billions of people. Those billions of hungry, frightened, angry people won’t fold their hands and meditate on the ineffable wonders of Gaia and her mystic web of life as they pass peacefully away. Nor will they vote George Monbiot and Bill McKibben into power. They will butcher every panda in the zoo before they see their children starve, they will torch every forest on earth before they freeze to death, and the cheaper and the meaner their lives are, the less energy or thought they will spare to the perishing world around them.But, thanks to shale and other unconventional energy sources, that isn’t where we are headed. We are heading into a world in which energy is abundant and horizons are open even as humanity’s grasp of science and technology grows more secure. A world where more and more basic human needs are met is a world that has time to think about other goals and the money to spend on them. As China gets richer, the Chinese want cleaner air, cleaner water, purer food — and they are ready and able to pay for them. A Brazil whose economic future is secure can afford to treasure and conserve its rain forests. A Central America where the people are doing all right is more willing and able to preserve its biodiversity. And a world in which people know where their next meal is coming from is a world that can and will take thought for things like the sustainability of the fisheries and the protection of the coral reefs. A world that is more relaxed about the security of its energy sources is going to be able to do more about improving the quality of those sources and about managing the impact of its energy consumption on the global commons. A rich, energy secure world is going to spend more money developing solar power and wind power and other sustainable sources than a poor, hardscrabble one. When human beings think their basic problems are solved, they start looking for more elegant solutions. Once Americans had an industrial and modern economy, we started wanting to clean up the rivers and the air. Once people aren’t worried about getting enough calories every day to survive, they start wanting healthier food more elegantly prepared. A world of abundant shale oil and gas is a world that will start imposing more environmental regulations on shale and gas producers. A prosperous world will set money aside for research and development for new technologies that conserve energy or find it in cleaner surroundings. A prosperous world facing climate change will be able to ameliorate the consequences and take thought for the future in ways that a world overwhelmed by energy insecurity and gripped in a permanent economic crisis of scarcity simply can’t and won’t do. Greens should also be glad that the new energy is where it is. For Monbiot and for many others, Gaia’s decision to put so much oil into the United States and Canada seems like her biggest indiscretion of all. Certainly, a United States of America that has, in the Biblical phrase, renewed its youth like an eagle with a large infusion of fresh petro-wealth is going to be even less eager than formerly to sign onto various pie-in-the-sky green carbon treaties. But think how much worse things would be if the new reserves lay in dictatorial kleptocracies. How willing and able would various Central Asia states have been to regulate extraction and limit the damage? How would Nigeria have handled vast new reserves whose extraction required substantially more invasive methods? Instead, the new sources are concentrated in places where environmentalists have more say in policy making and where, for all the shortcomings and limits, governments are less corruptible, more publicly accountable and in fact more competent to develop and enforce effective energy regulations. This won’t satisfy McKibben and Monbiot (nothing that could actually happen would satisfy either of these gentlemen), but it is a lot better than what we could be facing. Additionally, if there are two countries in the world that should worry carbon-focused greens more than any other, they are the United States and China. The two largest, hungriest economies in the world are also home to enormous coal reserves. But based on what we now know, the US and China are among the biggest beneficiaries of the new cornucopia. Gaia put the oil and the gas where, from a carbon point of view, it will do the most good. In a world of energy shortages and insecurity, both the US and China would have gone flat out for coal. Now, that is much less likely. And there’s one more reason why greens should thank Gaia for shale. Wind and solar aren’t ready for prime time now, but by the time the new sources start to run low, humanity will have mastered many more technologies that can used to provide energy and to conserve it. It’s likely that Age of Shale hasn’t just postponed the return of coal: because of this extra time, there likely will never be another age in which coal is the dominant industrial fuel. It’s virtually certain that the total lifetime carbon footprint of the human race is going to be smaller with the new oil and gas sources than it would have been without them. Neither the world’s energy problems nor its climate issues are going away any time soon. Paradise is not beckoning just a few easy steps away. But the new availability of these energy sources is on balance a positive thing for environmentalists as much as for anyone else. Perhaps, and I know this is a heretical thought, but perhaps Gaia is smarter than the greens.

#### 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 greenhouse gases from the atmosphere and solutions such as repairing the Earth’s poles and glaciers could help humanity find a survivable 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-diversity 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.

#### Elites – they block a transition

Alexander 15—Lecturer at the Office for Environmental Programs at the University of Melbourne who wrote his PhD thesis on degrowth (Samuel, Prosperous Descent: Crisis as Opportunity in an Age of Limits p. xiv-xv)

Before proceeding I should briefly anticipate an objection that will no doubt arise even from this preliminary overview. Let me be clear: the notion of ‘prosperous descent’ is not a prediction. I am not arguing that human beings are going to create a global village of thriving, sufficiency economies, nor do I even suggest that this is likely. And I am certainly not arguing that an unplanned, chaotic civilisational collapse into poverty is going to be ‘prosperous’ (so please do not accuse me of that). My argument is simply that economies of sufficiency, in which the entire community of life can flourish, are the only way to respond effectively to the overlapping crises of industrial civilisation. To oppose Margaret Thatcher with her own words: ‘there is no alternative’. If this can be established, as I believe it can, it would follow that we should try to create sufficiency economies, here and now, even if our chances of success do not look good. We may never realise the ideal of a sufficiency economy, but having a coherent ideal functions as a compass to guide action. Without a compass, our energies and efforts would lack direction and thus could easily be misdirected with the best of intentions. Indeed, I worry that dominant strains of the environmental movement today can be understood primarily as misdirected good intentions, efforts which tend to be mistaken in attempting to ‘green’ a growth-orientated mode of production that can never be green. Others oppose the existing order without having any conception of what should replace it. Even those who reject the growth economy sometimes fail to understand the radical implications of such a proposal; fail to understand that we cannot give up growth while other aspects of life more or less go on as usual. Sufficiency, I contend, is a revolutionary project. While I believe the practical question of ‘strategy’ – the question of how to realise a sufficiency economy – should remain open and dependent on context, the ‘theory of change’ that informs these essays is one grounded in grassroots, community-based action and initiatives. That is to say, I contend that until we have a culture or social consciousness that embraces sufficiency, our politicians are not going to be driven to create the necessary structures of sufficiency, nor, in the absence of such a culture, are we going to build new structures ourselves. In fact, even if such a culture of sufficiency emerged, our politicians are likely to be sluggish and non-responsive in supporting it. This means that the primary (although not necessarily the exclusive) forces of societal change must come ‘from below’, from people like you and me, working in our local communities, at the grassroots level. Before all else, we need to create the social conditions for deep transformation. There is a huge amount our governments could do, of course, to create just and sustainable economies of sufficiency, and in certain chapters I explore some available policy options. This can help us imagine alternative forms of human society and organisation. But we must not wait for governments to act, or we will still be waiting while the ship of civilisation sails over the cliff and crashes into the dark abyss below.

## Enforcement CP

#### CP’s rolled back – Courts and Congress

Jones and Kovacic 20 (Alison Jones, Professor of Law, King’s College London; and William E. Kovacic, King’s College London, George Washington University, United Kingdom Competition and Markets Authority; “Antitrust’s Implementation Blind Side: Challenges to Major Expansion of U.S. Competition Policy,” The Antitrust Bulletin, 65(2), 3-20-2020, DOI: 10.1177/0003603X20912884)

B. Infirmities of Section 5 of the Federal Trade Commission Act

One possible solution to rigidities that have developed in Sherman Act jurisprudence is for the FTC to rely more heavily on the prosecution, through its own administrative process, of cases based on Section 5 of the FTC Act and its prohibition of “unfair methods of competition.”93 This section allows the FTC94 to tackle not only anticompetitive practices prohibited by the other antitrust statutes but also conduct constituting incipient violations of those statutes or behavior that exceeds their reach. The latter is possible where the conduct does not infringe the letter of the antitrust laws but contradicts their basic spirit or public policy.95

There is no doubt therefore that Section 5 was designed as an expansion joint in the U.S. antitrust system. It seems unlikely to us, nonetheless, that a majority of FTC’s current members will be minded to use it in this way. Further, even if they were to be, the reality is that such an application may encounter difficulties. Since its creation in 1914, the FTC has never prevailed before the Supreme Court in any case challenging dominant firm misconduct, whether premised on Section 2 of the Sherman Act or purely on Section 5 of the FTC Act.96 The last FTC success in federal court in a case predicated solely on Section 5 occurred in the late 1960s.97

The FTC’s record of limited success with Section 5 has not been for want of trying. In the 1970s, the FTC undertook an ambitious program to make the enforcement of claims predicated on the distinctive reach of Section 5, a foundation to develop “competition policy in its broadest sense.”98 The agency’s Section 5 agenda yielded some successes,99 but also a large number of litigation failures involving cases to address subtle forms of coordination in oligopolies, to impose new obligations on dominant firms, and to dissolve shared monopolies.100 The agency’s program elicited powerful legislative backlash from a Congress that once supported FTC’s trailblazing initiatives but turned against it as the Commission’s efforts to obtain dramatic structural remedies unfolded.101

#### Exec alone fails:

#### Judicial interpretations

Baer 20 [Bill Baer former visiting fellow in governance studies at The Brookings Institution and assistant attorney general of the Antitrust Division and as the acting associate attorney general of the U.S. Department of Justice, 11-19-2020 https://equitablegrowth.org/research-paper/restoring-competition-in-the-united-states/?longform=true]

The meaning of the antitrust laws rests first with Congress, as does their importance, which is reflected in yearly appropriations. Judicial interpretations have eviscerated competition enforcement. Courts have failed to appreciate the benefits of competition and have underestimated the harm of anticompetitive conduct. They have overestimated the ability of markets to correct themselves without proper antitrust enforcement. And they have even praised the benefits of monopoly.5 Too often, the resulting legal standards allow anticompetitive conduct to escape condemnation. At the same time that the courts have made it harder for antitrust enforcers to win meritorious antitrust cases, Congress has provided the enforcers fewer resources to do their jobs.

#### Congressional opposition

Jones and Kovacic 20 (Alison Jones, Professor of Law, King’s College London; and William E. Kovacic, King’s College London, George Washington University, United Kingdom Competition and Markets Authority; “Antitrust’s Implementation Blind Side: Challenges to Major Expansion of U.S. Competition Policy,” The Antitrust Bulletin, 65(2), 3-20-2020, DOI: 10.1177/0003603X20912884)

D. Political Backlash As we have already indicated, the government’s prosecution of high stakes antitrust cases often inspires defendants to lobby elected officials to rein in the enforcement agency. Targets of cases that seek to impose powerful remedies have several possible paths to encourage politicians to blunt enforcement measures. One path is to seek intervention from the President. The Assistant Attorney General of the Antitrust Division serves at the will of the President, making DOJ policy dependent on the President’s continuing support. The White House ordinarily does not guide the Antitrust Division’s selection of cases, but there have been instances in which the President pressured the Division to alter course on behalf of a defendant, and did so successfully.125 The second path is to lobby the Congress. The FTC is called an “independent” regulatory agency, but Congress interprets independence in an idiosyncratic way.126 Legislators believe independence means insulation from the executive branch, not from the legislature. The FTC is dependent on a good relationship with Congress, which controls its budget and can react with hostility, and forcefully, when it disapproves of FTC litigation—particularly where it adversely affects the interests of members’ constituents. Controversial and contested cases may consequently be derailed or muted if political support for them wanes and politicians become more sympathetic to commercial interests. The FTC’s sometimes tempestuous relationship with Congress demonstrates that political coalitions favoring bold enforcement can be volatile, unpredictable, and evanescent.127 If the FTC does not manage its relationship with Congress carefully, its litigation opponents may mobilize legislative intervention that causes ambitious enforcement measures to the founder. Imagine, for a moment, that the DOJ and the FTC launch monopolization cases against each of the GAFA giants. Among other grounds, these cases might be premised on the theory that the firms used mergers to accumulate and protect positions of dominance. The GAFA firms have received unfavorable scrutiny from legislators from both political parties over the past few years, but the current wave of political opprobrium is unlikely to discourage the firms from bringing their formidable lobbying resources to bear upon the Congress. It would be hazardous for the enforcement agencies to assume that a sustained, well-financed lobbying campaign will be ineffective. At a minimum, the agencies would need to consider how many battles they can fight at one time, and how to foster a countervailing coalition of business interests to oppose the defendants.

## States

## FTC

### FTC OS – 2AC

#### No link – FTC capacity is high and already closely review state immunity cases

Crane 16 [Daniel A. Crane Frederick Paul Furth Sr. Professor of Law, University of Michigan Law School Adam Hester J.D., May 2016, University of Michigan Law School, 2016, State-Action Immunity and Section 5 of the FTC Act, 115 MICH. L. REV. 365, https://repository.law.umich.edu/cgi/viewcontent.cgi?article=1510&context=mlr]

B. Institutional Constraints and Capacities

Beyond the core concerns about the anti-democratic and pro-laissez faire tendencies of economic substantive due process, there lurk questions about institutional constraints and capacities. Allowing the Sherman Act to become an aggressive anti-regulatory charter would pose considerable risks of unwieldy and excessive challenges to state regulatory regimes and state sovereignty, since the Sherman Act is privately enforceable.251 Further, the federal courts may lack the expertise and fact-finding processes to make well-informed decisions over whether state regulatory decisions reflect exercises of police power in the public interest, or, rather, naked pork-barreling for the benefit of concentrated economic interests. On these scores, FTC enforcement under Section 5 of the FTC Act enjoys a considerable advantage over the Sherman Act.

First, Section 5 of the FTC Act is enforceable only by the FTC, not by private plaintiffs.252 Superior preemption under Section 5 would not lead to a flood of private challenges against state regulations, nor would it injure state interests by forcing the states to constantly defend anti-regulatory actions by private interests. (Recall that Parker itself involved a private challenge to state law, as have many of the important state-action immunity cases since).253 Rather, preemption of state law would depend on an administrative decision by a majority of the FTC commissioners to bring an action or otherwise declare a state law preempted. Preemption would not flow directly from the statute, but from a decision of the FTC to enforce the statute in a particular context. The burden of the intrusion on federalism interests and state sovereignty would therefore be considerably lower than if the Sherman Act were read to directly preempt anticompetitive state laws, permitting private plaintiffs to seek invalidation of state laws whenever the laws infringed on competition.

Second, and relatedly, the FTC enjoys a much greater capacity to evaluate the range of competing interests entailed by state regulations than does a federal court. Not only does the commission employ a large staff of expert economists,254 but it wields broad investigatory powers to investigate trade conditions through mandatory processes such as document requests and depositions.255 The FTC already serves the states in a consultative capacity, giving advice on proposed legislation and engaging in competition advocacy by issuing reports on various competition issues or intervening as amicus curiae in litigation.256 Unlike generalist federal courts, the FTC has the capacity to study the competitive effects and justifications for state regulatory schemes, consult formally or informally with state officials and other interested parties, and bring to bear its economic expertise in mediating competing claims about the effects of regulations on consumers or other interests.

#### Lots of thumpers

Zakrzewski 8-19 (Cat Zakrzewski, technology policy reporter at The Washington Post, covers antitrust, privacy and the debate over regulating social media companies, former reporter for Wall Street Journal Pro Venture Capital, BS Journalism, Northwestern University; **internally citing competition policy director at the consumer group Public Knowledge Charlotte Slaiman, and George Washington University professor and former FTC chair William Kovacic**; “Lina Khan’s first big test as FTC chief: Defining Facebook as a monopoly,” The Washington Post, 8-19-2021, https://www.washingtonpost.com/technology/2021/08/19/ftc-facebook-lawsuit-lina-khan-deadline/)

“There’s multiple signals that FTC is serious about doing their job of investigations and bringing these cases and fighting them hard,” said Charlotte Slaiman, competition policy director at the consumer group Public Knowledge.

Though the most significant, the Facebook case is but one of a wide range of issues on Khan’s plate. A month after she assumed office, the Biden administration issued a sweeping competition executive order, which called for her agency to take a tougher line on concentration throughout the economy.

So far, Khan has taken a series of steps to signal a shake-up has arrived at the FTC. She’s started hosting open meetings to open the agency’s business to the public, and she’s warned that greater scrutiny of mergers is on its way.

But the challenge will be for the agency to remain focused on the most important cases, including Facebook, Kovacic said. “She has a downpour of demands from both ends of the avenue,” he said.

And none of her other efforts will matter if she can’t show that she can win against companies, including Facebook, in court.

“The real measure to business decision-makers of your effectiveness and seriousness is your ability to prosecute and win cases,” Kovacic said.

#### Funding is normal means – AND boosts are coming

Byers 21 (Dylan Byers, senior media reporter for NBC News; **internally citing George Washington University professor and former FTC chair William Kovacic**; “Is Facebook untouchable? It's complicated,” NBC News, 7-1-2021, https://www.nbcnews.com/tech/tech-news/facebook-untouchable-complicated-rcna1323)

The House Judiciary Committee recently advanced six bills that would bolster the government's ability to regulate Big Tech. They range from simple budgeting measures — one would give more funding to the FTC and the Department of Justice for their antitrust enforcement efforts — to profound reforms — one that would stop platform companies from preferencing their products over those of their competitors and another that would make it illegal for companies to eliminate competitors through acquisitions.

This legislative package faces an arduous road ahead. House Majority Leader Steny Hoyer, who sets the House floor schedule, has said none of the six bills are ready for a vote, which suggests they don't have broad bipartisan support. If and when they do make it through the House, they face an even harder battle in the Senate.

"It's hard to imagine that the larger legislative package is accomplished this year," Kovacic said, though he predicted a few of the less-threatening bills — budgeting, for example — are likely to pass on their own.

"The funding for the FTC and DOJ antitrust divisions, it's nearly 100 percent likely that Congress will pass that law," he said. He said another bill, which would block the tech firms from moving court hearings to more favorable states, was also likely to pass.

#### States fill-in

Wisking et al 20 (Stephen Wisking, Kyriakos Fountoukakos and Marcel Nuys, Herbert Smith Freehills LLP, “Digital Competition 2021,” Law Business Research Ltd., October 2020, https://docplayer.net/201129322-Digital-competition-2021.html)

There is a clear trend towards increased antitrust scrutiny of digital markets by federal and state antitrust enforcers and the US Congress. In July 2019, the DOJ announced it was reviewing the practices of market-leading online platforms and in October 2020 filed suit against Google. The FTC formed a Technology Enforcement Division in 2019 that is actively conducting investigations and the agency is reportedly on the verge of bringing a suit against Facebook. State Attorneys General of all or nearly all 50 states have had active investigations of Google and of Facebook, and investigations of other technology firms have recently been initiated. Eleven states joined the DOJ in its suit against Google, while other states indicated that they may pursue other claims against Google, and still others are reportedly considering a suit with or without the FTC against Facebook. In Congress, both the House Judiciary Subcommittee on Antitrust, Commercial and Administrative Law and the Senate Judiciary Subcommittee on Antitrust, Competition Policy and Consumer Rights have held antitrust hearings on digital markets. And in October 2020, the majority staff of the House Judiciary Subcommittee on Antitrust, Commercial and Administrative Law issued a digital markets report recommending numerous proposals to restore competition in digital markets and to strengthen antitrust law and enforcement generally. Legislators have proposed legislation aimed at strengthening antitrust enforcement. Developments among litigated cases before courts are mixed. In 2020, the DOJ lost its effort to block Sabre’s acquisition of an allegedly nascent competitor, Farelogix, but the DOJ later had the decision vacated on appeal after the parties abandoned their transaction. In 2019, the Supreme Court ruled against Apple, finding that iPhone owners had standing to sue Apple for federal antitrust violations regarding the App Store. Individual companies are increasingly filing private litigation against some of the largest technology firms as well.

#### FTC losing Facebook case and doesn’t solve – too complex, not enough resources, integration blocks success

Chakravorti 7-7 [Bhaskar Chakravorti is the dean of global business at Tufts University’s Fletcher School of Law and Diplomacy, 7-7-2021 https://foreignpolicy.com/2021/07/07/ftc-lina-khan-regulate-tech-congress/]

Although Khan can reframe the fundamentals of the antitrust complaint, without adequate regulatory infrastructure—something only Congress can provide—there are likely to be unsurmountable obstacles as the chess game between the law and Facebook unfolds. No matter how brilliantly Khan’s FTC rewrites the case against Facebook, the agency’s powers, budget, and resources are still limited. Ad hoc adjustments to the FTC’s budget, as envisioned in one of the bills in Congress, and stopgap measures to expand its powers do not get around the fundamental fact that the FTC was not set up to pursue the breadth of novel issues and policy trade-offs that digital industries create.

Antitrust in digital industries cannot be considered in isolation. It is also quite different from antitrust in other industries because there are issues unique to the industry. A holistic view of digital antitrust means tying antitrust concerns with numerous broader questions, such as securing users’ data rights, the responsibilities platforms ought to have for the content they host, and criteria that helps demarcate the benefits of network effects from the abuses of network power. The FTC is too much of a general purpose entity to dive into these complexities. As former Federal Communications Commission chair Tom Wheeler observed: “The vast scope of the FTC’s present responsibilities—as diverse as funeral director practices, robocalls, and labeling hockey pucks—means that the oversight of digital platform regulation must compete with the agency’s existing diverse responsibilities and limited resources.”

Meanwhile, Facebook is shoring up its defenses. Even as the FTC gets its act together and its complaint is reconsidered, Facebook is busy integrating the backend infrastructure that supports its popular apps: Facebook Messenger, Instagram, and WhatsApp. This is likely to make it impossible to tear the apps apart. In addition to the integration’s technical aspects, which offer the company many benefits, Facebook is making the case that consumers benefit from it as well. It is testing a unified “accounts center” that shows the user all the apps the user has open; Facebook Messenger and Instagram users can send messages and get access to features across apps as well. Most significantly, this could also enable end-to-end encryption across all the apps, which would be an enormous boost to Facebook’s argument that its changes are meant to enhance users’ privacy.

It is conceivable that even if the FTC’s rewritten complaint is accepted, an antitrust case would take a long time to prosecute. In the meantime, Facebook will have already accomplished a fait accompli, making it hard to push further with the current, narrow complaint’s core. In fact, Khan’s predecessor, Joseph Simons, acknowledged that Facebook’s plan to integrate its apps would pose challenges to any move to break up the company.

#### Breakup and collapse inevitable – whole government pressure, scandals, collapsing users, competitors

Liss 8-29 [Daniel Liss is the founder and CEO of Dispo, the digital disposable camera social network. 8-29-2021 https://techcrunch.com/2021/08/29/move-fast-and-break-facebook-a-bull-case-for-antitrust-enforcement/]

The government will break up Facebook

It is not a matter of if; it is a matter of when.

In a speech on the floor of Congress in 1890, Senator John Sherman, the founding father of the modern American antitrust movement, famously said, “If we will not endure a king as a political power, we should not endure a king over the production, transportation and sale of any of the necessities of life. If we would not submit to an emperor, we should not submit to an autocrat of trade with power to prevent competition and to fix the price of any commodity.”

This is the sentiment driving the building resistance to Facebook’s monopoly, and it shows no sign of abating. Zuckerberg has proudly called Facebook the fifth estate. In the U.S., we only have four estates.

All three branches of the federal government are heating up their pursuit. In the Senate, an unusual bipartisan coalition is emerging, with Senators Amy Klobuchar (D-MN), Mark Warner (D-VA), Elizabeth Warren (D-MA) and Josh Hawley (R-MO) each waging a war from multiple fronts.

In the House, Speaker Nancy Pelosi (D-CA) has called Facebook “part of the problem.” Lina Khan’s FTC is likewise only getting started, with unequivocal support from the White House that feels burned by Facebook’s disingenuous lobbying. The Department of Justice will join, too, aided by state attorneys general. And the courts will continue to turn the wheels of justice, slowly but surely.

In the wake of Facebook co-founder Chris Hughes’ scathing 2019 New York Times op-ed, Zuckerberg said that Facebook’s immense size allows it to spend more on trust and safety than Twitter makes in revenue.

“If what you care about is democracy and elections, then you want a company like us to be able to invest billions of dollars per year like we are in building up really advanced tools to fight election interference,” Zuckerberg said.

This could be true, but it does not prove that the concentration of such power in one man’s hands is consistent with U.S. public policy. And the centralized operations could be rebuilt easily in standalone entities.

Time and time again, whether on Holocaust denial, election propaganda or vaccine misinformation, Zuckerberg has struggled to make quick judgments when presented with the information his trust and safety team uncovers. And even before a decision is made, the structure of the team disincentivizes it from even measuring anything that could harm Facebook’s brand. This is inherently inconsistent with U.S. democracy. The New York Times’ army of reporters will not stop uncovering scandal after scandal, contradicting Zuckerberg’s narrative. The writing is on the wall.

Facebook is losing

Facebook Blue, Instagram and WhatsApp all face existential threats. Pressure from the government will stifle Facebook’s efforts to right the ship.

For so long, Facebook has dominated the social media industry. But if you ask Chinese technology executives about Facebook today, they quote Tencent founder Pony Ma: “When a giant falls, his corpse will still be warm for a while.”

Facebook’s recent demise begins with its brand. The endless, cascading scandals of the last decade have irreparably harmed its image. Younger users refuse to adopt the flagship Facebook Blue. The company’s internal polling on two key metrics — good for the world (GFW) and cares about users (CAU) — shows Facebook’s reputation is in tatters. Talent is fleeing, too; Instacart alone recently poached 55 Facebook executives.

In 2012 and 2014, Instagram and WhatsApp were real dangers. Facebook extinguished both through acquisition. Yet today they represent the company’s two most promising, underutilized assets. They are the underinvested telephone networks of our time.

Weeks ago, Instagram head Adam Mosseri announced that the company no longer considers itself a photo-sharing app. Instead, its focus is entertainment. In other words, as the media widely reported, Instagram is changing to compete with TikTok.

TikTok’s strength represents an existential threat. U.S. children 4 to 15 already spend over 80 minutes a day on ByteDance’s TikTok, and it’s just getting started. The demographics are quickly expanding way beyond teenagers, as social products always have. For Instagram, it could be too little too late — as a part of Facebook, Instagram cannot acquire the technology and retain the talent it needs to compete with TikTok.

#### Democracy resilient – overwhelming public backing supports gains

Wollack 16 ---- Kenneth, president of the National Democratic Institute, former co-editor of the Middle East Policy Survey, former senior fellow at UCLA’s School for Public Affairs, “How Resilient is Democracy?” This text is the transcript from an interview with Alexander Heffner, PBS – The Open Mind, 10/15, <http://www.thirteen.org/openmind/government/how-resilient-is-democracy/5553/>

Well I think we’re seeing a number of phenomena that take place. Um, first of all you have new democracies around the world, that are struggling to deliver for its people. New institutions, political institutions that for the first time have legitimacy among the people, but in order to succeed and sustain their democratic system, they have to deliver on quality of life issues for, for the entire population. And if those institutions don’t deliver in many of these new democracies that have emerged over the last forty years, uh, then you’re gonna see backsliding and people will either go to the streets or vote for a populist demagogue who promises to bring sort of instant solutions to their problems. And then in non-democratic countries, you have what is called authoritarian learning, and that is autocrats today that are smarter than they were before, uh, that are fearful of diffusion of political power, uh, fearful of losing power themselves. Um, and they are using uh, traditional means and new legal means in which to repress the population, prevent the emergence of civil society, and not to speak of opposition political parties. And then you have a situation that you see in a number of countries in the Middle East where you have a sectarian strife and conflict. Uh, but in all of these situations, what you find is democratic resilience. That people around the world basically want the same thing. They want to put food on their table, uh, they want to have jobs and shelter and they want a political voice. And that, those aspirations and those hopes, uh, and those desires as I said are universal, and if you look at public opinion polls around the world, uh, people do want to have democratic systems that allow them to participate in the political life of their country. And that is, we are in the optimism business, and we believe in people and I think that ultimately those efforts, um, will, will succeed. But they need a lot of support, they need backing, um, uh, in order for uh, some very brave and courageous people to, to move the democratic for—uh, process forward in some of the most unlikely places in the world.

#### Democracy doesn’t cause peace – statistical models are spurious and don’t assume economic growth

Mousseau, 12 (Michael – Professor IR Koç University, “The Democratic Peace Unraveled: It’s the Economy” International Studies Quarterly, p 1-12)

Model 2 presents new knowledge by adding the control for economic type. To capture the dyadic expectation of peace among contract-intensive nations, the variable Contract- intensive EconomyL (CIEL) indicates the value of impersonal contracts in force per capita of the state with the lower level of CIE in the dyad; a high value of this measure indicates both states have contract-intensive economies. As can be seen, the coefficient for CIEL ()0.80) is negative and highly significant. This corroborates that impersonal economy is a highly robust force for peace. The coefficient for DemocracyL is now at zero. There are no other differences between Models 1 and 2, whose samples are identical, and no prior study corroborating the democratic peace has considered contractintensive economy. Therefore, the standard econometric inference to be drawn from Model 2 is the nontrivial result that **all prior reports of democracy as a force for peace are probably spurious, since this result is predicted and fully accounted for by economic norms theory.** CIEL and DemocracyL correlate only in the moderate range of 0.47 (Pearson’s r), so the insignificance of democracy is not likely to be a statistical artifact of multicollinearity. This is corroborated by the variance inflation factor for DemocracyL in Model 2 of 1.85, which is well below the usual rule-of-thumb indicator of multicollinearity of 10 or more. Nor should readers assume most democratic dyads have both states with impersonal economies: While almost all nations with contract-intensive economies (as indicated with the binary measure for CIE) are democratic (Polity2 > 6) (Singapore is the only long-term exception), more than half—55%—of all democratic nation-years have contract-poor economies. At the dyadic level in this sample, this translates to 80% of democratic dyads (all dyads where DemocracyBinary6 = 1) that have at least one state with a contract-poor economy. In other words, not only does Model 2 show **no evidence of causation from democracy to peace** (as reported in Mousseau 2009), but it also illustrates that this absence of democratic peace includes the vast majority—80%—of democratic dyad-years over the sample period. Nor is it likely that the causal arrow is reversed—with democracy being the ultimate cause of contract-intensive economy and peace. This is because correlations among independent variables are not calculated in the results of multivariate regressions: Coefficients show only the effect of each variable after the potential effects of the others are kept constant at their mean levels. If it was democracy that caused both impersonal economy and peace, then there would be some variance in DemocracyL remaining, after its partial correlation with CIEL is excluded, that links it directly with peace. The positive direction of the coefficient for DemocracyL informs us that no such direct effect exists (Blalock 1979:473–474). Model 3 tests for the effect of DemocracyL if a control is added for mixed-polity dyads, as suggested by Russett (2010:201). As discussed above, to avoid problems of mathematical endogeneity, I adopt the solution used by Mousseau, Orsun and Ungerer (2013) and measure regime difference as proposed by Werner (2000), drawing on the subcomponents of the Polity2 regime measure. As can be seen, the coefficient for Political Distance (1.00) is positive and significant, corroborating that regime mixed dyads do indeed have more militarized conflict than others. Yet, the inclusion of this term has no effect on the results that concern us here: CIEL ()0.85) is now even more robust, and the coefficient for DemocracyL (0.03) is above zero.7 Model 4 replaces the continuous democracy measure with the standard binary one (Polity2 > 6), as suggested by Russett (2010:201), citing Bayer and Bernhard (2010). As can be observed, the coefficient for CIEL ()0.83) remains negative and highly significant, while DemocracyBinary6 (0.63) is in the positive (wrong) direction. As discussed above, analyses of fatal dispute onsets with the far stricter binary measure for democracy (Polity = 10), put forward by Dafoe (2011) in response to Mousseau (2009), yields perfect prediction (as does the prior binary measure Both States CIE), causing quasi-complete separation and inconclusive results. Therefore, Model 5 reports the results with DemocracyBinary10 in analyses of all militarized conflicts, not just fatal ones. As can be seen, the coefficient for DemocracyBinary10 ()0.41), while negative, is not significant. Model 6 reports the results in analyses of fatal disputes with DemocracyL squared (after adding 10), which implies that the likelihood of conflict decreases more quickly toward the high values of DemocracyL. As can be seen, the coefficient for DemocracyL 2 is at zero, further corroborating that even very high levels of democracy do not appear to cause peace in analyses of fatal disputes, once consideration is given to contractintensive economy. Models 3, 4, and 6, which include Political Distance, were repeated (but unreported to save space) with analyses of all militarized interstate disputes, with the democracy coefficients close to zero in every case. Therefore, the conclusions reached by Mousseau (2009) are corroborated even with the most stringent measures of democracy, consideration of institutional distance, and across all specifications: The **democratic peace appears spurious**, with contract-intensive economy being the more likely explanation for both democracy and the democratic peace.

# 1AR

#### Inequality is decreasing at unprecedented rates by every metric.

McAfee, 19—cofounder and codirector of the MIT Initiative on the Digital Economy at the MIT Sloan School of Management, former professor at Harvard Business School and fellow at Harvard’s Berkman Center for Internet and Society (Andrew, “The Global Gallop of the Four Horsemen,” *More from Less: The Surprising Story of How We Learned to Prosper Using Fewer Resources—and What Happens Next*, Chapter 10, pg 235-240, Kindle, dml)

In 2016 the economist and columnist Noah Smith reviewed the evidence on poverty around the world, and his conclusion was notably exuberant: "This is incredible—nothing short of a miracle. Nothing like this has ever happened before in recorded history." A graph created by Max Roser clearly reveals the "miracle" Smith was talking about, and how right he was that the improvement is without precedent. The graph doesn't show the percentage of people living in poverty, but instead something even more important: the total number of extremely poor people on earth.

#### No endless warfare

Gray 7 – ColinGray, Director of the Centre for Strategic Studies and Professor of International Relations and Strategic Studies at the University of Reading, graduate of the Universities of Manchester and Oxford, Founder and Senior Associate to the National Institute for Public Policy, formerly with the International Institute for Strategic Studies and the Hudson Institute, July 2007, “The Implications of Preemptive and Preventive War Doctrines: A Reconsideration”, http://www.ciaonet.org/wps/ssi10561/ssi10561.pdf

7. A policy that favors preventive warfare expresses a futile quest for absolute security. It could do so. Most controversial policies contain within them the possibility of misuse. In the hands of a paranoid or boundlessly ambitious political leader, prevention could be a policy for endless warfare. However, the American political system, with its checks and balances, was designed explicitly for the purpose of constraining the executive from excessive folly. Both the Vietnam and the contemporary Iraqi experiences reveal clearly that although the conduct of war is an executive prerogative, in practice that authority is disciplined by public attitudes. Clausewitz made this point superbly with his designation of the passion, the sentiments, of the people as a vital component of his trinitarian theory of war. 51 It is true to claim that power can be, and indeed is often, abused, both personally and nationally. It is possible that a state could acquire a taste for the apparent swift decisiveness of preventive warfare and overuse the option. One might argue that the easy success achieved against Taliban Afghanistan in 2001, provided fuel for the urge to seek a similarly rapid success against Saddam Hussein’s Iraq. In other words, the delights of military success can be habit forming. On balance, claim seven is not persuasive, though it certainly contains a germ of truth. A country with unmatched wealth and power, unused to physical insecurity at home—notwithstanding 42 years of nuclear danger, and a high level of gun crime—is vulnerable to demands for policies that supposedly can restore security. But we ought not to endorse the argument that the United States should eschew the preventive war option because it could lead to a futile, endless search for absolute security. One might as well argue that the United States should adopt a defense policy and develop capabilities shaped strictly for homeland security approached in a narrowly geographical sense. Since a president might misuse a military instrument that had a global reach, why not deny the White House even the possibility of such misuse? In other words, constrain policy ends by limiting policy’s military means. This argument has circulated for many decades and, it must be admitted, it does have a certain elementary logic. It is the opinion of this enquiry, however, that the claim that a policy which includes the preventive option might lead to a search for total security is not at all convincing. Of course, folly in high places is always possible, which is one of the many reasons why popular democracy is the superior form of government. It would be absurd to permit the fear of a futile and dangerous quest for absolute security to preclude prevention as a policy option. Despite its absurdity, this rhetorical charge against prevention is a stock favorite among prevention’s critics. It should be recognized and dismissed for what it is, a debating point with little pragmatic merit. And strategy, though not always policy, must be nothing if not pragmatic.

#### Neolib is sustainable

--accelerating market-driven brown solves poverty and resources

--consumption will stabilize

--tech solves

Saunders 16 – MA in Environment and Planning, PhD in engineering-economic systems from Stanford University (Harry, “Does Capitalism Require Endless Growth?,” The Breakthrough Institute, http://thebreakthrough.org/index.php/journal/issue-6/does-capitalism-require-endless-growth)

6. There is another path to stable and declining calls on the planet’s endowment of natural capital. Malthus erred not only because he failed to understand the relationship between fertility rates and food consumption but also because he underestimated the rate at which agricultural productivity would improve. By growing more food on every acre of land, human societies avoided mass starvation. More broadly, rising economic productivity due to technological advances raises incomes, creates economic surplus that can be reinvested in new capital and infrastructure, and produces more economic output from less natural capital input. So long as there are large populations living in deep poverty, gains in economic productivity will be put toward greater output, assuring that some or all of the efficiencies associated with productivity gains will be put toward greater production and consumption. But once everyone on the planet achieves a satisfactory level of consumption, consumption of goods and services should stabilize while calls on natural capital should stabilize and then decline.[34](http://thebreakthrough.org/index.php/journal/issue-6/does-capitalism-require-endless-growth#foot34) By satisfactory levels of consumption, what I mean is a standard of living that would be recognizable to the average citizen of an advanced developed economy — modern housing, an ample and diverse diet, sufficient electricity for run-of-the-mill household appliances, roads, hospitals, well-lit public spaces, garbage collection, and so on. The saturation of demand for goods and services in advanced developed economies in the latter half of the twentieth century provides a reasonable proxy for the point at which most people start to see diminishing utility from further household consumption. In a zero-growth world, in which household consumption has saturated while labor- and resource-sparing technological change continues, leisure time grows continually over time while societal calls on natural capital decline.[35](http://thebreakthrough.org/index.php/journal/issue-6/does-capitalism-require-endless-growth#foot35) Given these conditions, how quickly a zero-growth economy is achieved, and calls on natural capital globally peak and then decline, depends upon three closely related phenomena: how rapidly global population stabilizes, how rapidly incomes among the global poor rise, and the rate at which resource-sparing technological change occurs. 7. Getting to a zero-growth steady state economy with declining calls on natural capital will require, then, sustaining — or better yet, accelerating — two trends that capitalism has proven better able to advance than any alternative economic arrangement to date: lifting large agrarian populations out of poverty, and improving resource productivity through technological change. The former, as noted above, is also the key to stabilizing global population.

#### No collapse from crises---lefty predictions are always wrong

Kaletsky, 11 (Anatole, editor-at-large of The Times of London, where he writes weekly columns on economics, politics, and international relationsand on the governing board of the New York-based Institute for New Economic Theory (INET), a nonprofit created after the 2007-2009 crisis to promote and finance academic research in economics, Capitalism 4.0: The Birth of a New Economy in the Aftermath of Crisis, p. 2-3)

To explain this process of renewal, and identify some of the most important features of the reinvigorated capitalist system, is the ambition of this book. This transformation will take many years to complete, but some of its consequences have become discernible already. And with the benefit of even a few years’ hindsight, it is clear that these consequences will be very different from the nihilistic predictions from both ends of the political spectrum at the height of the crisis. On the Left, anticapitalist ideologues seemed honestly to believe that a few weeks of financial chaos could bring about the disintegration of a politico-economic system that had survived two hundred years of revolutions, depressions, and world wars. On the Right, free-market zealots insisted that private enterprise would be destroyed by precisely the government interventions that proved necessary to save the system— and as soon as the crisis was over, started to claim that all the trouble could have been avoided if governments had simply allowed the financial systems to collapse. A balanced reassessment of the crisis must challenge both left-wing hysteria and right-wing hubris. Rather than blaming the meltdown of the global financial system on greedy bankers, incompetent regulators, gullible homeowners, or foolish Chinese bureaucrats, this book puts what happened into historical and ideological perspective. It reinterprets the crisis in the context of the economic reforms and geopolitical upheavals that have repeatedly transformed the nature of capitalism since the late eighteenth century, most recently in the Thatcher-Reagan revolution of 1979– 89. The central argument is that capitalism has never been a static system that follows a fixed set of rules, characterized by a permanent division of responsibilities between private enterprise and governments. Contrary to the teachings of modern economic theory, no immutable laws govern the behavior of a capitalist economy. Instead, capitalism is an adaptive social system that mutates and evolves in response to a changing environment. When capitalism is seriously threatened by a systemic crisis, a new version emerges that is better suited to the changing environment and replaces the previously dominant form. Once we recognize that capitalism is not a static set of institutions, but an evolutionary system that reinvents and reinvigorates itself through crises, we can see the events of 2007– 09 in another light: as the catalyst for the fourth systemic transformation of capitalism, comparable to the transformations triggered by the crises of the 1970s, the crises of the 1930s, and the Napoleonic Wars of 1803– 15. Hence the title of this book

#### Cap is a poor explanation---not viewing it as monolithic is necessary for changing the structure

Gibson-Graham 6 - pen-name of Katherine Gibson and the late Julie Graham, feminist political economists and economic geographers based at the University of Western Sydney, Australia and the University of Massachusetts Amherst

[J.K. Gibson-Graham, The End of Capitalism (As We Knew It): A Feminist Critique of Political Economy, p. xi-xv]

As we argued in chapter 5 of The End of Capitalism, any contemporary economic politics confronts an existing object: an economy produced, through particular modes of representation and calculation, as a bounded sphere "whose internal mechanisms and exchanges separate it from other social processes" (Mitchell 2007). This economy is not simply an ideological concept susceptible to intellectual debunking, but a materialization that participates in organizing the practices and processes that surround it, while at the same time being organized and maintained by them. A project of instituting a different economy must restore this obdurate positivity to its negative grounding. It must, in Laclau's terms (1990), produce a "dislocation," enabling a recognition that "other economies are possible." Something outside the given configuration of being must offer itself as an element or ingredient for a new political project of configuring. For us this dislocating element has been an economic language that cannot be subsumed to existing ways of thinking economy, and instead signals the ever-present possibility of remaking economy in alternative terms. The conceptual resources for different languages of economy are abundantly available. Alongside the hegemonic discourse of economy, many counterdiscourses have arisen from alternative traditions of economic thought (for example, classical political economy, feminist economics, economic anthropology, geography, and sociology) and from workingclass, third-world, and social and community movements (for example, the feminist, socialist, cooperative, and local sustainability movements).4 Yet while there exists a substantial understanding of the extent and nature of economic difference, what does not exist is a way of convening this knowledge to destabilize the received wisdom of capitalist dominance and unleash the creative forces and subjects of economic experimentation.

Our intervention has been to propose a language of the diverse econof social studies of economy since The End of Capitalism was of social studies of economy since The End of Capitalism was published. published. to perform different economies.5 The language of the diverse economy widens the identity of the economy to include all of those practices excluded or marginalized by the theory and presumption of capitalist hegemony. The objective is not to produce a finished and coherent template that maps the economy "as it really is" and presents (to the converted or suggestible) a ready-made "alternative economy." Rather, our hope is to disarm and dislocate the naturalized dominance of the capitalist economy and make a space for new economic becomings—ones that we will need to work to produce. If we can recognize a diverse economy, we can begin to imagine and create diverse organizations and practices as powerful constituents of an enlivened noncapitalist politics of place. We began constructing our language by surveying a variety of economic traditions and languages and conceptualizing three differentiated practices:6 different kinds of transaction and ways of negotiating (in)commensurability; different types of labor and ways of compensating it; and different forms of economic enterprise and ways of producing, appropriating, and distributing surplus. Our current representation of what we have called the diverse economy is shown in Figure I.I. In this figure, what is often seen as the economy, that is, formal markets, wage labor, and capitalist enterprise, is merely one set of cells in a complex field of economic relations that sustain livelihoods in regions around the world. Realizing that in both rich and poor countries the bottom two-thirds of the diagram accounts for well over 50 percent of economic activity, we cannot help but be struck by the discursive violence enacted through familiar references to "capitalist" economies and societies.

Considering for a moment just the market-oriented enterprises in the right-hand column of Figure I.I, we recognize in the bottom cell the presence of commodity-producing enterprises of a noncapitalist sort. This should not be surprising—commodities are just goods and services produced for a market; they can be produced in a variety of exploitative or nonexploitative noncapitalist organizations. On the exploitative side, slave modes of producing and appropriating surplus where workers lack freedom of contract are arguably growing—for example, in the United States prison system and in the sex and domestic service industries worldwide (Bales 1999). In addition, feudal surplus appropriation via payments of rent goes on in tenant farming and in many household-based businesses (Kayatekin 2001). But there are also nonexploitative forms of surplus appropriation in the noncapitalist cell: consider the large population of self-employed or independent producers who appropriate and distribute the wealth they produce, and the growing number of collectives and cooperatives that jointly appropriate their surplus and distribute it in ways decided on by the collective membership.

Moving up one cell, we are reminded that difference within the category of capitalist enterprise is as important as the differences between enterprise forms or class processes. Increasingly "alternative" capitalist firms distinguish themselves from their mainstream capitalist counterparts in that part of their production process, their product, or their appropriated surplus is oriented toward environmentally friendly or socially responsible activity. State capitalist enterprises employ wage labor and appropriate surplus but have the potential to produce public goods and distribute surplus funds to public benefit. Nonprofit enterprises similarly employ wage laborers and appropriate their surplus, but by law they are not allowed to retain or distribute profits. Like other capitalist enterprises, these different forms of organization are scattered over the economic landscape. In this representation, no system or unified economy covers the social space and thus necessarily dominates other forms of economy.

Elaborating a vision of the "diverse economy" is one of our strategic moves against the subordination of local subjects to the discourse of (capitalist economic) globalization. Each of our action research projects starts with an inventory by community researchers of local economic practices and organizations that modifies and expands Figure I.I. This process yields a wider field of economic possibility and a revaluation of the local economy in terms of economic resources (as opposed to economic deficiencies) available for projects of economic invention. Representing the diverse economy is a deconstructive process that displaces the binary hierarchies of market/nonmarket and capitalism/noncapitalism, turning singular generalities into multiple particularities, and yielding a radically heterogeneous economic landscape in preparation for the next phase of the projects—the construction of "community economies" in place. In the terms of our language politics, this constructive process entails (1) articulation, or making links among the different activities and enterprises of a diverse economy, and (2) resignification, or convening these activities/enterprises under the signifier of the "community economy." As a practice of development, constructing a community economy is an ethical project of acknowledging relationships and making connections, rather than a technical project of activating generic logics of growth.

#### Decline causes war – best evidence

Howell 13 (Patrick, B.A. from Emory University. “Economic Crises and the Initiation of Militarized Disputes,” A Thesis Submitted to the Graduate Faculty of The University of Georgia in Partial Fulfillment of the Requirements for the Degree Master of Arts, 2013, https://getd.libs.uga.edu/pdfs/howell\_patrick\_d\_201305\_ma.pdf)

The findings are clear: economic crises are an important trigger for shifts in a state’s rate of dispute initiation. By using a large sample of states over a period of 185 years, this conclusion then can also be taken as generalizable to the entire population of states in the international system. In addition to providing support for issue crossover and the influence economic troubles can play on foreign policy decisions, the findings here also support the methodological rationale for using economic crises as explicit, observable events, instead of as trends in other variables (e.g. GDP growth). Of course, this is not to say that all work on this topic is final. There exist a number of areas where this research agenda can be improved upon and/or extended to in order to provide a more holistic account of where and how economic crises exactly apply political pressure on leaders. First, the study of diversionary war exists in both quantitative tests and in more fine toothed examinations of actual cases (Levy and Vakili 1992; Fravel 2010). Exploring the internal processes within states in such a fashion can also produce a deeper understanding of the exact causal mechanisms through which prospect theory operates. Aggregation and levels of analysis become a basic concern with applying prospect theory outside of the laboratory and to states and governments. After all, “prospect theory is developed as a theory of individual decision making, the question is whether it is applicable to collective decision making” (Vis 2011, 337). Here a unitary actor assumption is made from the outset, but it is also possible that the observed effect is driven instead by individual decision-makers themselves (for example, Fuhrmann and Early 2008, who keep the level of analysis only on President Bush). A deeper case study of a few select cases with an eye towards process might reveal whether the increase in conflict initiation is due to a single policy entrepreneur or leader, or if it is the result of collective behavior (as perhaps even aides, legislators, and bureaucrats seek to compensate for the detrimental effects that accompany an economic crisis separately or in concert). Examination of specific cases might also provide a more accurate picture for policymakers of the strategy that can accompany an economic crisis and inducement of diversionary tendencies in another state. Smith (Smith 1998) hypothesizes diversionary actions as a strategic game, and finds that potential target states should then adopt a policy of strategic avoidance – disengaging from any scenario that might make them a target from a diversionary conflict initiated by an opposing state in dire straits. This question of strategic avoidance occurs most often in the study of the United States (Fordham 2005; Meernik 2005), with evidence that other states avoid and/or initiate fewer disputes with the United States when the American economy is performing poorly. The empirical test here using a proportionbased dependent variable might already be capturing some degree of a strategic avoidance effect, in that some of the variation in the proportion of initiation could be because the rate of other states initiating disputes on the crisis-stricken state is decreasing. If strategic avoidance is occurring, it actually increases the strength of aspects of the diversionary war literature (in that other states are actually behaving according to expectations of diversionary actions), but much more work and nuance would be needed to separate where then the logic in strategic avoiders is originating. The final implication of the findings to be discussed here is the role of institutions in this analysis. As stated above, the institutional controls that were included in the estimation demonstrated null effects on the overall rate of militarized dispute initiation. This finding is interesting considering the enshrined role that institutions and regime types tend to play within scholarly work on diversionary war. Similar to the mixed results of GDP indicators, mixed and contradictory results can be found throughout the body of work on diversionary war: some find that the diversionary effects exist mainly in democratic settings (Gelpi 1997; Davies 2002; Brul´e and Williams 2009), while others find that diversionary effects occur in autocratic settings (Miller 1999; Lai and Slater 2005; Pickering and Kisangani 2010). One method of reconciling the conflicting conclusions of whether democratic or autocratic leaders are more likely to engage in diversionary behavior is in direct tests comparing the two regime types. Typically, these comparisons have either found the two regime types differ in the targets that are selected by each (Bueno De Mesquita and Siverson 1995), or have found some fault with the way that the regime types themselves are defined, due to differing incentives for differing subtypes of regimes (Pickering and Kisangani 2005). In order to examine the difference between democracies and autocracies, I split the sample from Model 2 into either of the regime types, using a score of 6 in the Polity2 measure as a cut-point. Splitting the sample has the effect of interacting regime type with all independent variables, giving regime specific effects not only for economic crises, but also all control variables.1 The results of this regime split can be found in Table 2. As can be seen here, the effect of economic crises is positive and significant in both institutional settings. Comparing the coefficients for economic crisis in Table 2 with those of the original Model 2, the likely explanation for why the institutional variables in the original model did not have an impact on crisis initiation is because all democracies and autocracies possess relatively similar incentives for increasing crisis initiation following economic crises, so any variation across institutions was only averaged out. However, the results presented in Table 2 also provide support for a difference existing in the process of how diversionary conflict might occur in either regime type, due to the differences in control variable significance. This lends some credence to the separation of democracies and autocracies for study of diversionary war, but provides no evidence that the effect should only exist in one or the other. The similarity in the main independent variable of economic crises, though, furthers the assertion that the effect of economic crises increasing dispute initiation can be viewed as a general behavior of all states in the international system. Conclusions Altogether, there can be said to be a robust, positive relationship between the occurrence of economic crises and the rate of dispute initiation by states. This effect is especially strong and demonstrable when time ordering is preserved by examining how crises in the previous year affect states in their current year. These findings can also be said to have a relatively high degree of substantive import as well. As Figure 1 showed, the occurrence of each subsequent economic crisis increases the chances of a state initiating disputes by almost 3%. The nearly 20 percentage point increase in dispute initiation across the range of the lagged economic crisis variable also represents a substantial impact, especially considering the rare event nature of militarized disputes to begin with. This generalizable finding can have far-reaching impact to both the study of diversionary war in academia, as well as directly for policymakers. In academe settings, there is good evidence to support the use of acute economic crises over those variables based on the slowershifting trends of GDP or public opinion measurements. Economic crises act as an explicit trigger that can mark a leader’s shift into a losses frame and engage in riskier behavior consistent with both prospect theory and diversionary war hypotheses. Meanwhile, applying this observed effect to the real world would seem to indicate that if a state goes through an economic crisis, other states should have increased wariness in their dealings with the crisis-stricken state and/or be more prepared for the possibility of a new dispute emerging in the wake of such an event.

#### Covid proves transition fails – society turns back to growth

McAfee 20 (Andrew, principal research scientist at MIT, “Why Degrowth Is the Worst Idea on the Planet,” 10/6/20, <https://www.wired.com/story/opinion-why-degrowth-is-the-worst-idea-on-the-planet/)///NRG>

Thanks to Covid-19, we have an inkling of how this would feel. A “degrowth recession” wouldn't have the virus’ deaths and sickness, and it wouldn't require us to practice social distancing. But it would have all the economic contractions’ job losses, business closures, mortgage defaults, and other hardships and uncertainties. And it would have them without end—after all, growth can't be allowed to restart. Corporate and government revenue would decrease permanently, and therefore so would innovation and R&D. How many of us would be willing to accept all of this in exchange for somewhat less pollution and resource use? To sharpen the question, how many of us would be willing to accept this recession if it wasn’t necessary—if it were clear that we could get environmental improvements while continuing to grow and prosper? The ecomodernist argument is that that is in fact clear. Unlike the degrowth argument, it's supported by a great deal of evidence. What's at least important is that it will be supported by a great deal of the world's people, who will eagerly sign up to climb our new green path to prosperity.