# AFF DOC – NDT R6 – HARVARD BH

## 1AC

**The United States federal government should expand the scope of its core antitrust laws to account for “total welfare” including determining that failure to pay an upstream carbon fee on greenhouse gas emissions is anticompetitive conduct.**

#### The consumer welfare relies on a “market failure” approach that is impossible to prove and fails to address systemic risks like climate change. Only expanding the scope of the CWS to account for total welfare can address systematic failure.

Miazad 21 (Amelia Miazad is Founding Director and Senior Research Fellow of the Business in Society Institute at Berkeley Law., “PROSOCIAL ANTITRUST”, Prosocial Antitrust (March 11, 2021). Available at SSRN: https://ssrn.com/abstract=3802194 or http://dx.doi.org/10.2139/ssrn.3802194)

While courts routinely dismiss noneconomic or “non-welfare” justifications, precisely what procompetitive reasons come into play is, as Justice Stevens famously stated, “an absolute mystery”.242 As Professor John Newman points out, the “relevant case law reveals multiple competing approaches and seemingly irreconcilable opinions” on what constitutes “beneficial”.243 After all, whether a particular activity is beneficial necessarily begs the question— beneficial to what end? Professor Newman traces this confusion to the use of three different tests by courts:

Under the “market failure” approach, a valid justification is present if—and only if—the challenged restraint alleviates a market failure. Alternatively, the “competitive process” approach attempts to condemn restraints that harm (and bless restraints that benefit) “competition” itself or the so-called “competitive process”. Lastly, the “type of effect” approach appears to offer a shortcut: simply identify the effects of the challenged restraint, then ascertain whether they align with a pre-approved typology of virtuous marketplace effects (e.g., higher output, lower prices, etc.).244

This Article agrees with Professor Newman’s doctrinal, normative, and practical arguments in favor of the market failure test.245 Most contemporary courts also hold that “alleviating a market failure is an acceptable procompetitive justification.”246 But the market failure test is fundamentally at odds with the market reality of increasing universal ownership. Two limitations explain its inability to account for systematic and portfolio-wide risks. First, the market failure test relies on the prevailing consumer welfare standard.247 That generally means that a particular restraint of trade must alleviate a market failure by increasing consumer surplus in order for courts to deem it a valid procompetitive justification.248 By fastening market failure to consumer welfare, the market failure test becomes indistinguishable from the “type of effect” approach, which also focuses on measurable impacts on consumers including output and price. Second, the market failure test assumes the perspective of a single market, preventing it from capturing portfolio-wide systemic risks like climate change.

To be clear, this Article is not arguing that antitrust law should abandon the consumer welfare standard and expand its purview to encompass noneconomic impacts. Rather, it argues that the consumer welfare standard is too narrow to account for economic impacts on a portfolio-wide level. The total welfare standard is most closely aligned with the market reality of universal ownership, although it has been largely abandoned by courts.249 It seeks to maximize the total surplus of all participants in a market, including consumers and producers. The total welfare test’s aggregate value approach is more closely aligned with universal ownership, but it also analyzes an individual market—as opposed to market-wide impacts— because a so-called “general equilibrium analysis” is impractical. Developing a standard that aligns with the market reality of concentrated ownership is beyond the scope of this Article. This Article does argue, however, that the current consumer welfare standard impedes collaboration to address systematic economic risks, as the next Part explores.

#### Climate change is a system disruptor and a risk amplifier---only mitigation prevents biodiversity loss, marine ecosystem collapse, resource wars, global food scarcity, and extreme weather events. Uniquely—has disparate impacts.

IPCC 22 (Climate Change 2022 Impacts, Adaptation and Vulnerability Working Group II Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change Edited by Hans-Otto Pörtner Working Group II Co-Chair Debra C. Roberts Working Group II Co-Chair Melinda M.B. Tignor Head Elvira Poloczanska Science Advisor to the WGII Co-Chairs and TSU Katja Mintenbeck Director of Science https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC\_AR6\_WGII\_SummaryForPolicymakers.pdf)

B.3 Global warming, reaching 1.5°C in the near-term, would cause unavoidable increases in multiple climate hazards and present multiple risks to ecosystems and humans (very high confidence). The level of risk will depend on concurrent nearterm trends in vulnerability, exposure, level of socioeconomic development and adaptation (high confidence). Near-term actions that limit global warming to close to 1.5°C would substantially reduce projected losses and damages related to climate change in human systems and ecosystems, compared to higher warming levels, but cannot eliminate them all (very high confidence). (Figure SPM.3, Box SPM.1) {16.4, 16.5, 16.6, CCP1.2, CCP5.3, CCB SLR, WGI AR6 SPM B1.3, WGI AR6 Table SPM.1}

B.3.1 Near-term warming and increased frequency, severity and duration of extreme events will place many terrestrial, freshwater, coastal and marine ecosystems at high or very high risks of biodiversity loss (medium to very high confidence, depending on ecosystem). Near-term risks for biodiversity loss are moderate to high in forest ecosystems (medium confidence), kelp and seagrass ecosystems (high to very high confidence), and high to very high in Arctic sea-ice and terrestrial ecosystems (high confidence) and warm-water coral reefs (very high confidence). Continued and accelerating sea level rise will encroach on coastal settlements and infrastructure (high confidence) and commit low-lying coastal ecosystems to submergence and loss (medium confidence). If trends in urbanisation in exposed areas continue, this will exacerbate the impacts, with more challenges where energy, water and other services are constrained (medium confidence). The number of people at risk from climate change and associated loss of biodiversity will progressively increase (medium confidence). Violent conflict and, separately, migration patterns, in the near-term will be driven by socioeconomic conditions and governance more than by climate change (medium confidence). (Figure SPM.3) {2.5, 3.4, 4.6, 6.2, 7.3, 8.7, 9.2, 9.9, 11.6, 12.5, 13.6, 13.10, 14.6, 15.3, 16.5, 16.6, CCP1.2, CCP2.1, CCP2.2, CCP5.3, CCP6.2, CCP6.3, CCB MIGRATE, CCB SLR}

B.3.2 In the near term, climate-associated risks to natural and human systems depend more strongly on changes in their vulnerability and exposure than on differences in climate hazards between emissions scenarios (high confidence). Regional differences exist, and risks are highest where species and people exist close to their upper thermal limits, along coastlines, in close association with ice or seasonal rivers (high confidence). Risks are also high where multiple non-climate drivers persist or where vulnerability is otherwise elevated (high confidence). Many of these risks are unavoidable in the near-term, irrespective of emissions scenario (high confidence). Several risks can be moderated with adaptation (high confidence). (Figure SPM.3, Section C) {2.5, 3.3, 3.4, 4.5, 6.2, 7.1, 7.3, 8.2, 11.6, 12.4, 13.6, 13.7, 13.10, 14.5, 16.4, 16.5, CCP2.2, CCP4.3, CCP5.3, CCB SLR, WGI AR6 Table SPM.1}

B.3.3 Levels of risk for all Reasons for Concern (RFC) are assessed to become high to very high at lower global warming levels than in AR5 (high confidence). Between 1.2°C and 4.5°C global warming level very high risks emerge in all five RFCs compared to just two RFCs in AR5 (high confidence). Two of these transitions from high to very high risk are associated with near-term warming: risks to unique and threatened systems at a median value of 1.5 [1.2 to 2.0] °C (high confidence) and risks associated with extreme weather events at a median value of 2.0 [1.8 to 2.5] °C (medium confidence). Some key risks contributing to the RFCs are projected to lead to widespread, pervasive, and potentially irreversible impacts at global warming levels of 1.5–2°C if exposure and vulnerability are high and adaptation is low (medium confidence). Near-term actions that limit global warming to close to 1.5°C would substantially reduce projected losses and damages related to climate change in human systems and ecosystems, compared to higher warming levels, but cannot eliminate them all (very high confidence). (Figure SPM.3b) {16.5, 16.6, CCB SLR}

Beyond 2040 and depending on the level of global warming, climate change will lead to numerous risks to natural and human systems (high confidence). For 127 identified key risks, assessed mid- and long-term impacts are up to multiple times higher than currently observed (high confidence). The magnitude and rate of climate change and associated risks depend strongly on near-term mitigation and adaptation actions, and projected adverse impacts and related losses and damages escalate with every increment of global warming (very high confidence). (Figure SPM.3) {2.5, 3.4, 4.4, 5.2, 6.2, 7.3, 8.4, 9.2, 10.2, 11.6, 12.4, 13.2, 13.3, 13.4, 13.5, 13.6, 13.7, 13.8, 14.6, 15.3, 16.5, 16.6, CCP1.2, CCP2.2, CCP3.3, CCP4.3, CCP5.3, CCP6.3, CCP7.3}

B.4.1 Biodiversity loss and degradation, damages to and transformation of ecosystems are already key risks for every region due to past global warming and will continue to escalate with every increment of global warming (very high confidence). In terrestrial ecosystems, 3 to 14% of species assessed33 will likely face very high risk of extinction34 at global warming levels of 1.5°C, increasing up to 3 to 18% at 2°C, 3 to 29% at 3°C, 3 to 39% at 4°C, and 3 to 48% at 5°C. In ocean and coastal ecosystems, risk of biodiversity loss ranges between moderate and very high by 1.5°C global warming level and is moderate to very high by 2°C but with more ecosystems at high and very high risk (high confidence), and increases to high to very high across most ocean and coastal ecosystems by 3°C (medium to high confidence, depending on ecosystem). Very high extinction risk for endemic species in biodiversity hotspots is projected to at least double from 2% between 1.5°C and 2°C global warming levels and to increase at least tenfold if warming rises from 1.5°C to 3°C (medium confidence). (Figure SPM.3c, d, f) {2.4, 2.5, 3.4, 3.5,12.3, 12.5, Table 12.6, 13.4, 13.10, 16.4, 16.6, CCP1.2, Figure CCP1.6, Figure CCP1.7, CCP5.3, CCP6.3, CCB PALEO}

B.4.2 Risks in physical water availability and water-related hazards will continue to increase by the mid- to long-term in all assessed regions, with greater risk at higher global warming levels (high confidence). At approximately 2°C global warming, snowmelt water availability for irrigation is projected to decline in some snowmelt dependent river basins by up to 20%, and global glacier mass loss of 18 ± 13% is projected to diminish water availability for agriculture, hydropower, and human settlements in the mid- to long-term, with these changes projected to double with 4°C global warming (medium confidence). In Small Islands, groundwater availability is threatened by climate change (high confidence). Changes to streamflow magnitude, timing and associated extremes are projected to adversely impact freshwater ecosystems in many watersheds by the mid- to long-term across all assessed scenarios (medium confidence). Projected increases in direct flood damages are higher by 1.4 to 2 times at 2°C and 2.5 to 3.9 times at 3°C compared to 1.5°C global warming without adaptation (medium confidence). At global warming of 4°C, approximately 10% of the global land area is projected to face increases in both extreme high and low river flows in the same location, with implications for planning for all water use sectors (medium confidence). Challenges for water management will be exacerbated in the near, mid and long term, depending on the magnitude, rate and regional details of future climate change and will be particularly challenging for regions with constrained resources for water management (high confidence). {2.3, 4.4, 4.5, Box 4.2, Figure 4.20, 15.3, CCP5.3, CCB DISASTER, SROCC 2.3}

B.4.3 Climate change will increasingly put pressure on food production and access, especially in vulnerable regions, undermining food security and nutrition (high confidence). Increases in frequency, intensity and severity of droughts, floods and heatwaves, and continued sea level rise will increase risks to food security (high confidence) in vulnerable regions from moderate to high between 1.5°C and 2°C global warming level, with no or low levels of adaptation (medium confidence). At 2°C or higher global warming level in the mid-term, food security risks due to climate change will be more severe, leading to malnutrition and micro-nutrient deficiencies, concentrated in Sub-Saharan Africa, South Asia, Central and South America and Small Islands (high confidence). Global warming will progressively weaken soil health and ecosystem services such as pollination, increase pressure from pests and diseases, and reduce marine animal biomass, undermining food productivity in many regions on land and in the ocean (medium confidence). At 3°C or higher global warming level in the long term, areas exposed to climate-related hazards will expand substantially compared with 2°C or lower global warming level (high confidence), exacerbating regional disparity in food security risks (high confidence). (Figure SPM.3) {1.1, 3.3, 4.5, 5.2, 5.4, 5.5, 5.8, 5.9, 5.12, 7.3, 8.3, 9.11, 13.5, 15.3, 16.5, 16.6, CCB MOVING PLATE, CCB SLR}

B.4.4 Climate change and related extreme events will significantly increase ill health and premature deaths from the near- to long-term (high confidence). Globally, population exposure to heatwaves will continue to increase with additional warming, with strong geographical differences in heat-related mortality without additional adaptation (very high confidence). Climate-sensitive food-borne, water-borne, and vector-borne disease risks are projected to increase under all levels of warming without additional adaptation (high confidence). In particular, dengue risk will increase with longer seasons and a wider geographic distribution in Asia, Europe, Central and South America and sub-Saharan Africa, potentially putting additional billions of people at risk by the end of the century (high confidence). Mental health challenges, including anxiety and stress, are expected to increase under further global warming in all assessed regions, particularly for children, adolescents, elderly, and those with underlying health conditions (very high confidence). {4.5, 5.12, Box 5.10, 7.3, Figure 7.9, 8.4, 9.10, Figure 9.32, Figure 9.35, 10.4, Figure 10.11, 11.3, 12.3, Figure 12.5, Figure 12.6, 13.7, Figure 13.23, Figure 13.24, 14.5, 15.3, CCP6.2}

B.4.5 Climate change risks to cities, settlements and key infrastructure will rise rapidly in the mid- and long-term with further global warming, especially in places already exposed to high temperatures, along coastlines, or with high vulnerabilities (high confidence). Globally, population change in low-lying cities and settlements will lead to approximately a billion people projected to be at risk from coastal-specific climate hazards in the mid-term under all scenarios, including in Small Islands (high confidence). The population potentially exposed to a 100-year coastal flood is projected to increase by about 20% if global mean sea level rises by 0.15 m relative to 2020 levels; this exposed population doubles at a 0.75 m rise in mean sea level and triples at 1.4 m without population change and additional adaptation (medium confidence). Sea level rise poses an existential threat for some Small Islands and some low-lying coasts (medium confidence). By 2100 the value of global assets within the future 1-in-100 year coastal floodplains is projected to be between US$7.9 and US$12.7 trillion (2011 value) under RCP4.5, rising to between US$8.8 and US$14.2 trillion under RCP8.5 (medium confidence). Costs for maintenance and reconstruction of urban infrastructure, including building, transportation, and energy will increase with global warming level (medium confidence), the associated functional disruptions are projected to be substantial particularly for cities, settlements and infrastructure located on permafrost in cold regions and on coasts (high confidence). {6.2, 9.9, 10.4, 13.6, 13.10, 15.3, 16.5, CCP2.1, CCP2.2, CCP5.3, CCP6.2, CCB SLR, SROCC 2.3, SROCC CCB9}

B.4.6 Projected estimates of global aggregate net economic damages generally increase non-linearly with global warming levels (high confidence).35 The wide range of global estimates, and the lack of comparability between methodologies, does not allow for identification of a robust range of estimates (high confidence). The existence of higher estimates than assessed in AR5 indicates that global aggregate economic impacts could be higher than previous estimates (low confidence).36 Significant regional variation in aggregate economic damages from climate change is projected (high confidence) with estimated economic damages per capita for developing countries often higher as a fraction of income (high confidence). Economic damages, including both those represented and those not represented in economic markets, are projected to be lower at 1.5°C than at 3°C or higher global warming levels (high confidence). {4.4, 9.11, 11.5, 13.10, Box 14.6, 16.5, CWGB ECONOMIC}

B.4.7 In the mid- to long-term, displacement will increase with intensification of heavy precipitation and associated flooding, tropical cyclones, drought and, increasingly, sea level rise (high confidence). At progressive levels of warming, involuntary migration from regions with high exposure and low adaptive capacity would occur (medium confidence). Compared to other socioeconomic factors the influence of climate on conflict is assessed as relatively weak (high confidence). Along long-term socioeconomic pathways that reduce non-climatic drivers, risk of violent conflict would decline (medium confidence). At higher global warming levels, impacts of weather and climate extremes, particularly drought, by increasing vulnerability will increasingly affect violent intrastate conflict (medium confidence). {TS B.7.4, 7.3, 16.5, CCB MIGRATE }

Complex, Compound and Cascading Risks

B.5 Climate change impacts and risks are becoming increasingly complex and more difficult to manage. Multiple climate hazards will occur simultaneously, and multiple climatic and non-climatic risks will interact, resulting in compounding overall risk and risks cascading across sectors and regions. Some responses to climate change result in new impacts and risks. (high confidence) {1.3, 2.4, Box 2.2, Box 9.5, 11.5, 13.5, 14.6, Box 15.1, CCP1.2, CCP2.2, CCB COVID, CCB DISASTER, CCB INTEREG, CCB SRM, }

B.5.1 Concurrent and repeated climate hazards occur in all regions, increasing impacts and risks to health, ecosystems, infrastructure, livelihoods and food (high confidence). Multiple risks interact, generating new sources of vulnerability to climate hazards, and compounding overall risk (high confidence). Increasing concurrence of heat and drought events are causing crop production losses and tree mortality (high confidence). Above 1.5°C global warming increasing concurrent climate extremes will increase risk of simultaneous crop losses of maize in major food-producing regions, with this risk increasing further with higher global warming levels (medium confidence). Future sea level rise combined with storm surge and heavy rainfall will increase compound flood risks (high confidence). Risks to health and food production will be made more severe from the interaction of sudden food production losses from heat and drought, exacerbated by heat-induced labour productivity losses (high confidence). These interacting impacts will increase food prices, reduce household incomes, and lead to health risks of malnutrition and climate-related mortality with no or low levels of adaptation, especially in tropical regions (high confidence). Risks to food safety from climate change will further compound the risks to health by increasing food contamination of crops from mycotoxins and contamination of seafood from harmful algal blooms, mycotoxins, and chemical contaminants (high confidence). {Figure TS.10c, 5.2, 5.4, 5.8, 5.9, 5.11, 5.12, 7.2, 7.3, 9.8, 9.11, 10.4, 11.3, 11.5, 12.3, 13.5, 14.5, 15.3, Box 15.1, 16.6, CCP1.2, CCP6.2, , WGI AR6 SPM A.3.1, WGI AR6 SPM A.3.2, WGI AR6 SPM C.2.7}

B.5.2 Adverse impacts from climate hazards and resulting risks are cascading across sectors and regions (high confidence), propagating impacts along coasts and urban centres (medium confidence) and in mountain regions (high confidence). These hazards and cascading risks also trigger tipping points in sensitive ecosystems and in significantly and rapidly changing social-ecological systems impacted by ice melt, permafrost thaw and changing hydrology in polar regions (high confidence). Wildfires, in many regions, have affected ecosystems and species, people and their built assets, economic activity, and health (medium to high confidence). In cities and settlements, climate impacts to key infrastructure are leading to losses and damages across water and food systems, and affect economic activity, with impacts extending beyond the area directly impacted by the climate hazard (high confidence). In Amazonia, and in some mountain regions, cascading impacts from climatic (e.g., heat) and non-climatic stressors (e.g., land use change) will result in irreversible and severe losses of ecosystem services and biodiversity at 2°C global warming level and beyond (medium confidence). Unavoidable sea level rise will bring cascading and compounding impacts resulting in losses of coastal ecosystems and ecosystem services, groundwater salinisation, flooding and damages to coastal infrastructure that cascade into risks to livelihoods, settlements, health, well-being, food and water security, and cultural values in the near to long-term (high confidence). (Figure SPM.3) {Figure TS.10, 2.5, 3.4, 3.5, Box 7.3, Box 8.7, Box 9.4, 11.5, Box 11.1, 12.3, 13.9, 14.6, 15.3, 16.5, 16.6, CCP1.2, CCP2.2, CCP5.2, CCP5.3, CCP6.2, CCP6.3, Box CCP6.1, Box CCP6.2, CCB EXTREMES, WGI AR6 Figure SPM.8d}

B.5.3 Weather and climate extremes are causing economic and societal impacts across national boundaries through supply-chains, markets, and natural resource flows, with increasing transboundary risks projected across the water, energy and food sectors (high confidence). Supply chains that rely on specialized commodities and key infrastructure can be disrupted by weather and climate extreme events. Climate change causes the redistribution of marine fish stocks, increasing risk of transboundary management conflicts among fisheries users, and negatively affecting equitable distribution of food provisioning services as fish stocks shift from lower to higher latitude regions, thereby increasing the need for climate-informed transboundary management and cooperation (high confidence). Precipitation and water availability changes increases the risk of planned infrastructure projects, such as hydropower in some regions, having reduced productivity for food and energy sectors including across countries that share river basins (medium confidence). {Figure TS.10e-f, 3.4, 3.5, 4.5, 5.8, 5.13, 6.2, 9.4, Box 9.5,14.5, Box 14.5, Box 14.6, CCP5.3, CCB DISASTER, CCB EXTREMES, CCB INTEREG, CCB MOVING PLATE} B.5.4 Risks arise from some responses that are intended to reduce the risks of climate change, including risks from maladaptation and adverse side effects of some emissions reduction and carbon dioxide removal measures (high confidence). Deployment of afforestation of naturally unforested land, or poorly implemented bioenergy, with or without carbon capture and storage, can compound climate-related risks to biodiversity, water and food security, and livelihoods, especially if implemented at large scales, especially in regions with insecure land tenure (high confidence). {Box 2.2, 4.1, 4.7, 5.13, Table 5.18, Box 9.3, Box 13.2, CCB NATURAL, CWGB BIOECONOMY}

B.5.5 Solar radiation modification approaches, if they were to be implemented, introduce a widespread range of new risks to people and ecosystems, which are not well understood (high confidence). Solar radiation modification approaches have potential to offset warming and ameliorate some climate hazards, but substantial residual climate change or overcompensating change would occur at regional scales and seasonal timescales (high confidence). Large uncertainties and knowledge gaps are associated with the potential of solar radiation modification approaches to reduce climate change risks. Solar radiation modification would not stop atmospheric CO2 concentrations from increasing or reduce resulting ocean acidification under continued anthropogenic emissions (high confidence). {CWGB SRM}

Impacts of Temporary Overshoot

37 In this report, overshoot pathways exceed 1.5°C global warming and then return to that level, or below, after several decades. 38 Despite limited evidence specifically on the impacts of a temporary overshoot of 1.5°C, a much broader evidence base from process understanding and the impacts of higher global warming levels allows a high confidence statement on the irreversibility of some impacts that would be incurred following such an overshoot. B.6 If global warming transiently exceeds 1.5°C in the coming decades or later (overshoot)37, then many human and natural systems will face additional severe risks, compared to remaining below 1.5°C (high confidence). Depending on the magnitude and duration of overshoot, some impacts will cause release of additional greenhouse gases (medium confidence) and some will be irreversible, even if global warming is reduced (high confidence). (Box SPM.1, Figure SPM.3) {2.5, 3.4, 12.3, 16.6, CCB DEEP, CCB SLR}

#### Climate change is a regressive social inequity

Levy & Patz 15 (Barry S.LevyMD, MPH Jonathan A.PatzMD, MPH, “Climate Change, Human Rights, and Social Justice”, Annals of Global Health Volume 81, Issue 3, May–June 2015, Pages 310-322)

The environmental and health consequences of climate change, which disproportionately affect low-income countries and poor people in high-income countries, profoundly affect human rights and social justice. Environmental consequences include increased temperature, excess precipitation in some areas and droughts in others, extreme weather events, and increased sea level. These consequences adversely affect agricultural production, access to safe water, and worker productivity, and, by inundating land or making land uninhabitable and uncultivatable, will force many people to become environmental refugees. Adverse health effects caused by climate change include heat-related disorders, vector-borne diseases, foodborne and waterborne diseases, respiratory and allergic disorders, malnutrition, collective violence, and mental health problems.

These environmental and health consequences threaten civil and political rights and economic, social, and cultural rights, including rights to life, access to safe food and water, health, security, shelter, and culture. On a national or local level, those people who are most vulnerable to the adverse environmental and health consequences of climate change include poor people, members of minority groups, women, children, older people, people with chronic diseases and disabilities, those residing in areas with a high prevalence of climate-related diseases, and workers exposed to extreme heat or increased weather variability. On a global level, there is much inequity, with low-income countries, which produce the least greenhouse gases (GHGs), being more adversely affected by climate change than high-income countries, which produce substantially higher amounts of GHGs yet are less immediately affected. In addition, low-income countries have far less capability to adapt to climate change than high-income countries.

#### Mitigation is the silver bullet increasing levels of climate change exponentially increase its negative consequences

Letzter 19 (Rafi, Staff writer for Live Science citing – Katharine Mach, a climate scientist at the University of Miami and one of several lead authors of the IPCC report., Lini Wollenberg, a University of Vermont climate researcher and leader of the CGIAR Research Program on Climate Change, Agriculture and Food Security, Colin Carlson, an ecologist at Georgetown University who studies how climate change influences infectious diseases, 9/26/19, “Are We Really Running Out of Time to Stop Climate Change?”, https://www.livescience.com/12-years-to-stop-climate-change.html)

But ultimately, all the researchers Live Science contacted said these problems become less catastrophic with less warming. Holding the world to a 1.5-C warming increase by the end of the century creates much more manageable short- and long-term problems than holding it to 2 C of warming, which is much less harmful to Earth than 3 C, which is much more survivable than 4 C, which is still less catastrophic than 6 C … and so on. None of those possible futures necessarily leads to a charred, lifeless global desert in our lifetimes. But each increase is almost unimaginably more dire for life on this planet than the one preceding it.

"It's always worth it to prevent more warming," Mach said.

With regard to the spread of mosquito-borne diseases, Carlson said, "We can stop it. Mitigating climate change is truly the silver bullet. Sometimes it is as simple as, 'If we stop climate change, we can stop a lot of the bad health impacts that are coming.'" (Though the devil is in the details, he added. The level of disease reduction will depend on how fast the carbon-mitigation project moves, and its effects won't be felt immediately or equally everywhere.)

The science points relentlessly to one reality: The best way to deal with climate change is to start cutting emissions now. It's easier to stop warming by keeping CO2 in the ground now than it is to pull carbon out of the air later. And mitigation makes adaptation much more effective.

#### AND--short term mitigation matters--the impact is exponential and increasing.

Desjardins 13 – member of Concordia university Media Relations Department, academic writer, citing Damon Matthews; associate professor of the Department of Geography, Planning and Environment at Concordia University, PhD, Member of the Global Environmental and Climate Change Center

(Cléa, “Global Warming: Irreversible but Not Inevitable,” http://www.concordia.ca/now/what-we-do/research/20130402/global-warming-irreversible-but-not-inevitable.php)

Carbon dioxide emission cuts will immediately affect the rate of future global warming Concordia and MIT researchers show Montreal, April 2, 2013 – There is a persistent misconception among both scientists and the public that there is a delay between emissions of carbon dioxide (CO2) and the climate’s response to those emissions. This misconception has led policy makers to argue that CO2 emission cuts implemented now will not affect the climate system for many decades. This erroneous line of argument makes the climate problem seem more intractable than it actually is, say Concordia University’s Damon Matthews and MIT’s Susan Solomon in a recent Science article. The researchers show that immediate decreases in CO2 emissions would in fact result in an immediate decrease in the rate of climate warming. Explains Matthews, professor in the Department of Geography, Planning and Environment, “If we can successfully decrease CO2 emissions in the near future, this change will be felt by the climate system when the emissions reductions are implemented – not in several decades." “The potential for a quick climate response to prompt cuts in CO2 emissions opens up the possibility that the climate benefits of emissions reductions would occur on the same timescale as the political decisions themselves.” In their paper, Matthews and Solomon, Ellen Swallow Richards professor of Atmospheric Chemistry and Climate Science, show that the onus for slowing the rate of global warming falls squarely on current efforts at reducing CO2 emissions, and the resulting future emissions that we produce. This means that there are critical implications for the equity of carbon emission choices currently being discussed internationally. Total emissions from developing countries may soon exceed those from developed nations. But developed countries are expected to maintain a far higher per-capita contribution to present and possible future warming. “This disparity clarifies the urgency for low-carbon technology investment and diffusion to enable developing countries to continue to develop,” says Matthews. “Emission cuts made now will have an immediate effect on the rate of global warming,” he asserts. “I see more hope for averting difficult-to-avoid negative impacts by accelerating advances in technology development and diffusion, than for averting climate system changes that are already inevitable. Given the enormous scope and complexity of the climate mitigation challenge, clarifying these points of hope is critical to motivate change.”

#### Antitrust is historically a weapon of the elite, but it can be revitalized for public goods like climate change

V. Sodano 2010. University of Naples Federico II, Department of Agricultural Economics. “Food system and climate change: the false premises of antitrust Policy”

Introduction

According to recent estimates (IAASTD, 2008), the global food system is currently accountable for at least 30% of the global GHG emissions that cause climate change. Considering also emissions by indirect activities associated with food production and distribution, such as home storage and refrigerators, waste disposal, transportation by final consumers and so on, this estimate may rise dramatically to as high as nearly 50% of total emissions (Grain, 2009). Agribusiness corporations, backing a model of food production and distribution that functions by converting oil into food, are largely responsible for these huge emissions. Influencing the behaviour of food TNCs in such a way as to shift towards a more sustainable food model may greatly contribute to tackling global warming. Actions to induce food corporations to assume a more sustainable form of conduct come from both the private and the public sector. On the private sector side initiatives come from consumers (individuals and consumer associations), environmental associations and non governmental organizations. On the public sector side, there are at least three kinds of intervention: (1) direct regulation, based on a command-and-control approach; (2) ‘soft regulation’, including self-regulation, use of incentives, awards and accreditation systems, market-based initiatives, disclosure obligations and educational campaigns; (3) definitions of duties of corporations, through corporate law and competition policy. The paper stresses that, given that **reducing GHG emissions is comparable to a public good**, only state intervention may be expected to be effective. Moreover, given that corporations cannot be granted the same moral status as natural persons, even soft regulation, which requires some form of corporate social responsibility and therefore of corporate morality, cannot be effective. With regards to state intervention the paper analyzes the role of **competition policy**, showing how it **can help in fighting global warming, provided that it overcomes** the over thirty year lasting dominance of the ‘Chicago paradigm’. Global warming mitigation: the role of public and private sector It is a matter of fact that induced climate change is representative of a tragedy of the commons, a typical collective action problem. Maintaining a stable climate has the structure of a public good exhibiting both the property of non excludability and non rivalry. The free riding problem, i.e. the fact that non contributors can benefit from others’ GHG reductions without taking on costs themselves, prevents private rational actors from engaging in mitigation efforts. Beyond being a public good, the protection of a stable climate that fits human biological and economic needs, can be considered to be a human right. In particular, it is of the kind of second generation human rights, i.e. economic and social rights, grounded in the notion that government has affirmative obligations to protect individuals from deprivation of the basic material necessities of life. In the case of public goods, economic and social theories based on rational choice models hold that the market (i.e. the private sector) fails to supply them. Therefore**,** the only effective provider is the state, as the latter has the precise political mandate to accommodate for general public welfare against scattered private interests. With regards to human rights the general view is that the state has the ultimate duty to uphold them. The state can intervene either directly or indirectly. Direct interventions include: public investments in global warming mitigation; setting compulsory standards in defence of low emission production and consumption activities; imposing human rights duties on corporations for climate change and environmental harm; implementing tort liability laws that make private actors pay for damage to climate and environment. Indirect interventions include: market based incentives aimed at promoting private climate friendly behaviour; embracing a voluntary corporate social responsibility (CSR) approach that shifts the burden of public interest onto corporations, which are deemed to possess other-regarding preferences and moral values. In this paper it is claimed that only direct intervention can be effective because, in the case of market-based instruments, it may apply the same sources of market failure that the intervention seeks to correct. The voluntary CSR approach is not viable because it hinges on the false premise that corporations have the same moral status as natural persons. The moral status of corporations endorsed by scholars like French (French, 1984) is to be rejected when the three necessary conditions for moral agency are examined: the ability to intend an action; the ability to perform an action; the ability to autonomously choose an intentional action. In the case of conglomerate collectives, such as corporations, these conditions are not fulfilled (Ronnegard, 2006: 82) and therefore they do not qualify as moral agents conceived as distinct from their members. Consequently, corporate moral responsibility attributions to collectives as distinct from their corporate members are illegitimate. Competition policy and climate change: the perspective of the Chicago school Given that only direct intervention by the state can assure adequate levels of global warming mitigation, the issue to be addressed is what role competition policy, among other forms of public intervention, can have in promoting corporate climate friendly behaviour. Competition policy originated in the US in 1890 with the Sherman Act. In the European Union the first antitrust regulation was set by the treaty of Rome in 1957. There are commonly described three historical phases of US antitrust law implementation, the first dating from 1890 to 1940, the second from 1945 to 1975 and the third from 1970 to the present (Viscusi et al., 2005). These three phases have been characterized by different economic and political theories incorporating two different ideologies of the market and the state: the evolutionary vision and the intentional vision (Page, 2008). The evolutionary vision views the market, framed solely by laws on property and contracts, as a mechanism for facilitating free exchanges among countless individuals in the pursuit of their best interests. In this vision, the market without state intervention naturally tends to a perfect competition ideal form destroying monopoly. On the contrary, the intentional vision views the market as a mechanism within which powerful interests can coerce consumers, labour and small businesses. In this vision markets tend toward monopoly unless government intervenes. The political economic theories corresponding to these two visions are the laissez-faire and the welfare state theories. The more the intentional vision is preferred to the evolutionary vision, the greater is the scope and the enforcement of antitrust law, and vice versa. The Sherman Act and the first period of antitrust law implementation embodied a compromise between the two visions. Notwithstanding the faith in the market, coherent with a strong liberal theory of the state, it was recognized as a matter of fact that monopolies and extreme economic power concentrations actually occur in the real world, producing social inequalities and injustice. At that time, state intervention was intended as a way to promote social justice and mediate among class conflicts in society. In the second period, the intentional view prevailed. Stemming from the disillusionment with markets during the Great Depression, the New Deal initiated the era of the welfare state based on the idea, supported by the growing economic literature on market failure, that economic state intervention should be legitimated by efficiency more than by equity concerns. The years between 1950 and 1970 are the golden era of antitrust legislation. The view of the markets taken up by the Court was that of recognition that coercion is the reality of market relationships. That is to say that in contrast with the previous ideological faith in the freedom of contracts, it was acknowledged that in a market transaction each party may be forced by the bargaining power of the other to accept unfair payments and obligations. Along with these views, the then prevailing theory of industrial organization, the structure-conduct-performance paradigm, facilitated a strong enforcement of antitrust legislation, holding that the mere measure of market share was sufficient to witness the presence of market power and monopoly inefficiencies. By the mid-1970s the evolutionary view completely dismissed the intentional view with the uprising of the so called Chicago school of antitrust. Chicago scholars applying neoclassical economics maintained that unfettered markets always lead to the best social outcomes. They pointed out that many of the practices that the courts had been viewing as harmful to competition and economic welfare, such as vertical restraints, may instead improve economic efficiency. Moreover they contested the structuralist view by claiming that a firm’s large market share may signal superior efficiency and that, consistently with the contestability theory (Baumol et al., 1982), freedom of entry is the only parameter to be scrutinized by antitrust laws. The general wisdom of the Chicago school was that state intervention and regulation is always harmful to the general interest. The Chicago ‘revolution’ has made competition policy a useless instrument for reaching goals of general interest such as providing public goods and promoting social justice. **In order to make competition policy a useful instrument against global warming,** it is necessary to reject some assumptions of the **Chicago antitrust school** and revive instead the conventional wisdom of the previous approaches in the wake of the intentional view. Among the assumptions to be scrutinized are those related to the three following issues: the theory of the firm; the nature of corporation; the goals of antitrust policy. The Chicago approach endorses a neoclassical theory of the firm where the firm is defined by a technical production function. The neoclassical theory of the firm, even in its modern neo-institutional version that accounts for transaction costs, explains a firm’s behaviour exclusively through the efficiency argument (exploitation of scale and scope economies). According to Chicago scholars, large size and above-normal returns must be due to efficiency differentials between firms. In their world made of equilibria and complete contracts, power-seeking behaviours are not conceivable (Raghuram and Zingales, 1998). Organizational, institutional and cognitive problems addressed by alternative theories (such as managerial, evolutionary, property rights, and behavioural theories) are dismissed as trivial. With regards to the legal debate on the nature of corporations (the latter defined as economic organizations whose members are granted limited liability by incorporation statutes), the Chicago view is consistent with the Nexus-of-Contracts theory, which contrasts the two alternative theories, namely the Legal Fiction and the Real Entity theories (Ronnegard, 2006). The Nexus-of-Contracts theory depicts the corporation as a web of contracts among all the members, which implies that it should not be regarded as a separate legal entity from the shareholders and that rights and duties can be defined only with regards to its members. Because the corporation is the result of a free contract, it is not dependent upon state grants and the same act of incorporation (granted by the state) is only a shorthand way of obtaining a contractual situation equivalent to that which could materialize through the private contracting of individuals. This conception of corporation is based on a libertarian ideology that says that corporations ought to merely be a commercial instrument for furthering the ends of the incorporating parties. Because corporations are not autonomous entities, any moral status (and therefore social responsibility) is ruled out, and because they are not a ‘creature’ of the state but the result of free contracts, they cannot be given rules and duties by the state. Therefore, one cannot expect them to provide public goods, such as climate stabilization, either voluntarily or compulsorily. Finally, as regards the goals of antitrust, the Chicago school states that antitrust policy ought to deal only with consumer losses due to high prices and/or output restrictions (Burns, 2006). Any equity concern about wealth distribution or unfair business practices is dismissed. For instance, in the Chicago view low final prices generally signal efficiency and practices like predatory pricing, reciprocal selling and cross-subsidization by conglomerates, unfair procurement contracts, and so on, are given little attention. All these three sets of assumptions entail that corporations pertain to the private more than to the public sphere and that antitrust pertains to the economic more than to the political sphere. In consequence, corporations should not be required to seek public goals (like providing public goods such as climate stabilization) and antitrust should not be required to seek goals like equity and justice (among which climate justice) but should only pursue economic efficiency in terms of low consumer prices. Competition policy and climate change: reversing the false premises of the Chicago school Stemming from the intentional vision, and in opposition to the evolutionary vision of the Chicago school, **the previous assumptions can be reversed in such a way as to justify a wider scope of antitrust policy** able to encompass the goal of climate stabilization. **The first** hypotheses to be reversed **are those** **concerning** the theory of **the firm** and the nature of the corporation. Firms cannot be described purely as technical production functions but as institutions (as economic theory had to acknowledge after the seminal work of Coase of 1937) that in some way substitute the market with power as means of resource allocation. Like states, firms exercise power in various forms, either inside their organizational boundaries or outside, over their competitors, their suppliers, their customers and the same state, through lobbying and bribing. Modern corporations are firms which, through the limited liability and other rights granted by the state (such as unlimited life span, unlimited asset acquisition, complete flexibility and mobility in business conduct, constitutional rights equal to those of natural persons), possess even superpowers (Nace, 2003; Korten, 2001), i.e. powers that cannot be enjoyed by a single individual and even less (because of territorial limits) by a single state. Because corporations are legal persons, with specific rights granted by the state, their nature cannot be described through the Nexus-of-Contract theory endorsed by the Chicago School. Their nature is better described by the Legal Fiction theory. The Legal Fiction theory essentially says that the corporation is merely an abstract creation of law which is granted to an association of individuals. The corporation is an artificial legal entity with an existence distinct from the incorporating members and exists entirely at the discretion of the state. The Legal Fiction theory differs from the Nexus-of-Contract theory which does not recognize the corporation distinct from its members and does affirm that it is independent from the power of the state because it is the result of free contracts by individuals. The Legal Fiction theory also differs from the Real Entity theory that considers corporations to be real, social organisms that possess a will and life of their own, with characteristics that are distinct from their individual members. Similar to the Nexus-of-Contracts theory, the Real Entity theory rejects the notion that corporation is a creation or grant from the state. However, differently from the Nexus-of-Contracts theory, the Real Entity theory claims that corporations ought to be granted legal rights as natural persons, rights which are owed to the corporation itself as a separate organism and are not derived from the rights of the individual members. The Legal Fiction theory is the only theory on the nature of corporations that is consistent with the advocacy of an antitrust regulation aimed at directly controlling and limiting the scope of activity of corporations. Because corporations are legal persons they can be given rights and duties. Nevertheless, because they are not natural persons, as instead envisaged by the Real Entity theory, they do not automatically enjoy basic rights (like the rights to free speech and due process of law) and do not possess moral responsibility. Because they are creatures of the state, they do not have their own life and in the divide between the private and public sphere they can be put somehow on the public side. Shifting from the idea of corporations as private efficiency-seeking organizations to the idea of corporations as social bodies enjoying large powers by virtue of state grants allows us to recognize that corporations may have an important role in addressing general social problems like global warming. Two arguments must be considered. First, because the power of corporations, including the power to affect global warming, depends on state grants, state regulations and obligations imposed on corporations in order to contribute to climate stabilization cannot be considered as illegitimate limitation to private freedom (as envisioned by Chicago scholars and neo-liberalists). Such regulations and obligations should instead be considered a due act of governance involving subjects (state regulators and corporations) that both pertain to the public sphere. Secondly, obligations imposed on corporations may be of the kind of human rights duties in case of environmental harm (Mabaquiao, 2002). It is worth noticing that rights are, after all, a response to the problem of power; in particular human rights are asserted in order to protect individuals from abuse of power by states. When one recognizes that many TNCs are really as powerful as or more powerful than many states, it does make sense to treat them as duty-holders, with the same obligations as the states to uphold human rights (Sinden, 2007). It is also important to notice that, because according to the Legal Fiction theory corporations do not possess moral responsibility, we cannot rely on CSR or voluntary codes of conducts as ways to protect the public from environmental harm and any power abuse made by corporations. The second set of hypotheses to be reversed is that concerning the definition of the scope of antitrust policy. It is general wisdom that antitrust policy should prevent excesses in exercise of power by large firms. The difference between the Chicago School and alternative approaches based on the intentional view is with the kind of power at stake. The Chicago school only considers market power in the form of high consumer prices. Alternative approaches instead look at different kinds of power: the bargaining power towards suppliers and employees; the power to choose technologies and products with different environmental impacts; the power to influence the political arena; the power to ‘capture’ regulators; the power to influence cultural and social values; and even more. If antitrust policy has to deal with all these kinds of power then it must widen its scope, adding to the economic goal efficiency, social and political goals, such as business fairness, distributive equity, environment protection, enforcement of human rights and so on. In this perspective, **antitrust policy should provide incentives** (either positive or negative) **for business firms to pursue public goals**, **such as global warming mitigation.** Conclusion The global food system is populated by many large TNCs (Etc.Group, 2008). These corporations have de facto become a key part of the fabric of global environmental governance. In their role as investors, polluters, experts, manufacturers, lobbyists and employers, corporations are central players in environmental issues. While necessary, voluntary action on the part of corporations and consumers is not alone sufficient to mitigate the worst effects of global warming. However, in the food sector, voluntary actions have been weak and sparse so far (Cogan, 2006). For instance in the Ceres report (CERES, 2008), which rates firms by their achievements in climate-related corporate governance, there are no companies from the food sector among the top ten firms. Among the bottom twelve there are instead three food giants: ConAgra, Bunge, and PepsiCo. Climate stabilization, as in general environmental protection, is a public good and as such is not provided by the private sector but needs public intervention. Among the many kinds of public intervention, the paper has focused on antitrust legislation. At its origin, antitrust legislation was conceived as a means to mitigate power wielded by large corporations in society. With the spread of neo-liberalism from the mid-1970s, the Chicago School radically changed the meaning and the scope of antitrust laws, with drastic changes in its enforcement (Mueller, 2009). The general claim of this paper is that it is necessary to go back to the original spirit of antitrust legislation which endorses an idea of corporation as an artificial powerful legal entity created by the state in order to serve the public interest. Only in this way can large firms, in particular TNCs in the food sector, **be expected to comply with environmental regulations and guarantee human rights.**

#### It is not enough to come up with answers to the issue of climate change without a possible path towards achieving sustainable development through economic and political means. Strength of integration of economics into climate policy is key.

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The environmental sciences have documented large and worrisome changes in earth systems, from climate change and loss of biodiversity, to changes in hydrological and nutrient cycles and depletion of natural resources (1⇓⇓⇓⇓⇓⇓⇓⇓⇓⇓–12). These global environmental changes have potentially large negative consequences for future human well-being, and raise questions about whether global civilization is on a sustainable path or is “consuming too much” by depleting vital natural capital (13). The increased scale of economic activity and the consequent increasing impacts on a finite Earth arises from both major demographic changes—including population growth, shifts in age structure, urbanization, and spatial redistributions through migration (14⇓⇓⇓–18)—and rising per capita income and shifts in consumption patterns, such as increases in meat consumption with rising income (19, 20).

At the same time, many people are consuming too little. In 2015, ∼10% of the world’s population (736 million) lived in extreme poverty with incomes of less than $1.90 per day (21). In 2017, 821 million people were malnourished, an increase in the number reported malnourished compared with 2016 (22). There is an urgent need for further economic development to lift people out of poverty. In addition, rising inequality resulting in increasing polarization of society is itself a threat to achieving sustainable development. Eliminating poverty (goal 1) and hunger (goal 2), achieving gender equality (goal 6), and reducing inequality (goal 10) feature prominently in the United Nation’s Sustainable Development Goals (23). A recent special issue in PNAS on natural capital framed the challenge of sustainable development as one of developing “economic, social, and governance systems capable of ending poverty and achieving sustainable levels of population and consumption while securing the life-support systems underpinning current and future human well-being” (24).

The discipline of economics arguably should play a central role in meeting the sustainable development challenge. The core question at the heart of sustainable development is how to allocate the finite resources of the planet to meet “the needs of the present, without compromising the ability of future generations to meet their own needs” (25). A central focus of economics is how to allocate scarce resources to meet desired goals; indeed, a standard definition of economics is the study of allocation under scarcity. More specifically, economics studies the production, distribution, and consumption of goods and services, which are both a key driver of development (increasing standards of living through providing food, housing, and other basic human requirements) and a main cause of current changes in earth systems. Economics, combined with earth system sciences, is crucial for understanding both positive and negative impacts of alternatives and the trade-offs involved. Economics, combined with other social and behavioral sciences, is crucial for understanding how it might be possible to shift human behavior toward achieving sustainable development. Economics has well-developed fields in development economics, ecological economics, environmental economics, and natural resource economics, with large bodies of research relevant to the sustainable development challenge. The application of economic principles and empirical findings should be a central component in the quest to meet the aspirations of humanity for a good life given the finite resources of the earth.

Indeed, an extensive body of work by economists provides key insights into aspects of sustainable development. At its best, this work integrates work by other natural and social sciences into a policy-relevant framework and demonstrates the rich potential for collaborations among economists, natural scientists, and other social scientists on sustainable development challenges. For example, economists have developed integrated economic and climate models to address important climate change policy questions, such as how much and how fast greenhouse gas emissions should be reduced (26⇓⇓⇓⇓–31). In 2018, William Nordhaus shared the Nobel Prize in economics, in large part for his seminal work on such models. These models have sparked large debates within economics over fundamental issues such as the proper discount rate (32⇓⇓–35), and with the natural sciences over the likely scale of damages from climate change (36, 37). Another Nobel Prize winner in economics, Elinor Ostrom, used economic models to highlight the importance of governance and institutions for sustainable use of common property resources (38⇓–40). Another important area of work by economists directly relevant to sustainable development defines and measures inclusive wealth (13, 41⇓⇓⇓⇓⇓⇓⇓–49). Ken Arrow, yet another Nobel Prize winner in economics, was a leader in this field. It is also notable that the intellectual roots of inclusive wealth trace to work in the 1970s of two Nobel Prize winners in economics, William Nordhaus and James Tobin (50). Inclusive wealth is a measure of the aggregate wealth of society, including the value of natural capital along with the values of human capital, manufactured capital, and social capital. Inclusive wealth is a sufficient statistic for showing whether or not global society is on a sustainable trajectory. For the past two decades, the Beijer Institute of Ecological Economics, part of the Royal Swedish Academy of Sciences, has held annual meetings bringing together leading economists and ecologists to discuss issues at the intersection of ecology and economics, which have resulted in a number of high-impact papers (51). The idea for a forum to highlight work in economics on environment and sustainable development originated at one of these meetings.

Despite these examples and many others, the center of gravity in the analysis of sustainable development remains in the natural sciences, and the center of gravity in economics remains far removed from the challenge of sustainable development. The natural sciences that form the core of earth systems science, including ecology, geology, climatology, hydrology, and oceanography, are a logical place to start to build understanding of the current state and the evolution of earth systems. Natural scientists have taken the lead in prominent analyses of pathways to achieve sustainable development. For example, Pacala and Socolow (52) outline feasible methods using existing technology to reduce greenhouse gas emissions to secure a livable climate. Foley et al. (53) analyze how to meet growing food demand without expanding the footprint of agriculture. Costello et al. (54) suggest how extensive fishery reform could result in improved productivity and ecosystem health. Tallis et al. (55) analyze how to improve material standard of living for a growing population in ways that simultaneously sustain biodiversity, reduce greenhouse gas emissions, and reduce water use and air pollution. These works show that it is feasible to achieve multiple sustainable development goals with existing technology. The harder challenge is combining what is feasible in a biophysical sense with the difficult economic, political, and social hurdles that prevent society from getting to sustainable outcomes (55). In other words, natural science understanding is necessary but not sufficient to achieve sustainable development.

While natural science understanding is insufficient on its own to achieve sustainable development, the same is true of economics. Economists alone do not have the knowledge base supplied by the natural sciences necessary to understand the complex ecological systems within which the economic system operates and on which economic activity causes impacts. Progress in sustainable development requires collaboration between social scientists, including economists and natural scientists. Of course, achieving sustainable development requires institutions and political alignment that go well beyond assembling the science knowledge arising from integrated scientific knowledge.

Numerous examples show the incomplete nature of collaboration between economists and other disciplines engaged in the analysis of sustainable development. To take one recent example, there were no economists involved in a special section on “Ecosystem Earth” published in Science in April 2017 that contained discussions of population, consumption, agricultural production, land use, human behavior, collective action, and policy (56). The lack of involvement by economists in ongoing discussions of sustainable development leads to gaps in understanding production and consumption decisions, the resulting market outcomes that drive global environmental change, and how to regulate or reduce negative environmental impacts from economic activities.

The incomplete engagement of economists mirrors the structure of the economics discipline. The fields of ecological, environmental, and resource economics are not core fields within economics. There are few ecological, environmental, or resource economics publications in flagship journals within economics. For example, in 2018 only two papers published in the American Economic Review listed classification codes for renewable resources and conservation, nonrenewable resources and conservation, energy economics, or environmental economics (57, 58). Only a small minority of the top economics departments have fields in ecological, environmental, or resource economics. In contrast, virtually every top economics program offers fields in labor economics, industrial organization, and international trade. Ecological, environmental, and resource economics programs often are in schools of the environment or natural resources, schools of public policy, or in departments of agricultural economics. In addition, economics is notable among academic disciplines for its relative isolation: “Though all disciplines are in some way insular…this trait peculiarly characterizes economics” (59). Compared with other social scientists, economists have far lower citation rates for work in other disciplines. Jacobs (60) found that the percentage of within-field citations in economics was 81%, versus 59% for political science, 53% for anthropology, and 52% for sociology. In addition, the core of the economics discipline is relatively isolated from the natural sciences that have played a large role in sustainability science to date, ecology, geology, climatology, hydrology, and marine biology. Network maps of disciplines using citations patterns often show economics and fields, such as ecology and geosciences, at opposite ends of the spectrum (figure 3 in ref. 61).

Given the large role of economic activity in causing rapid change in earth systems, and the scale of the sustainable development challenge, there is an urgent need for more rapid integration of economics into the core of sustainable development, and for more rapid integration of sustainable development into the core of economics.

#### The plan is necessary—corporations are driven by profit incentives and allowing mergers and monopolies make solving the climate change impossible—they maintain perverse incentives that need to be reigned in. Any alternative leads to collusion!

Schinkel and Treuren 21. Maarten Pieter Schinkel and Leonard Treuren. “Green Antitrust: Friendly Fire In The Fight Against Climate Change” <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3749147>

4 Not less but more competition leads to greater sustainability The central question of whether it should be expected that firms will produce more sustainably in an anticompetitive agreement than in competition squarely falls on economics to answer. It is reasonable to base the analysis on two standard premises. The first is that (potential) consumers care about sustainability. Eichholtz et al. (2010) document a higher willingness to pay for office buildings with sustainability labels. Casadesus-Masanell et al. (2009) report a higher willingness to pay for T-shirts made with organic cotton. In a survey of the literature Kitzmueller and Shimshack (2012) conclude that willingness to pay depends in general positively on the degree of corporate social responsibility a firm engages in.23 More recently, Aghion et al. (2020) find that green innovation is positively correlated with consumers’ stated sustainability preferences.

A second premise is that, no matter how noble the initiatives may appear, firms are ultimately driven by profit motives. Rate of return incentives can certainly lead to intricate and forward-looking firm behavior, for instance investing in a good public image in order to attract more consumers. Running up short term losses with a CEO passionate about corporate social responsibility can therefore still be consistent with long term profit maximization. Yet under pressure of shareholders and investors, firms are interested in sustainability initiatives first and foremost to increase their profitability, in particular through buyers’ higher willingness to pay.24 The latter are the revenue returns to sustainability investments, which are costs. Therefore, companies will strive for profit-maximizing price increases and sustainability advances, for which cost-minimization is a necessary condition. That these incentives lead to little green is reflected in the literature on greenwashing. Firms certainly like to have a “green” public image, but when consumers cannot assess the true extent of their sustainability investments, they only undertake the minimum.25 In general, we should expect no less, and no more, from for-profit enterprises, both in competition and in coordination.

The relationship between competition and sustainability is studied in a limited but recently growing literature. The current consensus is that competition increases investments in sustainability, with firms investing in sustainability because it lowers their costs or allows them to stand out to consumers. Green, in other words, is a dimension of product differentiation. Bansal and Roth (2000), Porter and Kramer (2006), and Roulet and Bothello (2020) point out that corporate social responsibility (CSR) can be a strong competitive advantage. Graafland (2016) finds in survey data that price competition does not influence companies’ environmental performance ratings. Simon and Prince (2016) show that a reduction in industrial concentration in the United States is associated with a reduction in toxic releases at the factory level. Fernández-Kranz and Santaló (2010) and Flammer (2015) find that competition has a positive effect on CSR at the firm level, in studies of variation in import duties and concentration. Aghion et al. (2020) show that the positive relation between consumers’ stated sustainability preferences and the probability that a firm engages in green innovation increases with the degree of product market competition. This suggests that as pro-environment attitudes become more common over time, the role of competition in fostering green innovation will only increase. Ding et al. (2020) link antitrust policy to sustainability by showing that stricter competition law regimes are positively associated with CSR, and that this link is stronger in countries where consumers indicate stronger pro-environment attitudes.

Few papers study the relationship between horizontal agreements and sustainability directly. They relate to the literature on exempting research joint-ventures, which can increase R&D investments above competitive levels if spillovers of innovations are so large that unilateral investments are discouraged.26 For this reason, there is a broad exemption clause available for R&D joint-ventures, including for research into more sustainable production methods. However, with limited spill-overs, competition is the stronger driver of R&D. There is concern, therefore, that mergers reduce innovation.27 Importantly, sustainability initiatives of the kind considered for exemption, such as investments in cleaner technology or better quality of live for farm animals, have little or no spillover from one company to another. These cases, and the current green antitrust debate about advancing a transition to more sustainable ways of manufacturing, are primarily about the implementation of existing cleaner technologies, rather than about innovation.

Schinkel and Spiegel (2017) analyze the link between anticompetitive agreements and sustainability in a two-stage duopoly model where firms first select investments in sustainability and subsequently compete on the product market. They find that allowing the firms to coordinate their sustainability efforts leads to the lowest sustainability levels. Sustainability is a product attribute that consumers care about, and hence is used by firms to compete and attract each other’s customers. Treuren and Schinkel (2018) generalize these findings to more firms and remaining competition. Note that when firms coordinate prices and sustainability investments, sustainability levels are still lower than in competition. This means that if coordinating their sustainability investments allows the companies to collude on prices as well, a risk we noted above, sustainability does not benefit from coordination.

#### Even a total shift in individual attitudes about climate change would benefit from a more competitive economic environment.

Schinkel and Treuren 21. Maarten Pieter Schinkel and Leonard Treuren. “Green Antitrust: Friendly Fire In The Fight Against Climate Change” <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3749147>

Proponents of green antitrust policy point out that today’s corporate leadership increasingly pledges allegiance to take responsibility for stakeholders more widely, including for their environment.28 They view profit-driven firm analysis as outdated, and Friedman’s appeal to it as an ancient belief.29 Green CEO’s may not even be controllable by shareholders anymore if they wanted to. Importantly, however, if firms operate with an intrinsic motivation to produce more sustainably too, investments typically remain higher in competition than with sustainability agreements, and the difference may even become larger. In Schinkel and Treuren (2021), the level of sustainability investments features directly in each firm’s objective function, besides in the profits part. Since intrinsically motivated investments are independent of the competitive regime, they are higher in absolute value in both competition and coordination. Moreover, coordination reduces the additional intrinsically motivated green investments, since the loss of profit due to increasing sustainability beyond the normal profit maximizing level is larger for firms who jointly decide on sustainability. That an intrinsic motivation to do green makes anticompetitive agreements not more, but rather even less suitable to promote sustainability investments underlines our warning not to lean too far in sympathies for initiatives to take corporate social responsibility jointly.

#### AND it’s sufficient – Establishing a basis for “green anit-trust” creates government leverage for large-scale climate action

Schinkel and Treuren 21. Maarten Pieter Schinkel and Leonard Treuren. “Green Antitrust: Friendly Fire In The Fight Against Climate Change” <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3749147>

7 Green antitrust excuses government failure to regulate In the classical economic approach, damaging side-effects of market interactions are seen as externalities. **The solution is to force market participants to internalize these externalities.** The social costs of pollution, for example, then become part of the production costs to be expressed in the product prices. Higher prices decrease demand and thereby environmental damage, while higher costs incentivize firms to look for more sustainable production methods. This way, market forces are harnessed to benefit the environment. Through competition, an optimal allocation of production and consumption will result, based on a society’s preferences for the climate relative to consumption goods. The efficient allocation of scarce resources over alternative means then remains firmly based on consumer sovereignty, i.e. the preferences of the people.36 Care for the future has a prominent place in this framework. Welfare of future generations is taken into account, for instance through the intergenerational altruism and bequest motives of the current population.37 **This is** also **how the future can** consistently enterinto **competition authorities’ assessments** of green efficiencies. It is first and foremost a government task to ensure that the social costs of production are reflected in the private costs of manufacturers. This can be done through taxation, or by ensuring that private property rights for climate-related issues are well defined, such that private parties will ensure that the costs of their use will be priced in. **Where this is hard to achieve,** for instance because the source of pollution remains disputed, **governments** can use direct regulation **to force firms to produce in a more sustainable way**. Unsustainable production, like under-provision of public goods, is a well-understood market failure, but it is a government failure that well-known solutions have only been sparingly used in the last several decades. Trying to remedy this government failure by creating a market failure – market power – seems a response that is itself doomed to fail. To begin with, trying to have private market power advance public interests is orthogonal to key lessons of classical public economic theory. **One way of seeing this green antitrust policy is as mandating private companies to increase their prices by an overcharge, i.e. “tax” a private good**, **and to use that money to finance a compensating public good**; sustainability. Samuelson’s rule prescribes that public good provision should be increasing with the utility that people derive from the public good. But for an anticompetitive sustainability agreement, the higher the willingness to pay for sustainable products, the less sustainability the corporate cooperative needs to deliver to compensate consumers for a given product price increase. After all, consumers with a high appreciation for green can be made indifferent with less of it, compared with consumers that appreciate green little. There is no reason for a green corporate cooperative to invest more of its extra revenue in sustainability than it is minimally required to do: the rest it can pocket as profit. Government, though certainly imperfect, at least strives for optimal taxation and break-even public good provision. Companies with market power instead have an incentive to maximize their margin. In addition, green antitrust policy runs the risk of exacerbating government failure. That governments keep failing to live up to their **mandate to guarantee the public interest** has many reasons, including public choice incentives ranging from regulatory laziness to outright corruption. Being able to point to industry self-regulation, in the form of sustainability agreements in restriction of competition, is another perfect excuse for governments not to take up their regulatory responsibility. Why the effort to regulate, after all, if government officials can simply rely on private initiatives to help meet sustainability goals? This is exactly how Chicken (2015) entered the stage: the Dutch cabinet did not want to improve by regulation the abysmal circumstances in which poultry is reared, because it would apply to all chicken, including the vast majority bred for export purposes. Yet there was strong public pressure to act. The problem was conveniently redirected towards the ACM, which was subsequently reproached for refusing to exempt the meagre initiative. The green antitrust movement therefore insists on a turn that, once taken, risks leading us down a path where competition authorities are accused of standing in the way of sustainability initiatives, behind which accusations firms can hide as an excuse for not becoming more sustainable. That is barking up the wrong tree: where there is a need for coordinated implementation of more sustainable production, government should regulate it, and firms with such green initiatives should lobby the designated public authority for effective regulation, rather than the competition authorities for protection from competition.

#### Emissions mitigation policy as an early mover is key to future abatement and preventing lock-in – solves leakage and green paradox.

Arroyo-Currás et al 15 (Tabaré Arroyo-Currás, Potsdam Institute for Climate Impact Research, Nico Bauer, Elmar Kriegler, Valeria Jana Schwanitz, Gunnar Luderer, Tino Aboumahboub, Anastasis Giannousakis, Jérôme Hilaire, “Carbon leakage in a fragmented climate regime: The dynamic response of global energy markets’, Technological Forecasting and Social Change Volume 90, Part A, January 2015, Pages 192–203)

5. Conclusions

Given the challenges to international cooperation on mitigating climate change, a number of climate policies have been implemented by various countries and regions, while others remain on the sideline. The heterogeneity of climate policy approaches has given rise to an internationally fragmented climate policy regime. Subsequently, global emission externalities such as carbon leakage have emerged as an important topic within the climate change mitigation debate.

This study illustrates the incidence and consequences of carbon leakage as an effect of early action in a fragmented climate policy regime. For this analysis, the REMIND integrated assessment model of the global economy, energy sector and the climate system is used to evaluate the environmental effectiveness and economic implications of unilateral and joint mitigation efforts. Overall, the main scope of this paper is to examine the role of carbon leakage via the energy channel, i.e. the increase in fossil fuel use in regions with weaker or non-existent climate policies due to more stringent mitigation action in other regions. The study also includes the capital market channel of carbon leakage.

We derive four main findings from our study. First, a reference policy scenario extrapolating fragmented action at current levels of ambition into the future will reduce emissions only modestly compared to the idealized case of immediate cooperative action on reaching a 450 ppm CO2e stabilization target (compare Blanford et al. [35]). Therefore, a pioneering region adopting more stringent emission reductions may be needed to strengthen climate mitigation. We show that the main impact on additional emission reductions does not come from the early mover action itself, but from the rest of the world following up with strengthening their abatement effort post 2030. Thus, a pioneer in adopting more stringent mitigation action needs to be particularly concerned with its ability to induce others to follow.

Second, the carbon leakage rate via the energy channel is limited to below 16% of the additional emission reductions from more stringent abatement action by pioneering regions. This result holds for different sizes and compositions of the early mover coalition. The carbon leakage mechanisms include the reduction of coal use in pioneering regions, or indirectly in other regions via knock-on substitution effects from reduced gas use in abating regions, leading to increased coal consumption in the rest of the world. While the type of mechanism and the regions that increase their fossil fuel consumption vary with the early mover coalition, the general result of limited leakage stands. This implies that carbon leakage, at least via the energy channel investigated here, is not strongly impacting the emission reduction gains from early mover action, and does not permanently increase the lock-in into fossil fuel infrastructure in other regions. It therefore does not provide a strong counter-argument against adoption of more stringent mitigation efforts by pioneering regions.

Compared with the scientific literature that mainly focused on the competitiveness channel the upper limit of 16% carbon leakage rate due to the energy market channel is small (Babiker [36]; Babiker [37]; Bernstein et al. [38]; Bollen et al. [39]; Burniaux and Oliveira-Martins [40]; Burniaux and Truong [41]; Gerlagh and Kuik [42]; Kuik and Gerlagh [43]; Light et al. [44]; Manne and Richels [45]; McKibbin et al. [19]). In the REMIND model the representation of international fossil fuel markets is highly flexible and fossil based energy conversion technologies can easily replace alternatives. Hence, fossil fuel suppliers can, in principle, find new demands easily, if demand is reduced due to unilateral climate policies. Carbon leakage via the energy market channel is mainly limited due to trade costs of fossil fuels and demand for final energies in non-abating countries. In the present study also the carbon prices of the moderate climate policies dampen the carbon leakage. Studies focusing on the competitiveness channel usually depend on the choice of trade elasticities with higher elasticities implying larger carbon leakage rates. In this study fossil energy trade is not limited in a similar way, and therefore limitations should imply even smaller carbon leakage rates.

Third, we observe that the re-allocation of emissions due to carbon leakage depends mostly on the energy system structure of the region that takes abatement action i.e. whether the region is a fossil resource importer (e.g. Europe), exporter (e.g. the United States) or de facto carbon intensive economy (e.g. China). We conclude that carbon leakage is a dynamic effect that mostly depends on (i) demand response of fuel importers to price changes, (ii) inter-fuel substitution possibilities and (iii) transportation cost barriers in the fossil fuel market.

Regarding the economic implications of fragmented climate action we confirm the assertion that early mitigation action leads to short-run GDP losses for the first movers, but delayed implementation of the carbon tax can lead to larger losses after the introduction of the tax. The larger tax shock can act as a significant barrier to take more stringent action and therefore delaying action might further impede the adoption of more ambitious carbon tax levels in the long run. We also find reallocation of GDP between early mover and late-comer regions triggered by the international capital market, but this is not a major driver of carbon leakage. This result is, however, different to the result of McKibbin et al. [19] who identified the converse effect on carbon leakage for the US.

Several caveats apply to the analysis here. First, the REMIND version used for this study does not take into account bilateral fossil fuel trade, but assumes a global pool trading scheme. Considering bilateral (or multilateral) trading reduces the flexibility of fossil fuel owners to redirect their supplies as some regions reduce their demand. Hence, this improvement might lead to lower leakage rates. Second, the study focused only on the energy channel of carbon leakage, although macro-economic substitution effects between energy, capital and labor were accounted for. Expanding the analysis of dynamic leakage in staged accession scenarios to a larger set of leakage channels, particularly including the re-allocation of energy intensive industries, would help to better constrain the full carbon leakage effect. It is worth mentioning that technology spillovers related to technology learning are not observed in this study.

We conclude from the results that the value of individual regions or coalitions adopting more stringent climate action rises or falls with their ability to induce others to follow suit. Thus, while global cooperation on climate mitigation may prove illusory in the short run, credible and strong mitigation action by major countries can help to keep the door open for future global action to stabilize climate change as carbon leakage effects are limited.

#### Even small carbon price increases impact behavior—changes consumption patterns

Hsu 11 (Shi-Ling Hsu, Professor of Law at University of British Columbia – previously Associate Prof at George Washington School of Law, Senior Attorney & Economist for the Environmental Law Institute The Case for a Carbon Tax: Getting Past our Hang-ups to Effective Climate Policy, Island Press Page 139-142)

While curmudgeons may grudgingly concede that a high carbon tax like that in Sweden would reduce emissions, a smaller one like the British Columbia carbon tax is a different matter. When the British Columbia government introduced its carbon tax in 2008, it admitted that its modest price effects would not have a substantial effect on car- bon dioxide emissions in the province. 41 More action was needed, and was in fact contemplated as the British Columbia government also en- acted a companion program laving the foundation for a cap-and-trade program as part of British Columbia's participation in the California- led Western Climate Initiative. But the carbon tax is indeed so small that one wonders if it really was meant to accomplish anything. The BC carbon tax was designed to ramp up from about $9 per ton of C02 in 2008 to about $30 in 2012. This translates into about 2.4 cents per little of gasoline, up to about 7.2 cents per liter in 2012. Gasoline prices fluctuate a great deal more than that, spiking in 2005 in the aftermath of Hurricane Katrina to more than $1.12 per liter, only to see a higher spike in the summer of 2008 to nearly $1.50, fol- lowed by a dip just a few months later to below 80 cents. 42 In Vancou- ver, gas stations even commonly lower the price by three and a half cents at nighttime. Does an extra 2.4 cents—or even 7 cents—per liter really change behavior very much?

It is a fair question. The standard economic answer is that a price increase will lead to a decline in consumption. It could take a while, but higher prices always lead to lower consumption, all other things being equal. So for the household wondering if it will drive less be- cause of a small increase in the price of gasoline, the answer could well be no, but there are many, many other consumers that could be right at the margins of making a consumption decision. Price elasticity is the term that economists use to denote how much of an adjustment con- sumers, in the aggregate, can be expected to make in response to a price change. Consumption of commodities respond not only to changes in the price of the commodity itself—measured by the own- price elasticity—but also changes in the prices of other goods that may be substitutes or affect the economic environment some other wav— measured by the cross-price elasticities. Finally, consumption of com- modities can change to varying degrees as income changes— measured by the income elasticity. Bread and milk have low income elasticities. Sports cars and cosmetic surgery have high income elasticities.

Most energy analysis is conducted on own-price elasticities, al- though income also figures very prominently in energy consumption. There are short-term and long-term elasticities—adjustments that are made in the relatively short term—on the order of a few months—and those that are made for the longer term. Long-term elasticities are in- variably greater, since at any given time, the timing may or many not be right for any individual household to make an adjustment. Over a longer period of time, there arise more and more times during which an adjustment—some decision that might be affected by a price— seems appropriate. For example, a family that has just purchased a new sport-utility vehicle would not contemplate replacing it even if gaso- line prices rose sharply. One would expect very few adjustments of that sort. However, over a five- or ten-year period, as the sport-utility vehi- cle starts to age and incur more maintenance costs, and as it nears the end of its useful life, a replacement decision is more likely to take into account gasoline prices. As the same family contemplates what they will buy to replace that sport-utility vehicle, the family has a wider ar- ray of options available than it does when it has a brand-new shiny SUV. And in the aggregate, over a longer period, more and more households are likely to arrive at that decision point at which they con- template replacing an aging vehicle, and more adjustments are likely to be made. As long-term elasticity takes into account this greater number of adjustments, it would naturally be larger than short-term elasticities.

Among commodities, fossil fuel usage is one of the more studied phenomena, and the likelihood that people adjust to even small price changes in fossil fuel price is so well-established that it almost rises to the level of an economic maxim. While one might ask oneself whether a family might change their mind about anything if the carbon price is as small as $9 per ton of C02 (translating into 2.4 cents per liter at the gas pump), there are a myriad of other decision makers that could well change their behavior. As argued above, the University of British Columbia is just such an entity. Facing a tax liability that would be consid- ered small by industrial standards, but significant to an academic institution or a medium-sized business or industry, it set about finding ways to reduce its reliance on fossil fuels for powering the campus.

For decades, economists have been studying the aggregate responses to change in energy prices. The range of estimates can be quite large, as some studies are limited to certain regions or countries, and some ate limited in time, so the economic environment in which price changes are studied can be quite varied. As an empirical matter, it is safe to say that long-term elasticities are indeed greater than short- term elasticities. It is also likely that industrial and commercial consumers have larger long-term elasticities than residential consumers. 43 So it might be misleading for individuals to examine their own personal situation and ask themselves, "would I turn down my thermo- stat if the price of natural gas went up by 5 percent?" The point is how much, in the aggregate, all consumers of energy change their behavior, and on this score, industrial and commercial consumers, which ac- counted for half of all energy consumption in the United States in 2008 (with residential accounting for 22 percent), 44 would provide a different answer.

#### Pragmatism is better than purity

Frederic C. RICH, J.D., University of Virginia School of Law, practiced at Sullivan & Cromwell LLP (1981-2014), Vice Chair of the Land Trust Alliance, head of the Environmental Leaders Group in New York State, 16 [*Getting to Green*, 2016, p. 196-198]

Bill Clinton recently said of the U.S. Constitution, "[I]t ought to be subtitled: 'Let's make a deal.'"10 He's right. But the Green movement has for decades been led by policy experts who are confident that their policies present the best solutions to environmental issues and who often are unwilling to consider alternatives, or accept incremental progress when a comprehensive solution is not possible. Green advocates have appeared to many to prefer confrontation to compromise, and Green colleagues are often harsh in criticizing others [END PAGE 196] who accept partial solutions or show willingness to deviate from the movement's ask in order to show some progress.11

Even after the fact, Green orthodoxy often paints landmark compromises as failures. David Brower, longtime head of the Sierra Club, came to regret the deal that saved Dinosaur National Monument because it involved a compromise that permitted a single dam at the spectacular Glen Canyon.12 Rejection of compromise is deeply embedded in the DNA of the more radical part of the movement. Earth First!, for example, has as its slogan "No compromise in the defense of Mother Earth." And although the rest of the movement does not share the approach of these more radical groups, their rhetoric echoes in the consciences of mainstream Greens. As a result, among Greens purity too often is prized above pragmatism. The former president of the Izaak Walton League complains bitterly about some of his colleagues in the Green movement, where, he says, "people often want to be viewed as the most holy defender of the faith, rather than the most effective at making progress."13

The Green movement has had a particular problem accepting incrementalism, although recent history is filled with examples, such as the gradual tightening of fuel efficiency and auto emissions standards, that are successful models of exactly this approach. In some cases opposition to incremental gain is strategically sound, or is simply a tactic designed to improve and broaden the scope of a law or rule. But when it results in positive legislation or regulation being stalled or killed, with no realistic hope of anything better replacing it, then it is a mistake. When motivated by pure politics, such as the desire to deny the Republicans an environmental victory, then it is a betrayal of our environmental mission for partisan gain.

Greens also sometimes seem to take pride in spewing out "big thinking" without regard to its political feasibility. Gus Speth, for example, wrote, "If someone says these proposals are impractical, [END PAGE 197] or politically naïve, then I would respond that we need impractical answers."14 These habits—reluctance to compromise, distrust of incrementalism, and insufficient attention to pragmatism—have contributed to the movement's failures and resulted in missed opportunities to make at least some progress on climate change. Any well-managed organization should insist that results define success. If the perfect policy is dead on arrival as a political matter, then compromise. The environmental movement is funded by its supporters to make a difference in the environment. So figure out what is achievable and go for that, even if it means you are negotiating with yourself, compromising before you sit down at the table with the other side, or "thinking small," all of which have been cardinal sins in many NGO cultures. Incremental progress is progress, and progress is what is urgently needed.

#### Working within the system is necessary to solve particular instances of climate change—there’s no guarantee revolution will solve

-It’s too late to solve the whole environmental crisis, but can work to mitigate the damage

-No guarantee the alternative’s regression to socialism won’t have same environmental problems

Christian PARENTI, professor of sustainable development at the School for International Training, Graduate Institute, 13 [“A Radical Approach to the Climate Crisis,” *Dissent*, Summer 2013, http://www.dissentmagazine.org/article/a-radical-approach-to-the-climate-crisis]

Several strands of green thinking maintain that capitalism is incapable of a sustainable relationship with non-human nature because, as an economic system, capitalism has a growth imperative while the earth is finite. One finds versions of this argument in the literature of eco-socialism, deep ecology, eco-anarchism, and even among many mainstream greens who, though typically declining to actually name the economic system, are fixated on the dangers of “growth.”

All this may be true. Capitalism, a system in which privately owned firms must continuously out-produce and out-sell their competitors, may be incapable of accommodating itself to the limits of the natural world. However, that is not the same question as whether capitalism can solve the more immediate climate crisis.

Because of its magnitude, the climate crisis can appear as the sum total of all environmental problems—deforestation, over-fishing, freshwater depletion, soil erosion, loss of biodiversity, chemical contamination. But halting greenhouse gas emissions is a much more specific problem, the most pressing subset of the larger apocalyptic panorama.

And the very bad news is, time has run out. As I write this, news arrives of an ice-free arctic summer by 2050. Scientists once assumed that would not happen for hundreds of years.

Dealing with climate change by first achieving radical social transformation—be it a socialist or anarchist or deep-ecological/neo-primitive revolution, or a nostalgia-based localista conversion back to a mythical small-town capitalism—would be a very long and drawn-out, maybe even multigenerational, struggle. It would be marked by years of mass education and organizing of a scale and intensity not seen in most core capitalist states since the 1960s or even the 1930s.

Nor is there any guarantee that the new system would not also degrade the soil, lay waste to the forests, despoil bodies of water, and find itself still addicted to coal and oil. Look at the history of “actually existing socialism” before its collapse in 1991. To put it mildly, the economy was not at peace with nature. Or consider the vexing complexities facing the left social democracies of Latin America. Bolivia, and Ecuador, states run by socialists who are beholden to very powerful, autonomous grassroots movements, are still very dependent on petroleum revenue.

A more radical approach to the crisis of climate change begins not with a long-term vision of an alternate society but with an honest engagement with the very compressed timeframe that current climate science implies. In the age of climate change, these are the real parameters of politics.

#### Analyzing climate scenarios galvanizes motivation to support climate-friendly policies AND generates individual and collective responsibility to combat climate change and reorganize the societal structures that trap individual efforts into ineffective climate solutions.

Dr. Perri Druen 21, Ph.D. and associate professor of psychology at York College; and Stephanie Zawadzki, environmental psychology, University of Groningen; 8/23/2021, “Escaping the Climate Trap: Participation in a Climate-Specific Social Dilemma Simulation Boosts Climate-Protective Motivation and Actions,” *Sustainability*, 13(16), <https://doi.org/10.3390/su13169438>, pacc

4. Discussion

In this paper, we evaluated a novel social dilemma simulation that was specifically designed to help people experience and understand the decision-making processes which contribute to the human dimensions of climate change. In addition to evaluating the simulation as an educational tool, we offer a novel extension of the previous research on social dilemma simulations by shifting the focus of these simulations from how people act during the simulation to how they think, feel, and act after the simulation has been completed. Specifically, we predicted and found, comparing the simulation participants to the non-participants, as well as the participants to themselves before and after the simulation, that the people who participated in our simulation were more confident in their knowledge of climate change and its relationship to social dilemmas, reported more self-determined motivation to help, and performed more climate-mitigating behaviors. When changes within the other groups who did not complete the simulation were present, our analyses suggested that our simulation participants may have experienced stronger climate-friendly changes on each measure than the other groups. Moreover, the effects remained largely consistent when controlling for social desirability bias, suggesting that our results are unlikely to be attributable to self-presentation concerns related to pleasing the teacher in a classroom setting.

Our results suggest that our new climate-change social dilemma simulation may be a potentially useful educational tool. It was rated as highly engaging by the participants, and is unique in that it links climate change to decisions about the production of goods, and incorporates social and temporal traps, allowing a variety of strategies to be used. The students who participated in our simulation expressed greater confidence in their knowledge about climate change, social dilemmas, social traps, temporal traps, decision-making strategies in social dilemmas, the effects on the climate of overconsumption, the effects on the environment of overpopulation, the reasons for environmental problems, and sustainability strategies. This is important because it suggests that the simulation creates an engaging educational experience while also boosting the students’ confidence in their knowledge about social dilemmas and environmental challenges. We did not assess the accuracy of the student learning directly, as knowledge about climate change has not been found to motivate climate action [10,69], but we found that the participants’ beliefs about their understanding were affected by their experience.

As predicted, environmental concern was higher for the simulation group, but the within-subjects tests indicated that the simulation group—as well as the environmental studies with no simulation group—did not change from pre- to post-test, whereas the control condition dropped in concern. It is not possible to determine if this decrease was statistically spurious or caused by some outside factor related to the content of the non-environmental course material, and so we recommend that future researchers explore the conditions under which participating in a climate-specific social dilemma simulation may influence people’s concern for the environment. Additionally, we have initial evidence that the students who participated in the simulation may also have reported stronger belief in global warming than those who did not participate in the simulation, but more research is needed to replicate this effect, as it was inconsistent across the analyses. These results highlight a potentially important avenue for future research, because people’s climate-related beliefs and feelings are consistent predictors of their willingness to act in a climate-protective manner and support climate-friendly policies [86]. In the United States, where this study was conducted, climate beliefs are deeply politically ingrained and largely influenced by the social groups people belong to and the political landscape they inhabit [86,87,88]. Consequently, it can be difficult to positively influence these beliefs without activating political identities. When people are resistant to climate-protective initiatives because of political identities, otherwise-constructive climate-protective policies and projects can be derailed or cancelled [89]. If participating in a social dilemma simulation could activate climate beliefs while also side-stepping political concerns, then it could be an important teaching tool with the ability to positively impact how a person thinks and feels about climate change.

Importantly, and as predicted, we also found that the motivation to act in a climate-friendly manner was higher for the participants who completed the simulation compared to those who did not, as well as being higher among the simulation participants post-simulation compared to their pre-simulation levels. This was consistent for three of the four types of motivation we examined: identified, integrated and intrinsic motivation. No significant effects were found for introjected motivation. These findings are important because they suggest that our simulation may be effective as a potential behavioral intervention, which could have lasting effects on the participants’ willingness to engage with climate-protective actions. Identified, integrated and intrinsic motivation are closely linked to the performance of pro-environmental behaviors [90]. By activating these types of motivation via the simulation, the participants came away feeling that pro-climate behavior is consistent with their personal goals (identified motivation), part of their personal identities (integrated motivation), and that it feels good to do (intrinsic motivation) [78,79]. People who express stronger identified, integrated and intrinsic motivation are more likely to perform pro-environmental actions than people with relatively weak motivations. Moreover, compared to more extrinsic forms of motivation (like introjected motivation), intrinsic forms of motivation may be more likely to boost pro-environmental behaviors for a longer duration and across a variety of situations [91].

Critically, in addition to influencing strong behavioral antecedents, we also found evidence that our simulation may increase the likelihood of performing actual climate-protective behaviors. Specifically, and as predicted, the participants who completed the simulation were more likely to perform both personal and social behaviors, like donating money or time and signing petitions to support climate-friendly initiatives. The satisfactory reliability of our behavior index, in addition to observing a consistent pattern of results for volunteering behaviors, suggests that the influence of our simulation may be generalizable across multiple pro-climate behaviors. This is important both theoretically and practically, as it suggests that the underlying psychological mechanisms through which our simulation influences behavior are unlikely to change depending on what behavior is being targeted. Although we cannot be certain how environmentally significant these behaviors would be from an impact perspective, Stern [80] argues that these types of public-sphere behaviors can be powerful through their influence on policies. The examination of these types of behaviors is important because they offer people ways to bridge the individual and the collective in a way that can also be personally rewarding (e.g., volunteering) [92]. In order to adequately mitigate and adapt to global warming, changes at all levels of the system will be required, and so it is vital that behavioral scientists study both actions at the individual level and at those that help individuals connect to the larger collective effort.

Altogether, these findings are both theoretically and practically important. From a theoretical perspective, we explored a critical gap in the literature which had not been previously addressed. Specifically, we expanded the scope of social dilemma simulations beyond what occurs during the game to explore how participating in these types of simulations may impact the participants’ thoughts, feelings and actions after the simulation has ended. From a practical perspective, our findings suggest that climate change-specific social dilemma simulations might offer an engaging, educational and potentially psychologically powerful tool for the promotion of both the understanding of climate-relevant behaviors and the motivation to act in a climate-friendly manner. The participants may recognize both their own personal responsibilities and the need to collectively change the social structures that constrain decisions and create climate traps. When it comes to teaching, our results support the notion that including a learning module consisting of the Climate Trap simulation, along with the discussion of social dilemmas in the context of climate change and human solutions, may be an effective teaching intervention in many different kinds of sustainability studies courses. Our simulation may help strengthen learning, reinforcing links to many important issues in trying to understand why people, even those who are aware of the threat of climate change, still may not act in a climate-protective manner. In addition, many courses or other environmental education activities have a goal to motivate the participants to act on their knowledge, and the simulation was able to do so.

In addition to those discussed above, our results shed light on many potentially fruitful avenues for future research related to the underlying psychological drivers of the observed effects. Specifically, while we do have initial evidence that participating in a climate-specific social dilemma simulation can be both educational and motivating to act in a climate-friendly manner, the precise psychological process through which these types of simulations influence actions is yet unknown. We did not explicitly test a particular theory of change; however, ours is essentially a motivational model, grounded primarily in Protection Motivation Theory [51,52,53]. That said, what pushed the motivation into the more self-directed forms is not clear. The simulation may have been effective for any number of reasons, and the extant literature gives some hints as to what may be underlying the changes we observed. For example, Krasny [8] reviewed 10 intermediate outcomes in environmental education that mediate between an activity and a behavioral outcome: (1) knowledge and thinking; (2) values, beliefs, and attitudes; (3) nature connectedness; (4) a sense of place; (5) efficacy; (6) identity; (7) norms; (8) social capital; (9) positive youth development; and (10) health and wellbeing. We suggest that our participants likely acted pro-environmentally in response to our simulation as a result of more internal factors, rather than any structural or social ones that were inherent in the activity. We suspect that the simulation woke the participants up to the understanding that the necessary change to address global warming is constrained by social dilemma pressures, which is potentially a form of systems knowledge [93]. This realization may have helped them see that the threat is serious, not just because of the physical changes to the environment, but because the current structures in society—such as economic systems and regulations—do not readily reward climate-protective decisions in many domains, especially in the corporate production of consumer goods. When they observed themselves being vulnerable to the same pressures in the simulation, the participants may have been motivated to overcome the trap, as is consistent with Capstick’s finding that “…among the participants’ perspectives, strong arguments can also be found for action in spite of—even because of—the social dilemma nature of climate change” (35, p. 3495). In Protection Motivation Theory terminology, we speculate that the simulation activated people’s perceptions of climate change as a severe threat (severity), with negative potential impacts for them (vulnerability), that is also influenced by their behaviors (response efficacy), and so they are efficacious enough to help prevent it (self-efficacy). By creating a situation in which the participants view the situational influence of social dilemmas and climate change through these lenses, we may have created an experience powerful enough to motivate action. Future studies need to test whether the underlying psychological processes align with Protection Motivation Theory, or if alternative influences are at play, [8].

#### Strategic use of market mechanisms to politicize the inequalities of the status quo is possible – radical system change alone is a demand for a clean slate we don’t have

Hoffman 16 (Andrew, Professor and director of the Erb Institute for Global Sustainable Enterprise at the University of Michigan, 2/15/2016, The Invisible Hand Won’t Solve the Climate Crisis. Capitalism Must Evolve., Evonomics, http://evonomics.com/the-invisible-hand-wont-solve-the-climate-crisis-capitalism-must-evolve/)

This binary framing masks the real questions we face, both what we need to do and how we are going to get there. Yet there are serious conversations within management education, research and practice about the next steps in the evolution of capitalism. The goal is to develop a more sophisticated notion of the role of the corporation within society. These discussions are being driven not only by climate change, but concerns raised by the financial crisis, growing income inequality and other serious social issues.¶ The market’s rough edges¶ Capitalism is a set of institutions for structuring our commerce and interaction. It is not, as some think, some sort of natural state that exists free from government intrusion. It is designed by human beings in the service of human beings and it can evolve to the needs of human beings. As Yuval Levin points out in National Affairs, even Adam Smith argued that “the rules of the market are not self-legislating or naturally obvious. On the contrary, Smith argued, the market is a public institution that requires rules imposed upon it by legislators who understand its workings and its benefits.”¶ And, it is worth noting, capitalism has been quite successful. Over the past century, the world’s population increased by a factor of four, the world economy increased by a factor of 14 and global per capita income tripled. In that time, average life expectancy increased by almost two-thirds due in large part to advances in medicine, shelter, food production and other amenities provided by the market economy.¶ Capitalism is, in fact, quite malleable to meet the needs of society as they emerge. Over time, regulation has evolved to address emergent issues such as monopoly power, collusion, price-fixing and a host of other impediments to the needs of society. Today, one of those needs is responding to climate change.¶ The question is not whether capitalism works or doesn’t work. The question is how it can and will evolve to address the new challenges we face as a society. Or, as Anand Giridharadas pointed out at the Aspen Action Forum, “Capitalism’s rough edges must be sanded and its surplus fruit shared, but the underlying system must never be questioned.”¶ These rough edges need be considered with the theories we use to understand and teach the market. In addition, we need to reconsider the metrics we use to measure its outcomes, and the ways in which the market has deviated from its intended form.¶ Homo economicus?¶ To begin, there are growing questions around the underlying theories and models used to understand, explain and set policies for the market. Two that have received significant attention are neoclassical economics and principal-agent theory. Both theories form the foundation of management education and practice and are built on extreme and rather dismal simplifications of human beings as largely untrustworthy and driven by avarice, greed and selfishness.¶ As regards neoclassical economics, Eric Beinhocker and Nick Hanauer explain:¶ Behavioral economists have accumulated a mountain of evidence showing that real humans don’t behave as a rational homo economicus would. Experimental economists have raised awkward questions about the very existence of utility; and that is problematic because it has long been the device economists use to show that markets maximize social welfare. Empirical economists have identified anomalies suggesting that financial markets aren’t always efficient.¶ As regards principal-agent theory, Lynn Stout goes so far to say that the model is quite simply “wrong.” The Cornell professor of business and law argues that its central premise – that those running the company (agents) will shirk or even steal from the owner (principal) since they do the work and the owner gets the profits – does not capture “the reality of modern public corporations with thousands of shareholders, scores of executives and a dozen or more directors.”¶ The most pernicious outcome of these models is the idea that the purpose of the corporation is to “make money for its shareholders.” This is a rather recent idea that began to take hold within business only in the 1970s and 1980s and has now become a taken-for-granted assumption.¶ If I asked any business school student (and perhaps any American) to complete the sentence, “the purpose of the corporation is to…” they would parrot “make money for the shareholder.” But that is not what a company does, and most executives would tell you so. Companies transform ideas and innovation into products and services that serve the needs of some segment of the market. In the words of Paul Pollman, CEO of Unilever, “business is here to serve society.” Profit is the metric for how well they do that.¶ The problem with the pernicious notion that a corporation’s sole purpose is to serve shareholders is that it leads to many other undesirable outcomes. For example, it leads to an increased focus on quarterly earnings and short-term share price swings; it limits the latitude of strategic thinking by decreasing focus on long-term investment and strategic planning; and it rewards only the type of shareholder who, in the words of Lynn Stout, is “shortsighted, opportunistic, willing to impose external costs, and indifferent to ethics and others’ welfare.”¶ A better way to gauge the economy¶ Going beyond our understanding of what motivates people and organizations within the market, there is growing attention to the metrics that guide the outcomes of that action. One of those metrics is the discount rate. Economist Nicholas Stern stirred a healthy controversy when he used an unusually low discount rate when calculating the future costs and benefits of climate change mitigation and adaptation, arguing that there is a ethical component to this metric’s use. For example, a common discount rate of 5% leads to a conclusion that everything 20 years out and beyond is worthless. When gauging the response to climate change, is that an outcome that anyone – particularly anyone with children or grandchildren – would consider ethical?¶ Another metric is gross domestic product (GDP), the foremost economic indicator of national economic progress. It is a measure of all financial transactions for products and services. But one problem is that it does not acknowledge (nor value) a distinction between those transactions that add to the well-being of a country and those that diminish it. Any activity in which money changes hands will register as GDP growth. GDP treats the recovery from natural disasters as economic gain; GDP increases with polluting activities and then again with pollution cleanup; and it treats all depletion of natural capital as income, even when the depreciation of that capital asset can limit future growth.¶ A second problem with GDP is that it is not a metric dealing with true human well-being at all. Instead, it is based on the tacit assumption that the more money and wealth we have, the better off we are. But that’s been challenged by numerous studies. ¶As a result, French ex-president Nicolas Sarkozy created a commission, headed by Joseph Stieglitz and Amartya Sen (both Nobel laureates), to examine alternatives to GDP. Their report recommended a shift in economic emphasis from simply the production of goods to a broader measure of overall well-being that would include measures for categories like health, education and security. It also called for greater focus on the societal effects of income inequality, new ways to measure the economic impact of sustainability and ways to include the value of wealth to be passed on to the next generation. Similarly, the king of Bhutan has developed a GDP alternative called gross national happiness, which is a composite of indicators that are much more directly related to human well-being than monetary measures. ¶ The form of capitalism we have today has evolved over centuries to reflect growing needs, but also has been warped by private interests. Yuval Levin points out that some key moral features of Adam Smith’s political economy have been corrupted in more recent times, most notably by “a growing collusion between government and large corporations.” This issue has become most vivid after the financial crisis and the failed policies that both preceded and succeeded that watershed event. The answers, as Auden Schendler and Mark Trexler point out, are both “policy solutions” and “corporations to advocate for those solutions.”¶ We can never have a clean slate¶ How will we get to the solutions for climate change? Let’s face it. Installing efficient LED light bulbs, driving the latest Tesla electric car and recycling our waste are admirable and desirable activities. But they are not going to solve the climate problem by reducing our collective emissions to a necessary level. To achieve that goal requires systemic change. To that end, some argue for creating a new system to replace capitalism. For example, Naomi Klein calls for “shredding the free-market ideology that has dominated the global economy for more than three decades.”¶ Klein is performing a valuable service with her call for extreme action. She, like Bill McKibben and his 350.org movement, is helping to make it possible for a conversation to take place over the magnitude of the challenge before us through what is called the “radical flank effect.”¶ All members and ideas of a social movement are viewed in contrast to others, and extreme positions can make other ideas and organizations seem more reasonable to movement opponents. For example, when Martin Luther King Jr first began speaking his message, it was perceived as too radical for the majority of white America. But when Malcolm X entered the debate, he pulled the radical flank further out and made King’s message look more moderate by comparison. Capturing this sentiment, Russell Train, second administrator of the EPA, once quipped, “Thank God for [environmentalist] Dave Brower; he makes it so easy for the rest of us to be reasonable.”¶ But the nature of social change never allows us the clean slate that makes sweeping statements for radical change attractive. Every set of institutions by which society is structured evolved from some set of structures that preceded it. Stephen Jay Gould made this point quite powerfully in his essay “The Creation Myths of Cooperstown,” where he pointed out that baseball was not invented by Abner Doubleday in Cooperstown New York in 1839. In fact, he points out, “no one invented baseball at any moment or in any spot.” It evolved from games that came before it. In a similar way, Adam Smith did not invent capitalism in 1776 with his book The Wealth of Nations. He was writing about changes that he was observing and had been taking place for centuries in European economies; most notably the division of labor and the improvements in efficiency and quality of production that were the result. ¶ In the same way, we cannot simply invent a new system to replace capitalism. Whatever form of commerce and interchange we adopt must evolve out of the form we have at the present. There is simply no other way. ¶ But one particularly difficult challenge of climate change is that, unlike Adam Smith’s proverbial butcher, brewer or baker who provide our dinner out of the clear alignment of their self-interest and our needs, climate change breaks the link between action and outcome in profound ways. A person or corporation cannot learn about climate change through direct experience. We cannot feel an increase in global mean temperature; we cannot see, smell or taste greenhouse gases; and we cannot link an individual weather anomaly with global climate shifts. ¶ A real appreciation of the issue requires an understanding of large-scale systems through “big data” models. Moreover, both the knowledge of these models and an appreciation for how they work require deep scientific knowledge about complex dynamic systems and the ways in which feedback loops in the climate system, time delays, accumulations and nonlinearities operate within them. Therefore, the evolution of capitalism to address climate change must, in many ways, be based on trust, belief and faith in stakeholders outside the normal exchange of commerce. To get to the next iteration of this centuries-old institution, we must envision the market through all components that help to establish the rules; corporations, government, civil society, scientists and others. ¶ The evolving role of the corporation in society¶ At the end of the day, the solutions to climate change must come from the market and more specifically, from business. The market is the most powerful institution on earth, and business is the most powerful entity within it. Business makes the goods and services we rely upon: the clothes we wear, the food we eat, the forms of mobility we use and the buildings we live and work in. ¶ Businesses can transcend national boundaries and possess resources that exceed that of many countries. You can lament that fact, but it is a fact. If business does not lead the way toward solutions for a carbon-neutral world, there will be no solutions.

#### Economic valuation is key to the environment

Polasky 12 (Stephen, Professor of Ecological/Environmental Economics, University of Minnesota, Seth Binder, Summer 2012, Valuing the Environment for Decisionmaking, http://issues.org/28-4/polasky/)

Virtually all important environmental management and policy decisions have a wide range of effects. For example, zoning or development decisions about land use can have a variety of environmental impacts (for example, on local water and air quality, the potential for flooding downstream, carbon sequestration, and habitat for wildlife) as well as economic and social effects (on economic development, jobs, and income). Similarly, decisions on limits on emissions of air pollutants or greenhouse gases can affect a range of environmental, economic, and social concerns. These results affect multiple groups who often have very different views about desired outcomes (for example, developers versus environmentalists). Effects differ across geography (upstream versus downstream) and time (current versus future impacts). Choosing among management or policy options that differ in terms of environmental, economic, and social outcomes with spatial and temporal components may at first glance seem overwhelmingly complex, with dimensions that seem incomparable. Good environmental management and policy decisionmaking, however, necessitates systematic evaluation and consideration of the effects of management and policy on the affected public. Even though the quantitative valuation of these effects will never be perfect, the outcome of attempts to assess value provides important information to help guide decisionmaking.¶ ¶ Decisions, decisions¶ ¶ Management and policy decisions typically involve difficult tradeoffs that bring improvements in some dimensions and declines in others. Ultimately, deciding whether to choose management or policy alternative A or B requires an evaluation of whether A or B is “better,” where better is determined by the objectives of the decisionmaker. It is easy to conclude that one alternative is better than another if it is better in all dimensions. But making comparisons in which one alternative is better in some dimensions but worse in others requires making difficult value judgments. For example, clearing land for housing development may result in higher incomes and more jobs but reduce habitat for species and worsen local water quality. Whether land clearing is the right decision will depend on whether an increase in incomes and jobs is valued more highly than maintaining habitat and water quality. But how can one really compare income versus habitat for species or jobs versus water quality? Comparing across these different dimensions seems like comparing the proverbial apples and oranges. Reaching an environmental management or policy decision, though, requires the decisionmaker to compare apples and oranges, either explicitly or implicitly.¶ ¶ For an individual, deciding which college to attend, where to live, or what job to take is often a hard choice to make, in large part because it involves changes in multiple dimensions simultaneously. Moving to a new job in a new city may be a better professional opportunity and offer a new set of cultural amenities, but is it worth disrupting family life, moving away from friends, and making adjustments to a new community? Though it is difficult to compare such alternatives, people do make these decisions all the time. In choosing an option, taking account of all the factors, people make a determination that one option is better than the other available options.¶ ¶ As difficult as such choices can be for an individual, making environmental management and policy decisions adds yet another level of complexity. Such decisions affect many people simultaneously and thus require finding a way to aggregate values across different people to reach a decision. Management and policy decisions can make some groups better off while making others worse off, requiring a different sort of apples-and-oranges comparison.¶ ¶ Two methods used in such multidimensional, multiperson decisionmaking contexts are economic benefit/cost calculations and multicriteria decision analysis (MCDA). Each of these methods transforms a complex multidimensional problem involving multiple people into a single dimension that can be used to rank alternatives. These methods act like a blender that mixes apples and oranges to produce a fruit smoothie. Decisionmakers can then decide which fruit smoothie they like the best.¶ ¶ Economics reduces multidimensional problems to a single dimension by measuring the value of changes in each dimension with a common metric, which is typically, but not necessarily, a monetary metric. Economist8s tend to prefer a monetary metric because it is a pervasive, intuitive, and easily observable measure of the values that people attribute to an array of everyday goods and services. In wellfunctioning markets, the price of a good or service reflects its marginal value to the buyer measured in terms of the common monetary metric: what the buyer is willing to pay to have the good or service. This fact makes the marginal values of many very different goods and services commensurable. The concept extends even to environmental attributes that do not have a market value, such as clean air, as long as people are willing to make tradeoffs in their consumption of some market goods in order to obtain other nonmarket attributes.¶ ¶ The ability to measure values with a common monetary metric rests on two key premises. First, individual willingness to pay for an item is assumed to accurately represent the value of that item to the individual: that is, how much better off the individual is with the item than without the item, measured in monetary terms. Second, the aggregation of values to the societal level requires that the correspondence between willingness to pay and well-being be comparable across individuals, so that a measure of societal value is equal to the (appropriately weighted) sum of values across all individuals in society. This comparability is necessary in order to do benefit/cost analysis resulting in a single number that summarizes social net benefits.¶ ¶ With the ability to produce an aggregate social net benefit calculation for any policy option, the economic benefit/cost decision rule is simple: Choose the option that maximizes social net benefits. This simple rule can be extended to account for uncertainty by maximizing expected social net benefits, where net benefits for individuals can include risk aversion (that is, a willingness to pay to avoid being subjected to uncertain outcomes). The decision rule can also incorporate constraints that restrict outcomes, so that they do not violate minimum environmental standards or basic human rights. As noted, however, the social net benefit calculation requires that individuals evaluate multiple dimensions with a single monetary metric of value and that these values be comparable across individuals. Without such interpersonal comparability, management or policy changes resulting in both winners and losers cannot be evaluated. In this case, only alternatives in which everyone is better off are clearly superior, and such alternatives are extremely unlikely to emerge.¶ ¶ Benefit/cost calculations have been applied to a wide variety of environmental policies. All recent presidents, both Democratic and Republican, have required agencies to evaluate the benefits and costs of regulations, including environmental regulations. Executive Order 12866 signed by President Clinton in 1993 states that agencies “shall assess both the costs and the benefits of the intended regulation” and “in choosing among alternative regulatory approaches, agencies should select those approaches that maximize net benefits” The Environmental Protection Agency (EPA) has done extensive benefit/cost calculations of regulations, particularly regulations under the Clean Air Act. The EPA estimated that the 1990 Clean Air Act would provide benefits of $2 trillion between 1990 and 2020 while imposing costs of $65 billion, a benefit-to-cost ratio of approximately 30-to-1. A prior study of the benefits and costs of the Clean Air Act from 1970 to 1990 found a similarly large benefitto-cost ratio.¶ ¶ The economic benefit/cost approach to maximizing social net benefits may be thought of as belonging to the broader class of MCDA methods, all of which require explicit or implicit weighting of various attributes of expected outcomes of management or policy decisions. Although some MCDA methods accommodate only quantitative attributes, others also permit qualitative attributes. Given attributes and weights, different MCDA methods take different approaches to evaluating alternatives. Some methods seek to identify the best alternative, similar to the economic approach of maximizing social net benefits, while others, such as goal programming, seek to identify alternatives that meet certain thresholds of performance. In goal programming, aspirational or minimally acceptable thresholds are set for each criterion, and alternatives are evaluated according to the priority-weighted distances by which criteria fall short of these thresholds. In general, MCDA methods seek to maximize a social welfare function of a particular, often implicit, form.¶ ¶ Setting relative values¶ ¶ To be operational, benefit/cost and MCDA methods require information on relative values (weights) for different dimensions of value affected by environmental management or policy. Economics and decision sciences tend to take different approaches to assembling information about values. In economics, the values of different management or policy options are derived from aggregating the net benefits to individuals in society for that option. In decision sciences, a variety of methods are used to assemble information on weights to assign to different dimensions.¶ ¶ The task of the economist in understanding relative values for an individual is far easier for marketed goods and services than for nonmarketed environmental attributes. For marketed goods and services, economists use observations on how much is purchased at a given price over a range of different prices to construct a demand function. The demand function summarizes information on the willingness to pay of the individual for the good or service. In competitive markets, the supply function reflects the marginal cost of producing the good or service. Demand and supply can be used to define economic surplus, which is the difference between the (marginal) willingness to pay given by demand and the marginal cost of production given by supply. Summing up this difference over the entire quantity traded is equal to economic surplus; that is, the value generated from the production and consumption of the good or service.¶ ¶ Some environmental changes directly affect marketed goods and services, and the value of these effects can be evaluated by assessing the net change in economic surplus in the affected markets. Take, for example, the potential effects of excess nutrients in a body of water that cause dead zones (areas of low oxygen), resulting in lowered fish and shellfish populations and reduced commercial harvests. With basic information about consumer demand and the costs of supply, economists can estimate the expected loss in economic surplus from the reduction in harvests. Adjustments to economic surplus calculations are necessary when market imperfections, such as monopoly pricing, taxes, or subsidies, result in price distortions so that prices are not a true reflection of the value of marketed goods and services.¶ ¶ The concept of economic surplus (value) also applies to environmental attributes, such as clean air or access to natural areas, for which there is no market. Valuing nonmarket goods and services is more difficult, because there is no readily observable signal of value that is comparable to a marke8t price. Economists have devised a suite of nonmarket valuation tools that can be applied to value nonmarketed environmental attributes. Some nonmarket valuation methods use observable expenditure on a different marketed good or service to draw an inference about the value of the nonmarketed environmental attribute of interest. For example, housing prices may reflect the increased willingness to pay for housing in locations with better environmental amenities, such as access to lakes and parks or better air quality. The choice of where to recreate can reveal information about the relative value of environmental amenities that vary across recreation sites. Other methods of estimating value record changes in expenditures, such as changes in the cost to treat drinking water with changes in water quality.¶ ¶ Economists cannot use observed expenditures to value all important changes to the environment. For example, if all of the lakes in a region are polluted and no one uses them for recreation, it will be difficult to assess the value of reducing pollution on recreational value, unless one is willing to make inferences from other regions. More fundamentally, there are limited or no directly observable expenditures or other behavioral clues for some environment attributes, particularly non-use benefits such as knowing that species exist. In Antonio Briceño, Overfishing, from the Millions of Pieces: Only One Puzzle Project, Digital c-print on Fuji Crystal Archival paper, 21 x 60 inches, 2010. the absence of observable behavior, economists use survey questions to ask people about values for changes in environmental attributes. Such “stated preference” methods include contingent valuation and conjoint analysis. The contingent valuation method presents survey respondents with a hypothetical change in the environment, such as a 10% increase in the size of humpback whale populations, and asks whether they would be willing to pay a specified amount for the change. Varying the specified amount and observing the proportion of people saying yes generates information analogous to a demand curve for marketed goods and services. In conjoint analysis, people are asked to rank a series of outcomes that differ in the quantities of various attributes. Conjoint analysis allows direct evaluation of how people trade off one attribute versus another, such as an improvement in air quality versus greater access to open space. If one of the attributes is income or expenditure, then the analyst can also estimate willingness to pay.¶ ¶ Some actions, such as emissions of greenhouse gases, cause changes in multiple dimensions that occur over extended periods. For example, a change in carbon storage in ecosystems that reduces atmospheric concentrations causes changes in climate forcing and ocean acidification, which in turn affect myriad other environmental attributes, including precipitation patterns, with effects on agricultural production, the probability and severity of flooding, and the health of marine resources, among others. Summarizing the value of all these changes into a single estimate of the social cost of carbon (SCC) requires complex integrated assessment models that predict both environmental and economic outcomes and attach estimates of the value of those outcomes. Further complicating matters, SCC estimates depend on levels of emissions that can be affected by the very policy choice that SCC is meant to inform. For this reason and others, such as the choice of social discount rate, the estimates of the SCC range from near zero to hundreds of dollars per ton of carbon.¶ ¶ Instead of the often-complex process of economic valuation, MCDA typically relies on a set of alternative methods for establishing relative values or weights on different criteria, to be chosen by the decisionmakers. The identification of weights may be done by introspection, deliberation, or negotiation—or some combination of the three—among stakeholders. Setting relative weights may also be done as part of an iterative process in which alternatives are evaluated, weights reassessed in light of the evaluation, and new criteria weights applied.¶ ¶ One example of how relative weights for different criteria are set in MCDA is through application of the analytical hierarchy process. In this process, decisionmakers are asked to determine a set of top-level criteria, and within each of these to determine the subcomponent criteria. They are then asked to rank the relative importance of criteria at each level of the hierarchy. For example, suppose a decisionmaker is evaluating policies aimed at controlling non–point-source pollution from agriculture with two overarching criteria of water quality and economic effects. If these criteria are assigned equal importance, then each receives a weight of 0.5. At the next level of hierarchy, suppose that the water quality criteria include water clarity, dissolved oxygen content, and temperature, and that the economic criteria include farm income and jobs. If the decisionmaker believes that water clarity is twice as important as dissolved oxygen, and dissolved oxygen is twice as important as temperature, their weights at this level of hierarchy are 4/7, 2/7, and 1/7, respectively. Suppose that jobs are ranked as twice as important as farm income, then the weights would be 2/3 and 1/3. The overall weights in the analysis would then be 0.5 times these values: 2/7 for water clarity, 1/7 for dissolved oxygen content, 1/14 for water temperature, 1/3 for jobs, and 1/6 for farm income.¶ ¶ A potentially important difference between economic and MCDA approaches to valuation is in whose values are incorporated. In principle, valuation in benefit/cost assessments includes the value of everyone affected by management or policy choices, though in practice there may be questions about whether economic valuation methods accurately reflect societal values. In MCDA, it is typically a smaller subset of people that is involved in setting relative weights. For local-scale problems, MCDA methods could include all affected parties in a deliberative process, but as the scale of the problem grows, this will not be possible. For larger-scale environmental problems, ranging up to global concerns such as climate change, there is the question of representation and whether those present adequately reflect the views of the wider public. In addition, relative weights in MCDA should not be treated as constant but should reflect changes in circumstances, something that is typically captured in economic valuation methods.¶ ¶ Weighty issues¶ ¶ Any environmental management or policy decision is likely to entail winners and losers. How should the distribution of benefits and costs across groups be treated in environmental management and policy decisions? Critics of benefit/cost analysis contend that reliance on economic valuation systematically disadvantages those with less money. Greater wealth means greater ability (and thus willingness) to pay, so benefit/cost analysis effectively gives more weight to those with more money (“voting with dollars”). One way to answer this criticism is to give a higher weight to the values of those with less wealth. Economists have found considerable evidence of diminishing marginal utility of income, meaning that the value of an additional dollar to a poor person is greater than to a rich person. This fact can be used to justify “equity weights” based on differences in wealth. For example, an equity weight argument would mean that otherwise equal damages from future climate change should be given greater weight in low-income countries than in high-income countries. In addition, if society is committed to protecting the interests of particular groups, it can constrain consideration of options to those that achieve specified distributional goals.¶ ¶ Since the effects of alternative environmental management and policy options will differ across generations, a fundamental challenge in valuing environmental management and policy decisions is how to aggregate benefits and costs that accrue to current and future generations (inter-generational distribution). For example, more aggressive climate change mitigation strategies impose costs on the current generation but generate benefits for future generations.Economists typically use discounting to aggregate benefits and costs over time. The standard economic rationale for discounting is that investments yield a positive expected real rate of return, so that having a dollar today is worth more than having a dollar in the future. Costs and benefits realized at different points in time are thus commensurable in present value terms after discounting.¶ ¶ The standard discounting approach works well for nearterm private investment decisions, but what about for longterm social decisions affecting the welfare of future generations? If one accepts the principle of equal moral standing of all generations, there would seem to be little ethical justification for discounting future welfare. Frank Ramsay, the father of economic approaches to discounting and growth theory, maintained that it was “ethically indefensible” to treat the welfare of current and future generations differently. However, to the extent that future generations are expected to be better off than the current generation, discounting can be justified as an intergenerational application of equity weights. By the same principle, if environmental conditions worsen significantly and future generations are expected to be less well off than the present generation, this would imply a negative discount rate; that is, discounting of present benefits relative to future benefits. As recent debates on climate change policy aptly illustrate, there is little agreement among economists, or between economists and others, on discounting.¶ ¶ Uncertainty is a central issue in environmental management and policy. Uncertainty enters at various steps in the link between management and policy choices and eventual effects on the value of outcomes. There can be uncertainty about how changes in management or policy affect choices made by individuals and businesses (behavioral uncertainty), how changes in human actions affect the environment (scientific uncertainty), and how consequent changes in the environment will affect human well-being (value uncertainty). Recent work on the value of ecosystems services illustrates each of these uncertainties. For example, the Conservation Reserve Program, which pays landowners for taking land out of production and restores perennial vegetation, can shift patterns of land use and, in turn, result in changes in carbon sequestration, water quality, and habitat provision. Program participation and the provision of services depend on the choices of individual landowners, which are uncertain. There are key gaps in the science linking land use to service provision, such as how changes in land use will affect changes in carbon storage in soil or populations of particular species, making provision uncertain even when behavioral uncertainty is ignored. There are also key gaps in information pertaining to the link between services and benefits, making value uncertain even if provision is known. The value of water quality improvement, for example, depends as much on who uses the water and for what purpose as on the water quality itself.¶ ¶ Economic approaches typically use an expected utility framework to deal with uncertainty, where the value of each potential outcome is weighted by its probability of occurrence. This approach summarizes expected social net benefits across dimensions, as discussed above, but also across all possible outcomes that could occur given a management or policy choice. Using the expected utility framework, however, requires information about probabilities as well as values under all potential outcomes. For environmental issues involving complex system dynamics, such as climate change or the provision of ecosystem services, the list of possible outcomes in the future may be unknown, much less how to specify probabilities or likely values for each of these outcomes. Beyond the challenge of scientific uncertainty, there may also be uncertainty about the preferences of future generation and how they will value various outcomes. Inability to objectively quantify probabilities or values requires modifying expected utility, such as by using subjective judgments to establish probabilities or values, or setting bounds on decisions thought to pose unacceptable risks (for example, safe minimum standards). A particular challenge to making decisions under uncertainty arises from consideration of catastrophic outcomes. It is difficult to set probabilities on such events because they are rare, but small changes in assumptions about these probabilities can lead to large changes in policy advice.¶ ¶ People make mistakes, often in systematic and predictable ways. They tend to be overly optimistic, biased toward the present, and averse to losses. They have trouble thinking through complex problems, especially those with uncertainty. Given these facts, some analysts question the validity of using valuation studies that rely on observed choices, survey responses, or even deliberative processes among affected parties as an important input for setting environmental policy. The alternative, however, would be to delegate judgments about the relative value of outcomes to political leaders or scientific experts. Elected leaders, at least in theory, should reflect public values. Environmental scientists, however, have no special claim to understanding public values. In either case, there is no guarantee that top-down decisions will reflect the underlying values of the public at large any better than an imperfect reflection of values gathered through valuation exercises.¶ ¶ In principle, economic valuation methods can estimate value for all environmental attributes, either through inferences from observable behavior or responses in stated preference surveys. In practice, however, it is generally not possible to get a complete economic assessment of all environmental values. Some values connected with the environment are notoriously difficult to assess in monetary terms. For example, what is the monetary value of conserving species with important spiritual or cultural value? Some critics contend that individuals are cognitively incapable of evaluating tradeoffs between utilitarian goods (such as commodities and ecosystem services) and moral goods (such as the existence of a species). There are sharp disagreements between psychologists and economists—and among economists themselves—on this point. Even when it is possible in principle to estimate monetary values, there may be insufficient data to do so. Nevertheless, economic methods can provide evidence about the value of many important environmental attributes.¶ ¶ The value of valuation¶ ¶ Though difficult, collecting information about the relative values of alternative potential outcomes, in all of their multiple dimensions, is vital to good environmental management and policy decisionmaking. Setting environmental policy is not simply a matter of applying the best science, as important as that is. Environmental management and policy typically involve making decisions about tradeoffs among multiple objectives about which society cares. Making decisions about such tradeoffs involves making value judgments. If these judgments are to improve human wellbeing, they should reflect the underlying values of individuals affected by the policy.¶ ¶ Economic valuation methods applied in the context of environmental management and policy seek to inform decisionmaking by collecting information about the value of alternatives to affected individuals and then aggregating these values to determine an estimate of social net benefits. In simple benefit/cost analysis, the management or policy option with the highest social net benefits should then be the preferred option. The great advantage of the simple benefit/cost approach is that it incorporates economic valuation methods to represent values of the affected public, summarizes this information into a single ranking, and uses this ranking to help guide policy. Valuation information can also be combined with other decisions rules, such as those that minimize the risk of bad outcomes occurring.

#### Radical alternatives pave the way for authoritarian environmentalism.

Simon HAILWOOD, Philosophy @ Liverpool, ‘4 [*How to be a Green Liberal*, 2004, p. 155-156]

For me, the main worry emerging from such considerations is not that liberal societies are incapable of embracing meaningful change towards "eco-sanity", such that anarchism is the only hope. That hope seems more unrealistic - more utopian in that sense - than that of liberal reform. The main worry is that those from the authoritarian end of the spectrum will convince people that the liberal mainstream is inherently incapable of reform, and so must be replaced by more coercive forms of green politics, and people from the radical left will help with the critique, provide no realistic, non-utopian alternative themselves, thus leaving the door open for the "Leviathan or oblivion" school: nakedly authoritarian, radically hierarchical programmes regarding substantive political equality as an obstacle to progress. 10) Sometimes the point about the practical need to oppose the state is made with impatience about philosophy and abstract theorizing. This does not apply to Carter. But it does to Sale, for example, who denounces abstract philosophical discussion of ethical responses to the "environmental crisis", mainly because dithering over abstruse conceptual matters is to ignore the simple practical issue of scale. '°4 It would be better if those with such powerful rhetorical skills used them to further the green cause as continuous with furthering the liberal cause against more reactionary elements. Perhaps this is particularly true in the USA, clearly the main player in the scientific-industrial-capitalist global order and, in terms of environmental policy agenda, in various ways a beacon of unreconstructed unreason. That would probably be of greater practical benefit than giving fellow citizens of the modern world a collection of quasi-religiose blueprinting ideas coloured with the dismal tinge of an anxious instrumentalism. That is, it seems more practically feasible to seek to work with the flow of modernity in order to help channel it on to a course more respectful of nature. That it is, in principle, possible to do this within the terms of what is often taken to be the main political philosophy of modernity, has been the point of this book.

#### Command and control and regulations don’t set a price signal – invites litigation not innovation

Hsu 11 (Shi-Ling Hsu, Professor of Law at University of British Columbia – previously Associate Prof at George Washington School of Law, Senior Attorney & Economist for the Environmental Law Institute The Case for a Carbon Tax: Getting Past our Hang-ups to Effective Climate Policy, Island Press] Page 33-34)

In the United States, command-and-control regulation of green- house gas emissions would fall under the ambit of the Clean Air Act. The EPA, having issued the finding that greenhouse gas emissions,"18 "endanger" the "public health and welfare, is empowered to issue regulations, industry by industry, pertaining to greenhouse gas reduction measures that will be requited as a condition of a permit under the Clean Air Act. The Canadian counterpart to EPA, Environment Canada, issued an analogous finding far earlier (in 2005), that green- house gases fell within a statutory definition of "toxic substances," in that they, among other effects, "have or may have an immediate or long-term harmful effect on the environment or its biological diver- sitv."19 Environment Canada is thus also positioned to issue command- and-control-style greenhouse gas regulations, although other forms of regulation are possible under the Canadian statute.

One might think that command-and-control regulation, by potentially imposing the highest price on emitters, would be the most effective in re-ordering economies to be lower-carbon. The mistake is to equate an administrative price with a market price. Under command- and-control regulation, an administrative price is imposed by an agency. This price need not bear any relation to greenhouse gas emissions. Most often, the key consideration in setting standards is the state of technology of pollution abatement. If abatement technology seems "cheap" or "feasible," then it likely factors into the setting of an administrative standard. This is, in very rough measure, an agency's at- tempt to balance costs and benefits: if requiring abatement technology seems somehow "worth it," by an eyeball estimate of the compliance costs and environmental benefits, then it becomes law.

Over the past several decades, command-and-control regulation has been continuously and successfully attacked on efficiency grounds. The most common arguments ate that: (i) command-and-control regulation is clumsy, its uniformity of standards sometimes too stringent and sometimes too lenient, resulting in wasteful over-abatement m some cases and missed opportunities to abate more in other cases, (ii) fails to strike a correct balance between costs and benefits as administrative agencies make poor guesses about compliance costs, (iii) being a fixed administrative price, fails to offer incentives for emitters to find innovative ways of reducing emissions, and (iv) provides fodder for delay and litigation by well-funded and disgruntled industry groups.

These well-rehearsed criticisms are thoroughly treated elsewhere. I argue here that, in addition to these arguments, command-and- control regulation sends an uneven price signal to greenhouse gas emitters. While there is controversy over the amount of damages from greenhouse gas emissions, it is still worth making the price proportional to greenhouse gas emissions. Command-and-control regulation, be- cause it imposes a different requirement for each industry, imposes a different price for each industry. A price signal that is different from one industry to another is no price signal at all, if the goal is to sort industries by carbon emissions. If the price wanes from industry to industry, then the sorting is not accomplished by carbon emissions, but by an administrative agency. Moreover, command-and-control regulation has in the past generated so much litigation, the administrative "price" often does not emerge at all. Because the locus of so much decision making and adjudication is at the administrative agency, and be- cause these decisions and adjudications invariably invite comparisons with those that affect other industries, perceptions of unfairness (accurate or not) run rampant through command-and-control regulation. So not only does an uneven price signal frustrate greenhouse gas reduction objectives, but sometimes litigation or just the threat of litigation erases the price signal completely.

#### Social cost prevents green-paradox

Williams 16 (Roberton C. Williams, PhD in Economics from Harvard, Senior Fellow at the Tax Policy Center, June 2016, Environmental Taxation, <http://www.rff.org/files/document/file/RFF-DP-16-24.pdf>)

The intuition for these results is simple: although those adjustments are costly and affect the optimal quantity path for emissions (with higher adjustment costs implying a slower drop in emissions), the adjustment costs are not market failures, and thus they don’t influence the optimal corrective tax, which still equals marginal damage. Williams (2012) notes, however, that these adjustment costs can be important for the distribution of costs, and that although other approaches, such as direct transfers, would be more efficient, if such alternatives are not possible, a gradual phase-in could be useful for meeting distributional objectives.

In general, the efficient carbon tax will rise over time at the same rate as marginal damage. The IAWG estimates suggest that the SCC rises at roughly 1.5 to 2 percent per year (in real terms), which would imply a similar rate of increase for the efficient carbon tax rate. Moreover, Daniel et al. (2015) and Lontzek et al. (2015) each add uncertainty about climate change (including the risk of climate tipping points) to integrated assessment models and find that this implies a substantially different time profile for the SCC (and therefore for the optimal carbon tax), one that starts much higher and rises much more slowly than without any uncertainty. Indeed, Daniel et al. (2015) find this effect so strong that the SCC actually falls over time.

Sinn (2008) observes that a rapidly rising carbon tax could actually accelerate greenhouse gas emissions. Consider the problem than an owner of fossil-fuel reserves faces when a rising carbon tax is imposed., then it might make sense to leave the fuel in the ground forever. But if not, the sooner that fossil fuel is extracted and burned, the less tax will be charged on it—and if the tax is rising faster than the rate of interest, then even the present discounted value of the tax will be rising over time, thus providing an incentive to extract and burn the fuel sooner. This leads to a “green paradox”: a carbon tax that starts lower and rises rapidly can cause more emissions in the short run than if there were no tax at all. However, as noted earlier, estimates of the SCC rise substantially more slowly than the rate of interest, so a tax rising with the SCC won’t trigger the green paradox.15 Thus, the green paradox is a real worry only for taxes that rise much faster than the SCC.

Some carbon tax proposals set the carbon tax based on estimates of the SCC, 16 but most proposals include rates that rise more quickly than that. Many call for a tax that rises at 4 or 5 percent in real terms (e.g., Morris’s 2013 proposal for the Hamilton Project suggests a 4 percent real rise), and it is not uncommon to see proposals that rise far faster– than that (e.g., recent proposals from the Carbon Tax Center start at $10/ton and rise by $10/ton each year, an extremely fast rate of increase). There are three main reasons for this.

First, many of these proposals start at rates below the SCC and thus must rise more quickly to catch up. It would be more efficient to start at a higher rate and rise more slowly, but if distributional or political considerations prevent that, then starting low and rising quickly may be the next best alternative.

#### Social costs are key--starting low and increasing quickly CAUSES warming.

Jensen 15 (Svenn Jensen 15, assistant professor at the Norwegian University of Life Sciences; Kristina Mohlin, Economist at the Environmental Defense Fund; Karen Pittel, professor at the University of Munich and heads the Center for Energy, Climate and Exhaustible Resources at the Ifo Institute of Economic Research; Thomas Sterner is a professor at the University of Gothenburg and senior advisor to the Environmental Defense Fund; Summer 2015, “An Introduction to the Green Paradox: The Unintended Consequences of Climate Policies,” Review of Environmental Economics & Policy, Vol. 9, No. 2, p. 246-265) \*\*itallics in original

The green paradox refers to an outcome in which climate policies such as carbon taxes, which are aimed at reducing carbon emissions, instead have the opposite effect: emissions increase, at least for some period of time. The recent debate about the green paradox was initially triggered by Sinn (2008), who focused on one specific reason for this paradoxical outcome: the effect of climate policies on the long-run profits (more specifically, scarcity rents) that owners of fossil resources expect to earn from selling their resources *over time*. More recently, the term green paradox has been used to more broadly describe unintended consequences of climate policies.

For economists, the solution to environmental problems like climate change is a Pigovian tax (i.e., a tax that is equal to the social marginal damage from emissions) or an equivalent policy. However, for political reasons, it is likely that a carbon tax will not be set according to the Pigovian principle but rather will start low and then rise over time. A green paradox arises if this policy backfires and the environmental problem worsens. The culprit here is the reaction on the *supply side* of the fossil fuel market. Because fossil fuels are nonrenewable resources, their prices reflect not only the cost of production but also their scarcity. Thus, owners of fossil fuels enjoy scarcity rents and maximize their profits by deciding when to extract their coal, oil, or gas reserves. If a future tightening of climate policy threatens to decrease future scarcity rents, then to maximize profits, fossil fuel owners will decide to extract less in the future and extract more today instead. This forward shift in extraction is known as the weak green paradox. If, despite climate policy, resource owners can still extract almost all of their resources profitably, then the forward shift in extraction might actually increase cumulative damages—an outcome known as a strong green paradox.

# 2AC

**Case**

**Existential Risk**

**Avoiding tipping points is key to minimizing existential risks**

**Sprat 19** [David Spratt is a Research Director for Breakthrough National Centre for Climate Restoration, Melbourne, and co-author of Climate Code Red: The case for emergency action, and Ian T. Dunlop is a member of the Club of Rome, formerly an international oil, gas and coal industry executive, chairman of the Australian Coal Association, chief executive of the Australian Institute of Company Directors, and chair of the Australian Greenhouse Office Experts Group on Emissions Trading, “Existential climate-related security risk: A scenario approach,” BT Policy Paper, September 5, May 2019-2020]

By 2050, there is broad scientific acceptance that system **tipping-points** for the West Antarctic Ice Sheet and a sea-ice-free Arctic summer were passed well before 1.5°Cof warming, for the Greenland Ice Sheet well before 2°C, and for widespread **permafrost loss and large-scale Amazon drought** and dieback by 2.5°C. The “hothouse Earth” scenario has been realised, and Earth is headed for another degree or more of warming, especially since human greenhouse emissions are still significant.20 While sea levels have risen 0.5 metres by 2050, the increase may be 2–3 metres by 2100, and it is understood from historical analogues that seas may eventually rise by more than 25 metres. Thirty-five percent of the global land area, and 55 percent of the **global population**, are **subject to** more than 20 days a year of **lethal heat conditions**, beyond the threshold of human survivability. The destabilisation of the Jet Stream has very significantly affected the intensity and geographical distribution of the Asian and West African monsoons and, together with the further slowing of the Gulf Stream, is impinging on life support systems in Europe. North America suffers from **devastating weather extremes** including wildfires, heatwaves, drought and inundation. The summer monsoons in China have failed, and water flows into the great rivers of Asia are severely reduced by the loss of more than one-third of the Himalayan ice sheet. **Glacial loss reaches 70 percent** in the Andes, and rainfall in Mexico and central America falls by half. Semi-permanent El Nino conditions prevail. Aridification emerges over more than 30 percent of the world’s land surface. **Desertification is severe** in southern Africa, the southern Mediterranean, west Asia, the Middle East, inland Australia and across the south-western United States. Impacts: **A number of ecosystems collapse**, including coral reef systems, the Amazon rainforest and in the Arctic. Some poorer nations and regions, which lack capacity to provide artificially-cooled environments for their populations, become unviable. **Deadly heat conditions persist** for more than 100 days per year in West Africa, tropical South America, the Middle East and South-East Asia, which together with land degradation21 and rising sea levels contributes to perhaps **a billion people being displaced.** Water availability decreases sharply in the most affected regions at lower latitudes (dry tropics and subtropics), affecting about two billion people worldwide. **Agriculture becomes nonviable** in the dry subtropics. Most regions in the world see a significant drop in food production and increasing numbers of extreme weather events, **including heat waves, floods and storms.** Food production is inadequate to feed the global population and **food prices skyrocket**, as a consequence of a one-fifth decline in crop yields, a decline in the nutrition content of food crops, a catastrophic decline in insect populations, desertification, monsoon failure and chronic water shortages, and conditions too hot for human habitation in significant food-growing regions. The lower reaches of the agriculturally-important river deltas such as the Mekong, Ganges and Nile are inundated, and significant sectors of some of the world’s most populous cities — including Chennai, Mumbai, Jakarta, Guangzhou, Tianjin, Hong Kong, Ho Chi Minh City, Shanghai, Lagos, Bangkok and Manila — are abandoned. Some small islands become uninhabitable. Ten percent of Bangladesh is inundated, displacing 15 million people. According to the Global Challenges Foundation’s Global Catastrophic Risks 2018 report, even for 2°C of warming, more than a billion people may need to be relocated due to sea-level rise, and In high-end scenarios “**the scale of destruction is beyond our capacity to model**, with a high likelihood of human civilisation coming to an end”.22 National security consequences: For pragmatic reasons associated with providing only a sketch of this scenario, we take the conclusion of the ​Age of Consequences ‘Severe’ 3°C scenario developed by a group of senior US national-security figures in 2007 as appropriate for our scenario too: Massive nonlinear events in the global environment give rise to ​massive nonlinear societal events​. In this scenario, nations around the world **will be ​overwhelmed** by the scale of change and pernicious challenges, **such as pandemic disease**. The **internal cohesion** of nations **will be under great stress**, including in the United States, both as a result of a dramatic rise in migration and changes in agricultural patterns and water availability. The **flooding** of coastal communities **around the world**, especially in the Netherlands, the United States, South Asia, and China, has the potential to challenge regional and even national identities.​ **Armed conflict between nations over resources**, such as the Nile and its tributaries, **is likely and nuclear war is possible**. The social consequences range from increased religious fervor to ​outright chaos​. In this scenario, climate change provokes ​a permanent shift in the relationship of humankind to nature​’.23 (emphasis added)

**Yes Warming Extinction**

**New Card**

**Fawzy et al. 20** (Samer Fawzy, School of Chemistry and Chemical Engineering, Queen’s University Belfast, Ahmed I. Osman, School of Chemistry and Chemical Engineering, Queen’s University Belfast· John Doran, The Bryden Centre, Letterkenny Institute of Technology, Letterkenny, Ireland· David W. Rooney, School of Chemistry and Chemical Engineering, Queen’s University Belfast, “Strategies for mitigation of climate change: a review” Environmental Chemistry Letters https://doi.org/10.1007/s10311-020-01059-w)

Climate change impacts, risks and vulnerabilities

An understanding of the severe impact of climate change on natural and human systems as well as the risks and associated vulnerabilities is an important starting point in comprehending the current state of climate emergency. Changes in climate indicators, namely temperature, precipitation, seal-level rise, ocean acidification and extreme weather conditions have been highlighted in a recent report by the United Nations Climate Change Secretariat (UNCCS). Climate hazards reported included **droughts, floods, hurricanes, severe storms, heatwaves, wildfires, cold spells and landslides** (UNCCS 2019). According to the Centre for Research on the Epidemiology of Disasters (CRED), the world encountered 315 cases of natural disasters in 2018, mainly climate-related. This included 16 cases of drought, 26 cases of extreme temperature, 127 cases of flooding, 13 cases of landslides, 95 cases of storms and 10 cases of wildfire. The number of people affected by natural disasters in 2018 was 68.5 million, with floods, storms and droughts accounting for 94% of total affected people. In terms of economic losses, a total of $131.7 billion was lost in 2018 due to natural disasters, with storms ($70.8B), floods ($19.7B), wildfires ($22.8B) and droughts ($9.7B) accounting for approximately 93% of the total costs. CRED also provides data on disasters over the past decade, which shows even higher annual averages in almost all areas, except for wildfire cases. The economic losses attributed to wildfires in 2018 alone are approximately equal to the collective losses from wildfires incurred over the past decade, which is quite alarming (CRED 2019). Moreover, wildfires are a direct source of CO2 emissions. Although wildfires are part of the natural system, it is clear that human-induced emissions are directly interfering and amplifying the impact of natural system emissions. It is evident that human-induced climate change is a major driving force behind many natural disasters occurring globally.

Furthermore, climate risks such as temperature shifts, precipitation variability, changing seasonal patterns, changes in **disease distribution**, desertification, ocean-related impacts and soil and coastal degradation contribute to **vulnerability across multiple sectors in many countries** (UNCCS 2019). Sarkodie et al. empirically examined climate change vulnerability and adaptation readiness of 192 United Nations countries and concluded that **food, water, health, ecosystem, human habitat and infrastructure are the most vulnerable sectors under climate attack** while pointing out that Africa is the most vulnerable region to climate variability (Sarkodie and Strezov 2019). It is also important to note the interconnected nature of such sectors and the associated impacts.

The 15th edition of the global risks report 2020 prepared by the world economic forum thoroughly presented a number of climate realities, laying out areas that are greatly affected. The risks included loss of life due to health hazards and natural disasters, as well as **excessive stress on ecosystems**, **especially aquatic/marine systems**. Moreover, **food and water security are other areas that are highly impacted**. Increased migration is anticipated due to extreme weather conditions and disasters as well as rising sea levels. **Geopolitical tensions and conflicts are likely to arise as countries aim to extract resources along water and land boundaries.** The report also discusses the negative financial impact on capital markets as systematic risks soar. Finally, the impact on trade and supply chains is presented (WEF 2020).

An assessment, recently presented in an Intergovernmental Panel on Climate Change (IPCC) special report, covered the impacts and projected risks associated with 2 levels of global warming, 1.5 °C and 2 °C. The report investigated the negative impact of global warming on freshwater sources, food security and food production systems, ecosystems, human health, urbanization as well as poverty and changing structures of communities. The report also investigated climate change impact on key economic sectors such as tourism, energy and transportation. It is evident that most of the impacts assessed have lower associated risks at 1.5 °C compared to 2 °C warming level. We would likely reach 1.5 °C within the next 3 decades and increases in warming levels **beyond this point would amplify risk effects**; for example, water stress would carry double the risk under a 2 °C level compared to 1.5 °C. An increase of 70% in population affected by fluvial floods is projected under the 2 °C scenario compared to 1.5 °C, especially in USA, Europe and Asia. **Double or triple rates of species extinction in terrestrial ecosystems are projected under the 2 °C level compared to 1.5 °C** (IPCC 2018). **It can be simply concluded that the world is in a current state of climate emergency.**

**2AC – CP**

**2) Wealth concentration—leaving consumer welfare on the books devastates environmental sustainability**

Marshall **Steinbaum &** Maurice E. **Stucke 19**. Assistant Professor of Economics, University of Utah. Douglas A. Blaze Distinguished Professor of Law, University of Tennessee College of Law. “The Effective Competition Standard: A New Standard for Antitrust.” <https://marshallsteinbaum.org/assets/steinbaum-and-stucke-2020-effective-competition-standard-uchicago-law-review-.pdf>.

America, as legal and economic scholars are increasingly noting, has a market power problem. **The emerging evidence points to less competition, higher markups, greater concentration, and widening wealth and income inequality.** The current state of competition law benefits the select few—at the expense of nearly everyone else.

Our antitrust laws are supposed to deal with concentrated economic power. The problem is that the laws have been hijacked in two ways. First, ideologues narrowed the substance of antitrust from addressing a variety of goals to focusing solely on the concept of consumer welfare—namely, that harm to competition within the legal meaning of the antitrust laws consists solely of harm to consumers and their welfare, as measured almost exclusively by price and quantity effects in output markets. Second, some courts and enforcers went even further, declining to find antitrust liability in conduct that harms consumers on the theory that it carries other benefits, like long-run economic growth. Recent US Supreme Court decisions, including Ohio v American Express Co, and the US District Court’s decision to allow the AT&T/Time Warner merger illustrate how antitrust, under the prevailing consumer welfare standard, has been weakened and distorted beyond all recognition. Courts have elevated the burden of proof on the government and other antitrust plaintiffs to such an extent that the Sherman and Clayton Antitrust Acts have become unenforceable for many anticompetitive practices, other than cartels.

If the United States continues with a light-if-any-touch antitrust review of mergers and turns a blind eye to abuses by dominant firms, concentration and crony capitalism will likely increase, competition and our well-being will decrease further, and power and profits will continue to fall into fewer hands. Startups, small and midsize firms, and Americans more broadly—as workers, consumers, and democratic citizens—will be left to the beneficence or spite of a few powerful, but arbitrary, corporations.

**This trend is reversible if we restore antitrust as a guarantor of effective competition**. To tackle today’s market power problem, **we offer an effective competition antitrust standard to replace the prevailing consumer welfare standard**, which courts and scholars have interpreted differently (and at times inconsistently). The effective competition standard restores the primary aim of the antitrust laws—namely, the dispersion and deconcentration of significant private power wherever in the economy it is to be found, including throughout supply chains and in the labor market.

**3) Mergers—they’ll drive up prices through consolidation EVEN IF taxes happen—the court would agree**

**Hanley 21** (Daniel. A policy analyst at the Open Markets Institute. "Slate - How Antitrust Lost Its Bite" Open Markets Institute. 4-21-2021. https://www.openmarketsinstitute.org/publications/slate-how-antitrust-lost-its-bite)

Antitrust is about determining and allocating the rights, privileges, and duties of all economic actors. When Congress **originally enacted** the Sherman Act, the law was intended to protect **consumers**, **workers**, and **democracy** from excessive concentrations of corporate power. Because of this reality, it is an inherently political area of law. The shift toward rooting it in economics, and making its application substantially more obscure than a bright-line rule, is effectively a means by the **judiciary** to **strip** the historical foundations of antitrust from the record and instead substitute its **own judgment** on what the priorities are for the economy and how it should be structured.

When combined with the rule of reason, the judiciary’s **consumer welfare** framework effectively **erases Congress’ intent** for the antitrust laws to operate as a “comprehensive charter of **economic liberty**” that “does not confine its protection to consumers, or to purchasers, or to competitors, or to sellers.” Such values are best determined by members of the elected legislature rather than **unelected judges**, a point ironically acknowledged by the Supreme Court in 1972.

**Lower** federal **courts** today continue to push the **c**onsumer **w**elfare **s**tandard even further by, in **violation** of controlling Supreme Court precedent, weighing the competitive harms of a dominant firm’s conduct against one group to the benefits provided to another group. In ongoing litigation against the NCAA that was heard by the Supreme Court last week, the district court judge ruled that the NCAA’s compact with universities to set a ceiling on the amount of compensation that student-athletes can receive is legal because of the reputed benefit consumers derive from watching athletes knowing there is a cap on their compensation. The court employed the rule of reason to arrive at this result. In an alternative enforcement regime, the NCAA would be a per se illegal employer cartel that is suppressing workers’ wages.

Comprehensive empirical analysis has revealed that the rule of reason has been a rubber stamp for even the most egregious antitrust conduct. A 2009 analysis revealed that 97 percent of cases analyzed under the rule of reason result in victories for defendants. That means corporations are effectively shielded from most antitrust violations.

Part of the reason for such a skewed result in favor of antitrust defendants is that dominant firms have access to high-salaried economists that are able to manipulate analyses to mask the corporation’s conduct to look like it is operationally efficient instead of engaging in predatory practices. Such a situation also deters antitrust litigation because a plaintiff will also have to incur the cost of an economist—which can cost several thousand dollars and, in some cases, several hundred thousand dollars. Thus, the battle over the legality of a business tactic under a consumer welfare framework and rule of reason legal analysis depends on access to immense **financial capital** and **judicial appeasement** of policies that favor **corporate integration** rather than common notions of fairness, equity, and deconcentrated markets—which was the **original purpose** of the antitrust laws.

Despite controlling Supreme Court precedent prohibiting the use of economics in certain antitrust violations, courts now routinely use it to justify corporate consolidation. For example, in the context of merger analysis, the **economization** of **antitrust** has led courts to believe and depend on theoretical assumptions on how mergers are beneficial for society and consumers. In the case of AT&T and its pursuit of acquiring Time Warner in 2018, the corporation stated its merger would produce efficiencies and save customers money. District Court Judge Richard Leon was persuaded by AT&T’s statements holding that vertical integration is able to shrink its costs and will “lead to lower prices for consumers.” But such assumptions have been categorically repudiated by researchers. In one example, the economist John Kwoka found that 80 percent of studied **mergers** led to **high prices** and even **reduced output**. Other studies have found equivalent results. In the context of AT&T, subsequent evidence showed that AT&T did raise prices on consumers.

As Congress considers enacting new legislation, it must start by **reclaim**ing **control** over antitrust by enacting laws with **clear rules** that could **deter** exclusionary **conduct** and greatly **simplify** the **litigation** process for plaintiffs. Moreover, instead of just restoring many of the historical bright-line rules that the judiciary has eroded over the last 60 years, new laws should go further to ensure that markets remain deconcentrated and to promote economic fairness. For example, Congress could enact strict prohibitions on firms entering certain lines of business, such as AT&T being prohibited from entering the computer industry in 1956, or ban the use of specific competitive practices outright, such as **noncompetes** that **restrict** the mobility of **workers**. Rules like these ensure the markets are structured by **publicly accountable** institutions to incentivize socially beneficial corporate conduct, such as investments in research and development and product quality.

Importantly, rules-based laws would also ensure the judiciary is adhering to **Congress’ directive** to keep markets deconcentrated and acknowledge that the **judiciary** is **not a** reliable **safeguard** for smaller independent firms and workers who often do not have access to significant amounts of capital to litigate an antitrust lawsuit. In fact, in commonly applied rules for how judges interpret Congress’ laws, the judiciary views **ambiguity** as an **opportunity** to **fill** any legal **gaps** with its interpretation and ideology.

History has consistently shown that only **bright-line rules** will lead to an **effective** and vigorous enforcement environment, as they do in other areas of law, and **prevent** the **judiciary** from favoring dominant economic enterprises and **distorting** the **antitrust** laws to preference increased concentration. The Supreme Court’s original development of the rule of reason and its subsequent gutting of the enforcement of the Clayton Act in the 1930s is particularly illustrative of why bright-line rules are necessary.

**4) Regulations bad**

Neil **Chilson 20**. J.D., GW Law; M.S., computer science, UIUC; B.S., computer science, Harding University. “Does Big Tech Need Its Own Regulator?”. GAI Digital Report. Aug 25 2020. https://gaidigitalreport.com/2020/08/25/does-big-tech-need-its-own-regulator/

B. A New Regulator Would Be Unnecessarily Expensive

Creating an entirely new agency would also be costly in practical dollar terms. Many of these are straightforward administrative costs. Compared to enhancing an existing agency, creating a new agency would have significant start-up costs as well as duplicative ongoing expenses. These costs can be substantial. Money that could be allocated to substantive roles would instead pay for staff and resources that support the substantive work at the new agency. (For example, around 20% of Federal Trade Commission employees are support or management.[120]) And the flip side of starting with a clean slate is that a new agency has little or **no experience to draw upon**. To the extent the experience that is missing is related to the specific new problems the agency is intended to solve, the new agency is not disadvantaged relative to other agencies. Yet there are many other **types of experience**, including **administrative procedures, human relations, press relations, litigation**, and others where a new agency will need to build institutional competencies.

More substantively, creating a new agency with a mission and jurisdiction that overlaps with one or more **existing agencies** will incur several other types of costs. If both agencies **retain jurisdiction**, there will be **coordination costs** on future investigation, enforcement, and regulation. If the new agency displaces the old agency’s jurisdiction, there will be the cost to transfer knowledge and talent from the old agency to the new one.

This overlap cost is highest for the broad proposals like Feld’s and the Stigler Center, which envision a new agency that comprehensively regulates the subject companies on everything from privacy to antitrust to content moderation. Given that there are already agencies that specialize in many of those issues, the overlap will be **significant** and eliminating or **accommodating it will be costly**.

For example, the Federal Trade Commission has for twenty years been the primary federal protector of consumer privacy, bringing hundreds of enforcement actions, including against many of the biggest tech companies.[121] If, as the Stigler Center report suggests, a new regulator would address these issues for the biggest tech platforms, there would be a complicated series of negotiations necessary to hand off governance from the FTC to the new agency. Transferring personnel from the FTC to a new agency would create its own problems. For example, because the FTC is responsible for enforcing privacy **across the entire economy,** **cannibalizing its staff** to create an agency focused only on the privacy of some subset of internet companies would leave the FTC **shorthanded** as it protects privacy in every other sphere of the economy.

Conclusion

I noted early on in this chapter that these proposals were generally ambivalent about creating a new agency. It turns out this is for good reason: there are few benefits and significant risks. A new agency may have a mild comparative advantage in procedural expertise if an entirely new regulatory approach is adopted. Still, it will be very difficult to find that **expertise** and establish a focused mission for a regulator of such a diverse and dynamic collection of companies. To the extent additional expertise is needed for regulation, it can more easily and more efficiently be placed in **existing** agencies, especially **generalist agencies**. Perhaps most importantly, a new agency specialized on big tech would be more vulnerable to capture than existing generalist agencies. And finally, the practical costs of creating and maintaining a new agency would be higher than enhancing existing agencies.

In short, “big tech” might need new regulation; but it does not need a new regulator

**Biz Con**

**2AC – Recession Now**

**Oil will peak in 2025, triggering a global transition to renewables.**

Sophie **Mellor 21**, writer for Fortune, 10/13/2021, “Good news: Oil demand to peak by 2025. Bad news: renewables are vastly underfunded,” https://fortune.com/2021/10/13/oil-demand-peak-2025-world-invest-trillions-renewables-iea-world-energy-outlook/, pacc

**Oil demand** will **peak in 2025**, years earlier than previously expected, the **I**nternational **E**nergy **A**gency said in its World Energy Outlook on Tuesday.

But while the **transition** away from oil is arriving **sooner than expected**, IEA executive director Fatih Birol warned that this year will see the second-largest annual increase in CO2 emissions in history, leading to an “unsustainable economic recovery” from COVID-19.

The IEA's call of peak oil comes as **fossil fuel prices spike** across the globe. A **surge in demand** caused by economies leaving **COVID**-19 **lockdowns** has coincided with **sluggish supply** resulting from **kinked supply chains** and **low investment** in **oil and gas production**—the effects of nations’ green pledges and a price crash in recent years. At more than $80 a barrel, oil is near a seven-year high, and gas prices in the U.S. have tripled in the past 18 months.

**Recession is inevitable – fed will raise rates now**

Christopher **Rugaber 3/31**/22, AP reporter, “A key inflation gauge sets 40-year high as gas and food soar,” AP News, apnews.com/article/business-prices-inflation-c9d81525f808b25ecd37e5c91d6bb0e5

WASHINGTON (AP) — An inflation gauge that is closely monitored by the Federal Reserve jumped 6.4% in February compared with a year ago, with sharply higher prices for food, gasoline and other necessities squeezing Americans’ finances.

The figure reported Thursday by the Commerce Department was the largest year-over-year rise since January 1982. Excluding volatile prices for food and energy, so-called core inflation increased 5.4% in February from 12 months earlier.

Robust consumer demand has combined with shortages of many goods to fuel the sharpest price jumps in four decades. Measures of inflation will likely worsen in the coming months because Thursday’s report doesn’t reflect the consequences of Russia’s invasion of Ukraine, which occurred Feb. 24. The war has disrupted global oil markets and accelerated prices for wheat, nickel and other key commodities.

Squeezed by inflation, consumers increased their spending by just 0.2% in February, down from a much larger 2.7% gain in January. Adjusted for inflation, spending actually fell 0.4% last month. The decline partly reflected a shift away from heavy spending on goods to a focus on services, such as health care, travel and entertainment, which consumers had long avoided during the worst of the pandemic.

Spending on such services grew 0.6%, the most since July, while purchases of autos, furniture, clothes and other goods dropped 2.1%. Many economists had previously suggested that a shift away from goods purchases might loosen supply chain snarls and cool inflation. But prices are still rising rapidly for goods, including a 1.1% increase in February.

Americans’ overall incomes rose 0.5% in February, the highest gain since November and up from just 0.1% in January. Wages and salaries jumped 0.8%, the most in four months.

Businesses have been raising pay to attract and keep employees — a trend that is benefiting workers but also giving employers cause to raise prices to offset their higher labor costs. That cycle is helping fuel inflation.

Last month, food costs climbed 1.4%, the most in nearly two years. Energy costs spiked 3.7%, the biggest such increase since October.

The Federal Reserve responded this month to the inflation surge by raising its benchmark short-term interest rate by a quarter-point from near zero, and it’s likely to keep raising it well into next year. Because its rate affects many consumer and business loans, the Fed’s rate hikes will make borrowing more expensive and could weaken the economy over time.

Michael Feroli of JPMorgan is among economists who now think the Fed will raise its key rate by an aggressive half-point in both May and June. The central bank hasn’t raised its benchmark rate by a half-point in two decades, a sign of how concerned it has become about the persistent surge in inflation.

On a monthly basis, prices rose 0.6% from January to February, up slightly from the previous month’s increase of 0.5% and matching the highest monthly figure since 2008. Core prices rose 0.4%, down from a 0.5% increase in January.

Gas prices have soared in the past month in the aftermath of Russia’s invasion, which led the United Kingdom and the Biden administration to ban Russia’s oil exports. The cost of a gallon of gas shot up to a national average of $4.24 a gallon Wednesday, according to AAA. That’s up 63 cents from a month ago, when it was $3.61.

Michael Pearce, an economist at Capital Economics, estimated that the gas price spike will cost Americans an annualized $100 billion in March.

Americans will likely dig into their savings to cover the higher gas costs in the near term, he said. “But if higher gasoline prices are sustained, that will eventually weigh on spending in other areas.”

On Thursday, President Joe Biden is expected to [order the release of up to 1 million barrels of oil](https://apnews.com/article/russia-ukraine-biden-business-europe-3e1808077371b88ae043c86584763afd/)a day from the nation’s strategic petroleum reserve in an effort to reduce gas prices.

Thursday’s report follows a more widely monitored inflation gauge, the consumer price index, that was issued earlier this month. The CPI jumped to 7.9% in February from a year ago, the sharpest such increase in four decades.

Many economists still expect inflation to peak in the coming months. In part, that’s because price spikes that occurred last year, when the economy widely reopened, will begin to make the year-over-year price increases appear smaller. Yet Fed officials project that inflation, as measured by its preferred gauge, will still be a comparatively high 4.3% by the end of this year.

**Biz con is the lowest it’s ever been in 30 years.**

**Kelley** **3-2**-20**22** (Matt Kelley joined the Radio Iowa news team in December of 1996 and has served as the morning anchor since January of '97. Matt is a Davenport, Iowa, native and a 1987 University of Iowa graduate. "Due to Ukraine invasion, business confidence hits lowest level in almost 30 years," <https://www.radioiowa.com/2022/03/02/thanks-to-ukraine-business-confidence-index-hits-lowest-level-in-almost-30-years/)sw>

Iowa’s economy showed clear signs of improvement during February, according to the monthly Creighton University survey, but **the Russian invasion of Ukraine pushed the survey’s business confidence index to its lowest level since the survey began in 1994**. Creighton economist Ernie Goss says the Midwest economy is “up briskly” but business leaders are still dealing with familiar challenges. “More than four out of ten of the supply managers ranked supply disruptions,” Goss says. “Of course, with what’s going on in Ukraine now, you’d have to double that, I think, with big concerns. More than one-third indicated that finding and hiring qualified workers was their biggest challenge.” Also, nearly one in five respondents listed “rising input prices” as their top challenge. While employment figures were up for February for the region, Goss says they’re still down about two-percent compared to pre-pandemic levels, dating back to February of 2020. “We asked the supply managers about what they expect in terms of a raise for this year — how much of a change in pay do you expect this year? On average, about 3%,” Goss says. “**That’s very, very, I would call it modest or even weak, given what’s going on in terms of the overall demand for labor.”**



**2AC – Thumpers**

**FTC is massively ratcheting up enforcement actions---creates business minefields**

Colin **Kass 1-4** is a partner and co-chair of the antitrust group at Proskauer Rose LLP, How To Navigate The Coming Antitrust Policy Tests, Law360 Expert Analysis – Corporate, L/N

2021 will be remembered in antitrust law. Not since **the 1970s** has there been **so much chatter** over the fundamental purposes of antitrust policy, or such potential for **actual sea change**. Half a century ago, Robert Bork and the Chicago School argued that antitrust law had lost its way and should focus on consumer welfare. Bork's view was that antitrust enforcement was getting in the way of legitimate competition, and the U.S. Supreme Court was quick to embrace the consumer welfare standard. Now, Federal Trade Commission Chair Lina Khan and the new Brandeisians argue that antitrust law has again lost its way and must shed the constraints of the consumer welfare standard. Khan's view is that consolidation has gone unchecked in the American economy, resulting in structural harms to competition that the consumer welfare standard is unable to address. She believes the agency has historically defined markets too narrowly to effectively police broader economic impacts of sustained consolidation, and favored gerrymandered remedies over outright challenges. Khan has imposed **sweeping changes** aimed at **chilling merger activity** and shaping the future of **merger** enforcement. Against **dissents from** Republican Commissioners Christine Wilson and Noah Phillips, and **charges of going rogue** from the U.S. Chamber of Commerce, the FTC **stripped** away **long-standing exemptions** and interpretations that streamlined merger review. The action came in response to an unprecedented merger wave - 3,845 acquisitions filed with the agencies in the first 11 months of 2021, substantially more than most full years. The changes are **having an impact**, making investigations more **intrusive**, **lengthy** and **less predictable**. Still, policy precedes practice, and while the FTC has been heavy on policy, it has yet to test those policies in the courts. The tests may come in the next year. Meanwhile, we can also expect the FTC and the U.S. Department of Justice under Assistant Attorney General Jonathan Kanter's leadership, to not only continue the trajectory of policy changes but also begin the task of entrenching them in agency practice. Here, **we review the year in FTC policy moves**, what they mean and how to navigate **the newly laid minefields. Warning Letters After the Close of HSR Waiting Periods** In an **unprecedented** move, the FTC recently began issuing letters to parties in transactions the agency may intend to investigate after expiration of the **H**art-**S**cott-**R**odino **A**ct waiting period. According to the agency in an Aug. 3, 2021, blog, this is the result of "a tidal wave of merger filings that is straining the agency's capacity to rigorously investigate deals ahead of the statutory deadlines." Wilson, however, said on Twitter on Aug. 12, 2021, that she was "gravely concerned that the carefully crafted HSR framework is suffering a death by a thousand cuts," following her Aug. 9 statement that said "For the HSR Act to retain meaning, it cannot be that the FTC will keep merger investigations open indefinitely, as a matter of routine, every time there is a surge in filings." The FTC's jurisdiction to review transactions is independent of the HSR reporting requirements, with the power to investigate any transaction before or after closing, whether subject to reporting or not, and whether the HSR waiting period has expired or not. There are examples of the agencies reviewing nonreportable transactions, and even investigating reportable transactions after expiration of the HSR waiting period, though they are rare. The warning letters do not assert new authority not already existing under law, but notifying parties that an investigation may remain open post-HSR clearance implicates finality and certainty of investigations, but not every transaction gets a warning letter. Those with no issues go through unscathed. Those with clear issues are investigated. The deals that might pose some issues, but not enough to draw an investigation, might trigger the newly minted warning letter. To show the letters have teeth, the FTC will sooner or later have to challenge a deal post-HSR waiting period, putting it to the test before courts, where it is likely to face hurdles to the extent the deal did not warrant a full investigation in the first instance. Still, the practice is ushering a change in how provisions are drafted in deal documents. A buyer asserting that it is not required to close over the - arguably - still-pending investigation may face an uphill battle depending on how the closing conditions are drafted, for they typically point to the expiration of applicable waiting periods and not the absence of potential ongoing investigations or issuance of warning letters. So careful buyers seek closing requirements that no investigations are threatened and that no warning letters have been issued. Recent examples include the 3D Systems Corp.'s agreement to acquire Oqton Inc. and Universal Corp.'s agreement to buy Shank's Extracts Inc. The parties' agreements provided that if a warning letter is issued, the investigation would be treated as closed 30 days after receipt of such letter. Buyers may want to consider similar provisions until more emerges on how the FTC will proceed with warning letter transactions. **More Intensive Merger Investigations** The FTC announced plans on Aug. 3, 2021, to make the second request process both "more streamlined and more rigorous." The changes include the following: Merger investigations will address additional potentially impacted competition, such as labor markets, cross-market effects, and the impact on incentives of investment firms. Modifications to second requests will be more limited. The agency will require parties to provide more information relating to their use of e-discovery in responding to the investigation. Additional information will be required with respect to privilege claims. The FTC said these changes are in recognition that "an unduly narrow approach to merger review may have created blind spots and enabled unlawful consolidation." Possibly in response to such steeped up investigative techniques and resistance to find common ground with merger parties, Sportsman's Warehouse Holdings Inc. and Great Outdoors Group LLC abandoned their proposed merger at the end of 2021, citing indications that the FTC would be unlikely to approve the outdoor sporting goods transaction. The changes, though, do little to streamline the second request process. They make it more complex, burdensome and time-consuming. Perhaps most **notable** is the use of the process to delve into **labor markets**. Republicans Wilson and Phillips argued that FTC leadership may have themselves to blame for the merger review crunch, saying in a Nov. 8, 2021 statement: If the agency is lowering thresholds of concern and broadening theories of harm, this certainly would explain why the FTC is unable to conduct merger reviews in a timely manner while our sister agency remains capable of addressing the same increased filing volumes within statutory timeframes. More Onerous Consent Decree Provisions Where merger parties settle a challenge rather than litigate, the consent decree process sets out the parties' obligations. Historically, such consent decrees, among other things, required parties to notify the agency prior to certain future acquisitions. The FTC **rescinded** this long-standing policy, noting that it: Returns now to its prior practice of routinely requiring merging parties subject to a Commission order to obtain prior approval from the FTC before closing any future transaction affecting each relevant market for which a violation was alleged. The agency will also require divestiture buyers to agree to prior approval for any future sale of the assets they acquire. Khan explained the move was to avoid "drain[ing] the already strapped resources of the Commission" on "repeat offenders." The FTC included the new provision in its Oct. 25, 2021, consent decree settling a proposed transaction by DaVita Inc., a dialysis service provider. DaVita is now required to receive prior approval from the FTC of 10 years before any new acquisitions, a dialysis clinic business in Utah being in question. This is a **significant change** and will **chill** not only settlements with the FTC, but **also M&A transactions** at the outset where such provisions are commercially untenable. Wilson and Phillips noted in dissent that "a prior approval requirement imposes significant obligations on merging parties and innocent divestiture buyers." The FTC clearly aims to **chill** M&A activity, and merger agreements that provide more optionality to abandon deals will become more common, though parties intent on pushing their deal through may see a consent decree with 10-year approval provisions as less palatable than litigating, and force the FTC to cave or go to court. **Withdrawal of the Vertical Merger Guidelines** In another party-line vote, the FTC withdrew the **vertical merger guidelines**, which were issued just last year. Democratic commissioners criticized the guidelines as based on "unsound economic theories that are unsupported by the law or market realities," and reflecting a "flawed discussion of the purported procompetitive benefits (i.e., efficiencies) of vertical mergers." Vertical transactions are between firms at different levels in the supply chain. Historically, antitrust enforcement of exceptional vertical mergers were rare and difficult given the previously presumed efficiencies. Vertical mergers can eliminate double marginalization, in which firms at each level mark up prices above marginal cost. Elimination of one markup results in lower prices and can be pro-competitive. Khan, however, argues the guidelines' "reliance on [elimination of double marginalization] is theoretically and factually misplaced." Going forward, "the FTC will analyze mergers in accordance with its statutory mandate, which does not presume efficiencies for any category of mergers." This too drew a strong rebuke from the Republican commissioners, who said "The FTC leadership continues the disturbing trend of pulling the rug out under from honest businesses and the lawyers who advise them." The commission's challenges to chipmaker Nvidia Corp.'s $40 billion acquisition of U.K. chip design provider Arm Ltd. alleged the transaction would combine one of the largest chip producers with a firm that has essential design technology - critical inputs. In a Dec. 2, 2021, statement, the FTC said the acquisition "would distort Arm's incentives in chip markets and allow the combined firm to unfairly undermine Nvidia's rivals." The FTC's lawsuit should "send a strong signal that we will act aggressively to protect our critical infrastructure markets from illegal vertical mergers that have far-reaching and damaging effects on future innovations," FTC Bureau of Competition Director Holly Vedova said in the statement. Given that vertical mergers will be closely scrutinized as a matter of course, parties need to consider concerns the FTC may identify and prepare strong counters - other than elimination of double marginalization. For example, parties could argue that the transaction expands access to products and expands consumer choice. Parties willing to go the distance with a vertical merger should also remain mindful that the guidelines have never been cited or relied on by a court, and it is the established jurisprudence on vertical transactions that will carry the day. **Rescinding the Consumer Welfare Standard** In July 2021, the FTC rescinded its policy interpreting its statutory mandate to root out "unfair methods of competition" as coterminous with **promoting consumer welfare** under the Sherman and Clayton Acts. In a July 19, 2021, statement, the FTC called the rescinded policy was "bind[ing] the FTC to liability standards created by generalist judges in private treble-damages actions under the Sherman Act." Still, the consumer welfare standard has been entrenched in antitrust jurisprudence for decades, and the FTC cannot change that. The immediate impact is thus more likely to be seen in administrative actions in the FTC's own court. In a dissenting statement, Republican commissioners countered that FTC leadership does not propose a replacement standard and "that efforts to distance Section 5 from the consumer welfare standard are a recipe for bad policy and adverse court decisions," adding that, "unlike those in academia, the FTC will have to defend its interpretation of Section 5 in court, where it should expect a hostile reception if it cannot offer clear limiting principles." **Labor Market Scrutiny** Government investigations and private litigation relating to **no-poach** and **wage-fixing agreements** are **ballooning**, and criminal indictments are now a reality. Encouraged by President Joe Biden's executive order on competition, the FTC and the DOJ have doubled down on investigating labor markets. **Merger investigations** now routinely include requests for employee compensation data, inquiries regarding noncompete and nonsolicit agreements, and are more likely to delve into both the merger's effects on labor, and the parties' prior labor practices. The DOJ's challenge to Penguin Random House LLC's proposed acquisition of Simon & Schuster Inc. focuses on harm to the labor market - for authors. In his first public comments, the DOJ's Kanter said: We will fight for American workers including in connection with illegal mergers that substantially lessen competition for laborers. Going forward, you can expect efforts like these not only to continue but to increase. Khan echoed the sentiment, saying: Competition and conduct can hurt us not just as consumers who buy products from a shrinking number of large firms, but also as workers who are especially vulnerable and subject to the whims of a boss we can't equally or practically escape. Antitrust compliance policies now must extend to addressing practices with respect to employee recruiting and compensation. Antitrust compliance training must extend beyond the sales team, and include HR. Businesses are reviewing and revising their compliance policies, and beginning new antitrust training programs to ensure that they are not subjected to claims of depressed wages and barriers to worker mobility. Looking Ahead to the Year to Come The year 2021 has been like no other for antitrust enforcement. While the FTC's various policy pronouncements are clearly intended to chill merger activity, it does not appear to have had the intended outcome. HSR filings continue at off-the-charts levels. Amid this strong showing of M&A activity, the advice is to keep moving transactions forward, stay ahead of the new tacks the agencies might take, and account for newly injected risk and uncertainty. Looking ahead, **expect another energetic year**. So far, the FTC's policy changes have not seemed to slow the pace of merger activity, but the frenzy cannot last forever. Nonetheless, merging parties are now going into the merger review process with **eyes open**, knowing **it is likely to be more intense and uncertain**. Parties to vertical transactions will no longer ride easy on double marginalization theories, and parties will be handing over their HR and payroll files. At the same time, the heavy resistance to these changes will continue, if not strengthen, and will play out not just in courts and the halls of Congress, but will also spill into the political mainstream. The U.S. Chamber of Commerce is planning to spend hundreds of thousands of dollars on an ad campaign across 10 states denouncing what it calls the FTC's overstepping of regulatory authority. And the Americans for Prosperity Foundation, an advocacy group backed by the Koch family, is starting to lay the groundwork of a challenge to the FTC's merger policy changes. It recently filed a Freedom of Information Act suit seeking communications and directors related to the decisions. Yes, 2021 will be remembered in antitrust law. But **the real show may be 2022.**

**1---Maritime antitrust**

Eric **Kulisch 1-10**, Air Cargo Editor, **Mission creep**: Why the FTC is investigating retail supply chain distortions, https://www.freightwaves.com/news/mission-creep-why-the-ftc-is-investigating-retail-supply-chain-distortions

The **F**ederal **T**rade **C**ommission’s mission is to protect consumers and businesses against anticompetitive, deceptive and unfair business practices, but **historically** it hasn’t **touched** ocean **shipping**. Overseeing competition in sea freight is the primary jurisdiction of the Federal Maritime Commission. The Department of Justice gets involved if international container lines engage in anticompetitive behavior outside antitrust immunity that allows discussion about rate guidelines for individual service contracts and vessel sharing. **Yet** **the FTC**, in late November, launched a study into the **supply chain operations** of nine major retailers, wholesalers and packaged goods suppliers. The companies were asked to turn over detailed information to help the agency determine whether steps they took to ensure adequate inventories exacerbated widespread transportation bottlenecks, supply shortages and inflationary pressures in ways that harmed smaller companies and consumers. The responses are due Wednesday. The **probe** is part of **a Biden administration** effort to show that it is, at least symbolically, focused on issues driving up prices for food, gas and merchandise, which are hitting people in their pocketbooks and contributing to lower confidence in the economy and the president. And torrid inflation — consumer prices jumped 6.8% in November, the biggest increase in 39 years — is giving the Biden team an opportunity to initiate a competition agenda aimed at reducing market consolidation based on a narrative, advanced by progressives, that inflation is caused by greedy big business. Today’s inflation is the result of a bullwhip recovery from the pandemic, government stimulus programs that allowed people to order more goods, supply chain bottlenecks and labor shortages, according to economists. Supply chain impediments are the result of port congestion and tight ocean capacity in the face of record U.S. import demand, which has resulted in a tenfold increase in shipping rates from Asia compared to pre-pandemic levels. The White House recently claimed its Port Action Plan was responsible for reducing shipping rates and backlogs at the ports of Los Angeles and Long Beach, although short-term container rates are rising again and logistics experts say there hasn’t been any material improvement in cargo processing. Critics say **the FTC’s scope expansion** is **misguided**. Retailers are “the wrong target,” said Steve Lamar, president of the American Apparel & Footwear Association. “That’s not where the bad behavior is being exhibited. It’s at the carrier level. And if you are really looking at trying to reduce inflationary pressures, the administration has a handy tool they can use” — removing and refunding tariffs on imports from China to offset harmful freight costs. Lawrence Summers, the head of the National Economic Council under President Barack Obama and Treasury secretary for President Bill Clinton, said on Twitter, “The emerging claim that antitrust can combat inflation reflects ‘science denial.’ … Increases in prices and profit margins are what happens when competitive industries experience increases in demand. That is what calls forth increased supply. This is how a market system operates.” Other financial experts argue concentrations of power allow companies to arbitrarily price goods much higher than they would in a free market. In their view, inflation is the rate of change in prices and oligopolies more easily pass through higher costs, so antitrust action can lower prices. **In the crosshairs** The FTC supply chain review came after the White House, and port envoy John Porcari in particular, pushed federal agencies to find tools they could leverage to alleviate chokepoints, said a Washington trade attorney who asked not to be named to protect access to the executive branch. Without a jurisdictional hook to investigate the ocean freight industry, Chair Lina Khan — an advocate for curbing the dominance of big companies — told the White House the FTC could look at the trickle-down impact on the economy from how big companies are dealing with port congestion and downstream distribution bottlenecks, according to the source. The commission eventually invoked a provision of **the FTC Act**, which authorizes it to conduct wide-ranging studies that don’t have a specific law enforcement purpose. The order, which gives the companies 45 days to respond, was fine-tuned after the two Republican members of the commission expressed concern about jurisdictional overreach. The National Retail Federation expressed concern that the FTC inquiry is a distraction from investigating the behavior of ocean carriers and is an administrative headache for the companies involved. “The current supply chain crisis is affecting companies large and small who are being impacted by disruptions at every stage of the supply chain. Focusing on the practices of a few U.S. retailers who have been trying to address the shipping crisis will not help to solve the issues that persist today,” Jonathan Gold, the NRF’s vice president for supply chain and customs policy, said at an open FTC meeting on Dec. 16. Importers face a multitude of challenges, including shortages of materials; COVID outbreaks that threaten foreign factories and ports; shortages of empty containers and chassis to carry them over the road; and marine terminals restricting returns of empty containers, according to trade experts. Cargo owners complain ocean carriers regularly renege on container contracts so they can charge other shippers higher rates on the spot market; don’t guarantee space on their vessels even when premiums are paid; refuse to negotiate service contracts; limit the amount of capacity they provide shippers; and unfairly charge rent for port storage and late return fees when full terminals are not accepting truck appointments. Many retailers placed orders earlier, used alternate vendors and ports, and moved more cargo by air to get goods to stores in time for the holidays, but are still experiencing delays. Gold said the NRF supports White House efforts to collaborate with supply chain stakeholders on congestion solutions, FMC investigations into ocean carrier and terminal practices and new legislation to regulate the maritime industry. “These are the kind of solutions we need to see — not a study focused on a few retailers who are working to address these challenges,” he told the FTC. Agency watchers say it usually takes a year or two for it to issue a report resulting from a Section 6B order, but Kahn made clear in announcing the study that it needed to move quickly and gather as much information as possible. “Focusing on the practices of a few U.S. retailers who have been trying to address the shipping crisis will not help to solve the issues that persist today.” “The FTC has a long history of pursuing market studies to deepen our understanding of economic conditions and business conduct, and we should continue to make nimble and timely use of these information-gathering tools and authorities,” she said. After the FTC receives the requested documents, it will probably take another 45 to 60 days for staff to review them and make requests for any additional information. The agency will be under pressure to issue a preliminary report by March, the government affairs source predicted. Busting up corporate trusts The FTC’s probe also **fits** within the Biden administration’s worldview that **antitrust rules** need redefining to **contain corporate power**, especially tech giants like Amazon, Apple, Facebook and Google. In recent weeks, officials have blamed food producers, retailers and energy companies for anticompetitive behaviors and pushed for antitrust investigations. Officials say dominant corporations in uncompetitive markets are taking advantage of their market power to raise prices and increase profit margins.

**2---CHIRA repealed the antitrust exemption for insurers**

**MBB 21** Mondaq Business Briefing, United States: New Law Eliminates 75-Year-Old Antitrust Exemption For Business Of Health Insurance, 2-10, l/n

United States: New Law Eliminates 75-Year-Old Antitrust Exemption For Business Of Health Insurance

The Development: Congress unanimously passed and before leaving office, President Trump signed into law, the **C**ompetitive **H**ealth **I**nsurance **R**eform **A**ct ("CHIRA"). CHIRA **limits** application of the McCarran-Ferguson Act, an **exemption** from the federal antitrust laws, as it relates to the business of health insurance. The Context: Since 1945, the McCarran-Ferguson Act has exempted certain conduct of insurers from challenge under the federal antitrust laws. State insurance regulators and the health insurance industry's trade group have long maintained that repealing the McCarran-Ferguson Act is unnecessary, in part, because state antitrust and insurance laws already prohibit conduct such as price fixing that CHIRA proponents claim that McCarran-Ferguson insulates. United States: New Law Eliminates 75-Year-Old Antitrust Exemption For Business Of Health Insuranc Looking Ahead: In addition to the reasons above, CHIRA is not likely to bring significant changes to the operations of health insurers because (i) it leaves the exemption in place for certain critical activities; (ii) other federal antitrust exemptions may nonetheless apply; and (iii) health insurers' procompetitive activities should be found lawful under the federal antitrust laws. However, **antitrust** claims **abhor** a **vacuum**. In the past, **expansion** of antitrust liability in **an industry**, including **health care**, has spawned **waves of litigation**, attracted by automatic treble damages in successful challenges. Health insurers should expect **increased** antitrust **litigation**, and possibly **government investigations**, and therefore should review their **business practices** to ensure compliance with the federal antitrust laws.

**3---NCAA decision---signaled hostility to immunities**

Michael A. **Carrier 21**, Distinguished Professor, Rutgers Law School, The Alston Case: Why the NCAA Did Not Deserve Antitrust Immunity and Did Not Succeed Under a Rule-of-Reason Analysis, 28 Geo. Mason L. Rev. 1461

Conclusion The NCAA did not deserve an antitrust immunity enjoyed by no other entity in American law. The courts' **hostility** to **limits on the scope of antitrust** and social-value defenses made clear that the **NCAA** could not decide that values other than price, quality, and output justify trade restraints. The NCAA's arguments in Alston also did not gain support from Board of Regents. Although the NCAA cited the case 145 times in its briefing, the Supreme Court's ruling in Board of Regents did not rely on amateurism. Rather, the discussion of amateurism was limited to dicta in a setting in which the Court was actively replacing rigid rules with more nuanced economic analysis. 178 Finally, the application of hornbook Rule-of-Reason analysis favored the student-athlete plaintiffs. First, the plaintiffs showed "**severe**" anticompetitive effects. 179Second, the NCAA's purported procompetitive justifications largely rested on its definition of "amateurism" with no showing of any benefit to price, quality, or output. 180And the NCAA succeeded at all at this step only because the courts worked to help it, looking for evidence within its presentation on "amateurism" that could be understood in legally cognizable terms of consumer demand. The NCAA's claims that the lower courts should have considered its justifications as a whole rather than as individual justifications, and that the failure to do so led to a "least restrictive alternative" requirement, did not bear support in the caselaw. 181In fact, the "less restrictive alternative" formulation used was the most demanding standard employed in the caselaw. 182And even if the plaintiffs had not shown a competitively preferred alternative, the case would have proceeded to Step Four - balancing - and under the lopsided evidence of net competitive injury, the plaintiffs most likely would have won. In short, the NCAA was not entitled to the radical restructuring of antitrust law it sought. **The Supreme Court agreed**, finding that the district court's "judgment does not float on a sea of doubt but stands on firm ground - an exhaustive factual record, a thoughtful legal analysis consistent with established antitrust principles, and a healthy dose of judicial humility." 183 In *Alston*, the NCAA sought the knockout punch of antitrust immunity. To put it mildly, **it was not successful**. Student-athletes will be the beneficiaries.

**4---Federal court is limiting farm coop immunities**

Lauren **Berg 1-26**, No Antitrust Immunity For Mushroom Co-Op In Winn-Dixie Suit, https://www.law360.com/articles/1459033/no-antitrust-immunity-for-mushroom-co-op-in-winn-dixie-suit

A Pennsylvania federal judge handed Winn-Dixie Stores a win on Wednesday, finding that even though a mushroom **farm cooperative** changed its name, the group hasn't done enough to **qualify** for antitrust **immunity** in the supermarket company's price-fixing suit. U.S. District Judge Berle M. Schiller granted Winn-Dixie's motion for summary judgment on the issue of whether Eastern Mushroom Marketing Cooperative, now called American Mushroom Cooperative, can claim **antitrust immunity** under the **C**apper-**V**olstead **A**ct, finding that EMMC hasn't satisfied the statute's requirements, according to the 13-page order. The **C**apper-**V**olstead **A**ct gives **ag**ricultural **coop**eratives a limited exemption from antitrust laws if the cooperative and its members produce agricultural products, each member receives an equal vote, the cooperative doesn't pay dividends over 8% per year and it doesn't deal in nonmember products "to an amount greater in value" than those handled by it for members, the order states. In the related case In Re: Mushroom Direct Purchaser Antitrust Litigation, the late U.S. District Judge Thomas N. O'Neill ruled in 2009 that EMMC and its members didn't qualify for immunity because one of the members was actually not a grower and that the cooperative was conspiring with nonmember distributors. In that case, the plaintiffs were only seeking to recover damages sustained through August 2005, while Winn-Dixie seeks damages through at least 2008, the order states. Judge Schiller asked the parties whether Judge O'Neill's ruling applied to EMMC's conduct after August 2005. In its motion, Winn-Dixie contended that after the cooperative changed its name, EMMC still didn't meet the law's requirements because it continued to conspire with nonmember distributors. In its own motion for summary judgment, EMMC argued that it cured the issues Judge O'Neill identified in his 2009 ruling. In his order on Wednesday, Judge Schiller said he can't conclude that EMMC has shown that cooperative member Bella Mushroom Farms and its distributor Buona Foods - which share some overlap in ownership from the same family - should be treated as a single entity incapable of conspiring with one another. Because of that, EMMC can't invoke the protection of the Capper-Volstead Act, the order states, granting Winn-Dixie's motion and denying EMMC's motion. Counsel for the parties did not immediately respond to requests for comment on Wednesday. In 2015, Winn-Dixie and its parent company Bi-Lo Holdings LLC accused **a number of farms** and a **mushroom** marketing **coop**erative of plotting to fix the **price** of fresh Agaricus mushrooms, a genus that includes portobello mushrooms, according to court documents. Others participated in the alleged scheme, but the co-op itself was formed as a "front and a pretext" for "naked price-fixing." Mushroom sellers met to set minimum prices and restrict the supply, court documents state. Almost two dozen farms were released from the suit in January 2019, after the court found that being a member of the co-op was not reason enough for the supermarkets to go after them individually. Winn-Dixie and Bi-Lo renewed their complaint, laying more specific claims that the individual farms participated in the alleged price-fixing scheme. The farms moved for a partial win in August 2020, arguing that Winn-Dixie cannot sustain its antitrust argument for a part of the alleged conspiracy period since it did not buy the mushrooms directly from a purported conspirator. But in May, Judge Schiller denied that bid. Winn-Dixie is represented by Patrick J. Ahern and Theodore B. Bell of Ahern & Associates PC. EMMC is represented by William A. DeStefano, Terri A. Pawelski and Matthew C. Brunelli of Stevens & Lee and Francis X. Taney Jr. of Taney Legal LLC. The case is Winn-Dixie Stores Inc. et al. v. Eastern Mushroom Marketing Cooperative et al., case number 5:15-cv-06480, in the U.S. District Court for the Eastern District of Pennsylvania.

**WTO DA**

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**The most comprehensive study proves no protectionist spiral**

**Kee et al 2013** - Senior economist @ the World Bank  
Hiau Looi Kee, Cristina Neagu [either a world class hand baller or an economist], and Alessandro Nicita [economist at the United Nation Conference for Trade and Development]; Is Protectionism on the Rise? Assessing National Trade Policies during the Crisis of 2008; Review of Economics and Statistics95.1 (Mar 2013): 342-346

WITH the dramatic collapse of world trade in the wake of the biggest global recession in recent history, many have feared that governments may respond by increasing tariffs and other trade policy barriers to protect their domestic economies, which may indirectly prolong the recession and lead to domestic unrest. In fact, in December 2008, the first of the crisis-related demonstrations erupted in several cities in Russia over the increase in car tariffs (Levy, 2008). Has protectionism been rising since fall 2008? To answer this question, we compare the overall trade restrictiveness Indices (OTRI) of a wide range of countries in 2008 and 2009. The OTRI summarizes the trade policy stance of a country by calculating the uniform tariff that will keep its overall imports at the current level when the country in fact has different tariffs for different goods. Unlike trade-weighted average tariffs, the OTRI takes into account the importance of each good in total imports, as well as the responsiveness of the import of each good with respect to its tariff. Thus, not only are the weights proportionate to the import value of the goods, but goods that have a larger fall in imports when tariffs are imposed (those goods that are highly elastic in demand) are also given larger weights. The empirical methodology of the OTRI was first developed by Kee, Nicita, and Olarreaga (2008, 2009), based on the theoretical underpinning of Anderson and Neary (1994, 1996, 2003). Irwin (2010) also uses a similar methodology to study the historic protection level of the United States from 1867 to 1961. A major benefit of looking at the changes in the OTRI over the crisis period is that it allows us not only to measure the changes in trade policy but also to quantify the drop in trade due to those changes. This is the point of departure of our paper from the previous literature, which tends to focus on only average tariff increases or the percentage of tariff lines that have increased during the crisis period. Many recent papers have studied the trade impact of the global crisis in 2008 (see Baldwin & Evenett, 2009, and Baldwin, 2009). While consensus has yet to emerge among researchers, the two leading explanations for the large and synchronized drop in trade are the role of international supply chains (Yi, 2009) and the lack of trade credits and finance during the crisis period (Amiti & Weinstein, 2009; Chor & Manova, 2009). In a unified framework, Eaton et al. (2010) merges an input-output framework with a gravity trade model of the world and shows that changes in demand play the most significant role in explaining the large drop in trade-to-GDP ratio during the crisis, while trade frictions, which include trade policies and trade credits, explain at most about 15% of the collapse in trade. Thus, **trade policy as a protectionist device has not been seen to play a substantial role in the global collapse of trade**—neither as a cause nor a consequence. Nevertheless, anecdotal evidence suggests that some countries are actively tinkering with their trade policies. For example, during the crisis period, Bolivia, Ecuador, and Turkey have altered their tariffs on a large share of their imported products, and India increased its use of antidumping (AD) duties. How important are those changes in explaining or prolonging the collapse in world trade? The objective of this paper is to carefully compare the trade policies of a wide range of countries over the crisis period and assess the extent of the fall in trade due to the increase in tariffs and AD duties of these countries. For the purpose of this paper, we narrowly define trade policies to include only tariffs and AD duties. Due to data limitations, we do not look at other policies that may affect trade, such as government bailouts and buy-national requirements, which could play a much larger role than tariffs and AD in affecting trade during the crisis period. To achieve our objective, we obtained the most favored nations (MFN) applied tariff schedules and the bilateral tariff schedules for a wide range of countries in 2008 and 2009.1 The MFN-applied tariffs tend to overestimate the level of protection because they do not account for the existence of bilateral or regional tariff preferences. Hence, it is important for us to construct the OTRI based on the bilateral tariff schedules. This significantly complicates the calculation of the OTRI because each country may have up to 200 trading partners and each bilateral tariff schedule consists of nearly 5,000 Harmonized System (HS) 6 digit products. To capture the effect of antidumping, we also merge the bilateral tariff schedules with the World Bank Global Antidumping Database. Thus, changes in the OTRI reflect trade policy changes related to both the changes in applied tariffs and antidumping duties during the crisis period. In addition, we need bilateral import demand elasticities and bilateral trade flow data to properly weigh these bilateral tariffs. We modify the multilateral import demand elasticity estimates in Kee et al. (2008) to obtain bilateral import demand elasticities. Bilateral trade flow data are from Comtrade. Finally, to make sure that changes in the OTRI period purely capture changes in trade policies, we use the 2008 bilateral trade flows and elasticities as fixed weights. As such, changes in trade or elasticity due to demand shocks will not affect our OTRI measures. Going through the schedules of all countries in our data set, we found that overall, there has been no widespread increase in tariffs. Although many countries have increased tariffs on imported products, the trade impact has generally been minimal. However, for a handful of countries, tariff increases on important items in agriculture and manufacturing pushed up their OTRI and significantly affected trade. Russia, Malawi, and Argentina all increased tariffs on manufacturing products that caused their OTRI to increase by 0.9 to 1.2 percentage points and their trade flows to drop by US$4.8 billion, US$29 million, and US$914 million, respectively. Turkey increased tariffs on a wide range of agricultural products, which raised its OTRI by 0.8 percentage points and caused its trade flow to decrease by US$2.2 billion. With the removal of a temporary tariff reduction on palm oil and the introduction of some antidumping duties, India had a large increase in the level of protectionism on agriculture products (8.3 percentage points), even though this was offset by tariff liberalization in the manufacturing sector such that India’s OTRI increased only by 0.1 percentage points. Other countries that had large drops in trade due to increases in tariffs include China (US$5 billion), Canada (US$1.8 billion), and Brazil (US$991 million). Finally, for the United States and the EU, although the tariff schedules remained roughly the same throughout our period of analysis, spikes in antidumping duties caused their OTRI to increase by 0.5 percentage points, and 0.1 percentage points, respectively. Jointly, if we add up all the decreases in trade for all countries during the crisis period due to changes in tariffs and antidumping duties, in the worst-case scenario, the total decrease in imports is about US$43 billion, which is less than half a percent of the world’s imports in 2008. According to the latest estimate of theWorld Trade Organization (2010), the world’s imports decreased by 24% from its precrisis level. Thus, trade policies can explain at most 2% of the sharp drop in world trade. This suggests that protectionism was not the main culprit behind the collapse of world trade and the collapse of world trade did not cause protectionism to increase.

**No tipping points to protectionism – and no spillover from one WTO suit to others—violations now**

**Patel 14** (Sonal Patel, 7/10/2014. Associate Editor of POWER Magazine. “WTO Members Begin Talks to Eliminate Wind, Solar Trade Tariffs,” http://www.powermag.com/wto-members-begin-talks-to-eliminate-wind-solar-trade-tariffs/.)

Fourteen members of the World Trade Organization (WTO)—including the U.S., China, the European Union (EU), and Japan—on Tuesday launched negotiations to eliminate tariffs or custom duties on wind turbines, solar products, and other environmental goods.

The first phase of negotiations between the 14 WTO members, which make up 86% of the global environmental goods trade, seeks to reduce import tariffs to 5% or less by the end of 2015 for [54 environmental goods](http://www.apec.org/Meeting-Papers/Leaders-Declarations/2012/2012_aelm/2012_aelm_annexC.aspx) listed by the Asia-Pacific Economic Cooperation (APEC) forum in 2012.

Total global trade in environmental goods reached about $955 billion in 2012, though tariffs on some products are as high as 35%. Markets for goods related to energy efficiency, air pollution, water desalination, and renewable power equipment are set to grow sizably in the coming decades.

The second phase of talks will address [non-tariff barriers](http://www.wto.org/english/thewto_e/whatis_e/tif_e/agrm9_e.htm), which the WTO describes as “bureaucratic or legal issues” that could cause “hindrances to trade.” They will also address environmental services.

The WTO members involved in the talks in Geneva, Switzerland, are Australia, Canada, China, Chinese Taipei (Taiwan), Costa Rica, the EU, Hong Kong China, Japan, New Zealand, Norway, Singapore, the Republic of Korea, Switzerland, and the U.S.

The negotiations are part of a broader task of agreeing by December 2014 on a work program to conclude [the latest round of trade negotiations](http://www.wto.org/english/tratop_e/dda_e/dda_e.htm) among WTO members. Launched in Qatar in 2001, the so-called “Doha Round” seeks to achieve major reform of the international trading system through the introduction of lower trade barriers and revised trade rules.

Disputes between countries that trade environmental goods—particularly wind turbines and solar modules—have grown thornier over the past five years, and [**several WTO members have launched legal actions**](http://www.powermag.com/the-big-picture-subsidy-tug-of-war/)**to settle allegations of unfair subsidization and other disagreements**.

1. **Environmental exception**

**Zhao 14 –** Prof – Chinese University of Hong Kong [Yuhong Zhao, “Abatement of emissions for a sustainable future: revisiting the carbon tax in China,” from Environmental Taxation and Green Fiscal Reform: Theory and Impact, Critical Issues in Environmental Taxation – Volume XIV] Page 202-203

As for the potential application of BTA, the World Trade Organization (WTO) in principle allows importing countries to impose differentiated customs duties on products from countries with weaker environmental constraints under the so-called 'environmental exception', that is, trade restrictions are allowed if needed to protect 'human, animal, or plant life or health' or if they relate 'to the conservation of exhaustible natural resources' and 'such measures are made effective in conjunction with restrictions on domestic production or consumption'. 6 Yet all proposed BTA only target products not subject to GHG or carbon emission control in the country of origin. Introduction of the carbon tax could arguably avoid the carbon tariffs imposed at the border.

1. **Economy wide tax is only value adding**

**Calder 15** – formerly Deputy Director of the Oil Taxation office in the UK, consultant for the IMF [Jack Calder, Administration of a US Carbon Tax, from Implementing a US Carbon Tax: Challenges and Debates, eds. Ian Perry, Adele Morris, and Roberton C. Willilams III] Page 55-56

International considerations

If the policy objective of a US CT was to tax only US GHG emissions, and it applied upstream to fossil fuels (for simplicity let us say at the processing stage), administration of international transactions would be relatively straight forward. Where fossil fuels were imported in unprocessed form, they would be taxed at the processing stage rather than on import. Where they were imported as processed products, they would be subject to a border tax adjustment (BTA). This would impose CT in exactly the same way as on domestically produced fuels, using the same simple volume measurements and product classifications. Fuel imports occur at a relatively small number of points, subject to regulation. Taxing imports at those points would not greatly complicate administration. The imposition of tax on imported refined fuels should not cause WTO problems because the taxes imposed would be calculated on exactly the same basis **as on domestically produced products**. Where fossil fuels were exported in unprocessed form, CT would not apply. Where they were exported in processed form, they would be exempted. This should not impose major administrative burdens - again the same taxpayers and measurement systems would be involved as for CT imposition. The exemption might in theory cause WTO problems, but it could be argued that CT on fossil fuels was essentially a destination based tax on consumption, so that exemption should be allowed. It should be noted that WTO rules do not prevent zero-rating of exports for VAT purposes or exemption of exports from excise taxes, which would provide clear parallels for CT exemption of exported fuels. The taxation of emissions from imported fossil fuels and the exemption of exports would mean that US producers did not suffer competitive disadvantages relative to foreign producers in the same markets (though of course CT would affect competition between different fuel types within the US).

**Unilateral carbon tax clarifies WTO rules—key to legitimacy.**

**Kendall 12** Keith A. Kendall 12, Senior Lecturer. Faculty of Business, Economics and Law La Trobe Law School, 2012, “Carbon Taxes and the WTO – A Carbon Charge without Trade Concerns?,” http://works.bepress.com/keith\_kendall/4/

In the long term, however, it is clearly preferable that a carbon tax be compliant with the WTO. If the tax (more specifically, the BTA mechanism) is legitimate under the WTO’s substantive provisions, **this obviates the need to rely on the exceptions** contained in Article XX. This, in turn, takes away the necessity for multilateral agreements to serve as evidence that there is broad-based support for the measure and that the tax is not arbitrary or unjustifiably discriminatory. Further, as noted earlier, unilateral adoption of a carbon tax is more likely if it does not result in a loss of international competitiveness for that jurisdiction’s domestic industry, which is attainable through a destination-based BTA as described. If such unilateral action is legitimate under the WTO, then, as discussed, it is more likely that other countries will begin to adopt similar taxes once initial action has been taken. Since unanimous agreement is not required for the viability of a carbon tax as described, the usual hold out problems that occur with multilateral agreements are less likely to arise in this context. As more nations adopt a carbon tax, international pressure will increase on those that do not, without any immediate cost to those already complying (reducing the prospect for rent seeking normally associated with hold outs). This is likely to generate quicker action to address carbon emissions than would occur if a multilateral agreement needed to be negotiated, drafted and ratified.

A potential criticism of a carbon tax such as that proposed here is that the rebate on exports acts as an incentive for producers to export their production. Where a country introduces a carbon tax unilaterally, its producers do not have to bear the costs of pollution as described. The presumption, though, is that this cost will be re-imposed upon import into the destination country, but this will not happen if the importing country does not also have a carbon tax. This is tempered by the fact, however, that this will not have any effect on overseas demand, so while producers may prefer to export their output under these conditions, the demand needs to exist for such a move to be worthwhile. Also, domestic demand will not disappear; the model presented earlier predicts some fall in domestic demand, but not elimination. To the extent that the domestic market continues to be served, the costs of such pollution have been internalized. In any event, if the need to internalize pollution costs is taken as a given, then this scenario only further demonstrates the need for a widespread system to be implemented as soon as possible to remove such potentially distorting incentives. The previous paragraph presented the argument that initial unilateral action is more likely to promote a faster resolution than **waiting until** implementation of **a multilateral agreement.**

These considerations demonstrate the need for clarification of the status of a carbon tax under the substantive provisions of the WTO. Ideally, this would involve amendment to the wording of the WTO itself. As the WTO is also a multilateral agreement, however, this is likely to be a slow and cumbersome process, with no guarantee of any eventual, let alone timely resolution. Therefore, authority may be derived from a Working Party designed specifically to address the issue of carbon tax BTA compliance. Past efforts, most notably in 1970 and 1997, **have explicitly left the issue unresolved**, coupled with vague acknowledgments that the authorities are equivocal and usually concluded with a call for further investigation. No official forum associated with the GATT/WTO looking into BTAs, though, has been established since 1997. Such a forum could provide sufficient authority for members to proceed with the implementation of a carbon tax that is economically and environmentally efficient without the concern that the initiative will be later deemed illegal under the WTO, with concomitant sanctions arising. This does not represent a change in the WTO per se, rather, **a clarification of the existing language**. Since a properly designed carbon tax BTA is tenable under the existing WTO, as demonstrated in this paper, there is no necessity for any formal changes to be implemented.

**Meets GATT Article XX(g)**

**Astoria, 15** – PhD, JD, professor at the University of Wisconsin at Parkside [Ross, “Design of an International Trade Law Compliant Carbon Border Tax Adjustment” *Arizona Journal of Environmental Law & Policy* Vol 6:491]

2. Article XX(g)

The proposed carbon BTA also fares well under the Article XX(g) exception, which allows for Member countries to implement otherwise non-compliant measures when it is one “relating to the conservation of exhaustible natural resources if such measure are made effective in conjunction with restrictions on domestic production or consumption.”107

First, the carbon BTA would be made effective in conjunction with restrictions on domestic production or consumption, since it is designed to be symmetric with a domestic carbon tax. In US-Gasoline, the AB explained that the requirement that a policy aimed at preserving an exhaustible natural resource be “made effective in conjunction with restrictions on domestic production and consumption” requires “even-handedness” but not “identical treatment.”108 As Holzer argues, this means that “the carbon-restrictive measure should be applied to domestic products as well, but, at the same time, there is no requirement that the measures must be applied to imported and domestic products equally.”109 Although the carbon BTA aims to tax carbon-intensive imports at the same rate, this allowance for “even-handedness” might be needed to address the asymmetry between the domestic tax, which is upon a fossil fuel’s carbon content, and the carbon BTA, which is levied upon the embedded emissions of imported carbon-intensive products. The requirements of “even- handedness” might also be needed to account for any concerns over the determination of the foreign cost of carbon and the embedded emissions of imported carbon- intensive articles.

Second, previous panels and the AB have deployed an “evolutionary” understanding of the term “exhaustible natural resource.”110 The AB has found both turtles and **clean ai**r to be exhaustible natural resources.111 Further, the AB has looked to other international treaties for guidance as to what the international communit considers to be an “exhaustible natural resource.”112 Although it is unclear whether a future panel or AB would follow this procedure, the on-going negotiations under the UNFCCC provide strong evidence that **the international community does indeed consider a stable climate to be an exhaustible natural resource.** Finally, as Holzer notes, not only is a stable climate likely to be found to be an exhaustible natural resources, but global warming leads to the depletion and destruction of other exhaustible natural resources, such as forests, fisheries, and reliable water supplies.113

Third, the carbon BTA “relates” to the policy objective of mitigating greenhouse gas emissions, preventing leaking, and preserving a stable climate. In determining whether the “related to” requirement is met, a panel will “look[] into the relationship between the measure at stake and the legitimate policy of conserving natural resources.”114 In US-Shrimp/Turtles, for instance, the AB found the means-and- ends relation between the import ban and the goal of conserving turtles to be sufficiently tight because the U.S. statute and its implementing Guidelines did not prohibit the importation of shrimp which were caught in a manner not harmful to turtles.115

**Litigation solves—three year timeframe.**

**Trachtman 16** - Professor of international law, Fletcher School of Law and Diplomacy, Tufts [Joel P. Trachtman, WTO Law Constraints on Border Tax Adjustment and Tax Credit, Mechanisms to Reduce the Competitive Effects of Carbon Taxes, Resources for the Future, http://www.rff.org/files/document/file/RFF-DP-16-03.pdf]

The discussion above suggests substantial uncertainties regarding the possibility to defend any import BTA, export BTA, or trade-exposure targeted subsidy. Thus a period of several years would pass after national legislation of these mechanisms before the United States would experience authorized prospective retaliation, and the country would have ample time to come into compliance before any retaliation occurs.108

Even if a national carbon tax regime with import BTAs and/or export BTAs, or a subsidy to support exports, were to violate WTO law, the formal response by other states would generally be imposed prospectively after a three-year litigation period and would be in the form of suspension of concessions or other obligations in an amount equivalent to the nullification or impairment of WTO rights resulting from the measure found to violate WTO law (except possibly in the case of export subsidies, where the retaliation may be greater). Therefore, as a practical matter, a state may decide to engage in civil disobedience or to operate in what might be understood as “efficient breach” in response to this level and type of retaliation. The specific industries targeted for the retaliation could even be supported through subsidies. In light of this aspect of WTO dispute settlement, combined with the fact that an evenhanded carbon tax structure would be unlikely to result in reputational costs to the United States, the uncertainty of WTO law may not be a significant deterrent to implementation of these measures.

**WTO not key to trade --- statistical analysis.**

Andrew **Rose**, March **2004**. Prof. Economic Analysis and Policy @ UC Berkeley Haas School of Business, American Economic Review, “Do We Really Know That the WTO Increases Trade?” 94:1.

Economists disagree about a lot, but not everything. Almost all of us think that international trade should be free.1 Accordingly, the multilateral organization charged with freeing trade-the World Trade Organization (WTO)-is probably the most popular international institution inside the profession, certainly compared with its obvious rivals, the International Monetary Fund (IMF) and the World Bank. This makes much of the furor over the WTO unfathomable to most of us. But should we-and the protestors-really care about the WTO at all? Do we really know that the WTO and its predecessor the General Agreement on Tariffs and Trade (GATT) have actually promoted trade? Maybe not. While theory, casual empiricism, and strong statements abound, there is, to my knowledge, no compelling empirical evidence showing that the GATT/WTO has **actually encouraged trade**. In this paper, **I provide the first comprehensive econometric study** of the effect of the postwar multilateral agreements on trade. It turns out that membership in the GATT/WTO is not associated with enhanced trade, once standard factors have been taken into account. To be more precise, countries acceding or belonging to the GATT/WTO do not have significantly different trade patterns than nonmembers. Not all multilateral institutions have been ineffectual; I find that the Generalized System of Preferences (GSP) extended from the North to developing countries approximately doubles trade. Thus the data and methodology clearly can deliver strong results. I conclude that we currently do not have strong empirical evidence that the GATT/WTO has systematically played a strong role in encouraging trade. To make my argument as persuasive as possible I use widely accepted techniques, a conventional empirical methodology, and standard data sets. I also examine the sensitivity of my results extensively. I do not attempt to provide any novelty in terms of data, theory, or methodology. Thus, any interest in this paper lies solely in its results; by design, there is no other innovation.

**Trade resilient**

Daniel **DREZNER**, professor of international politics at the Fletcher School of Law and Diplomacy at Tufts University, **14** [“The System Worked: Global Economic Governance during the Great Recession,” World Politics, Volume 66, Issue 01, January 2014, p. 123-164]

It could be that the global economy has experienced a moderate bounceback in spite of, rather than because of, the global policy response. At the beginning of the twentieth century, for example, cross-border flows grew dramatically despite efforts by states to raise barriers to exchange.46 In assessing policy outputs, Charles Kindleberger provided the classic definition of what should be done to stabilize the global economy during a severe financial crisis: “maintaining a relatively open market for distress goods” and providing liquidity to the global financial system through “countercyclical long-term lending” and “discounting.”47 Serious concerns were voiced in late 2008 and early 2009 about the inability of anyone to provide these kinds of public goods, threatening a repeat of the beggar-thy-neighbor policies of the 1930s.48

By Kindleberger’s criteria, however, public goods provision has been **quite robust** since 2008. On the surface, the open market for distressed goods seemed under threat. The stalemate of the Doha Round, the rise of G20 protectionism after the fall 2008 summit, and the explosion of antidumping cases that occurred at the onset of the financial crisis suggested that markets were drifting toward closure. According to WTO figures, antidumping initiations surged by 30 percent in 2008 alone. In a June 2013 assessment, the free trade group Global Trade Alert warned of a massive spike in protectionist measures leading to “a quiet, wide-ranging assault on the commercial level playing field.”49

A closer look, however, reveals that warnings about an increase in protectionism have been **vastly overstated**. The surge in nontariff barriers following the 2008 financial crisis quickly receded; indeed, as Figure 3 shows, the surge never came close to peak levels of these cases. By 2011, antidumping initiations had declined to their lowest levels since the founding of the WTO in 1995. Both countervailing duty complaints and safeguards initiations have also fallen to precrisis levels.

Some post-2008 measures are not captured in these traditional metrics of nontariff barriers, but similar results hold. Most temporary trade barriers were concentrated in countries such as Russia and Argentina that had already erected higher barriers to global economic integration.50 Even including these additional measures, the combined effect of protectionist actions for the first year after the peak of the financial crisis affected less than 0.8 percent of global trade.51 Furthermore, the use of these protectionist measures declined further in 2010 to cover only 0.2 percent of global trade. Five years after the start of the Great Recession, the effect of these measures remains modest, affecting less than 4 percent of global trade flows. The WTO’s June 2013 estimate is that the combined effect of all postcrisis protectionist measures by the G20 had reduced trade flows by a total of 0.2 percent.52 The WTO estimate jibes with academic estimates of post-2008 trade protectionism playing a minimal role in affecting cross-border exchange. The **overwhelming consensus** is that “the Great Recession of 2009 does not coincide with **any obvious increase** in protectionism.”53 The quick turnaround [End Page 136] and growth in trade levels further show that these measures have not seriously impeded market access.54

The multilateral trade system played a **significant role** in this outcome. The WTO’s dispute-settlement mechanism helped to contain the spread of protectionist measures that the Great Recession triggered; there is no evidence that compliance with these rulings waned after 2008.55 This is consistent with research that shows membership in the WTO and related organizations acted as a **significant brake** on increases in tariffs and nontariff barriers.56 The major trading jurisdictions—the United States, the European Union, and China—adhered most closely to their WTO obligations. As Alan Beattie acknowledged: “The ‘Doha Round’ of trade talks may be dead, but the WTO’s dispute settlement arm is still playing a valuable role.”57 The WTO’s Government Procurement Agreement (gpa ) helped to blunt the most blatant parts of the “Buy American” provisions of the 2009 fiscal stimulus, thereby preventing a cascade of “fiscal protectionism.”

Policy advocates of trade liberalization embrace the “bicycle theory”—the belief that unless multilateral trade liberalization moves forward, the entire global trade regime will collapse because of a lack of forward momentum.58 The last four years suggest that there are limits to that rule of thumb. The Financial Times/Economist Intelligence Unit surveys of global business leaders reveal that concerns about protectionism have stayed at a low level. Figure 4 shows that compared with popular concerns about economic and political uncertainty, corporate executives were far less concerned about either protectionism or currency volatility. Reviewing the state of world trade, Uri Dadush and his colleagues conclude: “The limited resort to protectionism was a remarkable aspect of the Great Recession.”59 Former US trade representative Susan Schwab concurs, noting, “Although countries took protectionist measures in the wake of the crisis, the international community **avoided a quick deterioration** into a spiral of beggar-thy-neighbor actions to block imports.”60 At a minimum, the bicycle of world trade is still coasting forward.

## CWS

**CWS**

**Plan is key to broader environmental sustainability**

**Dolmans 21** (Maurits Dolmans, Cleary Gottlieb Steen & Hamilton LLP, The Dominance and Monopolies Review: Editors' Preface, 6-14, <https://thelawreviews.co.uk/title/the-dominance-and-monopolies-review/editors-preface>, y2k)

A third set of commentators believes that **competition** policy is **misdirected**, that the historic focus of competition law has been **too narrow**, and that the **c**onsumer **w**elfare **s**tandard should be **expanded** to take account of social, **industrial**, **environmental** and other considerations (sometimes referred to as 'hipster antitrust').

And a fourth critique, voiced by Maurice Stucke and Ariel Ezrachi, maintains that many of today's problems result from too much 'toxic' competition overall, driven by ideologues, lobbyists and privatisation, and that we need to promote a kind of 'noble competition', where rivals mutually strive for excellence.

To address these challenges, a dizzying array of reports has emerged, commissioned by governments in the US, EU, UK, Germany, France, Australia and elsewhere. And from those reports, a constellation of ideas has emerged to overhaul competition law, including: reorienting the goals of antitrust policy away from the consumer welfare standard towards a broader societal welfare test; reversing the burden of proof in merger control; per se bans on certain categories of conduct in the digital sector (including prophylactic controls on vertical integration); lowering the standard of judicial review to give competition authorities more leeway; injecting political oversight into competition law enforcement; loosening the standard to impose duties to share data with rivals; introducing market study regimes; allowing authorities to impose remedies without formally establishing an infringement; and establishing mandatory codes of conduct for digital platforms.

Where does this all leave busy practitioners and businesses that are trying to navigate the complex and constantly evolving rules concerning abuse of dominance? Helpfully, this ninth edition of The Dominance and Monopolies Review seeks to provide some respite, providing an accessible and easily understandable summary of global abuse of dominance rules. As with previous years, each chapter – authored by specialist local experts – summarises the abuse of dominance rules in a jurisdiction, provides a review of the regime's enforcement activity in the past year, and sets out a prediction for future developments. From those thoughtful contributions, we identify three main trends to watch out for over the next year.

**Sustainability and abuse of dominance**

The past year has seen sustainability become a new and **important focus** for **competition regulators**. The Dutch competition authority started the trend by setting 'sustainability' as a key priority and proposing a more permissible review for certain environmental agreements. The Hellenic Competition Commission followed, advocating for far-reaching policy changes to promote sustainability goals across all areas of competition policy. The European Parliament has called on the European Commission to 'urgently take the concrete action needed in order to fight and contain the threat of climate and environmental catastrophe before it is too late'. As Commissioner Vestager has noted, 'everyone is called upon to make our contribution to the necessary change – including enforcers'. The European Commission initiated a consultation, and the **O**rganisation for **E**conomic **C**o-operation and **D**evelopment held several events to discuss the **integration** of **climate and environmental goals** in competition policy. Chinese competition law already provides an explicit exemption for 'agreements between undertakings which they can prove to be concluded for . . . serving public interests in energy conservation, environmental protection and disaster relief'.

At core, the **cause** of the **climate crisis** is a **market failure**: the cost of **pollution** of **air**, **water** and **land**, and the **damage** wrought by greenhouse gas **emissions** to the climate today and in the future are generally not included in the **price** of goods and services. Because the market price of a polluting product **excludes** the social cost, production is **higher** than the **social optimum**, taking into account that **consumption** of natural resources now **exceeds** what the **regenerative capacity** of the Earth can **sustain**.

To address this market failure, the discussion around including environmental goals in competition law has, so far, mostly focused on state aid, horizontal cooperation and merger control. For example, it has been argued that the consumer welfare analysis in merger control could include whether the merger could be expected to raise or lower the environmental price that consumers pay, which is not reflected in the market price in monetary terms or in quality (which could take account of non-market externalities such as emissions). Likewise, horizontal guidelines could be revised to allow cooperation in pursuit of environmental goals, where individual producers are willing to invest in greening production, but may be held back by the fear that they will be undercut by those who do not invest, or by cheaper imports.

There is no inherent reason, however, why **sustainability** could **not** be incorporated into **an abuse of dominance assessment**, too. This could be done in a number of ways.

First, **pricing analysis** (for example, for loyalty rebates, predatory pricing, margin squeeze) could take into account the actual **costs** incurred by the **dominant company** and **by society**, including not only the total costs of production, but also the **environmental** cost. A company may be able to **price lower** than its rivals because it is employing **polluting** **or** **greenhouse** gas emitting technology, at great societal cost, which is not reflected in its traditional variable and fixed costs.

Second, **a dominant provider** with an incumbent polluting technology might commit an abuse by excluding **rival, greener technologies** by means **other** than competition on the **merits**. Such conduct should already violate dominance rules. In this case, however, 'competition on the merits' should be defined so as to exclude competition that relies on avoidable pollution or greenhouse gas emissions. Also, the assessment should take into account that consumer harm would be even higher from the abuse because of the exclusion of a greener technology. The theory would be not dissimilar to that pursued by the European Commission in its Car Emissions cartel investigation, albeit that case concerns horizontal collusion to restrict competition on innovation for emission cleaning systems.

Third, there may be sui generis **abuses** that involve **unsustainable business practices** that also restrict competition. For example, a dominant producer might employ **cheap** and **polluting means** of production, and thereby price cheaper than its rivals. **A dominant raw materials producer** might make misleading representations to an environmental agency to secure a licence to **extract minerals**. And a dominant **chemical producer** could **illegally dump products** in rivers, thereby gaining an advantage over rivals that dispose of **waster safely**. All these might conceivably be an abuse of dominance because they **distort** competition, via means **other** than competition on the merits. The fact that they may also infringe other laws is no bar to bringing an abuse of dominance claim, just as a dominant factory owner burning down a rival's factory can be both arson and an abuse of dominance. Rivals should have **a cause of action**, especially where **environmental rules** are **inadequate** or **insufficiently enforced.**

**That’s key to resolve the CWS’s myopic focus on the competition---including non-efficiency goal such as the environmental sustainability is key**

**Hodge 12** (TOM C. HODGE, LL.B. 2009, King's College London; LL.M. 2010, Vanderbilt University Law School; LL.M.(R) 2011, University of Edinburgh Law School. COMPATIBLE OR CONFLICTING: THE PROMOTION OF A HIGH LEVEL OF EMPLOYMENT AND THE CONSUMER WELFARE STANDARD UNDER ARTICLE 101, 3 Wm. & Mary Bus. L. Rev. 59, y2k)

As such, there does seem to be a persuasive argument that **c**onsumer **w**elfare should **not** be the be-**all and end-all** when it comes to **competition policy**, as it only accounts for benefits to individuals when they are consumers. This issue goes to the heart of the matter that this Article seeks to answer. **C**onsumer **w**elfare needs to be **balanced** with **matters** that are also of **collective concern** to individuals and society as a whole, such as employment or **environmental protection**.

The consumer welfare standard and economic efficiency have been beneficial in defining the goals of competition law, but, like perfect competition, they remain just theories. Like all theories, consumer welfare does not survive contact with reality. Clearly consumer welfare has an important role to play, but it is neither the "'correct' position" nor the "last word" in the aims of competition law. 220 If **c**onsumer **w**elfare is **not** balanced against **non-efficiency goals** in the application of competition law, then the results could well be **harmful** to society as a whole.

C. Incorporating Non-Efficiency Goals into Competition Law as a General Proposition

The sole consumer welfare standard represents one end of the spectrum regarding the aims of competition law. At the other end of the spectrum is the view "that competition policy is based on multiple values that cannot be reduced to a single economic goal," and that these values must "reflect society's wishes, culture, history, institutions and perception of itself." 221 This "multiple values" view of the aims of competition law is a reflection of jurisdictional path dependency; as Townley states: "[L]aw (and more importantly legal interpretation) is founded in country and culture." 222 [\*88] Dabbah lists various "social goals or values" including: (1) protecting small businesses, (2) protection of democracy, and (3) market fairness. 223 This section seeks to demonstrate that a more holistic approach to the aims of competition law, which incorporates non-efficiency goals, is necessary in order for competition law to benefit society.

If it is accepted that competition law should have multiple aims, the question then becomes what aims should be included? Bork writes that competition regimes that include multiple aims are "likely to leave the impression that antitrust is a cornucopia of social values, all of them rather vague and undefined but infinitely attractive." 224 Dabbah divides the aims of competition law into three general categories: economic goals, social goals, and broader political goals. 225 Although consumer welfare advocates would like to do so, social goals and broader political goals cannot be rendered as automatically inapplicable as concerns of competition law. The aims that should be included in a competition regime arguably need to be determined by each jurisdiction in order to be in keeping with the goals and values of that society. For instance, the European Union has, since its inception, used competition law as a way to prevent distortions in the internal market, in other words, as a means for promoting market integration. 226 As such, there can be no "one size fits all" guide to what aims competition regimes should incorporate. What this Article seeks to argue is that it seems clear that competition law should not merely aim at hitting a consumer welfare target--with the possible exception of the United States, where it appears that consumer welfare has laid down deep jurisprudential and intellectual roots and, accordingly, has become part of that jurisdiction's path dependency.

There are two arguments against incorporating non-efficiency values into competition. First, values other than efficiency can create uncertain outcomes or "fundamentally alter the final outcome" 227 of an investigation into allegedly anticompetitive conduct. This has previously been discussed. 228 The second issue is whether non-efficiency aims are appropriate to be considered as part of a competition law analysis. 229 Odudu questions [\*89] the legitimacy of incorporating non-efficiency goals into competition law. 230 In Odudu's opinion, using competition law to "coerce virtues" 231 is undemocratic because such non-efficiency objectives should "be pursued through democratic, political, legislative routes." 232 In support of his position, Odudu points to the U.S. Supreme Court decision of National Society of Professional Engineers v. United States.233 In National Society of Professional Engineers, Justice Stevens ruled that:

[T[he Sherman Act reflects a legislative judgment that ultimately competition will produce not only lower prices, but also better goods and services. "The heart of our national economic policy long has been faith in the value of competition." . . . Even assuming occasional exceptions to the presumed consequences of competition, the statutory policy precludes inquiry into the question whether competition is good or bad. 234

However, Justice Stevens is misstating the law. The Sherman Act does not list the aims of U.S. antitrust law. The consumer welfare aim was a creation of the courts, who were building on the intellectual foundations provided by Robert Bork. 235 Therefore, Odudu's argument falls short. If Odudu can accept that judges interpret competition statutes (which are silent on the aims of competition law) to make consumer welfare the sole aim of competition law, then there is no reason he cannot accept judges interpreting statutes to give competition laws different aims. This is particularly true of the European Union, as Article 7 TFEU insists that there is "consistency between [the Union's] policies and activities." 236 As such, as is argued in greater detail below, 237 the EU's competition law must consider aims other than consumer welfare. Including aims other than consumer welfare is not a "usurpation of democracy," 238 but rather, it is an acknowledgement that competition law is part of a broader regulatory framework; as such, competition law needs to work towards the same aims as other laws that govern industrial policy.

Furthermore, Odudu's argument is flawed for two reasons. Firstly, consumer welfare advocates believe that focusing exclusively on consumer [\*90] welfare competition regimes "increase[s] welfare for the society as a whole" 239--in other words, that an efficient market will promote overall welfare. Therefore, consumer welfare advocates assume that by aiming for the goal of maximizing consumer welfare, this will generate non-efficiency benefits, such as consumer protection, promotion of employment, and others. The issue is that consumer welfare alone cannot benefit society as a whole. Despite Kroes' arguments to the contrary, 240 it is irrational to suggest that non-efficiency goals can be incidentally promoted through exclusion. In order to promote the multiple outcomes that benefit society as a whole, all these aims must be considered together in a holistic analysis.

This leads to the second flaw in Odudu's argument, that such benefits are arguably not "Townley's values" 241 but universal values. Although some of Townley's more extreme examples include using competition law to discourage binge drinking, 242 for the most part non-efficiency goals are not extremist viewpoints. For instance, Article 9 TFEU requires that, "the Union shall take into account requirements linked to the promotion of a high level of employment, the guarantee of adequate social protection, the fight against social exclusion, and a high level of education, training and protection of human health." 243 Is Odudu suggesting that the majority of citizens in a democracy are opposed to promoting employment or education? This author would submit that the answer is almost certainly not. These are non-efficiency concerns that are arguably valid and widely accepted by members of a democratic society.

In order for **competition law** to function **effectively**, it needs to balance **broader aims** against **c**onsumer **w**elfare, otherwise competition law will continue to be "**out of whack**." 244 To work towards improving society as a whole and raising living standards, competition cannot be "**only** about the **survival of the fittest** but also about the **protection** of the weak and the [\*91] pursuit of **important social goals**." 245 To balance consumer welfare with other objectives within competition law, this Article proposes a stakeholder theory of competition law. A stakeholder in a business is defined as: "A person who has an interest in a business or enterprise, though not necessarily as an owner." 246 In terms of a stakeholder theory of competition law, this would involve encompassing multiple aims that take into consideration the needs of businesses, employees, and the concerns of society as a whole (for example, environmental protection, et cetera). Accordingly, the aims of competition law should represent a coalition of interests and the involvement of all relevant participants. As Stucke puts it: "[R]ejoice when different stakeholders actively participate in shaping the objectives of competition policy. One does not develop a competition culture by cutting off the debate and entrusting policy to the experts. Such fiat is a recipe for disaster." 247 As such, it seems clear that competition law needs not only a soul, but also a heart. A competition law regime should not function just on the basis of economic analysis, but should also consider virtues that help protect and promote the living standards and quality of life of a jurisdiction's citizens. Consumer welfare does not go the whole way towards achieving that end; non-efficiency aims must be incorporated.

D. Fairness, Freedom, and Democracy

Fairness, freedom, and the promotion and defense of democracy through competition law can largely be traced back to the German Freiburg School. 248 The Freiburg School developed a philosophy "based on the values of personal liberty and equality." 249 From an ordoliberal perspective, "freedom is the ultimate goal" of competition law. 250

Freedom is the most fundamental goal of competition law for ordoliberals. 251 Economic freedom is closely linked with the protection of fairness and democracy because "the protection of individual freedom of action … restraints] undue economic power." 252 By restraining over-whelming [\*92] economic power, "individuals are free to participate" 253 in markets and are given ample opportunity to seek their own role in society. Economic freedom was held to be an aim of U.S. antitrust law; in Northern Pacific Railway Co. v. United States the Supreme Court stated: "The Sherman Act was designed to be a comprehensive charter of economic liberty aimed at preserving free and unfettered competition." 254

The aim of economic freedom has come in for criticism because, in order to ensure the economic freedom demanded by ordoliberals, it would require the destruction of all contractual relationships. 255 This problem with the economic freedom aim, if taken to its logical extreme, has been highlighted by the U.S. Supreme Court. 256 As Justice Brandeis pointed out, "[e]very agreement concerning trade . . . restrains. To bind, to restrain, is of their very essence." 257 Accordingly, U.S. antitrust law only prohibits "unreasonable restraint[s] of trade." 258

As such, economic freedom is not without its flaws. If total economic freedom was achieved, it would lead to anarchy in the marketplace; however, freedom does inform the thinking behind the non-efficiency goals of fairness and democracy. Fairness will be considered first. Fairness is linked to freedom since it stems "from our beliefs in free will, responsibility, autonomy, [and] equality." 259 Hughes believes that "fairness is a ratifying process" in that "[t]he competitors who achieve success thereby prove that they deserve it." 260 Fairness requires "firms to behave in a certain way both with respect to customers and to rivals," 261 meaning that firms cannot resort to unprincipled tactics in order to compete in the marketplace. The main examples of unfair conduct are predatory pricing and refusal to supply (in some circumstances).

Predatory pricing is when a dominant firm, or group of firms, "reduces prices to a loss-making level" in order to discipline or drive a competitor out of the marketplace. 262 Once the competitor has ceased to be a threat, [\*93] the dominant firm will then raise prices above competitive levels. 263 Predatory pricing may be unfair to competitors, but arguably promotes consumer welfare by lowering prices: "[C]utting prices in order to increase business often is the very essence of competition." 264 Given the potential benefits of predatory pricing to consumers, both the U.S. Supreme Court 265 and the Privy Council (for New Zealand) 266 have held that, in order to prove predatory pricing is harmful, evidence must be presented that the dominant firm is capable of recouping the losses incurred through predatory pricing in the long run. However, the ECJ has taken a comparatively harsh view towards identifying conduct as predatory pricing: in AKZO v. Commission the Court made clear that firms engaged in predatory pricing would be punished. 267 Furthermore, the ECJ does not require proof that the dominant firm is able to recoup its losses in order to prove predatory pricing. 268 Predatory pricing can be seen as falling within the consumer welfare paradigm; if predatory pricing successfully forces competitors out of the market, then the remaining firm(s) can raise prices to supra-competitive. However, prohibitions against predatory pricing are more about fairness than consumer welfare. It is unfair to force competitors out of the marketplace by driving them out of business with artificially low prices, therefore denying them their economic freedom to participate in the marketplace.

Refusal to supply is restricted to limited sets of circumstances and, for the most part, contract law does not insist upon "compulsory dealing." 269 One situation where refusal to supply offends principles of fairness, and is therefore prohibited, is refusing to supply an existing customer with a necessary raw material when that customer is also a competitor in a downstream market, and the raw material is necessary to manufacture the downstream product. 270 Similarly, an unfair refusal to supply occurs when "a powerful firm permit[s] rivals to compete and prosper … and then pull[s] the rug out." 271 Such a situation occurred in Aspen Skiing, 272 where [\*94] the dominant firm originally allowed its competitor (both firms operated ski facilities in the same region) to engage in a joint marketing scheme and a ticketing system where customers could buy passes that could be used at either facility. However, when the competitor started prospering, the dominant firm cancelled the agreement. 273 Like predatory pricing, these instances of refusal to supply demonstrate when competition law takes fairness into account--when conduct crosses a line and ceases to be rigorous competition and instead becomes abusive. This unfair behavior impinges upon the economic freedom of individuals by not giving that individual a reasonable opportunity to function in the marketplace. The individual's economic freedom is crushed by more powerful, or dominant, actors. This crushing of individual economic freedom damages not only the individual concerned, but also the relevant market, and society as a whole.

The abuse of dominance is most clearly seen (from an economic freedom perspective) by the use of competition laws to protect democracy itself. Judge Learned Hand called "great industrial consolidations … inherently undesirable." 274 This is because great economic power, when linked with "anti-competitive conduct … is incompatible with democracy." 275 For instance, following World War II, the United States introduced competition laws into Germany and Japan in order to "diffuse centers of power" that might otherwise "be marshalled behind [resurgent] authoritarian regimes." 276 This comes from a general fear that freedom and democracy are "put at risk when a few citizens and groups dominate a large share of resources." 277 An example of such economic power influencing political decisions is found in modern-day Hong Kong, where business interests have used their influence to ensure that the Hong Kong government opposes "domestic or international legislation on competition." 278 Wilkinson and Pickett note that:

[\*95] [H]alf of the world's largest economies are multinationals, and that General Motors is bigger than Denmark, that DaimlerChrysler is bigger than Poland; Royal Dutch/Shell bigger than Venezuela, and Sony bigger than Pakistan. Like the aristocratic ownership of huge tracts of land, which in 1791 Tom Paine attacked in his The Rights of Man, these productive assets remain effectively in the hands of a very few, very rich people, and make our claims to real democracy look pretty thin. 279

It is clear that competition law can play a much wider role than mere economic efficiency, particularly given the immense economic clout wielded by multinational corporations. Competition law can be used to safeguard our rights to engage in economic activity and our system of government.

E. The Protection of Competitors

Using competition law to protect competitors fits in well with ordoliberal thought, as protecting competitors is arguably a method to prevent dominant firms from wielding too much power and potentially limiting the economic freedom of other actors. Motta states that the defense of small firms is "one of the main reasons behind the adoption of competition laws." 280 In line with an ordoliberal justification for the protection of competitors, the U.S. Supreme Court ruled:

[I]t is not for the real prosperity of any country that … changes should occur which result in transferring an independent business man, the head of his establishment, small though it might be, into a mere servant or agent of a corporation for selling the commodities which he once manufactured or dealt in, having no voice in shaping the business policy of the company and bound to obey orders issued by others. 281

The protection of competitors is also in keeping with the SCP framework. 282 By protecting competitors, the structure of the market is protected, thus preventing a firm from achieving a dominant position. For instance, in Brown Shoe Co. v. United States, the U.S. Supreme Court stated that the role of U.S. antitrust law was the "protection of competition, not competitors." 283 However, in the Supreme Court's opinion, the [\*96] best way "to promote competition [is] through the protection of viable, small, locally owned businesses." 284 Brown Shoe was one of many cases during the 1960s in which the Warren Court protected small firms in order to protect the competitive process. 285 It is because of this that the argument has been advanced that protecting competitors is the same as protecting competition itself, as "an effort to protect competitors includes protecting competition" 286 --after all, "competition requires competitors." 287 The ECJ has also noted that it is sometimes difficult to separate the protection of competitors "from the maintenance of an effective competitive structure." 288

In addition to protecting the structure of the market, other benefits that potentially accrue from the protection of competitors are innovation and promotion of local businesses. 289 According to Motta: "The European Commission seems to have taken the view that small and medium sized enterprises (SMEs) are more dynamic, more likely to innovate and more likely to create employment than large firms. This would be an additional argument to promote SMEs. However, the empirical evidence is quite ambiguous." 290 The possibility of smaller competitors being more innovative is an economic efficiency goal, whereas the promotion of competitors to protect local firms is a non-efficiency goal. There is a current of thought that local businesses, being part of the local community, will be more likely to serve broader goals, such as promoting a high level of employment. 291 As Justice Douglas memorably stated in defense of localism: "Control of American business is being transferred from local communities to distant cities where men on the 54th floor with only balance sheets and profit and loss statements before them decide the fate of communities with which they have little or no relationship." 292 An example of the protection of local firms from the encroachment of larger national or multinational competitors is the French "zone de chalandise," the purpose of [\*97] which is "to guarantee that small butchers and bakers will not face ruinous competition from large-square-footage stores." 293

Despite these potential benefits flowing from the protection of competitors, this aim faces considerable criticisms. 294 Williams describes the protection of competitors as a "political slogan" in defense of the "little guy," "but bad economics." 295 The main criticism of the protection of competitors is that, as an aim, it is not economically efficient. 296 Protecting smaller firms leads to inefficient allocation of resources and undermines the competitive process; by shielding smaller firms from their larger and more successful rivals, large firms are denied their "economies of scale in a market" which allow these large firms the ability to compete in the most effective manner. 297 A non-efficiency criticism of the protection of competitors is somewhat darker in its nature; essentially, that the protection of small firms finds its roots in anti-Semitic opposition to Jewish owned chain-stores in pre-World War II Europe. 298 Despite the inevitable criticism that the protection of competitors is not economically efficient, arguments could be advanced that small, locally-owned businesses are as important to a society's well-being as vast multi-national conglomerates. Given that smaller firms are likely to be more fragile than large competitors, there is an argument to be made that SMEs deserve a special measure of protection.

F. **Protecting the Environment through Competition Law**

Despite not being economically efficient, the aims of economic freedom and the protection of competitors are established goals of competition law regimes. 299 Using competition law for environmental concerns is a relatively new concept. Environmental concerns have been used by the **E**uropean **C**ommission to permit **conduct** that would otherwise have been considered **anticompetitive**. 300 The Commission has not directly stated that environmental concerns are enough to trump competition; the closest the Commission has come to this is allowing an agreement on the basis that it [\*98] "gives direct practical effect to environmental objectives." 301 However, the Commission has primarily sought to justify the inclusion of environmental concerns on the basis of "economic progress" 302 or economic efficiency. 303 Thus, the Commission is attempting to subsume environmental issues into the consumer welfare standard. For instance, in the Philips-Osram decision, the Commission noted that a reduction in air pollution created "direct and indirect benefits for consumers." 304

Integrating **environmental concerns** into the consumer welfare standard can be justified because "consumers do not **properly** take into account **all the externalities** involved in their purchase and consumption decisions." 305 This stance was specifically taken by the Commission in CECED. 306 Essentially, the Commission has directly equated environmental concerns with economic efficiency. 307 Monti describes this method of analysis as "remarkable." 308 From a **c**onsumer **w**elfare perspective, it is hard to understand why consumer choice should be limited because of environmental concerns; a purist of the **Chicago School** would **not** approve. Of course, from a total or social welfare perspective, the Philips-Osram, CECED, and DSD decisions could be justified because, in the long run, society as a whole reduces costs by preventing environmental damage (rather than paying to repair it). However, this author would submit that environmental protection is just another public policy, or **non-efficiency**, aim for competition law. The Commission should seek to **clarify** its position, and state that it **does** consider **non-efficiency aims**, such as the **environment**, **rather than** dishonestly **attempting to shoehorn these aims into the consumer welfare standard.**

**Generic Econ**

**2AC—Thumper**

**The alternative to a carbon tax is a plethora of command-and-control interventions like the CPP – triggers all their DA’s worse**

Jerry **Taylor 15**, President of the Niskanen Center, a D.C.-based think tank, “The Conservative Case for a Carbon Tax,” March 23, http://niskanencenter.org/wp-content/uploads/2015/03/The-Conservative-Case-for-a-Carbon-Tax1.pdf

**The alternative to a carbon tax is not a policy of ignoring climate risks.** The alternative to a carbon tax is a **plethora of command-and-control regulatory interventions at every level of government** and **subsidies** for low-carbon technologies and practices. Those interventions **already impose a sort of carbon tax**. Regulatory costs increase the price we pay for energy-related goods and services. But unlike a carbon tax, the increased costs are invisible to consumers.

The carbon tax delivered by command-and-control regulation is **uneven, invisible, inefficient, and economically incoherent.** EPA’s proposed regulations for new coal-fired power plants (under section 111(b) of the Clean Air Act7) **dictate** carbon capture and storage technology that reduces CO2 emissions at a cost of $88-$131 per ton.8 The agency’s proposal for regulating existing power plants (“The Clean Power Plan,” issued under section 111(d) of the Clean Air Act) leaves the details up to the states, so it is unclear exactly what regulatory initiatives will follow.9

We can be sure, however, that they will be expensive. While the EPA does not provide aggregated cost estimates in their rulemaking,10 a study by the U.S. Chamber of Commerce puts the total regulatory price tag through 2030 at $478 billion, annual GDP losses over that period at $51 billion, and the cost of greenhouse gas emissions reductions under the EPA plan at **$153-163 per ton.**11 This is much higher than the agency’s estimate of the social cost of carbon emissions in 2030: $17 per ton using a 5 percent discount rate, $55 per ton using a 3 percent discount rate, and $85 per ton using a 2.5 percent discount rate.12 Another study performed by NERA Economic Consulting for seven industry trade associations found that the Clean Power Plan will cost the energy sector $366-479 billion (assuming a 5 percent discount rate) over 2017- 2030. Retail electricity prices would increase by 12-17 percent.13

Although projecting compliance cost estimates far into the future for regulations that have not yet been written is fraught with uncertainty, the ambitious nature of the goals and timetables established by the EPA suggests that these higher compliance costs estimates are not implausible.

The EPA’s authority to issue regulations to reduce greenhouse gas emissions is **virtually unbounded** and is **well entrenched** in the Clean Air Act.14 Reversing the EPA’s finding under section 202(a) of the Clean Air Act (known as the “endangerment finding”), which compels the EPA to regulate greenhouse gas emissions if they “cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare,” would be **extremely difficult**. While a reversal could come administratively from some future EPA, that reversal would surely **face a legal challenge** requiring the EPA to demonstrate that the sreversal was supported by “substantial evidence when considered on the record as a whole.”15 Given the fact that 97 percent of the papers in the scientific literature that take a position on the matter conclude that global warming is happening and that human activity is the main cause, **it is doubtful that a court would allow a reversal to occur. 16**

Even if the endangerment finding were reversed, EPA could still regulate greenhouse gases via alternative regulatory pathways that require no such formal endangerment finding, such as when the agency is reviewing new emission sources in regions where significant deterioration of air quality is a concern and in the course of providing operating permits applicable to every major stationary source of air pollution (existing and new).17

Rewriting the Clean Air Act to remove EPA’s regulatory authority over greenhouse gas emissions is the most promising route for those who oppose regulatory intervention. But that strategy would require an almost unimaginable political scenario: first, conservative control of the White House, Congress, and a filibuster-proof super-majority in the Senate; and second, a political willingness to pay the opportunity costs associated with spending large amounts of political capital on an issue with relative low political salience.18

Senate Majority Leader Mitch McConnell threatens to use the appropriations process to defund agency promulgation and enforcement of EPA’s greenhouse gas regulations. That road, however, ends in a presidential veto that Republicans lack the votes to override. Raising the ante with threats about a government shutdown would be political suicide given that 78 percent of Americans in a recent survey supported federal limitation of greenhouse gas emissions.19

Eliminating the regulations via legislation is hopeless as long as there are at least 40 votes in the Senate to sustain a filibuster. Judging by the Senate votes on climate change amendments to the Keystone XL Pipeline legislation this year, there are probably at least 50 votes for that—and likely more—at present. With the Republicans defending 24 Senate seats in the next election and the Democrats defending 10, there will not be a filibuster-proof Senate in the foreseeable future.

Lawsuits might stop the regulations, but only for a time. The agency’s rulemaking is vulnerable to a number of legal challenges.20 But as long as the EPA’s endangerment finding stands, a successful challenge to the rules will just send the agency back to the drawing board, with new rules to follow. **There’s no guarantee that the new rules will be an improvement over the old rules.**

Many conservatives would like to take a page out of the Affordable Care Act resistance playbook and have state legislatures prevent their regulatory agencies from filing the required state implementation plans.21 The idea is to require EPA, rather than the states, to take political ownership of the economic consequences of the rulemaking.22 But even were this politically viable (how many Republican-controlled states are really prepared to surrender important regulatory decisionmaking to EPA bureaucrats?), EPA has more than enough resources and manpower to write the regulations directly. More importantly, federal implementation plans for the states would likely impose significantly higher compliance costs. According to NERA Economic Consulting, were states as a whole to leave rule-making to EPA:

• 69 percent of coal-fired power generating capacity would be retired rather than 18 percent;

• Coal-fired power generation would decline by 71 percent rather than by 29 percent;

• Natural gas prices would increase by 29 percent rather than by 2 percent; and

• Retail electricity prices would increase by 17 percent rather than by 12 percent.23

A future Republican EPA administrator could adopt a policy of regulatory delay by extending state implementation plan deadlines, half-heartedly defending industry legal challenges, dragging out rulemaking, and slow walking every step of the process. That can work, but it would **only delay the inevitable**. If the GOP takes the White House in 2016, it can buy time but it cannot buy a new policy. And it only works for as long as Republicans hold the White House.

If repeal-minded Republicans were to capture the White House and hold the Congress in 2016, they might conceivably get around a Democratic filibuster via budget or reconciliations bills (which cannot be filibustered). Yet that route leads to political thermonuclear war, which is why neither party has gone down that road very often. How many times, after all, did Republicans successfully pull off that maneuver when they held the Congress and White House during the Bush administration? Plenty of noise was made about using this exact strategy to get around Democratic filibusters and open up the Arctic National Wildlife Refuge for oil and gas drilling. Nothing, however, came of it.

Even were conservatives to eliminate federal action to address climate change, states would remain free to act. Presently, there is a cap-and-trade program in California and a regional cap-and-trade program across nine Northeastern states (Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, Rhode Island, and Vermont). A **federal regulatory retreat** on greenhouse gas regulation **would** likely **trigger further increases in regulation at the state level.**

Moreover, there is a **plethora of piecemeal regulatory interventions** to reduce greenhouse gas emissions at both the federal and state level. **R**enewable energy **p**ortfolio **s**tandards, green energy subsidies, and energy efficiency standards are but a few of the costly programs that are, in part, justified by concerns about global warming.

Hence, the political question is not whether government should act to control the emission of greenhouse gases. **That** question **has been settled** for the foreseeable future. The relevant political question is **how** government should control greenhouse gas emissions.

**2AC—Econ DA**

**1. warming turns growth and creates new poverty traps—extreme weather, sea level rise, damage to crop production collapse the economy.**

**Worland 15** (Justin, Writer for TIME “Climate Change Could Wreck the Global Economy”. http://time.com/4082328/climate-change-economic-impact/)

Temperature rise due to **climate change may radically damage the global economy** and **slow growth in the coming decades** if nothing is done to slow the pace of warming, according to new research.

The researchers behind the study, published in the journal Nature, found that temperature change due to unmitigated global warming will leave global GDP per capita **23% lower** in 2100 than it would be without any warming. “We’re basically throwing away money by not addressing the issue,” said Marshall Burke, an assistant professor at Stanford University. “We see our study as providing an estimate of the benefits of reducing emissions.”

The economic effects of climate change may be **even worse than this study makes them sounds**. The research relies on historical data from countries around the world on how temperature increase has affected productivity. This means the study does not account for the economic impact of **sea level rise, storms or any of the other expected effects of climate change beyond simple** **warming**. “Sea level rise, increased storm intensity…if you think those things are going to worsen the effects of climate change, then our estimates would be an underestimate of the potential impacts, which is sort of terrifying,” said Burke.

This study is far from the first to suggest that climate change will slow economic growth. Big business has been especially keen on highlighting the potential damage. A Citigroup report released last month found that minimizing temperature rises to 2.7ºF (1.5ºC) could minimize global GDP loss by **$50 trillion** compared to a rise of 8.1ºF (4.5ºC) in the coming decades.

The study breaks down productivity into agricultural and non-agricultural fields. The effect of agricultural productive is easy to explain: crops grow most productively within a certain temperature range. (The effects of warming on crop productivity have been well documented.) But research still don’t know why warm weather decreases productivity for workers in other fields.

**2. Plan solves national debt**

**Williamson & Wichman 15 – Prof @ U Maryland – Research Associate of the National Bureau of Economic Research & PhD Candidate** [Roberton C. Williams III & Casey J. Wichman, “Macroeconomic effects of a carbon tax,” from Implementing a US Carbon Tax: Challenges and Debates, eds. Ian Perry, Adele Morris, and Roberton C. Willilams III] Page 89-90 \*\*edited for ableist language

The **U**nited **S**tates faces substantial fiscal deficits in short-, medium-, and long-term scenarios. While short-run deficits may be desirable and/or necessary because the economy still has a long way to go in recovering from the Great Recession, the outlook for medium- and long-run deficits are cause for concern (Gale and Harris, 2011). While the most recent projections from the Congressional Budget Office indicate that the deficit will shrink slightly over the next few years, those projections also indicate that the deficit and the debt-to-GDP ratio are set to rise substantially over the longer term (see Chapter 1).

Large government budget deficits can [slow] ~~retard~~ economic growth in a variety of ways. 16 Government borrowing creates additional demand in capital markets, thus potentially **driving up interest rates** and **crowding out private investment**. The need to eventually pay off the debt -or just to pay the interest on it -means that tax rates will need to rise in the future, cutting economic growth then (and perhaps also affecting the economy today, as workers and investors anticipate future tax increases). And a larger debt-to-GDP ratio **increases the risk of a debt crisis** - a risk that seems tiny for the United States, though nonetheless worth considering because the potential consequences would be dramatic.

Of course, if the government is optimally choosing tax and deficit policy, then the gain from using a dollar to cut the budget deficit will be the same as the gain from using that dollar to cut taxes. But very few observers seem to think that the longer-run path that the deficit is currently on is optimal. If the deficit is larger than optimal, then the benefits of using carbon tax revenue to cut the deficit will **exceed those of using that revenue to cut other taxes.**

Evidence on the effects of using carbon tax revenue to cut the deficit is far sparser than on the effects of using it to cut other taxes, though there are a few recent studies on this. 17 For example, results in Carbone et al. (2013) suggest that over the long term, the economic gain from using carbon tax revenues to reduce the deficit is generally substantially larger than the gain from using those revenues to cut taxes now. 18 This result is driven primarily by the effects of higher future taxes: because the deficit is currently higher than a long- run sustainable level, future taxes will need to be higher than taxes today. The higher the tax rate, the more harmful a tax increase will be, so it is more efficient to raise additional revenue now (at today 's lower rates) than it will be later. The study doesn't fully capture the other effects of deficits (mentioned above), and thus likely understates the gains from deficit reduction. 19

**3. Saves the debt to GDP ratio**

**Gale, Brown, & Saltiel 15 – Chair in Federal Econ policy @ Brookings, former research assistant, PhD Economics from UC-Irvine** [William G. Gale, Samuel Brown, & Fernando Saltiel, Carbon Taxes as Part of the Fiscal Solution, from Implementing a US Carbon Tax: Challenges and Debates, eds. Ian Perry, Adele Morris, and Roberton C. Willilams III] Page 5-6

An increase in taxes will not necessarily slow long- term economic growth. Tax changes have two broad sets of long-term effects on the economy. 40 The first set operates through direct changes in relative prices, incentives, and after-tax income. These changes affect the degree to which households are willing to work, save, invest in education and training, and so on, and to which firms invest and hire; these effects are known as income and substitution effects. Thus, for example, increases in marginal tax rates, **holding other factors constant**, can reduce the size of the economy and reduce economic growth.

**However, other factors are not constant**. The second broad effect is on national saving. A reduction in the deficit tends to raise public saving, which typically results in higher national saving (national saving is the sum of household, corporate, and government saving). This effect is often ignored in discussions of tax policy and economic growth, but it can be quite important.

Containing deficits matters for several reasons.

Sustained deficits may enhance the risk of a financial crisis. Even in the absence of precipitating a financial crisis, however, sustained deficits have deleterious longterm effects, as they translate into lower national savings, higher interest rates, and increased indebtedness to foreign investors, all of which reduce future national income. In addition to the growth impacts, sustained deficits may impose unfair burdens on future generations and may constrain U.S. foreign policy or defense positions, especially as they relate to creditor nations.

Gale and Orszag (2004b) estimate that a 1 percent of GDP increase in the deficit will raise interest rates by 25 to 35 basis points in the United States and reduce national saving by 0.5 to 0.8 percentage points. Engen and Hubbard (2004) obtain similar results with respect to interest rates. Thus, relative to a balanced budget , this study suggests a deficit equal to 6 percent of GDP would raise interest rates by at least 150 basis points and reduce the national saving rate by at least 3 percent of GDP. The IMF (2010) estimates that, in advanced economies, an increase of 10 percentage points in the initial debt/GDP ratio reduces future GDP growth rates by 0.15 percentage points. Hence (if this result is extrapolated linearly, and we do so with caution, since it would be easy to think of reasons that would nuke a larger debt change have more-than-proportional or less-than-proportional effects), the increase in the debt-to-GDP ratio from about 40 percent earlier in the decade to 85 percent by 2022 (Auerbach and Gale 2012) would be expected to reduce the growth rate by a whopping 0.675 percentage points. Thus a deficit reduction plan that included tax increases (at least one that did not primarily rely on raising taxes on savings and investment) could, on balance, help spur economic growth in contrast to continuing policy as normal. The net long-term effect of a tax change is the result of the two effects outlined above, which are sometimes offsetting and sometimes mutually reinforcing. Stokey and Rebelo (1995), for example, show that even the very large tax increases associated with World War 11 - on the order of 10 percent of GDP - apparently had no discernible impact on the long-term economic growth rate. Likewise, the 1981 tax cuts, which cut the top rate from 70 percent to 50 percent, accounted for only a very small share of the growth of the economy between 1981 and 1986, acco rding to Feldstein and Elmendorf (1989). Auerbach and Slemrod (1997) also document tepid economic growth responses to the 1986 tax act. Gale and Potter (2002) find that the impact of the 2001 tax cuts on the deficit and national saving outweighed its impact on incentives, so that the net effect on growth was negative. This suggests that raising taxes by undoing the 2001 tax cuts would raise long-term economic growth (due to the beneficial effect of lower deficits).

# 1AR

## Case

## CP

### 1AR – CWS

**Plan is key to broader environmental sustainability**

**Dolmans 21** (Maurits Dolmans, Cleary Gottlieb Steen & Hamilton LLP, The Dominance and Monopolies Review: Editors' Preface, 6-14, <https://thelawreviews.co.uk/title/the-dominance-and-monopolies-review/editors-preface>, y2k)

A third set of commentators believes that **competition** policy is **misdirected**, that the historic focus of competition law has been **too narrow**, and that the **c**onsumer **w**elfare **s**tandard should be **expanded** to take account of social, **industrial**, **environmental** and other considerations (sometimes referred to as 'hipster antitrust').

And a fourth critique, voiced by Maurice Stucke and Ariel Ezrachi, maintains that many of today's problems result from too much 'toxic' competition overall, driven by ideologues, lobbyists and privatisation, and that we need to promote a kind of 'noble competition', where rivals mutually strive for excellence.

To address these challenges, a dizzying array of reports has emerged, commissioned by governments in the US, EU, UK, Germany, France, Australia and elsewhere. And from those reports, a constellation of ideas has emerged to overhaul competition law, including: reorienting the goals of antitrust policy away from the consumer welfare standard towards a broader societal welfare test; reversing the burden of proof in merger control; per se bans on certain categories of conduct in the digital sector (including prophylactic controls on vertical integration); lowering the standard of judicial review to give competition authorities more leeway; injecting political oversight into competition law enforcement; loosening the standard to impose duties to share data with rivals; introducing market study regimes; allowing authorities to impose remedies without formally establishing an infringement; and establishing mandatory codes of conduct for digital platforms.

Where does this all leave busy practitioners and businesses that are trying to navigate the complex and constantly evolving rules concerning abuse of dominance? Helpfully, this ninth edition of The Dominance and Monopolies Review seeks to provide some respite, providing an accessible and easily understandable summary of global abuse of dominance rules. As with previous years, each chapter – authored by specialist local experts – summarises the abuse of dominance rules in a jurisdiction, provides a review of the regime's enforcement activity in the past year, and sets out a prediction for future developments. From those thoughtful contributions, we identify three main trends to watch out for over the next year.

**Sustainability and abuse of dominance**

The past year has seen sustainability become a new and **important focus** for **competition regulators**. The Dutch competition authority started the trend by setting 'sustainability' as a key priority and proposing a more permissible review for certain environmental agreements. The Hellenic Competition Commission followed, advocating for far-reaching policy changes to promote sustainability goals across all areas of competition policy. The European Parliament has called on the European Commission to 'urgently take the concrete action needed in order to fight and contain the threat of climate and environmental catastrophe before it is too late'. As Commissioner Vestager has noted, 'everyone is called upon to make our contribution to the necessary change – including enforcers'. The European Commission initiated a consultation, and the **O**rganisation for **E**conomic **C**o-operation and **D**evelopment held several events to discuss the **integration** of **climate and environmental goals** in competition policy. Chinese competition law already provides an explicit exemption for 'agreements between undertakings which they can prove to be concluded for . . . serving public interests in energy conservation, environmental protection and disaster relief'.

At core, the **cause** of the **climate crisis** is a **market failure**: the cost of **pollution** of **air**, **water** and **land**, and the **damage** wrought by greenhouse gas **emissions** to the climate today and in the future are generally not included in the **price** of goods and services. Because the market price of a polluting product **excludes** the social cost, production is **higher** than the **social optimum**, taking into account that **consumption** of natural resources now **exceeds** what the **regenerative capacity** of the Earth can **sustain**.

To address this market failure, the discussion around including environmental goals in competition law has, so far, mostly focused on state aid, horizontal cooperation and merger control. For example, it has been argued that the consumer welfare analysis in merger control could include whether the merger could be expected to raise or lower the environmental price that consumers pay, which is not reflected in the market price in monetary terms or in quality (which could take account of non-market externalities such as emissions). Likewise, horizontal guidelines could be revised to allow cooperation in pursuit of environmental goals, where individual producers are willing to invest in greening production, but may be held back by the fear that they will be undercut by those who do not invest, or by cheaper imports.

There is no inherent reason, however, why **sustainability** could **not** be incorporated into **an abuse of dominance assessment**, too. This could be done in a number of ways.

First, **pricing analysis** (for example, for loyalty rebates, predatory pricing, margin squeeze) could take into account the actual **costs** incurred by the **dominant company** and **by society**, including not only the total costs of production, but also the **environmental** cost. A company may be able to **price lower** than its rivals because it is employing **polluting** **or** **greenhouse** gas emitting technology, at great societal cost, which is not reflected in its traditional variable and fixed costs.

Second, **a dominant provider** with an incumbent polluting technology might commit an abuse by excluding **rival, greener technologies** by means **other** than competition on the **merits**. Such conduct should already violate dominance rules. In this case, however, 'competition on the merits' should be defined so as to exclude competition that relies on avoidable pollution or greenhouse gas emissions. Also, the assessment should take into account that consumer harm would be even higher from the abuse because of the exclusion of a greener technology. The theory would be not dissimilar to that pursued by the European Commission in its Car Emissions cartel investigation, albeit that case concerns horizontal collusion to restrict competition on innovation for emission cleaning systems.

Third, there may be sui generis **abuses** that involve **unsustainable business practices** that also restrict competition. For example, a dominant producer might employ **cheap** and **polluting means** of production, and thereby price cheaper than its rivals. **A dominant raw materials producer** might make misleading representations to an environmental agency to secure a licence to **extract minerals**. And a dominant **chemical producer** could **illegally dump products** in rivers, thereby gaining an advantage over rivals that dispose of **waster safely**. All these might conceivably be an abuse of dominance because they **distort** competition, via means **other** than competition on the merits. The fact that they may also infringe other laws is no bar to bringing an abuse of dominance claim, just as a dominant factory owner burning down a rival's factory can be both arson and an abuse of dominance. Rivals should have **a cause of action**, especially where **environmental rules** are **inadequate** or **insufficiently enforced.**

**That’s key to resolve the CWS’s myopic focus on the competition---including non-efficiency goal such as the environmental sustainability is key**

**Hodge 12** (TOM C. HODGE, LL.B. 2009, King's College London; LL.M. 2010, Vanderbilt University Law School; LL.M.(R) 2011, University of Edinburgh Law School. COMPATIBLE OR CONFLICTING: THE PROMOTION OF A HIGH LEVEL OF EMPLOYMENT AND THE CONSUMER WELFARE STANDARD UNDER ARTICLE 101, 3 Wm. & Mary Bus. L. Rev. 59, y2k)

As such, there does seem to be a persuasive argument that **c**onsumer **w**elfare should **not** be the be-**all and end-all** when it comes to **competition policy**, as it only accounts for benefits to individuals when they are consumers. This issue goes to the heart of the matter that this Article seeks to answer. **C**onsumer **w**elfare needs to be **balanced** with **matters** that are also of **collective concern** to individuals and society as a whole, such as employment or **environmental protection**.

The consumer welfare standard and economic efficiency have been beneficial in defining the goals of competition law, but, like perfect competition, they remain just theories. Like all theories, consumer welfare does not survive contact with reality. Clearly consumer welfare has an important role to play, but it is neither the "'correct' position" nor the "last word" in the aims of competition law. 220 If **c**onsumer **w**elfare is **not** balanced against **non-efficiency goals** in the application of competition law, then the results could well be **harmful** to society as a whole.

C. Incorporating Non-Efficiency Goals into Competition Law as a General Proposition

The sole consumer welfare standard represents one end of the spectrum regarding the aims of competition law. At the other end of the spectrum is the view "that competition policy is based on multiple values that cannot be reduced to a single economic goal," and that these values must "reflect society's wishes, culture, history, institutions and perception of itself." 221 This "multiple values" view of the aims of competition law is a reflection of jurisdictional path dependency; as Townley states: "[L]aw (and more importantly legal interpretation) is founded in country and culture." 222 [\*88] Dabbah lists various "social goals or values" including: (1) protecting small businesses, (2) protection of democracy, and (3) market fairness. 223 This section seeks to demonstrate that a more holistic approach to the aims of competition law, which incorporates non-efficiency goals, is necessary in order for competition law to benefit society.

If it is accepted that competition law should have multiple aims, the question then becomes what aims should be included? Bork writes that competition regimes that include multiple aims are "likely to leave the impression that antitrust is a cornucopia of social values, all of them rather vague and undefined but infinitely attractive." 224 Dabbah divides the aims of competition law into three general categories: economic goals, social goals, and broader political goals. 225 Although consumer welfare advocates would like to do so, social goals and broader political goals cannot be rendered as automatically inapplicable as concerns of competition law. The aims that should be included in a competition regime arguably need to be determined by each jurisdiction in order to be in keeping with the goals and values of that society. For instance, the European Union has, since its inception, used competition law as a way to prevent distortions in the internal market, in other words, as a means for promoting market integration. 226 As such, there can be no "one size fits all" guide to what aims competition regimes should incorporate. What this Article seeks to argue is that it seems clear that competition law should not merely aim at hitting a consumer welfare target--with the possible exception of the United States, where it appears that consumer welfare has laid down deep jurisprudential and intellectual roots and, accordingly, has become part of that jurisdiction's path dependency.

There are two arguments against incorporating non-efficiency values into competition. First, values other than efficiency can create uncertain outcomes or "fundamentally alter the final outcome" 227 of an investigation into allegedly anticompetitive conduct. This has previously been discussed. 228 The second issue is whether non-efficiency aims are appropriate to be considered as part of a competition law analysis. 229 Odudu questions [\*89] the legitimacy of incorporating non-efficiency goals into competition law. 230 In Odudu's opinion, using competition law to "coerce virtues" 231 is undemocratic because such non-efficiency objectives should "be pursued through democratic, political, legislative routes." 232 In support of his position, Odudu points to the U.S. Supreme Court decision of National Society of Professional Engineers v. United States.233 In National Society of Professional Engineers, Justice Stevens ruled that:

[T[he Sherman Act reflects a legislative judgment that ultimately competition will produce not only lower prices, but also better goods and services. "The heart of our national economic policy long has been faith in the value of competition." . . . Even assuming occasional exceptions to the presumed consequences of competition, the statutory policy precludes inquiry into the question whether competition is good or bad. 234

However, Justice Stevens is misstating the law. The Sherman Act does not list the aims of U.S. antitrust law. The consumer welfare aim was a creation of the courts, who were building on the intellectual foundations provided by Robert Bork. 235 Therefore, Odudu's argument falls short. If Odudu can accept that judges interpret competition statutes (which are silent on the aims of competition law) to make consumer welfare the sole aim of competition law, then there is no reason he cannot accept judges interpreting statutes to give competition laws different aims. This is particularly true of the European Union, as Article 7 TFEU insists that there is "consistency between [the Union's] policies and activities." 236 As such, as is argued in greater detail below, 237 the EU's competition law must consider aims other than consumer welfare. Including aims other than consumer welfare is not a "usurpation of democracy," 238 but rather, it is an acknowledgement that competition law is part of a broader regulatory framework; as such, competition law needs to work towards the same aims as other laws that govern industrial policy.

Furthermore, Odudu's argument is flawed for two reasons. Firstly, consumer welfare advocates believe that focusing exclusively on consumer [\*90] welfare competition regimes "increase[s] welfare for the society as a whole" 239--in other words, that an efficient market will promote overall welfare. Therefore, consumer welfare advocates assume that by aiming for the goal of maximizing consumer welfare, this will generate non-efficiency benefits, such as consumer protection, promotion of employment, and others. The issue is that consumer welfare alone cannot benefit society as a whole. Despite Kroes' arguments to the contrary, 240 it is irrational to suggest that non-efficiency goals can be incidentally promoted through exclusion. In order to promote the multiple outcomes that benefit society as a whole, all these aims must be considered together in a holistic analysis.

This leads to the second flaw in Odudu's argument, that such benefits are arguably not "Townley's values" 241 but universal values. Although some of Townley's more extreme examples include using competition law to discourage binge drinking, 242 for the most part non-efficiency goals are not extremist viewpoints. For instance, Article 9 TFEU requires that, "the Union shall take into account requirements linked to the promotion of a high level of employment, the guarantee of adequate social protection, the fight against social exclusion, and a high level of education, training and protection of human health." 243 Is Odudu suggesting that the majority of citizens in a democracy are opposed to promoting employment or education? This author would submit that the answer is almost certainly not. These are non-efficiency concerns that are arguably valid and widely accepted by members of a democratic society.

In order for **competition law** to function **effectively**, it needs to balance **broader aims** against **c**onsumer **w**elfare, otherwise competition law will continue to be "**out of whack**." 244 To work towards improving society as a whole and raising living standards, competition cannot be "**only** about the **survival of the fittest** but also about the **protection** of the weak and the [\*91] pursuit of **important social goals**." 245 To balance consumer welfare with other objectives within competition law, this Article proposes a stakeholder theory of competition law. A stakeholder in a business is defined as: "A person who has an interest in a business or enterprise, though not necessarily as an owner." 246 In terms of a stakeholder theory of competition law, this would involve encompassing multiple aims that take into consideration the needs of businesses, employees, and the concerns of society as a whole (for example, environmental protection, et cetera). Accordingly, the aims of competition law should represent a coalition of interests and the involvement of all relevant participants. As Stucke puts it: "[R]ejoice when different stakeholders actively participate in shaping the objectives of competition policy. One does not develop a competition culture by cutting off the debate and entrusting policy to the experts. Such fiat is a recipe for disaster." 247 As such, it seems clear that competition law needs not only a soul, but also a heart. A competition law regime should not function just on the basis of economic analysis, but should also consider virtues that help protect and promote the living standards and quality of life of a jurisdiction's citizens. Consumer welfare does not go the whole way towards achieving that end; non-efficiency aims must be incorporated.

D. Fairness, Freedom, and Democracy

Fairness, freedom, and the promotion and defense of democracy through competition law can largely be traced back to the German Freiburg School. 248 The Freiburg School developed a philosophy "based on the values of personal liberty and equality." 249 From an ordoliberal perspective, "freedom is the ultimate goal" of competition law. 250

Freedom is the most fundamental goal of competition law for ordoliberals. 251 Economic freedom is closely linked with the protection of fairness and democracy because "the protection of individual freedom of action … restraints] undue economic power." 252 By restraining over-whelming [\*92] economic power, "individuals are free to participate" 253 in markets and are given ample opportunity to seek their own role in society. Economic freedom was held to be an aim of U.S. antitrust law; in Northern Pacific Railway Co. v. United States the Supreme Court stated: "The Sherman Act was designed to be a comprehensive charter of economic liberty aimed at preserving free and unfettered competition." 254

The aim of economic freedom has come in for criticism because, in order to ensure the economic freedom demanded by ordoliberals, it would require the destruction of all contractual relationships. 255 This problem with the economic freedom aim, if taken to its logical extreme, has been highlighted by the U.S. Supreme Court. 256 As Justice Brandeis pointed out, "[e]very agreement concerning trade . . . restrains. To bind, to restrain, is of their very essence." 257 Accordingly, U.S. antitrust law only prohibits "unreasonable restraint[s] of trade." 258

As such, economic freedom is not without its flaws. If total economic freedom was achieved, it would lead to anarchy in the marketplace; however, freedom does inform the thinking behind the non-efficiency goals of fairness and democracy. Fairness will be considered first. Fairness is linked to freedom since it stems "from our beliefs in free will, responsibility, autonomy, [and] equality." 259 Hughes believes that "fairness is a ratifying process" in that "[t]he competitors who achieve success thereby prove that they deserve it." 260 Fairness requires "firms to behave in a certain way both with respect to customers and to rivals," 261 meaning that firms cannot resort to unprincipled tactics in order to compete in the marketplace. The main examples of unfair conduct are predatory pricing and refusal to supply (in some circumstances).

Predatory pricing is when a dominant firm, or group of firms, "reduces prices to a loss-making level" in order to discipline or drive a competitor out of the marketplace. 262 Once the competitor has ceased to be a threat, [\*93] the dominant firm will then raise prices above competitive levels. 263 Predatory pricing may be unfair to competitors, but arguably promotes consumer welfare by lowering prices: "[C]utting prices in order to increase business often is the very essence of competition." 264 Given the potential benefits of predatory pricing to consumers, both the U.S. Supreme Court 265 and the Privy Council (for New Zealand) 266 have held that, in order to prove predatory pricing is harmful, evidence must be presented that the dominant firm is capable of recouping the losses incurred through predatory pricing in the long run. However, the ECJ has taken a comparatively harsh view towards identifying conduct as predatory pricing: in AKZO v. Commission the Court made clear that firms engaged in predatory pricing would be punished. 267 Furthermore, the ECJ does not require proof that the dominant firm is able to recoup its losses in order to prove predatory pricing. 268 Predatory pricing can be seen as falling within the consumer welfare paradigm; if predatory pricing successfully forces competitors out of the market, then the remaining firm(s) can raise prices to supra-competitive. However, prohibitions against predatory pricing are more about fairness than consumer welfare. It is unfair to force competitors out of the marketplace by driving them out of business with artificially low prices, therefore denying them their economic freedom to participate in the marketplace.

Refusal to supply is restricted to limited sets of circumstances and, for the most part, contract law does not insist upon "compulsory dealing." 269 One situation where refusal to supply offends principles of fairness, and is therefore prohibited, is refusing to supply an existing customer with a necessary raw material when that customer is also a competitor in a downstream market, and the raw material is necessary to manufacture the downstream product. 270 Similarly, an unfair refusal to supply occurs when "a powerful firm permit[s] rivals to compete and prosper … and then pull[s] the rug out." 271 Such a situation occurred in Aspen Skiing, 272 where [\*94] the dominant firm originally allowed its competitor (both firms operated ski facilities in the same region) to engage in a joint marketing scheme and a ticketing system where customers could buy passes that could be used at either facility. However, when the competitor started prospering, the dominant firm cancelled the agreement. 273 Like predatory pricing, these instances of refusal to supply demonstrate when competition law takes fairness into account--when conduct crosses a line and ceases to be rigorous competition and instead becomes abusive. This unfair behavior impinges upon the economic freedom of individuals by not giving that individual a reasonable opportunity to function in the marketplace. The individual's economic freedom is crushed by more powerful, or dominant, actors. This crushing of individual economic freedom damages not only the individual concerned, but also the relevant market, and society as a whole.

The abuse of dominance is most clearly seen (from an economic freedom perspective) by the use of competition laws to protect democracy itself. Judge Learned Hand called "great industrial consolidations … inherently undesirable." 274 This is because great economic power, when linked with "anti-competitive conduct … is incompatible with democracy." 275 For instance, following World War II, the United States introduced competition laws into Germany and Japan in order to "diffuse centers of power" that might otherwise "be marshalled behind [resurgent] authoritarian regimes." 276 This comes from a general fear that freedom and democracy are "put at risk when a few citizens and groups dominate a large share of resources." 277 An example of such economic power influencing political decisions is found in modern-day Hong Kong, where business interests have used their influence to ensure that the Hong Kong government opposes "domestic or international legislation on competition." 278 Wilkinson and Pickett note that:

[\*95] [H]alf of the world's largest economies are multinationals, and that General Motors is bigger than Denmark, that DaimlerChrysler is bigger than Poland; Royal Dutch/Shell bigger than Venezuela, and Sony bigger than Pakistan. Like the aristocratic ownership of huge tracts of land, which in 1791 Tom Paine attacked in his The Rights of Man, these productive assets remain effectively in the hands of a very few, very rich people, and make our claims to real democracy look pretty thin. 279

It is clear that competition law can play a much wider role than mere economic efficiency, particularly given the immense economic clout wielded by multinational corporations. Competition law can be used to safeguard our rights to engage in economic activity and our system of government.

E. The Protection of Competitors

Using competition law to protect competitors fits in well with ordoliberal thought, as protecting competitors is arguably a method to prevent dominant firms from wielding too much power and potentially limiting the economic freedom of other actors. Motta states that the defense of small firms is "one of the main reasons behind the adoption of competition laws." 280 In line with an ordoliberal justification for the protection of competitors, the U.S. Supreme Court ruled:

[I]t is not for the real prosperity of any country that … changes should occur which result in transferring an independent business man, the head of his establishment, small though it might be, into a mere servant or agent of a corporation for selling the commodities which he once manufactured or dealt in, having no voice in shaping the business policy of the company and bound to obey orders issued by others. 281

The protection of competitors is also in keeping with the SCP framework. 282 By protecting competitors, the structure of the market is protected, thus preventing a firm from achieving a dominant position. For instance, in Brown Shoe Co. v. United States, the U.S. Supreme Court stated that the role of U.S. antitrust law was the "protection of competition, not competitors." 283 However, in the Supreme Court's opinion, the [\*96] best way "to promote competition [is] through the protection of viable, small, locally owned businesses." 284 Brown Shoe was one of many cases during the 1960s in which the Warren Court protected small firms in order to protect the competitive process. 285 It is because of this that the argument has been advanced that protecting competitors is the same as protecting competition itself, as "an effort to protect competitors includes protecting competition" 286 --after all, "competition requires competitors." 287 The ECJ has also noted that it is sometimes difficult to separate the protection of competitors "from the maintenance of an effective competitive structure." 288

In addition to protecting the structure of the market, other benefits that potentially accrue from the protection of competitors are innovation and promotion of local businesses. 289 According to Motta: "The European Commission seems to have taken the view that small and medium sized enterprises (SMEs) are more dynamic, more likely to innovate and more likely to create employment than large firms. This would be an additional argument to promote SMEs. However, the empirical evidence is quite ambiguous." 290 The possibility of smaller competitors being more innovative is an economic efficiency goal, whereas the promotion of competitors to protect local firms is a non-efficiency goal. There is a current of thought that local businesses, being part of the local community, will be more likely to serve broader goals, such as promoting a high level of employment. 291 As Justice Douglas memorably stated in defense of localism: "Control of American business is being transferred from local communities to distant cities where men on the 54th floor with only balance sheets and profit and loss statements before them decide the fate of communities with which they have little or no relationship." 292 An example of the protection of local firms from the encroachment of larger national or multinational competitors is the French "zone de chalandise," the purpose of [\*97] which is "to guarantee that small butchers and bakers will not face ruinous competition from large-square-footage stores." 293

Despite these potential benefits flowing from the protection of competitors, this aim faces considerable criticisms. 294 Williams describes the protection of competitors as a "political slogan" in defense of the "little guy," "but bad economics." 295 The main criticism of the protection of competitors is that, as an aim, it is not economically efficient. 296 Protecting smaller firms leads to inefficient allocation of resources and undermines the competitive process; by shielding smaller firms from their larger and more successful rivals, large firms are denied their "economies of scale in a market" which allow these large firms the ability to compete in the most effective manner. 297 A non-efficiency criticism of the protection of competitors is somewhat darker in its nature; essentially, that the protection of small firms finds its roots in anti-Semitic opposition to Jewish owned chain-stores in pre-World War II Europe. 298 Despite the inevitable criticism that the protection of competitors is not economically efficient, arguments could be advanced that small, locally-owned businesses are as important to a society's well-being as vast multi-national conglomerates. Given that smaller firms are likely to be more fragile than large competitors, there is an argument to be made that SMEs deserve a special measure of protection.

F. **Protecting the Environment through Competition Law**

Despite not being economically efficient, the aims of economic freedom and the protection of competitors are established goals of competition law regimes. 299 Using competition law for environmental concerns is a relatively new concept. Environmental concerns have been used by the **E**uropean **C**ommission to permit **conduct** that would otherwise have been considered **anticompetitive**. 300 The Commission has not directly stated that environmental concerns are enough to trump competition; the closest the Commission has come to this is allowing an agreement on the basis that it [\*98] "gives direct practical effect to environmental objectives." 301 However, the Commission has primarily sought to justify the inclusion of environmental concerns on the basis of "economic progress" 302 or economic efficiency. 303 Thus, the Commission is attempting to subsume environmental issues into the consumer welfare standard. For instance, in the Philips-Osram decision, the Commission noted that a reduction in air pollution created "direct and indirect benefits for consumers." 304

Integrating **environmental concerns** into the consumer welfare standard can be justified because "consumers do not **properly** take into account **all the externalities** involved in their purchase and consumption decisions." 305 This stance was specifically taken by the Commission in CECED. 306 Essentially, the Commission has directly equated environmental concerns with economic efficiency. 307 Monti describes this method of analysis as "remarkable." 308 From a **c**onsumer **w**elfare perspective, it is hard to understand why consumer choice should be limited because of environmental concerns; a purist of the **Chicago School** would **not** approve. Of course, from a total or social welfare perspective, the Philips-Osram, CECED, and DSD decisions could be justified because, in the long run, society as a whole reduces costs by preventing environmental damage (rather than paying to repair it). However, this author would submit that environmental protection is just another public policy, or **non-efficiency**, aim for competition law. The Commission should seek to **clarify** its position, and state that it **does** consider **non-efficiency aims**, such as the **environment**, **rather than** dishonestly **attempting to shoehorn these aims into the consumer welfare standard.**

## Econ DA

### 1AR – AT: Critical INfrasturcutre

#### No critical infrastructure collapse

Threat can’t be scaled up because of sheer complexity US power plants have been resilient to attacks and have become more effectively resilient over time Threat is overblown- tons of news articles rely on misinformation and hype to sell to readers Power plants are isolated from the internet and extremely decentralized Russia is only attempting reconnaissance and has no incentive to attack Attacks only last a few hours because of backup generators

**Wagenseil 3/11/19** [Paul Wagenseil, Senior Editor of security and privacy @ Tom’s Guide, Citing Selena Larson, intelligence analyst @ Dragos Cybersecurity Firm, “Hackers Can't Cause Crippling Blackouts, Expert Says”, https://www.tomsguide.com/us/blackout-hack-threat-rsa2019,news-29594.html]

SAN FRANCISCO — Don't believe the hype. Hackers cannot easily take down the North American electrical grid to cause massive blackouts, despite numerous news stories, magazine articles and books claiming that they can, a cybersecurity expert told the last week's RSA Conference.

"There are lots of misunderstandings about threats to the electric grid," said Selena Larson, an intelligence analyst at Maryland cybersecurity firm Dragos and a former CNN reporter. "The reality is that a destructive incident at one site would require highly tailored [malware] tools and operations, and would not effectively scale."

That's because U.S. power plants use different makes and models of hardware and software, are often at least partly isolated from the internet and from each other, and have already undergone a **fair degree of hardening** against cyberattacks. There's very little chance that a single hacker or group of hackers could knock out the power across a large swath of North America at once.

Scary headlines

Those inconvenient facts haven't prevented journalists and writers from penning what Larson deemed needlessly alarming stories. One July 2018 opinion piece in The New York Times entitled "To Hackers, We're Bambi in the Woods" began with a nightmare scenario of an America thrown back to the Stone Age by a cyberattack that kills the power, stops the trains, empties bank accounts and opens literal floodgates.

Later that same month, The Wall Street Journal ran a story called "Russian Hackers Reach U.S. Utility Control Rooms, Homeland Security Officials Say," lending credence to the nightmare scenario. But it was incorrectly reported — it was based on old information that had been revisited in a DHS presentation.

Larson didn't mention "Lights Out: A Cyberattack, A Nation Unprepared, Surviving the Aftermath," a best-selling 2015 book by former ABC News anchor Ted Koppel.

"A well-designed attack on just one of the nation's three electric power grids could cripple much of our infrastructure — and in the age of cyberwarfare, a laptop has become the only necessary weapon," reads the jacket blurb following another apocalyptic scenario of a months-long blackout leading to societal collapse.

State-sponsored attacks

The truth is that Russian hackers do try to get into American power plants, but so far they've only seemed to be performing reconnaissance, Larson said. Destructive malware has infected the office networks of some power companies, but the companies weren't specifically targeted, and the malware didn't cross over into plant operations.

"A ransomware infection at the financial-services division of an electric utility doesn't automatically translate to a blackout," Larson said.

While most state-sponsored hacker groups targeting power plants and other industrial-control systems only gather information, two other have gone further, Larson said. Those were the Electrum group, which used malware dubbed CrashOverride to take down a Ukrainian power plant in 2016, and the Trisis group, which infected the safety systems at a Saudi petrochemical plant in 2017.

Both attacks have been attributed to Russian state-sponsored hackers, and the Saudi-plant attack led another presenter at RSA 2019 to conclude that cyberattacks would soon kill people, either deliberately or accidentally.

But as Dragos founder and CEO Robert M. Lee stated in a 2017 blog posting describing the CrashOverride malware, "the public must understand that the outages could be in hours or days, not weeks or months."

Lee said that Dragos had "high confidence" that the CrashOverride hackers were the same who had in fact targeted U.S. and European infrastructure companies in 2014. And CrashOverride contained modules to "delete files and processes off of the running systems" to sabotage computer systems.

Larson said, however, that the CrashOverride creators had spent months or years planning the attack, and that the malware was specifically designed for that power plant. The attacks couldn't easily scale across the world, or even across Ukraine.

Outlook

There are true cyberattack threats out there, Larson added. For example, the Russian NotPetya ransomware worm in June 2017 cost the Maersk shipping line an estimated $200 million, and FedEx an estimated $300 million. The North Korean WannaCry attack the previous month crippled hospital computer systems in Europe and North America.

But in terms of the North American power grid, small animals such as **squirrels, cats and raccoons** **are a much larger threat than hackers**, and have caused hundreds of localized blackouts, Larson said. That mundane detail doesn't sell books.

The public should be reassured, she added, that the North American power grid (there are in fact three grids) has always been engineered to limit both the duration and the geographic reach of blackouts, and that there's no single power switch that can turn it all off.

"The truth is that the North American electric grid is **resilient and segmented**," Larson said.

### 1AR – AT: LIO

#### LIO decline inevitable

**Reinert** **20** (Manuel Reinert is a PhD candidate in international relations at American University, consultant with the World Bank Group, and former officer with the French Foreign Service. “America’s Democratic Shortcomings and the Liberal International Order” 11/13/20 https://www.e-ir.info/2020/11/13/opinion-americas-democratic-shortcomings-and-the-liberal-international-order/)

According to its proponents, the LIO is organized under guiding principles, including: multilateral institutions, open markets, liberal democracy, and leadership by the US. Liberal internationalists denounce the rise of authoritarian powers and receding democratic values to explain the decay of these principles. They also blame Donald Trump for deserting the LIO leadership. Under his administration, the US has indeed abandoned major international accords such as the Paris Agreement on climate and the Iran nuclear deal (JCPOA), blasted the role of IOs, and adopted an aggressive diplomacy, apart from some notable exceptions. Consequently, numerous analyses have been announcing the ‘twilight’ of the LIO and preparing for what comes next. Others have claimed that this order was doomed to fail, while the eternal debate on American involvement in world affairs is regularly reignited. Most of these analyses are missing two important components. First, they attribute the demise of the LIO to external factors and a strategically flawed foreign policy, while failing to see that such weakening is **directly linked to America’s democratic shortcomings**. The Trump presidency is the symptom of **institutional dysfunctions** that make the US less democratic. This decline is the result of rigid institutions that disproportionately favor a conservative minority. Second, they negate the extent to which the US has used this order and escaped its rules when convenient. America has a history of ambiguity towards multilateralism: even if Donald Trump took the subversion of rules-based institutions to a new level, the trend did not start with him. The conservative minority has **regularly eroded the LIO foundations**. Ultimately, America’s ability to improve democracy will be decisive to advance multilateralism and a genuinely rules-based international system. America’s democracy needs fixing The US has steadily declined in major democratic indices, such as the Economist Intelligence Unit democracy index and the Varieties of Democracy Liberal Democracy Index. These indices highlight factors such as the treatment of journalists, polarization, and executive adherence to the rule of law. The Trump administration demonstrates how executive disregard for democratic norms undermines the “checks and balances” framework. However, these metrics do not account for deeper dynamics peculiar to the US system such as voting power, turnout, and the extraordinary influence of money on policymaking. To take the first two issues: **US** **institutions favor conservatives**, enabling Republicans to maintain power with an ever-smaller minority of voters nationwide. Voters in small states and rural areas, who usually champion conservative candidates, are particularly powerful. States have equal representation in the Senate: from Wyoming to California. Rural voters have an edge in the House and states’ legislatures because they are more efficiently distributed in a first-past-the-post system that rewards the spread of voters across space. Since the Electoral College allocates votes according to states’ congressional delegations, these disparities are reflected in the Presidential election. The imbalance is accentuated by the winner-take-all approach, which confers voters in key “swing states” extra voting power. Over the past fifty years, the turnout of the voting age population in Presidential elections has oscillated between 50% and 55%. While the 2020 elections should set a record with 65%, the US still lags behind other democracies. Turnout in similar elections is generally around 70% in the UK and France, and 80% in Germany. This low US turnout is largely explained by the lasting problem of **voter suppression**. Voter registration restrictions, voter purges, felony disenfranchisement, gerrymandering, and restricted access to polling places are among the main tools used to exclude minorities and poor populations. Millions of voters have been purged over the past years (following the 2013 Supreme Court decision altering the Voting Rights Act) and jurisdictions with a history of racial discrimination have shown higher purge rates. One in 13 African-Americans cannot vote because of voter suppression. As the pandemic made clear in Wisconsin, Georgia, and elsewhere, conservatives seek to restrain voting. Republicans mounted a multi-front fight against mail-in and other forms of early voting ahead of the Presidential Election: from legal battles to unsubstantiated claims of fraud. Protected by rigid institutions, the conservative minority has been able to undermine democracy by limiting turnout. Such democratic shortcomings have had a **decisive influence** on the LIO. The LIO reconsidered According to liberal internationalists, the LIO is a framework rooted in the institutions built by the US after WWII. The American approach was novel because it diverted from the zero-sum thinking and promoted collective prosperity and security instead. The US provided global public goods through an array of multilateral institutions and advanced rules-based cooperation on multiple issues. Even if the Soviet threat partially explains American motivations, the commitment to liberal norms was unprecedented and there is no doubt that the international landscape would have looked different had Germany prevailed in WWII. The full version of the LIO materialized after the end of the Cold War, when the US benefited from a “unipolar moment” of unmatched power. America’s security frameworks were reinforced, while IOs saw their mandate expanded. Liberal internationalists celebrated peace-building achievements and generalized economic growth. At the turn of the century, inter-state conflicts had indeed decreased and humanitarian concepts such as the “responsibility to protect” emerged. Despite strong pushbacks against the Washington Consensus in parts of the world, 1.2 billion people came out of poverty status between 1990 and 2015. Legitimacy characterized American leadership. Yet, liberal internationalists grew increasingly disenchanted. Interestingly, they agree with realists, conservatives, and other thinkers in foreign policy on a few factors that doomed the US-led LIO’s golden age: the countereffects of untamed globalization; the rise of authoritarian and revisionist powers such as China and Russia; and America’s overextension in the promotion of liberal values. Finally, they blame the Trump administration for precipitating the decline. In fact, the US has periodically undermined the LIO over the past decades. For instance, the US has developed a habit of **reneging on treaties** **and agreements** it had signed. The US refused to ratify the Kyoto Protocol and the Rome Statute of the International Criminal Court (ICC) following the election of George Bush. The Trump administration went a step further, by blacklisting ICC officials for investigating possible war crimes in Afghanistan. Previously, the US had withdrawn from the International Court of Justice’s compulsory jurisdiction after the Court had condemned America’s interference in Nicaragua. The Iraq war is also telling. America’s democratic allies all supported its campaign in Afghanistan after 9/11 and this intervention had no difficulty being approved by the UN Security Council (UNSC). Yet, many allies opposed the intervention in Iraq as there was no clear evidence of terrorist links with the Hussein’s regime or weapons of mass destruction. The invasion went forward without UNSC backing and resulted in a humanitarian and strategic disaster.

#### U.S. relative decline doesn’t cause war---answers LIO.

**Mousseau 19**, PhD, Professor @ the University of Central Florida. (Michael, 7/29/19, “The End of War: How a Robust Marketplace and Liberal Hegemony Are Leading to Perpetual World Peace”, International Security, Volume 44, Issue 1, https://www.mitpressjournals.org/doi/full/10.1162/isec\_a\_00352?mobileUi=0&) \*Contractualist societies = system in which individuals normally obtain securities, including incomes and financial securities, through contracts with strangers in a market; i.e. liberalism

Fourth, **even if the** **U.S.** **economy were to collapse** and the United States became an axial or a status power, the combined economic might of all the other contractualist countries in the world is nearly **twice that of the United States**. The soft power of the United States in world politics lies not in its power to persuade, but in it being the largest of the contractualist states, and in its willingness to provide the public good of global security since the collapse of the pound sterling in late 1946. If the United States **withdrew from its leadership role**, the remaining **contractualist** **powers** would **fill the vacuum**. None of them has an economy relatively large enough to enable it to act as a natural leader and principal provider of global security, but it is the temperament of these states that they can easily form an **international organization** to **coordinate** and **act on their shared security interests**, even if some may choose to free ride. Fifth, current events need to be viewed within a **larger context**. Fernand Braudel pinpoints the rise of the modern world economy as starting around the year 1450 in northwestern Europe.86 The first contractualist economy emerged more than two centuries ago. Since then, contractualist states have confronted **numerous shocks** and **threats to their systems**, including the American **Civil War**, the **Great Depression**, **two** **world wars**, and the **Cold War**. The present **populist mini-wave** and pathologies in U.S. democracy are mere **trifling episodes** in a **larger historical frame.**

#### No western tech leadership impact.

Michael **Beckley 18**. Professor of political science at Tufts. Unrivaled: Why America Will Remain the World’s Sole Superpower. Cornell University Press. 49.

However, in **high-tech**nology industries, meaning those that involve the commercial application of scientiﬁ c research (e.g., pharmaceuticals, biotechnology, and semiconductors) or the engineering and integration of complex parts (e.g. aviation, medical devices, and system software), China generally accounts for **small shares** of global markets compared to the **U**nited **S**tates. 85 China is a major producer of many high-technology products, particularly computer and electronics technologies, but most Chinese ﬁrms in these industries are **conﬁned** to low-tech, low-productivity activities, such as manufacturing and component supply whereas American ﬁrms tend to focus on product design, development, and branding—the activities in which proﬁts and proprietary knowledge are greatest. 86 As manufacturing has become **increasingly** **automated** with the development of **3D-printing** and **a**rtiﬁcial **i**ntelligence, and as **China’s labor costs have risen**, American ﬁrms have started **“reshoring”** manufacturing plants in the **U**nited **S**tates to take advantage of **low energy prices**, **high-skilled labor**, and **proximity to consumers**. For those reasons, **Deloitte** and **Boston Consulting** **Group** both project that the **U**nited **S**tates will **overtake China** as the world’s most cost-competitive manufacturing nation by 2020. 87

#### No tech leadership impact

**Fettweis 17** – Associate Professor of Political Science at Tulane University (Christopher, “Unipolarity, Hegemony, and the New Peace,” Security Studies, 26:3, 423-451, 5-8-2017, http://dx.doi.org/10.1080/09636412.2017.1306394)

Conflict and Hegemony by Region

Even the most ardent supporters of the hegemonic-stability explanation do not contend that US influence extends equally to all corners of the globe. The United States has concentrated its policing in what George Kennan used to call “strong points,” or the most important parts of the world: Western Europe, the Pacific Rim, and Persian Gulf.64 By doing so, Washington may well have contributed more to great power peace than the overall global decline in warfare. If the former phenomenon contributed to the latter, by essentially providing a behavioral model for weaker states to emulate, then perhaps this lends some support to the hegemonic-stability case.65 During the Cold War, the United States played referee to a few intra-West squabbles, especially between Greece and Turkey, and provided Hobbesian reassurance to Germany’s nervous neighbors. **Other**, equally plausible **explanations exist for stability** in the first world, including the presence of a common enemy, democracy, economic interdependence, general war aversion, etc. The looming presence of the leviathan is certainly among these plausible explanations, but only inside the US sphere of influence. Bipolarity was bad for the nonaligned world, where Soviet and Western intervention routinely exacerbated local conflicts. Unipolarity has generally been much better, but whether or not this was due to US action is again **unclear**. Overall US interest in the affairs of the Global South has dropped markedly since the end of the Cold War, as has the level of violence in almost all regions. There is less US intervention in the political and military affairs of Latin America compared to any time in the twentieth century, for instance, and also less conflict. Warfare in Africa is at an all-time low, as is relative US interest outside of counterterrorism and security assistance.66 Regional peace and stability exist where there is US active intervention, as well as where there is not. **No direct relationship seems to exist across regions**. If intervention can be considered a function of direct and indirect activity, of both political and military action, a regional picture might look like what is outlined in Table 1. These assessments of conflict are by necessity relative, because there has not been a “high” level of conflict in any region outside the Middle East during the period of the New Peace. Putting aside for the moment that important caveat, some points become clear. The great powers of the world are clustered in the upper right quadrant, where US intervention has been high, but conflict levels low. US intervention is **imperfectly correlated** with stability, however. Indeed, it is conceivable that the relatively high level of US interest and activity has made the security situation in the **Persian Gulf** and broader **Middle East worse**. In recent years, substantial hard power investments (Somalia, Afghanistan, Iraq), moderate intervention (Libya), and reliance on diplomacy (Syria) have been **equally ineffective**

in stabilizing states torn by conflict. While it is possible that the region is essentially unpacifiable and no amount of police work would bring peace to its people, it remains hard to make the case that the US presence has improved matters. In this “strong point,” at least, **US hegemony has failed to bring peace**. In much of the rest of the world, the United States has not been especially eager to enforce any particular rules. Even rather incontrovertible evidence of genocide has not been enough to inspire action. Washington’s intervention choices have at best been erratic; Libya and Kosovo brought about action, but much more blood flowed uninterrupted in Rwanda, Darfur, Congo, Sri Lanka, and Syria. The US record of peacemaking is not exactly a long uninterrupted string of successes. During the turn-of-the-century conventional war between Ethiopia and Eritrea, a highlevel US delegation containing former and future National Security Advisors (Anthony Lake and Susan Rice) made a half-dozen trips to the region, but was unable to prevent either the outbreak or recurrence of the conflict. Lake and his team shuttled back and forth between the capitals with some frequency, and President Clinton made repeated phone calls to the leaders of the respective countries, offering to hold peace talks in the United States, all to no avail.67 The war ended in late 2000 when Ethiopia essentially won, and it controls the disputed territory to this day. The Horn of Africa is hardly the only region where states are free to fight one another today without fear of serious US involvement. Since they are choosing not to do so with increasing frequency, something else is probably affecting their calculations. Stability exists even in those places where the potential for intervention by the sheriff is minimal. Hegemonic stability can only take credit for influencing those decisions that would have ended in war without the presence, whether physical or psychological, of the United States. It seems hard to make the case that the relative peace that has descended on so many regions is primarily due to the kind of heavy hand of the neoconservative leviathan, or its lighter, more liberal cousin. **Something else appears to be at work**.

### 1AR – UQ

#### Oil supplies will collapse---transition now is necessary.

MAHB 19, Millennium Alliance for Humanity and the Biosphere, Coordinating Committee and expertise of its network of public intellectuals, thought leaders, scholars, activists, and individuals actively engaged in shifting the trajectory currently heading towards collapse, “When Fossil Fuels Run Out, What Then?” May 23, 2019, https://mahb.stanford.edu/library-item/fossil-fuels-run/

Our world economy is based on the capitalist system which assumes forever a positive Gross Domestic Product – GDP. At the same time 196 governments in December 2017 have signed onto the Paris agreement limiting global temperature rise to less than 2 degrees C by 2100 from the pre-industrial age. IPCC even go as far as stating that the world would benefit with a 1.5 degree C by 2100 giving us a sustainable and equitable development. However already extreme weather is showing devastation in terms of hurricanes, flooding, drought etc … in many parts of the world. Despite all this, governments have not altered their policies in pursuing a higher and higher growth rate [1]. Just a few days ago, we have been told that real GDP in the US increased 3.2 % in the first quarter of 2019 according to the “advance” estimate released by the Bureau of Economic Analysis [2]. In the fourth quarter of 2018, real GDP increased 2.2 percent. Obviously we continue ‘business as usual’ and are not concerned about using up our resources!

Energy consumption worldwide grew by 2.3% in 2018, nearly twice the average rate of growth since 2010, driven by the observed robust economy [3]. More than 40% of the growth in 2017.

Electricity continues to assert itself as the “fuel” of the future, with global electricity demand growing by 4% in 2018 to more than 23,000 TWh. This rapid growth is pushing electricity towards a 20% share in total final consumption of energy. Increasing power generation was responsible for a little more than half of the growth in primary energy demand.

What are the consequences of the higher GDP that we are pursuing?

Yes, we are rapidly depleting our resources. Unfortunately most of the demand for energy falls on the use of fossil energy, oil, gas and coal. With Global energy demand increasing by 2.1% in 2017, as 72% was in fossil fuel [1] [3], 25% in renewables and remainder by nuclear. Naturally this results in a rise in CO2 emission – by 1.7 % in 2017, reaching a historic high of 33.1 gigatons.

LIMIT OF FOSSIL FUELS

In this article we want to point out categorically the fact that there is a LIMIT to the fossil fuels on earth that we are gobbling up. We are oblivious of the fact that there will be a time, measured in decades, when these fuels will run out. Because of global population rise, there is a growing demand for energy. This growth is endangering our future. What will we do when fossil fuels run out? What energy sources can we rely on after this happen?

In figure 1 [4] we show the future energy reserves in billions of oil equivalent, Btoe, as a function of year. While we obliviously use up fossil fuels without taking stock of about what future reserves look like, we should take note of the endpoints shown here. These endpoints are dangerously close: Since our society is so dependent on fossil fuels, it therefore is extremely important for us to know when these fuels will run out according to [4]:

Oil will end by 2052 – 30 years time

Gas will end by 2060 – 40 years time

Coal will last till 2090 – 70 years time

However, according to BP [5], earth has 53 years of oil reserves left at current rate of consumption.

According to the 2019 Annual Energy Outlook [6] global GDP growth between 2017 and 2040 is expected to average 3.4%. The world energy demand will grow by 1/3 through 2040, driven mostly by rising consumption in transportation in China, India and parts of Asia.

This is obviously unsustainable. These are horrific figures that will happen sooner than we can possibly mitigate.

#### Every fossil fuel will run out---the neg doesn’t account for growing demand.

MAHB 19, Millennium Alliance for Humanity and the Biosphere, Coordinating Committee and expertise of its network of public intellectuals, thought leaders, scholars, activists, and individuals actively engaged in shifting the trajectory currently heading towards collapse, “When Fossil Fuels Run Out, What Then?” May 23, 2019, https://mahb.stanford.edu/library-item/fossil-fuels-run/

OIL

Global oil demand grew by 1.3%. in 2018. Today oil supplies about 40% of the world’s energy and 96% of its transportation energy. It has consumed 875 billion barrels [7]. The world has been consuming an equivalent of over 11 billion tonnes per year [4]. Crude oil reserves are vanishing at a rate of more than 4 billion tonnes a year. Many oil wells have already peaked and new wells are becoming more difficult to find. Another 1,000 billion barrels of proved and probable reserves remain to be recovered.

In Figure 2 we show the current dominance of OPEC which is controlled by most Middle Eastern countries. However over the next 3 years, it is projected that US production will cover 80% of the world’s demand growth. US will turn into ‘oil nation’ with record exports ‘eating’ into OPEC market share [8]

This week the IEA, International Energy Agency, released ‘Oil 2018’ [9] its 5 year market analysis and forecast. The report notes that “over the next 3 years, gains from the US alone will cover 80% of the world’s demand growth.” It projects a growth by another million barrels per day from 2017 levels by 2022. The base case projects growth of around 3 million barrels per day over the next 5 years. Overall projection is that global oil production capacity will grow by 6.4 millions by 2023.

BP has also revised its prediction which is similar. In its recently released 2018 Energy Outlook [10], it predicts that the U.S. will become “by far the largest producer of liquid fuels.”

Up to 2020, world oil consumption has been rising by about 60% because of growing transportation. China and India have the highest rate of growth. China at rate of 7.5% and India 5.5%.

However, there has been a ramp up of shale oil and gas extraction. Fracking [11] involves the extraction of shale gas by drilling into the the Earth and pumping boreholes with a high pressure water mixture. This is water and electricity intensive. It uses huge amounts of energy to get even more energy and also uses chemicals and metals which poison the groundwater and the environment. It is a growing technology which needs our critical estimation.

Fracking has been safely used in the United States since 1947. More than 1.7 million US wells have been completed using the fracking process, producing more than seven billion barrels of oil and 600 trillion cubic feet of natural gas.

NATURAL GAS

Gas totalled 23% of total energy demand, but grew at a 4.6% rate in 2018. Gas had the second highest share of total electricity generation at 23%, or 6,091 TWh. How much natural gas does the United States have, and how long will it last? [12]

What is the volume of world natural gas reserves? As of January 1, 2018, there were an estimated 7,124 trillion cubic feet (Tcf) of total world proved reserves of gross natural gas [13] From IEA. Last updated: March 8, 2019.

However, for the US, the U.S. Energy Information Administration estimates in the Annual Energy Outlook 2019 that as of January 1 2017 there were about 2,459 trillion cubic feet (Tcf) of technically recoverable resources (TRR) of dry natural gas in the United States.

Taking into consideration the current rate of natural gas production and current known natural gas reserves, we have about 52.8 years worth of natural gas reserves left. We will still have gas and coal left by the time oil runs out in 2052. But if we increase gas production to fill the energy gap left by oil, then those reserves will only give us an additional eight years, taking us to 2060. We should realize that burning gas impacts on global warming because of CO2 emission.

COAL

Global coal demand is up 0.7% in 2018 [15]. Coal’s share of total electricity generation totaled 10,116 TWh, up 2.6% from 2017, as it commanded 38% of total generation around the world.

Coal is the oldest fuel we have and it has taken few hundred millions of years to form from vegetation. The US, China and India are still actively mining coal. How long will coal last? It will depend on new technology, may be 150 years in order to replace oil and gas.

#### Discovery trends prove supply runs out---best data.

Nermina Kulovic 20, reporting on Rystad Energy studies, “The world to run out of oil supply to meet demand unless exploration speeds up, Rystad reports,” 12/10/21, https://www.offshore-energy.biz/the-world-to-run-out-of-oil-supply-to-meet-demand-unless-exploration-speeds-up-rystad-reports/

The world is on track to run out of sufficient oil supplies to meet its needs through 2050, despite lower future demand due to the Covid-19 pandemic and the accelerating energy transition – unless exploration speeds up significantly and capital expenditure of at least $3 trillion is put to the task, a report by Rystad Energy reveals.

To meet the global cumulative demand over the next 30 years, undeveloped and undiscovered resources totalling 313 billion barrels of oil need to be added to currently producing assets.

Rystad Energy calculates that to match this requirement, exploration programs will have to discover a worthy-to-develop resource of 139 billion new barrels of liquids by 2050, an impossible task if this decade’s low exploration activity levels persist.

The target is high because not all existing discovered volumes are profitable to develop. In theory, the total undeveloped supply would amount to 248 billion barrels of oil between 2021 and 2050.

Rystad said: “However, when we dive deeper into these discoveries and look at their discovery decade and current status, we find that about 74 billion barrels are highly unlikely to materialize and need to be replaced by new discoveries”.

Looking at the global conventional exploration potential, there are two main sources for these new volumes: further appraisal of existing fields and resources, and new discoveries.

The first source includes projects in their early production stage, projects under development, and unrisked volumes in discovered assets. Rystad expects that some future exploration activity will lead to reservoir delineation and enhancement of resource estimates, while technological improvements and other secondary recovery techniques will also increase recoverable volumes.

Projects in the above-mentioned categories are currently forecast to contribute around 378 billion barrels of liquids supply between 2021 and 2050. If future exploration follows industry norms, it will enhance recoverable resources by around 5 per cent, or 18 billion barrels, leaving a deficit of about 121 billion barrels to be unearthed through future exploration drilling in currently undiscovered areas – our second source of new supply.

Analyzing the discovery rates of the current decade and the latest trends, Rystad Energy expects that global conventional discovered liquid volumes could settle at around 4 billion barrels per year, with an average discovery size of around 40 million barrels. This means that explorers would need to announce at least 100 new conventional discoveries each year to reach the magic volume number needed to meet demand.

However, just like in the past, not all volumes discovered during this period will be developed and produced, and much of it may not be brought on stream to meet demand by 2050. The total discovered volumes will therefore have to be much higher than the required cumulative liquids supply.

To find an approximate volume number for new discoveries, Rystad looked at variables such as the share of produced volumes from discoveries in the past three decades and the time taken from discovery to start-up. About 617 billion barrels of liquids have been found since 1990, and about 25 per cent of these discovered volumes had been produced through 2020. Analogically, explorers would have to unearth about 484 billion barrels of new resource through 2050 to put the required 121 billion barrels of liquids to production over the next 30 years.

### 1AR – AT: VC

#### Innovation’s stalling due to concentration---most recent consensus of experts is AFF.

Christopher Cole 12/15/**21**, partner at Crowell Moring, “Lawmakers Worry Rampant Mergers Crushing US Innovation,” Law360, lexis.

Innovation across the U.S. economy has suffered as antitrust laws fall short in stopping predatory merger deals and enforcers allow massive industry consolidation to continue unabated, experts said Wednesday on Capitol Hill.

In the latest congressional hearing focused on possible overhauls of American competition laws to deal with industry concentration in sectors ranging from technology to pharmaceuticals, real estate and agriculture, a Senate panel zeroed in on the impact of monopolies on the development of cutting-edge products and services.

Antitrust advocates and business figures testified that the U.S. economy faces a growing threat from large companies' merger and acquisition strategies that aim to knock out startups and growing rivals, then take advantage of market power to continue profiting off old technologies. The trend stifles U.S. innovation and harms consumers, they said.

Senators looked to the experts to inform the lawmakers' biggest push in years to revamp antitrust laws, including a major bipartisan bill introduced in October, the American Innovation and Choice Online Act. The bill would make it harder for online sales platforms to self-preference their own products. Sens. Amy Klobuchar, D-Minn., and Chuck Grassley, R-Iowa, are lead sponsors of the bill, one of numerous antitrust proposals circulating on Capitol Hill.

"It's always been innovation that has fueled the American economy," said Klobuchar, who chairs the Senate Judiciary antitrust panel, but that "cannot thrive without open and competitive markets."

Monopoly power is on the increase in industries "from cat food to caskets," Klobuchar said, and that stifles the ability of new companies that may develop better products or services to gain funding and enter the market competitively. "We also have to remember that innovation is all about competition," she said.

Utah Sen. Mike Lee, the ranking Republican on the subcommittee, also voiced concern about consolidation suffocating the economy. Lee said that "I'm a huge advocate of the consumer welfare standard" that federal courts use to assess whether market behavior is unlawfully anticompetitive but "when competition suffers, so does innovation."

"One might say that competition is itself the mother of innovation," said Lee, who has been working closely with Klobuchar and Grassley, the full committee's ranking Republican, on antitrust legislation this year.

Still, Lee said lawmakers and enforcers must take care not to carry out "regulatory overreach" that ends up protecting no one except market incumbents when they make it harder for startups to succeed. Lee touted Utah's "pro-free market" approach that he said has been a magnet for new businesses and driven the quality of life higher in the Beehive State. "I do worry, however, that D.C. bureaucrats may spoil the party for everyone," he said.

Conservatives also voiced concern that consolidation of power in Big Tech has allowed the top companies to rein in free speech, and Lee pointed to the controversy over the startup social media platform Parler, which almost sunk amid the turmoil over the 2020 election.

The vast technology sector was only one aspect of Wednesday's hearing, however, as several witnesses talked about growing monopolies in pharma, real estate and other parts of the economy where they said behemoths' market power was holding back innovation.

Diana Moss, president of American Antitrust Institute, told senators there are many reasons that innovation is currently struggling in the U.S. economy. She said the financial markets' "laser focus on shareholder returns" based on the bottom line and short-term profits was making it more difficult for companies to invest in much-needed research and development.

"Another reason is weaker antitrust enforcement over the last 40 years," Moss said.

Alex Harman, competition policy advocate at Public Citizen, the liberal-leaning advocacy group, called unfettered merger and acquisition activity and the massive buildup of a small number of companies "one of the most critical issues of our time." Harman said there had been an "alarming increase in consolidation throughout the economy."

Another witness, Roger Alford, a professor at Notre Dame Law School, identified multiple competitive problems rippling through the economy. One of the sectors hard-hit by a resulting lack of innovation is real estate sales, said Alford, a former deputy assistant attorney general with the U.S. Department of Justice Antitrust Division.

#### Firms will use killer acquisitions to acquire potentially innovative products and shelve them.

Colleen Cunningham et al. 21, Assistant Professor of Strategy and Entrepreneurship at London Business School, Florian Ederer, Associate Professor of Economics at the Yale School of Management, Song Ma, Assistant Professor of Finance at the Yale School of Management, Killer Acquisitions, **Award Winning Paper**,Robert F. Lanzillotti Prize for **Best Paper in Antitrust Economics**,Journal of Political Economy, Volume 129, Number 3, March 2021, https://doi.org/10.1086/712506

I. Introduction

Innovation drives economic growth and firm profitability. Innovating firms are often acquired by incumbents, typically in the early stages of product development. Economists traditionally view this positively: firms that are better at exploiting technologies acquire innovative targets to realize synergies, effectively enabling specialization and subsequently increasing innovation and overall welfare. In this paper, we propose and test a different motive for acquisitions of innovating firms. We argue that an incumbent firm may acquire an innovative target and terminate the development of the target’s innovations to preempt future competition. We call such acquisitions “killer acquisitions,” as they eliminate potentially promising, yet likely competing, innovation.

A recent case involving the pharmaceutical firm Questcor (a subsidiary of Mallinckrodt) illustrates this phenomenon. In the early 2000s, Questcor enjoyed a monopoly in adrenocorticotropic hormone (ACTH) drugs with its product Acthar, which treats rare, serious conditions, including infantile spasms. In the mid-2000s, Synacthen, a synthetic competitor to Acthar, began development for the US market. Questcor acquired the US development rights for Synacthen in 2013. Following the logic of killer acquisitions (i.e., shutting down competition even before there is a marketable product), Questcor did not develop Synacthen. As the Federal Trade Commission (FTC) argued in an antitrust complaint, “with the acquisition of Synacthen, Questcor thwarted a nascent challenge to its Acthar monopoly.”1 In other words, Questcor acquired and eliminated competition preemptively.2

This paper theoretically and empirically studies killer acquisitions. To motivate the empirical analysis, we first build a parsimonious model that combines endogenous acquisition decisions, innovation choices, and product market competition. Our model formalizes the seemingly counterintuitive phenomenon of incumbents acquiring innovative potential entrants to shut down the entrants’ innovative endeavors. It also highlights the conditions under which killer acquisitions are particularly prevalent.

We model acquisitions that occur when the innovative target firm’s project is still under development and therefore further development is necessary and costly and the ultimate project success is uncertain. An incumbent acquirer has weaker incentives to continue development than an entrepreneur if the new project overlaps with (i.e., substitutes for) a product or project in the incumbent’s portfolio. This is a general, well-known result, “the monopolist’s disincentive created by his preinvention monopoly profits” (Arrow 1962, 622). We show that this disincentive to innovate can be so strong that an incumbent firm may acquire an innovative start-up simply to shut down the start-up’s projects and thereby stem the “gale of creative destruction” of new inventions (Schumpeter 1942). Importantly, some degree of acquirer-target overlap is necessary for the killer-acquisition motive to exist. However, both existing and future competition reduce the difference in project development decisions between acquirers and entrepreneurs and thereby diminish the incentive for killer acquisitions. Finally, we show that killer acquisitions continue to exist even when the entrepreneur’s new project is qualitatively superior to the incumbents’ existing projects or products, when incumbents benefit from development synergies relative to entrepreneurs, and when there are multiple (asymmetric) potential acquirers.

In the second part of the paper, we provide empirical support for our theory. Doing so presents significant empirical challenges. We need to observe project-level development activity and track projects as they move across firms. It is also crucial to accurately measure overlap between the acquiring firm’s portfolio and the target’s project and to quantify competition in the relevant product market.

Pharmaceutical drug development offers features to resolve all of these challenges. Further, documenting killer acquisitions in the pharmaceutical industry is also worthwhile, since the industry is highly innovative and the successful commercialization of innovative drugs is potentially very socially valuable.3 We collect detailed development information on more than 16,000 drug projects originated by more than 4,000 companies in the past two-and-a-half decades and follow each drug from initiation. We collect relevant acquisition events from comprehensive data sources. Importantly, we observe development milestones of drug projects independent of project ownership, meaning that we can follow the same projects before and after acquisition.4

To finely categorize acquirer overlap with the target’s project, and thus identify potentially competing products, we use pharmaceutical categories based on disease and mechanism. Specifically, if the target’s drug project is in the same therapeutic class (e.g., antihypertensive) and uses the same mechanism of action (e.g., calcium channel antagonist) as a drug product or project in the acquirer’s portfolio, we consider that acquisition to be an overlapping acquisition. Measuring overlap this way helps to ensure that we are capturing potential substitutes (i.e., companies developing drugs that, if successful, would directly compete with the acquirer’s).

Our main empirical analyses focus on the development of drug projects. We compare projects acquired by overlapping incumbents to those acquired by nonoverlapping incumbents and to nonacquired projects. The baseline regression uses a project-year panel to estimate the annual probability of development activity (i.e., lack of project termination). Following the logic of killer acquisitions, we expect a decreased likelihood of the development of overlapping projects after acquisition. Correspondingly, we find that projects acquired by an incumbent with an overlapping drug are 23.4% less likely to have continued development activity, compared to drugs acquired by nonoverlapping incumbents. Reassuringly, the development patterns for overlapping acquired drugs are statistically indistinguishable from those for nonoverlapping acquired drugs and nonacquired drugs in the years before acquisition.

This finding is robust to controlling for a variety of economic forces. We control for project vintage and age and subsequently for drug development life cycles, using therapeutic class–mechanism of action–age fixed effects, which effectively help us compare drugs in the same stage along the same development trajectory. We also include project fixed effects to account for any unobservable time-invariant project characteristics. In addition, to control for selection into acquisition based on observable, time-varying characteristics, we implement a propensity score reweighting estimator.

We use several alternative specifications, subsamples, and analyses to confirm the robustness of our baseline results. Most importantly, we find that decreased development after acquisition for overlapping acquired projects is driven by drugs that have no further development activity after acquisition (i.e., by immediate and permanent terminations). Projects acquired by overlapping acquirers are 20.9% more likely to cease development immediately, compared to those acquired by nonoverlapping incumbents. Further, we find no evidence that acquiring firms purposefully delay development or are simply slower at developing overlapping projects. Additionally, supplementary analysis of clinical trial phase progression confirms that overlapping acquired projects are less likely to move to the next phase.

Our theory also predicts that incumbents have a stronger incentive to acquire and terminate overlapping innovation in ex ante less competitive markets (i.e., when the incumbent has more to lose if the target’s innovation is successfully developed). To examine this, we repeat the baseline analysis in subsamples with low and high levels of existing competition (as measured by the number of competing drugs in the same therapeutic class and mechanism of action). We find that the decrease in development probability for acquired overlapping projects is concentrated in markets with low competition. Our theory also predicts that when the incumbent’s drug is far from patent expiration, and thus generic competition, incumbents have a stronger incentive to acquire and terminate innovation, because the loss from cannibalization is large. Accordingly, we find that the decrease in development rates is concentrated in overlapping acquisitions for which the patent on the acquirer’s overlapping drug is relatively far from expiry.

Despite the difficulties associated with testing for strategic motives, our empirical results suggest that killer acquisitions are both strategic and intentional. First, as our model predicts, we find that acquisitions are more likely when the incumbent acquirer’s products overlap with the target project by almost four times.5 Second, we find that acquirers conducting killer acquisitions are much more likely to undertake acquisition deals that do not trigger FTC notification requirements for premerger review and thereby avoid antitrust scrutiny. Acquisitions of overlapping targets bunch just below the FTC acquisition transaction value threshold, while there is no such pattern for nonoverlapping acquisitions. In addition, these below-threshold deals exhibit much higher termination rates and much lower launch rates. We employ several additional tests to address potential alternative explanations for lower development rates of overlapping acquired drugs. One alternative explanation is optimal project selection. Specifically, for multiproject targets, the acquirer could strategically and optimally choose to continue only the most promising projects while discontinuing those that are less promising. However, our results hold in the subsample of acquisitions of single-drug companies, implying that optimal project selection does not explain our results. Another alternative explanation is capital redeployment, in which the acquiring firm’s intention is to acquire and redeploy the acquired target’s core assets—that is, its underlying technology or human capital—to more productive uses. If this were the case, our results on decreased development of overlapping acquired projects could be explained simply as a by-product. To address this, we separately consider technology and human capital redeployment. To explore technology redeployment, we track the chemical similarity of acquired drugs to pre- and postacquisition projects of the acquirer, finding no evidence supporting the idea that acquired technologies are integrated into acquirers’ new drug development projects. We also do not find that acquirers are more likely to cite acquired and terminated projects’ patents. To explore human capital redeployment, we examine inventor mobility and productivity around the acquisition events. We show that only 22% of inventors from target firms eventually work for the acquiring firm and further that those inventors do not become more productive after acquisition. These results are inconsistent with explanations regarding technology or human capital redeployment. A related alternative explanation is “salvage” acquisitions, in which overlapping acquirers buy already-failing targets to (cheaply) acquire the target’s valuable assets. Following this logic, decreases in development would predate the relevant acquisition, which would also have lower postacquisition development activity. Contrary to the salvage explanation, however, we find no evidence that overlapping acquisitions have either preacquisition declines in development or lower valuations, on average, compared to nonoverlapping acquisitions. Our conservative estimates indicate that between 5.3% and 7.4% of all acquisitions in our sample (or about 46–63 pharmaceutical acquisitions per year) are killer acquisitions. Eliminating the adverse effect on drug project development from killer acquisitions would raise the pharmaceutical industry’s aggregate drug project development rate by more than 4%. However, despite the ex post inefficiencies of killer acquisitions and their adverse effect on consumer surplus, the overall effect on social welfare is ambiguous because these acquisitions may increase ex ante incentives for the creation of new drug projects but also distort the direction of innovation.6 Our goal is to uncover an unobservable strategic motive, killer acquisitions, from observable outcomes. To do so, we empirically compare development probabilities of overlapping acquisitions, which are, in our theory, motivated by a mix of killer and development intentions, and nonoverlapping acquisitions, which are motivated only by development intentions. We find an increase in acquisition probability and a decrease in postacquisition development for overlapping acquisitions and interpret that as evidence for killer acquisitions. Importantly, killer acquisitions necessarily involve a combination of the choice to acquire an overlapping target and the resulting reduced incentives to develop drug projects that cannibalize the acquirer’s existing profits. These combined effects are quite different from the effects arising from random allocation of new drug projects to incumbent firms with or without product market overlap, and thus we do not analyze quasi-random acquisitions and outcomes. Instead, we combine empirical evidence consistent with our theory and various analyses to rule out plausible alternative explanations. Overall, this paper makes three contributions. First, we shed new light on a fundamental impediment to corporate innovation. Specifically, we highlight how the motive to protect existing profits, known to discourage an incumbent’s own innovation, can also incentivize powerful incumbents to stifle the innovation of other firms. Second, we document the importance of this obstacle to innovation in the pharmaceutical industry, an innovation-focused industry crucial to consumer and social welfare. Third, we provide new evidence relating to trends and consequences of increasing market concentration. Incumbents in already-concentrated markets further reduce competition by acquiring future product market competitors. We show that such acquisitions often avoid antitrust scrutiny and may therefore pose concerns for consumer welfare. The prior literature on motives for corporate acquisitions has focused on agency conflicts (Roll 1986; Morck, Shleifer, and Vishny 1990), synergies (Maksimovic and Phillips 2001; Bena and Li 2014), and increasing existing market power (Baker and Bresnahan 1985). This paper adds to this literature in two ways. First, in our model, acquisitions are not driven by synergies or by incentives to increase current market power. Instead, we argue that incumbents acquire innovative targets to terminate nascent innovation that may threaten their profits in the future. This new mechanism combines two classic effects in the innovation literature: the “replacement effect” (Arrow 1962), reducing the incentives of an incumbent to introduce new products that are substitutes for existing products,7 and the “efficiency effect” (Gilbert and Newbery 1982), giving an incumbent strong incentives to acquire the property rights to a new innovation to preempt entry.8 Second, we focus on the implications of acquisitions and increasing concentration on innovation. Cabral (2017), Federico, Langus, and Valletti (2017, 2018), Motta and Tarantino (2017), and Gilbert (2018) present theoretical models in which merging parties have diminished innovation incentives and acquisitions can be used to cement the dominance of incumbents. Ornaghi (2009) and Haucap, Rasch, and Stiebale (2019) empirically document an innovation-reducing effect of mergers, whereas Guadalupe, Kuzmina, and Thomas (2012) find that a target company’s innovation increases after an acquisition by a multinational firm. Our paper provides a theoretical and empirical analysis of a new channel through which acquisitions affect innovation. By using detailed project-level data on acquisition and development decisions, we can rule out other potential explanations for the observed acquisition patterns and the innovation gap between acquired and independent firms. We also contribute to the literature on innovation and competition in the pharmaceutical industry. A number of papers have documented the trade-offs involved in promoting competition while fostering innovation, through investigating the product market interactions between patented and generic drugs (Caves, Whinston, and Hurwitz 1991; Grabowski and Vernon 1992; Scott Morton 2000; Reiffen and Ward 2005), the role of pricing (Howard et al. 2015) and price controls (Filson 2012), internal R&D policies (Cockburn and Henderson 1994), and mergers and acquisitions (M&As; Ornaghi 2009; Haucap, Rasch, and Stiebale 2019; Meder 2019). Our paper complements this literature by presenting evidence that the market for corporate control plays a crucial role in shaping competition and innovation in drug development and that incumbents may abuse this mechanism to impede innovative competition.

II. Theoretical Framework To guide our empirical strategy, we propose a simple theoretical model of acquisition, innovation, and product market competition. The model provides four distinct empirical predictions about development and acquisition choices and how they are affected by product overlap and existing and future competition. All proofs are in appendix A. A. Setup The model has the following time line, depicted in figure 1. In t=0, an entrepreneur E (she) with a single project is born.9 There are also n≥1 incumbent firms, each possessing an existing differentiated product. One of these n incumbents, which we call the (potential) acquirer A (he), can acquire the entrepreneur E at an endogenously determined takeover price P.10 We use the subscript “acq” if the entrepreneur was acquired in t=0 and use “¬acq” otherwise. Fig. 1. Fig. 1. Model time line. View Large ImageDownload PowerPoint In t=1, the project’s owner—the acquirer A if the project has been acquired or the entrepreneur E if it remains independent in t=0—decides whether to develop the project.11 Let ρA and ρE be the probabilities that the project will ultimately be successful if the acquirer or the entrepreneur develops it, k be the cost of developing the project, and L be the project’s liquidation value if development does not continue. This structure captures how a pharmaceutical firm decides whether to proceed with the development of a new drug. At this stage, the original project idea exists and is commonly patented; however, continued development effort of the drug is necessary and very costly, and the eventual success is uncertain. We allow for two benefits of innovation: vertical and horizontal differentiation. If the new project is successfully developed, it expands the size of the market both because it is superior in terms of objective quality and because it meets the needs of some consumers more effectively.12 We also allow for differential capabilities in project development. If ρA>ρE, the acquirer has an advantage in developing the project relative to the entrepreneur.13 Finally, in t=2, uncertainty about the project’s success is resolved, and all firms engage in product market competition with imperfect substitutes. We model competition using horizontally and vertically differentiated Bertrand competition because price-setting behavior by firms with differentiated products best captures strategic interactions in the branded drug market (Ellison et al. 1997; Duggan and Scott Morton 2010; Berndt, McGuire, and Newhouse 2011).14 We assume that if the project is successfully developed in t=2, the drug has a product market payoff that depends on the degree of competition (i.e., the number of active firms/products in the market) and product differentiation (i.e., quality and taste differences) in the market. If the project is unsuccessful, the payoff is zero. We assume that the values of ρA, ρE, k, and L and the extent of vertical and horizontal differentiation are commonly known by all of the involved parties. B. Product Market Competition (t=2) Consider first the product market choices of the entrepreneur when her project is not acquired (¬acq). If the project is successful (S), the resulting newly developed product competes against n other single-product incumbent firms, and the entrepreneur maximizes pEqE. This yields profits for the entrepreneur and the potential acquirer (and all of the other incumbents) such that πE¬acq,S≥πA¬acq,S>0 because the new product is (weakly) superior to all existing products and all products are horizontally differentiated from each other. If the new project fails (F), the entrepreneur does not have any product to sell in t=2, and thus her profit is equal to πE¬acq,F=0. The n incumbent firms each have a single existing (horizontally differentiated) product to sell, and thus the acquirer’s profit is equal to πA¬acq,F>0. Profits for the acquirer are now higher, πA¬acq,F>πA¬acq,S, for two reasons. First, the acquirer has to compete against only n−1 (rather than n) single-product firms. Second, none of these n−1 firms sell a superior new product. Next consider the product market choices of an acquirer in the case of an acquisition (acq). If the project is unsuccessful, the acquirer can still sell his existing product in t=2, and he competes against the other n−1 single-product incumbents. The resulting profit for the acquirer is πAacq,F>0. This is exactly the same as when no acquisition occurs and the entrepreneur’s project fails; hence, πAacq,F=πA¬acq,F. If the project is successful, the acquirer becomes a two-product oligopolist who optimally chooses prices for his two products and competes against n−1 other single-product incumbents. The acquirer’s objective function is to maximize the profits from both of his products, pAoldqAold+pAnewqAnew, whereas the remaining n−1 other single-product incumbent firms maximize single-product profits. The profit of the multiproduct incumbent acquirer is πAacq,S. This profit is higher than when he sells only a single product with the same n−1 competitors; hence, πAacq,S>πA¬acq,F. To summarize, we obtain the following profit rankings for the acquirer and the entrepreneur: πAacq,S>πAacq,FπE¬acq,S>πE¬acq,F=πA¬acq,F>πA¬acq,S>0,and=0.(1) C. Development Decision (t=1) 1. Product Market Overlap We now investigate the development decision in t=1, akin to a pharmaceutical firm deciding whether to proceed with the development of a new drug. What matters for the development decision in t=1 are the difference between πAacq,S and πAacq,F for the incumbent and the difference between πE¬acq,S and πE¬acq,F for the entrepreneur. As long as the acquirer’s existing product and the new project are imperfect substitutes, we have ΔE≡πE¬acq,S−πE¬acq,F>πAacq,S−πAacq,F≡ΔA.(2) The acquirer gains strictly less from developing a new product than an entrepreneur would. This is due to the replacement effect (Arrow 1962): the new product cannibalizes some of the profits of the acquirer’s existing product. In contrast, an entrepreneur has no product to sell, and hence no profit, if she does not successfully develop the project.15 The development decisions of the entrepreneur (dE={0,1}) and the acquirer (dA={0,1}) are determined by ρEΔE−k≥LandρAΔA−k≥L.(3) Rewriting these two inequalities yields the development cost thresholds used by the entrepreneur and the acquirer: kE≡ρEΔE−LandkA≡ρAΔA−L.(4) Comparing these thresholds shows two reasons for the difference in product development decisions of the entrepreneur and the acquirer. First, because of the replacement effect (ΔE>ΔA), the entrepreneur is more willing to develop the product. Any form of product market overlap (i.e., substitutability) with the existing drug in the acquirer’s portfolio reduces his propensity to continue the development of the acquired project relative to the case in which the project remains independent. Second, the acquirer is more willing to continue if he benefits from important synergies in product development (ρA>ρE). Depending on the relative magnitude of these two effects, either the entrepreneur or the acquirer has a stronger incentive to develop the product. Proposition 1 (Project development and market overlap). An incumbent firm that acquires a project continues development if k≤kA, while an entrepreneur continues if k≤kE. For any product market overlap, we have kE>kA if and only if ΔE/ΔA>ρA/ρE. Thus, whether the entrepreneur or the acquirer has stronger incentives to continue development depends on the relative magnitudes of the replacement effect ΔE/ΔA and the synergy effect ρA/ρE. If the acquirer does not have a development advantage or if this advantage is not large enough to outweigh the replacement effect, the entrepreneur will always be more willing to continue development. The difference in development behavior between the incumbent acquirer and entrepreneur occurs when k is in the intermediate range between kA and kE, also highlighting the crucial role of the development cost k. Without costly development (i.e., if k=0), all firms would continue development, and thus killer acquisitions would never occur. Necessary and costly ongoing development of a drug project, coupled with product overlap (and absence of large synergy effects), is what generates lower development incentives of the incumbent acquirer relative to the entrepreneur. 2. Existing Competition The degree of existing competition, as measured by the number of incumbents n, plays an important role in determining the relative size of ΔE and ΔA. In particular, the difference between kE and kA is decreasing in n. Proposition 2 (Project development and competition). For any product market overlap, the difference kE−kA is strictly decreasing in n. Successfully developing a new product draws consumer demand and profits away from all existing products. An acquiring incumbent is hurt more by such cannibalization when he is a monopolist (i.e., the new product draws demand away from only his own existing product) than when he already faces many other existing competitors (i.e., cannibalization losses are spread over many firms). As a result, as the number of existing competitors increases, the replacement effect decreases and the acquirer’s development decisions become more similar to those of the entrepreneur. 3. Patent Life and Future Competition Until now, we have considered only the impact of competition from branded drugs (i.e., imperfect substitutes). However, another important aspect of the pharmaceutical industry is competition from undifferentiated generic drugs that enter the market when a branded product’s patent expires. Denote the number of years of remaining patent life of the entrepreneur’s new project TE and those of the acquiring incumbent’s existing product TA, where TE>TA≥0. We assume, for simplicity, that the firms earn their static game profits every year and use the same discount factor δ≤1. We also assume that as soon as a product’s patent expires, an identical, undifferentiated product (e.g., a generic drug) enters the market (Berndt, McGuire, and Newhouse 2011). Bertrand competition between undifferentiated products then implies that prices and profits for the acquirer’s existing product drop to zero. Thus, for the TA years in which the existing product’s patent is still valid, the acquirer and the entrepreneur earn the per-period development gains ΔA and ΔE, respectively. Thereafter, the profits for the acquirer’s existing product drop to zero because of undifferentiated generic competition, but the profits of the newly developed products remain positive. Therefore, the acquirer faces no more cannibalization losses from the development of the new product, and hence his incentives to develop coincide with those of the entrepreneur. Specifically, the entrepreneur’s and acquirer’s per-period development gains after the expiration of the acquirer’s existing product’s patent in TA years are Δgen=ΔEgen=ΔAgen.16 Proposition 3 (Project development and patent life). For any product market overlap, the difference kE−kA is strictly increasing in TA if the acquirer’s development synergies are not too large. The longer the patent life TA of the acquirer’s existing product, the weaker his incentives are to continue development relative to those of the entrepreneur if his development synergies are not too large relative to the replacement effect (i.e., ρA/ρE≤(ΔE−Δgen)/(ΔA−Δgen)). When the acquirer’s existing overlapping product has only little remaining patent life (TA close to zero), his development policy for the new project is quite similar to that of the entrepreneur. The intuition for this result is essentially the same as that for proposition 2. Generic entry is just a particularly intense form of competition that destroys all of the profits of the acquirer’s existing product and eliminates cannibalization losses from new product development.17 Proposition 3 remains unchanged if we assume that generic entry does not drive the profits of the old existing product to zero.18 As long as generic entry destroys some of the existing profits of the incumbent’s old drug, the replacement effect for the incumbent will be smaller after patent expiration, and thus the difference kE−kA will be increasing in TA. D. Acquisition Decision (t=0) 1. Single Incumbent Acquirer We now show that killer acquisitions can occur only when the entrepreneur’s project overlaps with the acquirer’s existing product. To compensate the entrepreneur for selling the project, the acquirer must pay an endogenously determined takeover price P equal to (or greater than) the expected payoff of the project when the entrepreneur remains independent.19 Recall that for any product market overlap, we have kE>kA if and only if ΔE/ΔA>ρA/ρE. If this condition holds, there are three cases to consider. First, if k>kE, neither the entrepreneur nor the acquirer chooses to develop the project. Both parties also have the same (liquidation) value L for the project and are indifferent as to who owns it. Second, for kE≥k>kA, the acquirer terminates the project, but the entrepreneur continues development. Such an acquisition (“acquire to kill”) occurs if ρE(πAacq,F−πA¬acq,S)efficiencyeffect≥ρEΔE−k−Lreplacementeffect.(5) Acquiring and shutting down the entrepreneur’s project yields a profit equal to πAacq,F, while not acquiring it yields πA¬acq,S. The difference between these (multiplied by the probability ρE with which the entrepreneur develops the project) is the efficiency effect. However, the expected marginal profit for the entrepreneur from continuing development (dE=1) given by ρEΔE−k is larger than the liquidation value L that the acquiring incumbent (dA=0) would obtain. This difference is the replacement effect. It decreases the incentive to acquire because when paying P, the acquirer still needs to compensate the entrepreneur for her higher valuation. Third, for k≤kA, both acquired and nonacquired firms develop the project. Such an acquisition (“acquire to continue”) occurs if ρE(πAacq,F−πA¬acq,S)efficiencyeffect≥ρEΔE−ρAΔAreplacementeffect.(6) Here, the replacement effect is the difference in expected marginal project development gains because both parties develop the project.20 Despite developing the project, the acquirer still benefits from reducing competition through (less aggressive) multiproduct pricing. Thus, when incumbent synergies are not too large, acquisitions take place if k≤kE and if the efficiency effect is sufficiently large relative to the replacement effect. Even though the entrepreneur has a higher propensity for developing a project (because the replacement effect is stronger than the incumbent synergies), acquisitions occur because they prevent the entrepreneur from reducing the existing profits of the acquirer (efficiency effect).21 Finally, in the case where ΔE/ΔA≤ρA/ρE, there are only two cases to consider, because kE≤kA. If k>kA, neither the entrepreneur nor the acquirer chooses to develop the project. Both parties also have the same (liquidation) value L for the project and are indifferent as to who owns it. If k≤kA, the acquirer always acquires and develops the project, because the incumbent’s development synergies outweigh the replacement effect. Proposition 4 (Acquisition). The acquirer may have strictly positive incentives to acquire the entrepreneur if there is product market overlap or if the acquirer’s development synergies are sufficiently large, ΔE/ΔA<ρA/ρE. Otherwise, the acquirer never has strictly positive incentives to acquire the entrepreneur. Proposition 4 highlights that either product market overlap or significant development synergies are required for (killer or continuing) acquisitions to occur, immediately implying that acquisitions should be more likely when the acquirer’s product and the entrepreneur’s project overlap, because the strategic acquisition motives outlined in our model are otherwise absent. Figure 2 illustrates the two forces driving acquisitions. It plots the acquirer’s optimal acquisition strategies as a function of his development capability (ρA) and the degree of product overlap (γ). First, when both ρA and γ are low, the incumbent chooses not to acquire. If he acquires and continues development, he is unlikely to succeed, and acquiring to kill is not worthwhile because his profits are not hurt very much by the successful development of the entrepreneur’s project. Second, when ρA is high and γ is low, the acquirer chooses to continue because developing the project is likely to be successful and does not cannibalize his existing profits very much. Third, when ρA is low and γ is high, a killer acquisition is optimal because continuing development is likely unsuccessful, but not acquiring the entrepreneur leads to a significant destruction of the acquirer’s existing profits. Fourth, when both ρA and γ are high, either a killer acquisition or acquiring to continue is optimal. Fifth, when γ is very high, the acquirer does not need to acquire the entrepreneur. Even the entrepreneur does not develop the project, because competition is too intense. Fig. 2. Fig. 2. Optimal acquisition strategies. This graph plots the optimal acquisition decisions—“Don’t Acquire” (light gray), “Acquire to Kill” (black), and “Acquire to Continue” (dark gray)—as functions of the acquirer’s development capability ρA and the degree of substitutability γ. The other parameter values are αA=αE=100, ρE=0.5, L=20, k=80, and n=2. View Large ImageDownload PowerPoint Figure 2 also illustrates the inefficient project ownership arrangements that can occur in our model that arise from the incentives to protect existing profits. First, killer acquisitions can materialize even when the incumbent benefits from strong development advantages (ρA>ρE). Second, acquiring to continue can occur even when the acquirer is much worse at developing the project than the entrepreneur (ρA<ρE).22 2. Multiple Incumbent Acquirers Our analysis so far has made two simplifying assumptions about the acquisition process. First, we assumed that only one of the incumbents is chosen at random to be the potential acquirer of the entrepreneur’s project. Second, we assumed that all of the incumbents’ existing products are equally differentiated from the entrepreneur’s project and that all have the same project development capabilities. In appendix A.3, we relax these assumptions. Here we sketch out the main implications of allowing for multiple (asymmetric) incumbent acquirers. First, when several of the n incumbents23 can acquire the entrepreneur, this leads to a situation akin to the “volunteer’s dilemma” (Diekmann 1985) or, more broadly, the costly private provision of a public good (Bliss and Nalebuff 1984), because all of the incumbents benefit from the acquirer eliminating a future competitor. We show that all pure-strategy equilibria of this acquisition game are essentially identical to the single-acquirer case. Moreover, there exists a symmetric mixed-strategy equilibrium in which the entrepreneur is acquired with only some probability because the potential acquirers try to free ride on the privately costly decision to acquire the entrepreneur. Just as in the volunteer’s dilemma, when the number of potential bidders increases, this free-riding incentive increases. However, in our setting it is counteracted by a second effect. Because any potential acquirer who bids is less likely to be (randomly) chosen as the “winning bidder,” the expected cost of bidding decreases. Although the combination of these two effects on each potential acquirer’s individual probability to bid is ambiguous, the overall probability of acquisition by at least one of the acquirers unambiguously increases as the number of potential incumbent acquirers increases. Second, potential acquiring incumbents can differ in overlap and development ability. We show that when potential incumbent acquirers differ in their degree of product differentiation from the entrepreneur’s project, a killer acquirer or continuing acquirer will always be the incumbent with the product that is the least differentiated from the entrepreneur’s project. This is because the efficiency effect is largest for that acquirer, both in absolute terms and relative to the replacement effect. However, when incumbent acquirers also differ in terms of development capabilities, a continuing acquirer with a more differentiated product, but with a higher development capability, will acquire the project. This happens when his development success probability, and hence his expected gain from developing the entrepreneur’s project, is sufficiently high to raise his valuation of the entrepreneurial firm above that of the acquirer with the least differentiated product. To summarize, our theory shows that killer acquisitions arise from the combination of the choice to acquire a particular firm with the intention to terminate and the reduced incentive to develop acquired projects that cannibalize the acquirer’s existing profits. As long as the acquirer’s development synergies are not too large, our theoretical framework predicts that (1) after an acquisition, overlapping drug projects should be less likely to be developed; (2, 3) when existing (2) or future (3) competition is low, this difference in development choices between overlapping acquired drugs and their nonoverlapping acquired or nonacquired counterparts should be more pronounced; and (4) acquisitions by incumbents should target entrepreneurial firms developing drug projects that overlap with the incumbent’s existing drugs. III. Background and Data To empirically document the phenomenon of killer acquisitions, we use the setting of drug development. Testing the predictions of our theoretical framework requires comprehensive data on project-level outcomes for both acquired and nonacquired projects. We also need to measure overlap between acquirer and target firms, and market and technological competition. As described in detail below, pharmaceutical project development offers these features. Further, the pharmaceutical industry represents a significant and growing amount of health care spending, innovative activity, and M&A transactions. It is an economically and socially important industry of ongoing interest to economists (see Lakdawalla 2018 for a summary). A. Drug Development Background The development of innovative pharmaceutical products, often known as branded or patented drugs, involves a standard set of structured milestones en route to commercialization. First, firms identify potential drug compounds through routine discovery processes. Then, for any promising compounds, firms run preliminary screening in vitro and/or in vivo to explore both efficacy and toxicity before any clinical trials in humans. After these preclinical evaluations, drugs undergo three phases of clinical trials (phases I, II, and III).24 In tandem with these regimented clinical tests, firms engage in additional commercialization activities, including patent filing during the preclinical and/or discovery stage, regulatory filings in the United States and abroad, applications for coverage to various public and private insurance agencies, and launching and marketing the product in various countries around the world. Given the lengthy process before FDA approval and marketing, patented drugs usually have only a few years after approval of monopoly profits before patent expiration and generic entry. Each component of drug development represents significant expenditure and time.25 Because development is regulated and standardized and reaching development milestones is typically very costly, we can interpret observed development events and activities as credible evidence of purposeful and significant project-level development (or lack of project termination). Further, we observe this project-level development, or lack thereof, regardless of ownership, which is crucial to identifying killer acquisitions. B. Drug Development Data To build our data set at the drug project level, we use Pharmaprojects from Pharma Intelligence, which has been used in earlier research studying drug development (e.g., Adams and Brantner 2006; Kyle 2007; Blume-Kohout and Sood 2013; Branstetter, Chatterjee, and Higgins 2014). Pharmaprojects is a comprehensive data set that tracks drug projects from early-stage development through to launch or discontinuation, using data collected directly from pharmaceutical companies and researchers (Blume-Kohout and Sood 2013) and from public sources (press releases, patent filings, conference proceedings, regulatory agencies’ reports, and the medical literature). Pharmaprojects tracks all candidate drugs developed or under development for eventual sale in the US market, along with the originating firm associated with each drug project.26 Importantly for our purposes, Pharmaprojects documents the occurrence and timing of development milestones and ongoing development activities (e.g., “new patent application,” “target identified,” “additional registration for clinical trial,” and “development ongoing”), including both research (i.e., science) milestones and important steps in the commercialization process. The data set therefore allows us to observe a broad set of activities that indicate the development of a drug, including, but not limited to, progress through clinical trials. We use the occurrence of a development event or any development activity (i.e., a lack of project killing) in a given year as our core dependent variable.27 Also crucial for our analyses, Pharmaprojects includes information about each drug’s intended therapeutic market (e.g., “hypertension”) and mechanism of action (e.g., “calcium channel antagonist”), which we use to identify overlapping projects and products as well as competition. Our sample covers projects initiated between 1989 and 2010, with a focus on projects for which we observe some active development after initiation, or 16,015 projects originated by 4,637 firms.28 Pharmaprojects data start from 1989, and we exclude projects initiated in 2011 or after to ensure that we observe project development activities and any acquisitions for each project in our sample for at least five full years from initiation. Table 1 provides descriptive information about our main sample. Over the period of our analysis, drug project initiations increase from around 500 per year in the 1990s to around 1,000 projects per year in more recent periods. Table 1 also tabulates projects by broad disease groups. The largest disease areas include therapies targeting cancer and neurological conditions (2,579 and 2,573 projects, respectively, each comprising about 16% of the sample). More than half of the companies originate only one drug over this period, and 70% originate two or fewer (see fig. F1), which aligns with common perceptions of drug development: small firms initiate innovative drug projects, some of which are subsequently developed by large, commercialization-focused incumbent firms (Cockburn 2004). Table 1. Description of Drug Development Project Acquisitions N Nonacquired (%) Nonoverlapping Acquired (%) Overlapping Acquired (%) Whole sample 16,015 78 17 5 By time period:  Beginning–1995 2,684 60 31 9  1996–2000 2,854 68 25 7  2001–5 4,716 79 16 4  2006–10 5,761 90 8 2 By high-level disease group (top 5):  Anticancer (13 TCs; 783 TC-MOAs) 2,579 80 16 4  Neurological (27 TCs; 986 TC-MOAs) 2,573 77 19 4  Anti-infectives (28 TCs; 452 TC-MOAs) 1,946 77 16 7  Biotechnology (26 TCs; 209 TC-MOAs) 1,493 79 16 5  Alimentary/metabolism (24 TCs; 498 TC-MOAs) 1,380 81 15 4 Note. This table provides descriptive statistics on drug projects. The table describes the number of drugs originated over time and by consolidated disease groups as well as the proportions of projects that are nonacquired, acquired by nonoverlapping acquirers, and acquired by overlapping acquirers (i.e., acquired by an incumbent with a project in the same therapeutic class [TC] and mechanism of action [MOA] as the focal project). For illustrative purposes, we present the top five broad disease groups by number of projects (out of 16 total groups). Disease groups are high-level categorizations, and each disease group includes a number of TCs and a large number of TC-MOA pairs. These narrower TC-MOA categories are the basis for our measures of overlap and competition in the main analysis. Drug projects are identified from initial origination from the Pharmaprojects database, and acquisitions are identified from the SDC M&A database, RecapIQ, and VentureXpert. View Table Image C. Acquisition Data We collect acquisition data from Thomson Reuters SDC Platinum, Thomson Reuters RecapIQ (now Cortellis Deals Intelligence), and the SDC VentureXpert database. We then conduct a multistep cleaning process to ensure that acquisition events are correctly linked to target and acquirer firms. First, we standardize company names (for both acquirers and targets) and collect demographic information for each company. Second, since the same firm could appear in different databases under slightly different names, we create a unique firm identifier by grouping firms with highly similar standardized names and identical demographic characteristics (such as location). Third, using cleaned names of acquirers and targets and deal dates, we drop duplicate acquisition events (largely due to using multiple data sets). We then combine our acquisition database with the Pharmaprojects drug development data through a fuzzy matching algorithm combined with manual check. We consider a drug project acquired if the originator firm is acquired. In the end, for each drug in our database, we can identify whether it went through any acquisition event during its development life cycle and, if it did, the acquirer, the timing of acquisition, and development activity in the years before and after acquisition. The merged drug development and acquisition data show active acquisition activities in our analytical sample, with 22% of drug projects having an acquisition recorded in our acquisition database. As tabulated in Table 1, the rate of acquisition is lower for drugs originated more recently. This pattern is likely because acquisitions often occur several years into drug development, and for more recent projects, some acquisitions may have not yet been realized at the time of data construction (i.e., right truncation). IV. Empirical Analysis A. Empirical Design The first main implication of the theoretical framework (building from proposition 1) is that if the target project overlaps with acquirer projects or products, the acquirer has weaker incentives to continue development. We therefore need a measure of overlap between the target’s projects and the acquirer to test for differences in the likelihood of development across overlapping acquired, nonoverlapping acquired, and nonacquired projects. We measure overlap between a drug project and the acquiring firm on the basis of a combination of its intended therapeutic class and mechanism of action. The therapeutic class (TC) is the disease or condition the therapy targets (e.g., hypertension). We use Pharmaprojects’s therapeutic categories, which are based on the European Pharmaceutical Market Research Association product categorizations (Kyle 2007). These categories represent 230 possible TCs. Within each TC, we also identify the drug’s mechanism of action (MOA), meaning the biological interaction involved in the drug achieving its desired end, including both the molecular target (e.g., beta adrenoreceptor, angiotensin I–converting enzyme) and the intended effect (e.g., agonist, antagonist, reducer, inhibitor). The median number of MOAs per TC in our sample is seven. In our main analyses, we categorize a project as overlapping if the acquiring firm has an existing project or product in the same TC that uses the same MOA as the acquired drug project (i.e., treats the same disease or condition in the same way). As outlined in Table 1, nearly one-quarter of acquired drug projects overlap with their acquirer’s projects. We measure competition using this same categorization (i.e., the number of products in the same TC using the same MOA). The mean number of products in a TC-MOA pair in a given year is 13. The logic for measuring overlap narrowly is to ensure that we capture only potential substitute drugs. If we were to instead use same TC regardless of MOA, we would be more likely to capture drugs that complement the target’s project, either because they treat different submarkets (i.e., different patient segments with the same disease) or because they are used in parallel in treatment for the same patients. We investigate separately the effects of overlap measured more broadly as the same TC, which we report in supplementary analyses.29 Because we are studying innovative drug development before commercialization, our measure of overlap necessarily differs from measures of competition used in the literature on generic or branded drugs. First, the vast literature that explores generic competition and the effects of generic entry on branded products defines competing products as those that are the same chemical entity (Ellison and Ellison 2011; Arcidiacono et al. 2013; Branstetter, Chatterjee, and Higgins 2014). Since we are comparing the development of potentially competing innovative pharmaceuticals, which by definition must be different chemical entities, we cannot use this as our measure. Second, prior research exploring market competition between branded products has defined overlap as having the same FDA-approved primary indication or using prescription or usage patterns (Howard et al. 2015). However, because we analyze projects under development, many of which are never approved, let alone marketed, we cannot use approval-contingent categories or usage patterns (including, e.g., estimated substitution elasticities). Given that we are analyzing premarket products, a big advantage of the pharmaceutical industry context is that categorizations of intended markets and mechanisms are readily available from a project’s early stage. Finally, some prior research has used the broader measure of the same TC (e.g., Kyle 2007); we use a narrower measure for the reasons discussed above but include analyses with the broader measure. For our main empirical analyses, we use panel data of drug projects. A project is included in the sample from the origination year and is removed from the sample after a successful US launch, if any. The empirical specification is as follows: Developmenti,t=β⋅I(Acquired)i×I(Post)i,t×I(Overlap)i+γ1⋅I(Acquired)i×I(Post)i,t+γ2⋅I(Acquired)i×I(Overlap)i+γ3⋅I(Acquired)i+αFE+εi,t,(7) where the dependent variable Developmenti,t is a dummy variable indicating whether drug i has a development event in year t, I(Acquired)i indicates whether drug i ever undergoes an acquisition event, I(Post)i,t indicates whether the drug-year (i, t) observation is after the drug is acquired, and I(Overlap)i indicates whether drug i overlaps with any existing product or project of the acquirer firm. We control for the potential confounding effects, using a vast array of fixed effects (αFE; described below), and standard errors are clustered at the drug project level. We report our results estimated using linear probability models, but the results are similar when we use logit models. In this panel specification, the interaction term I(Acquired)i×I(Post)i,t captures the change in development activity for all acquired drug projects in the years after the acquisition. The term I(Acquired)i×I(Overlap)i captures the overall development conditions for drugs acquired by overlapping buyers in the years before the acquisition. The key term for our test is the triple interaction term I(Acquired)i×I(Post)i,t×I(Overlap)i, which captures the additional change in development event probability for acquisition cases when the target and the acquirer overlap. Our model predicts a negative coefficient, β, consistent with the prediction that when acquired projects overlap with the acquirer’s portfolio, they are more likely to be terminated.30 Ideally, if terminations were comprehensively reported in a timely manner, we would use a survival analysis to test whether and when drug projects are shut down. However, project terminations are rarely observed or voluntarily reported, either at a specific point in time or at all.31 Hence, in our main specification, we use a lack of development activity as a proxy for termination. We test for the likelihood of observed, active development of a project, using a project-year panel. There are also several advantages to a panel structure that are not possible in a survival analysis, including the ability to account for time-invariant project-level differences between acquired and nonacquired projects and preacquisition differences between overlapping and nonoverlapping acquired projects. To investigate whether we are accurately capturing drug terminations with our project-year analysis, we run additional analyses predicting any postacquisition development activity (described in detail below). The following subsections detail our empirical analyses. First, we compare drug development rates for nonacquired, acquired nonoverlapping, and acquired overlapping projects (Table 2). We then deepen our analyses of proposition 1 by focusing on single-project targets and by separately analyzing projects that are “never developed” after an acquisition (Table 3). To test propositions 2 and 3, we analyze the effects of competition (Table 4) and acquirer patent life (Table 5). Next, we examine how overlap determines acquisitions, following from proposition 4 (Table 6). To further probe strategic intent, we document acquisition and development patterns around antitrust review thresholds (Table 7; fig. 3). Finally, we investigate several alternative explanations (tables 8, 9). B. Development of Drug Projects after Acquisition Table 2 presents the regression results from model (7) comparing nonacquired, acquired nonoverlapping, and acquired overlapping projects. We include various combinations of fixed effects to ensure that the variation in development across overlapping and nonoverlapping acquisitions is not driven by confounding economic, scientific, or firm effects (i.e., to narrow the comparison projects to those otherwise similar except for differences in acquisition status). Table 2. Overlapping Acquisitions and Project Development Development Event = 1 (1) (2) (3) (4) (5) (6) I(Acquired) × I(Post) × Overlap −.037\*\*\* −.033\*\* −.029\* −.041\*\* −.043\*\* −.054\*\* (.013) (.014) (.015) (.019) (.021) (.024) I(Acquired) × I(Post) −.020\*\*\* −.016\*\* −.017\*\* −.024\*\* −.018 −.018 (.006) (.007) (.009) (.010) (.011) (.013) I(Acquired) × Overlap .004 .009 .026\*\* (.008) (.009) (.011) I(Acquired) −.002 −.004 −.011 (.004) (.005) (.012) Before(−3) × Overlap −.031 (.032) Before(−2) × Overlap .012 (.032) Before(−1) × Overlap −.040 (.030) Before(−3) .015 (.017) Before(−2) .020 (.017) Before(−1) −.003 (.016) Observations 143,569 143,569 143,569 143,569 134,662 143,569 R2 .038 .252 .289 .366 .662 .370 Vintage FE Y Y Y Age FE Y Age × TC × MOA FE Y Y Y Y Y Originator (target company) FE Y Project FE Y Y Y Propensity score reweighted Y Note. This table presents the likelihood of postacquisition development events for drug projects, using a drug-year panel sample. The empirical specification uses the following model: Developmenti,t=β⋅I(Acquired)i×I(Post)i,t×I(Overlap)i+γ1⋅I(Acquired)i×I(Post)i,t+γ2⋅I(Acquired)i×I(Overlap)i+γ3⋅I(Acquired)i+αFE+εi,t, where the dependent variable Developmenti,t is a dummy variable indicating whether drug i has a development event in year t; FE = fixed effects. I(Acquired)i indicates whether drug i is acquired during the study period, and I(Post)i,t indicates whether the drug-year (i, t) observation is after the drug is acquired. I(Overlap)i is a dummy variable indicating that the acquired drug overlaps with the product portfolio of the acquirer. Before(−t) indicates that the drug-year is t years before an acquisition and takes zero otherwise. Standard errors clustered at the drug project level are displayed in parentheses. \*Significant at the 10% level. \*\*Significant at the 5% level. \*\*\*Significant at the 1% level. View Table Image In column 1, we include project age and vintage fixed effects to focus our estimates on the development of drug projects that are initiated in the same year and at the same stage of development. Vintage fixed effects also account for right truncation for more recently initiated projects, given the long development time lines for pharmaceuticals (US FDA 2017). In column 1, the estimate of β is −0.037 and is statistically significant at the 1% level, meaning that acquired drug projects that overlap with the acquirers’ portfolio are 3.7 percentage points less likely to have a development event in the years after acquisition than nonoverlapping acquired projects and that they are 5.7 percentage points (0.037+0.020) less likely to experience a development event than nonacquired projects. Given that the unconditional probability of having a development event is 19.9%, being acquired by a firm with an overlapping project is associated with a 20.7% (0.037/(0.199−0.020)) lower development probability than otherwise similar drugs that are acquired by a nonoverlapping acquirer. In column 2, we include age-TC-MOA fixed effects to control for potential heterogeneities in the development life cycle of drugs targeting different diseases, including differences in the stage and complexity of the underlying science and in the size and geography of patient pools, physician capacity, or patient follow-up times, which can vary greatly across different drug markets (ASPE 2014). For example, Budish, Roin, and Williams (2015) argue that differences in clinical trial lengths and development trajectories arise for different types of cancer treatments caused by varying difficulty of demonstrating effectiveness, which is in turn caused by differences in patient survival rates. Further, within TCs, certain MOAs may be “older” (i.e., more established), which also may lead to differential rates of development across TC-MOAs. These fixed effects ensure that we are comparing similar drugs at similar points in the life cycle. In column 3, we add firm fixed effects. In doing so, we are effectively using the sample of firms with two or more projects and exploiting variations in development for projects with the same originator firm. In this analysis, I(Acquired)i×I(Post)i,t×I(Overlap)i estimates the difference in development between acquired overlapping and nonoverlapping projects for the same originator (or target). These results show that even within the same originator firm, acquired overlapping projects are significantly less likely to have a postacquisition development event, compared to acquired nonoverlapping projects. In column 4, we include drug-level fixed effects to absorb variation due to unobservable drug-specific characteristics, subsuming vintage fixed effects. We find that the estimate of β is statistically significant and of similar economic magnitude to that in column 1: being acquired by a firm with an overlapping project is associated with a 23.4% decrease in development rate. In column 5, we apply propensity score reweighting to the column 4 analyses. Following Guadalupe, Kuzmina, and Thomas (2012), this allows us to further account for observable differences in the probability of being acquired. To calculate the propensity score for each firm, we run the following analysis. For each year, we consider firms acquired in that year as treated and firms that are never acquired as control observations. We pool treated and control observations across all years to estimate the probability (or propensity), p, that a firm is acquired as a function of lagged productivity (total number of development events in the past three years), firm size (the total number of projects under development), drug vintage, a year trend, and TC-MOA fixed effects. We then transform p into weights (weighting each treated firm by 1/p and each control firm by 1/(1−p)) and restrict the analysis to firms that fall within the common support.32 The propensity score reweighting estimator allows us to control for selection stemming from both time-invariant characteristics of firms (as in the equal-weighted fixed effects regression) and time-varying characteristics.33 Our core results are robust to the propensity score reweighting. In column 6, we explore whether there are any differences in drug development trajectories across projects acquired by overlapping versus nonoverlapping incumbents. Given that we find decreased development after acquisition for overlapping acquired projects, one concern is that such projects were on a slower (or faster) development path before acquisition, compared to other acquired projects, and that such preacquisition differences at least partially explain postacquisition differences. To investigate this, we include indicator variables for the three years before the acquisition, separating overlapping and nonoverlapping acquired projects. The associated estimated coefficients are insignificant, suggesting that different development trajectories are not driving our results. Beyond our main finding on overlap, Table 2 also includes several other results that warrant discussion. First, reassuringly, the coefficients on I(Acquired)i×I(Overlap)i and I(Acquired)i are both small in magnitude and insignificant, meaning that acquired drugs do not appear to have a different unconditional likelihood of development before acquisition. Second, the γ1 coefficient associated with I(Acquired)i×I(Post)i,t is negative and significant across specifications, implying a lower probability of development activity after acquisition. One reason for this pattern could be that our measure of overlap (same TC and same MOA) leads to potentially overly tight market definitions, and therefore even some nonoverlapping acquisitions may actually be killer acquisitions (i.e., substitute projects that are acquired and terminated). To investigate this, we separated out projects that overlap in TC only and found that the omitted category of nonoverlapping acquired projects now is consistently insignificant, albeit still negative (table F1).34 We also run several additional analyses to supplement Table 2’s main results. Our results are robust to clustering standard errors at both the market (TC-MOA) and firm-market levels (table F2); measuring the acquired drug as overlapping only if the relevant acquirer’s project or product is more advanced (i.e., older) than the target’s (table F3); using age-TC fixed effects instead of the more narrow age-TC-MOA fixed effects to control for differences in drug development life cycles (table F4); and controlling for any preacquisition codevelopment or licensing deals, which are common in the pharmaceutical industry, by augmenting our data with comprehensive RecapIQ data on technology-related codevelopment and licensing deals (table F5). Finally, following prior literature on drug development (Guedj and Scharfstein 2004; Krieger 2017), we perform supplementary analyses, using clinical trial progression as our outcome variable, that replicate the Table 2 results (app. E). C. Alternative Subsamples and Specifications Overall, Table 2 provides evidence that acquired drug projects are less likely to be developed by an acquirer with competing projects, consistent with proposition 1 of our theoretical model. We also include two sets of additional analyses that provide further supportive evidence for our interpretation of the Table 2 results. Table 3 includes these additional analyses. Column 1 duplicates our main results focusing on the acquired sample, confirming our main analyses (the unconditional development probability in this sample is 18.7%, with a 39.6% lower development rate for overlapping targets). In column 2, we examine postacquisition development when the target has only one drug at the time of acquisition, to address concerns that our findings could be the result of acquirer firms acquiring multiproject targets and developing only the most promising while discontinuing the others. If this mechanism is driving our results, we should expect the effect of overlap on postacquisition development to be smaller and/or insignificant in this sample. However, we find that it is both significant and larger in magnitude, alleviating these concerns. Table 3. Overlapping Acquisitions and Project Development: Alternative Specifications Development Event = 1 No Development = 1 (1) (2) (3) (4) I(Acquired) × I(Post) × Overlap −.050\*\* −.121\*\*\* .005 .149\*\*\* (.023) (.060) (.035) (.033) I(Acquired) × I(Post) −.024 −.041 −.095\*\*\* .401\*\*\* (.015) (.025) (.013) (.021) Observations 27,784 19,651 7,916 9,227 R2 .445 .249 .155 .477 Sample Acquired projects only Single-project target only Excluding “never developed” TC × MOA FE Y Age × TC × MOA FE Y Y Y Project FE Y Y Y Y Note. This table presents the postacquisition development likelihood of acquired drug projects (col. 1), single-project targets (col. 2), acquired drug projects with some postacquisition development (col. 3), and the likelihood of never experiencing a development event (col. 4). The general empirical specification is Developmenti,t=β⋅I(Acquired)i×I(Post)i,t×I(Overlap)i+γ1⋅I(Acquired)i×I(Post)i,t+αFE+εi,t, where the dependent variable Developmenti,t is a dummy variable indicating whether or not drug i has a development event in period t in cols. 1–3 (or has no development event in period t in col. 4); FE = fixed effects. I(Acquired) × I(Post) indicates whether the drug-period(i, t) observation is after the drug is acquired, and I(Acquired) × I(Post) × Overlap also indicates that the acquired drug overlaps with the acquirer’s product portfolio. Standard errors clustered at the drug project level are displayed in parentheses. \*\*Significant at the 5% level. \*\*\*Significant at the 1% level. View Table Image Our second set of additional analyses aim to ensure that our main results on the decreased likelihood of development are due to project termination rather than to changes in development patterns. To do so, we perform two different analyses. First, in Table 3, column 3, we rerun our column 1 analysis on acquired projects, removing projects that are never developed after acquisition. If immediate project termination is driving our main findings, as we contend, then we should find no significant difference between acquired overlapping and acquired nonoverlapping projects after we take out projects that are never developed after acquisition. Second, in column 4, we examine the likelihood that a project is never developed after acquisition, which we expect to be significantly higher for overlapping acquisitions. For this second test, we collapse our panel into two time periods, before and after acquisition, and the outcome variable becomes no development. The results from both analyses are consistent with immediate termination. First, in Table 3, column 3, we find no significant difference in likelihood of development between acquired overlapping and acquired nonoverlapping projects after removing the never-developed projects. Second, in column 4, we find that overlapping projects are 14.9 percentage points, or 20.9% (0.149/0.711), more likely to have no postacquisition development events (i.e., to be immediately terminated) compared to nonoverlapping projects. Together, these results support termination, rather than delayed development, as the primary driver behind our results.35 The results from Table 3 also help to alleviate any concerns that our main results might be driven by strategic reactions of nonacquired firms. We also investigate this possibility directly (in table F7) and find no evidence of increased development by nonacquired firms. D. Product Market Competition To investigate proposition 2, we examine how our empirical results differ across levels of competition. We measure competition as the count of launched products in the same TC using the same MOA as the focal project (our measure of “existing product” competition).36 We include TC-MOA fixed effects to control for differences in baseline development rates across markets that could lead to both lower competition and lower development rates. Table 4 presents the regression results that examine whether the postacquisition development pattern of acquired projects varies under different competition environments. We categorize drug development projects into high and low competition by the sample median (which is 2). In columns 1–3, we examine the role of competition in predicting development activity in the project-year panel, and in columns 4–6, we predict no development activity after acquisition across different levels of competition. Table 4. Overlapping Acquisitions and Project Development: Market Competition Development Event = 1 No Development = 1 Low High Interacted Low High Interacted (1) (2) (3) (4) (5) (6) I(Acquired) × I(Post) × Overlap −.065\*\* .017 .017 .219\*\*\* .038 .038 (.026) (.035) (.035) (.054) (.070) (.070) I(Acquired) × I(Post) × Overlap × LowCompetition −.082\* .181\*\* (.044) (.089) Observations 74,261 69,308 143,569 5,991 3,236 9,227 R2 .415 .399 .408 .497 .474 .489 TC × MOA FE Y Y Y Age × TC × MOA FE Y Y Y Project FE Y Y Y Y Y Y Note. This table presents the development likelihood of drug projects, using a drug-year panel sample. The empirical specification uses the following model: Developmenti,t=β⋅I(Acquired)i×I(Post)i,t×I(Overlap)i+γ1⋅I(Acquired)i×I(Post)i,t+γ2⋅I(Acquired)i×I(Overlap)i+γ3⋅I(Acquired)i+αFE+εi,t, where the dependent variable Developmenti,t is a dummy variable indicating drug i has a development event in year t for cols. 1–3 (or has no development event in period t for cols. 4–6). FE = fixed effects. I(Acquired)i indicates that drug i undergoes an acquisition event, and I(Post)i,t indicates that the drug-year (i, t) observation is after the drug is acquired. We count the number of firms with a drug or drug project that is in the same market (same TC-MOA) as the focal drug. In cols. 1–3, the analysis predicts likelihood of development across all projects in a project-year panel, while in cols. 4–6, the analysis predicts likelihood of no development for acquired projects, comparing pre- and postacquisition periods and overlapping and nonoverlapping acquired projects. Drug development projects are categorized into high and low competition by the median of competition measures (product count). In cols. 3 and 6, we present results in which we interact I(Acquired)i × I(Post)i,t × I(Overlap)i with the dummy indicating low competition. Standard errors clustered at the drug project level are displayed in parentheses. \*Significant at the 10% level. \*\*Significant at the 5% level. \*\*\*Significant at the 1% level. View Table Image The results suggest that the decreased likelihood of development of overlapping projects during the postacquisition period concentrates in product markets with relatively low competition. Comparing columns 1 and 2, we observe that the development of an overlapping acquired drug under low competition decreases by 6.5 percentage points, while under high competition, the coefficient is 0.017 and statistically insignificant. The coefficient estimate of −0.065, together with the unreported coefficient −0.015 associated with I(Acquired)×I(Post), and the benchmark of the unconditional development rate in the subsample (19.4%) imply that acquired overlapping projects are 41.2% ((0.065+0.015)/0.194) less likely to be developed than nonacquired drugs and are 36.3% (0.065/(0.194−0.015)) less likely to be developed than acquired nonoverlapping drugs. In column 3, we test the difference between high and low competition, using an interaction term.37 The results in columns 4–6 for no development as the outcome (following Table 3) show similar findings. Further, we find the same patterns in our supplementary analysis of clinical trial outcomes (app. E) for both product market and pipeline competition. E. Heterogeneity across Patent Expiration To further explore how overlap relates to project development and to provide empirical evidence for the theoretical predictions of proposition 3, we investigate how the time remaining on acquirer patents influences the findings in Table 2. We perform this analysis on overlapping acquired projects. For each of those projects, we identify the patents associated with the acquiring firm’s relevant (overlapping) approved drugs. We source patent data matched at the drug level via Pharmaprojects (which uses the FDA Orange Book data) and link patent filing dates from US Patent and Trademark Office data. Table 5 presents these results. The key coefficient is for I(Post)×I(NearPatExpiry), which contrasts those with patents near expiration (i.e., within 5 years) with those with longer remaining patent life. Consistent with our predictions, we find that when relevant acquirer patents are near expiration, the decrease in development associated with acquisition is mitigated. Specifically, among overlapping acquired drugs, those for which the acquirer patents are near expiration are more likely to have development events after acquisition, compared to projects for which the relevant acquirer patents are relatively far from expiration. These results are sensitive to whether we allow age fixed effects to vary across TC-MOAs (as in col. 2), suggesting that development life cycles vary across TC-MOAs in ways that affect how salient the remaining patent life is in shaping killer-acquisition motives. Further, these results rely on a relatively small sample (i.e., drugs for which we have information on the acquirer’s overlapping patent via Pharmaprojects). Table 5. Overlapping Acquisitions and Project Development: Acquirer’s Patent Life Development Event = 1 (1) (2) I(Post) × I(NearPatExpiry) .013 .406\*\*\* (.133) (.090) I(Post) −.173\* −.210\*\*\* (.092) (.067) I(NearPatExpiry) −.104\*\* −.147\*\*\* (.043) (.043) Observations 6,398 6,398 R2 .212 .450 Vintage FE Y Y Age FE Y TC × MOA FE Y Age × TC × MOA FE Y Note. This table presents the development likelihood of drug projects, using a drug-year panel of acquired projects where the project overlaps with the portfolio of the acquiring firm. The analysis investigates how the remaining patent term length of the acquirer’s relevant patent (the “overlapping” patent) influences the effect of acquisition on the likelihood of development. The empirical specification uses the following model: Developmenti,t=βO⋅I(Post)i,t+β⋅I(NearPatExpiry)i+γO⋅I(NearPatExpiry)i×I(Post)i,t+αFE+εi,t, where the dependent variable Developmenti,t is a dummy variable indicating whether drug i has a development event in year t. FE = fixed effects. I(Post)i,t indicates whether the drug-year (i, t) observation is after the drug is acquired. I(NearPatExpiry) is a dummy variable indicating whether the overlapping acquirer drug is within 5 years of patent expiry. Standard errors clustered at the drug project level are displayed in parentheses. \*Significant at the 10% level. \*\*Significant at the 5% level. \*\*\*Significant at the 1% level. View Table Image F. Acquisition Decisions 1. Determinants of Acquisitions Our empirical analysis so far has focused on drug development, finding that (1) a project is less likely to be developed after being acquired by a firm with an overlapping existing drug (consistent with proposition 1) and that (2) these results are concentrated in markets with low levels of competition (proposition 2) and (3) when relevant acquirer patents are far from expiration (proposition 3). Our theoretical model also predicts that acquiring incumbents should acquire target firms with overlapping drugs (i.e., overlap will positively predict acquisition; proposition 4). To test this prediction, we compare completed deals with pseudo-control deals and employ a conditional logit regression (McFadden 1974), using cross-sectional data. Following Bena and Li (2014), for each completed acquirer-target project, we construct two different samples of potential acquisition deals (the pseudodeals). First, we form a random control sample: for each pair of acquirer firm j and target drug i, we randomly draw five firms from the pool of firms that have ever performed an acquisition before the deal year. For each of those pseudoacquirers, we then form pseudoacquisitions with target project i. Second, we form a size-matched control sample: we match each acquirer in each deal to five control firms on the basis of the total number of drug projects in the year of the deal. The analysis is performed using the following model: Acquirer-Targetijd,t=β⋅I(Overlap)ijd,t+αFE+εijd,t.(8) The dependent variable, Acquirer-Targetijd,t, is equal to one if firm-project pair ij is a real acquirer-target pair and is zero otherwise (i.e., a pseudopair). The key explanatory variable I(Overlap) is constructed for each firm pair and captures whether firm j has any product that overlaps with the acquired project i. Fixed effects are at the deal level (indexed by d) for each real acquirer-target and its control pairs. Our goal is to examine whether overlapping projects in the target’s pipeline drive the acquirer’s purchase decision. Table 6 presents the marginal effects from a conditional logit estimation evaluated at the mean, separately for each control sample: randomly matched in columns 1–4 and matched by size in columns 5–8. In column 1, the estimated marginal effect of 0.626 implies that acquisitions are almost four times as likely to occur when the incumbent acquirer’s products narrowly overlap with the target’s development projects, compared to the baseline acquisition rate of 16.7%. In column 2, we find similar patterns if the overlapping measure is more broadly defined (same TC). In columns 3 and 4, we study the effect of market competition on the acquisition decision. The results suggest that target drugs in low-competition markets are more likely to be acquired by an overlapping buyer. Columns 5–8 duplicate these results for the size-matched control sample. Collectively, these results suggest that overlap significantly influences the acquisition decisions of incumbents. Table 6. Product Overlap and Acquisition Decisions Acquisition = 1 Acquisition = 1 (1) (2) (3) (4) (5) (6) (7) (8) Overlap (TC-MOA) .626\*\*\* .577\*\*\* .194\*\*\* .209\*\*\* (.009) (.015) (.010) (.015) Overlap (TC) .356\*\*\* .300\*\*\* .214\*\*\* .200\*\*\* (.005) (.008) (.008) (.011) Overlap (TC-MOA) × LowCompetition .088\*\*\* −.027 (.019) (.020) Overlap (TC) × LowCompetition .103\*\*\* .025\* (.011) (.015) Observations 55,374 55,374 38,430 38,430 34,005 34,005 34,005 34,005 Pseudo R2 .118 .119 .098 .097 .052 .064 .052 .065 Deal FE Y Y Y Y Y Y Y Y Matching method Random matching Matched by pipeline size No. of deals 9,229 9,229 9,229 9,229 9,229 9,229 9,229 9,229 No. of control deals 46,145 46,145 46,145 46,145 46,145 46,145 46,145 46,145 Note. This table presents estimates of conditional logit models to explain the likelihood of an acquisition of a drug project. The sample for this analysis includes all completed project-firm pairs and one (of two) control samples: a randomly matched sample (cols. 1–4) and a size-matched sample (cols. 5–8). The empirical specification uses the following model: Acquirer-Targetijd,t=β⋅I(Overlap)ijd,t+αFE+εijd,t, where the dependent variable Acquirer-Targetijd,t is a dummy variable indicating that drug i is acquired by firm j in year t (and is otherwise a pseudopair). I(Overlapijd,t) is a dummy variable indicating that the target drug overlaps the potential acquirer firm. LowCompetition is a dummy variable indicating that the target drug is in a low-competition market. We include deal-level fixed effects (FE; for both realized deals and pseudodeals). We report marginal effects from the estimation. Standard errors clustered at the deal level are displayed in parentheses. \*Significant at the 10% level. \*\*\*Significant at the 1% level. View Table Image A higher propensity to undertake overlapping acquisitions does not isolate a strategic killer-acquisition motive on its own. However, alternative theories of corporate acquisition and development cannot explain both our acquisition and our drug development results. First, in contrast to our empirical finding of acquisitions of overlapping targets, acquisition motives based on empire building or managerial risk diversification theories would imply that incumbent acquirers should target nonoverlapping projects. Second, although our results showing that overlap predicts acquisitions are, on their own, consistent with acquisitions motivated by project development synergies, such a synergy-based theory would predict that acquired overlapping projects are subsequently more likely to be developed, rather than less. Hence, a synergy motive contrasts sharply with our empirical findings of decreased development in section IV.B. 2. Antitrust and FTC Review Thresholds In the pharmaceutical industry, incumbents often conduct acquisitions when the target’s technology or project is still at a nascent stage. As a result, some of these deals are exempted from the FTC’s premerger review rule under the Hart-Scott-Rodino Antitrust Improvements Act (HSR) of 1976 because they fall below the acquisition deal size threshold.38 To further strengthen the claim that killer acquisitions are the driving force behind our empirical results, we now present evidence that incumbent acquirers conduct overlapping acquisition deals that do not trigger FTC reporting requirements under HSR and thereby avoid antitrust scrutiny. Specifically, we examine acquisitions around the HSR review threshold and compare the project development decisions for transactions just above or just below the threshold. If incumbent firms conduct killer acquisitions that are intentionally under the FTC’s radar, we would expect to see two empirical patterns. First, there should be bunching of acquisitions of overlapping targets just below the threshold. Second, for below-threshold deals, the project termination rate should be higher and the launch rate lower. In figure 3, we plot the distribution of acquisition sizes for a narrow window around the HSR review threshold, specifically, just below it ([−5%, 0]) and just above it ([0, 5%]). Acquisition size is proxied by the deal amount. We categorize acquisitions into acquisitions of nonoverlapping targets (left) and acquisitions of overlapping targets (right). We observe clear bunching of deals right below the review threshold, but this pattern is apparent only for deals in which the target has projects that overlap with the acquirer (i.e., killer-acquisition suspects). Fig. 3. Fig. 3. Distribution of acquisition size near the Hart-Scott-Rodino (HSR) review threshold. Acquisitions that fall into the interval [−5%, 5%] around the threshold are kept, and the horizontal axis represents the distance to the review threshold (from −5% to 5%). Nonoverlapping acquisitions are reported on the left, and overlapping acquisitions are reported on the right. View Large ImageDownload PowerPoint In Table 7, we compare the termination and launching rates of acquisitions around the HSR threshold. We construct two buckets, which include all acquisitions with a transaction value just below or above the FTC review threshold. We find that the eventual product launch rate is much lower (1.8% vs. 9.1%) and the discontinuation rate is much higher (94.6% vs. 83.3%) for below-threshold acquisitions, compared to those right above the threshold. Thus, Table 7 provides supporting evidence of strategic behavior by acquiring firms that is consistent with killer-acquisition motives. Table 7. Intensity of Project Discontinuation around FTC Review Threshold 5% below Threshold (%) 5% above Threshold (%) Difference (%) T-Statistics Statistical Significance A. Real HSR Threshold Active 3.57 7.58 −4.00 −1.18 Not significant Launched 1.79 9.09 −7.31 −2.29 5% level Discontinued 94.64 83.33 11.31 2.51 5% level B. Pseudothreshold Active 7.41 2.63 4.78 1.20 Not significant Launched 3.70 4.39 −.69 −.16 Not significant Discontinued 88.88 92.98 −4.10 −.71 Not significant Note. This table presents univariate survival tests on the drugs that are acquired just below [−5%, 0] and just above [0, 5%] the FTC review threshold. Specifically, we examine the rates of being active, being discontinued, and being fully launched, using the development status of each project as of June 2017. To ensure that we leave adequate room for acquisitions to occur, we focus on drug projects originated before 2011. We report the rates of being active, being discontinued, and being fully launched separately for the two samples and the difference between them. T-statistics of the sample means and the significance levels are reported. In panel B, we report the same analysis with a pseudo–HSR threshold. To construct the pseudothreshold, we set the base value at $150 million in 2000 and follow the same adjustment schedule (to account for the change in gross national product). View Table Image However, one might reasonably expect that part of the observed decrease in success rates for acquisitions that are a few millions of dollars smaller is explained by a positive relationship between deal values and eventual development success. We therefore examine the difference in development rates around an HSR “pseudothreshold.” To compare with the real HSR threshold (an annually adjusted value set using a base of $200 million in 2000), we construct a pseudothreshold (2000 base value of $150 million). This pseudothreshold is comparable in value to the real threshold but is sufficiently different that we should not observe strategic behavior in its vicinity. The results of this analysis (panel B of Table 7) suggest that small differences in deal value do not produce significant development differences except when they occur at the real HSR threshold. Furthermore, they are not sensitive to the particular pseudothreshold we choose and are therefore consistent with the idea that acquirers conduct more killer acquisitions in situations in which they can expect to avoid FTC scrutiny. V. Discussion A. Alternative Explanations In this section, we address several potential alternative explanations that a priori could be consistent with our main findings. Importantly, a plausible alternative explanation would have to explain not just why acquired drug projects are more likely to be terminated but specifically why overlapping acquired drug projects are more likely to be terminated than nonacquired or nonoverlapping acquired drug projects. 1. Informational Asymmetries in the Acquisition Market Focusing on overlapping acquired projects means that asymmetric information, or “market for lemons”–type arguments, is an implausible candidate explanation. Although an acquiring firm likely knows less than the target about the quality of the target’s projects and may therefore sometimes buy lemons, this asymmetry should be lower when the acquirer has its own overlapping projects and therefore has knowledge of both the underlying science and the eventual market of the drug candidate. Our main results are therefore unlikely to be caused by informational asymmetries. 2. Optimal Project Selection Given that some targets are multiproject firms, our results could reflect acquirers optimally choosing to develop only the most promising projects and to shut down the rest, in particular those that overlap with their own projects. However, when we investigated single-project acquisitions in Table 3, we found results similar to those in the full sample. Our main results are therefore unlikely to be driven by optimal project selection. 3. Redeployment of Technologies Another alternative explanation for our results is that firms acquire targets not for their projects but for their technologies. Under this logic, acquirers would shut down the target’s projects and redeploy the technologies to more productive ends (i.e., to start more-promising projects). Such a rationale is less relevant in the pharmaceutical industry, compared to the tech context, as in pharmaceutical development the underlying technology (and associated patents) is closely tied to the specific drug. Nonetheless, in principle, technology redeployment is consistent with our findings, as overlapping projects are more likely to be underpinned by redeployable technologies. We investigate technology redeployment by exploiting molecule-level information for each drug project. We compare the chemical structure of acquired projects to that of those developed by the acquirer before and after acquisition and assess whether acquirer firms’ projects initiated after acquisition are more similar to the acquired project than their preacquisition drugs (consistent with technology redeployment). To measure similarity, we follow recent research in economics by Krieger, Li, and Papanikolaou (2017) and use the Tanimoto distance—the proportion of chemical fragments shared by any two chemicals—to measure similarity between two molecules (Nikolova and Jaworska 2003). Table 8, panel A, presents chemical similarities to the acquired drug for drugs initiated by the acquirer after acquisition, compared to preacquisition drugs. In columns 1–3, each observation is a pair consisting of an acquired drug and a drug that was initiated by the acquirer within the 10-year window (i.e., ±5 years) around the acquisition. Contrary to a redeployment explanation, drugs initiated by acquirer firms after the acquisition of a drug are not significantly more similar to the acquired overlapping drug than preacquisition projects. The economic magnitude of 0.001 is also negligible, compared to the global similarity mean of 0.133. Overall, these results do not support a technology redeployment explanation. Table 8. Postacquisition Asset Redeployment (1) (2) (3) (4) (5) (6) A. Project Similarities to Acquired Drugs before and after Acquisition Chemical Similarity Citation to Targets I(Post) × Overlap .001 .000 .002 −.002 −.002 −.000 (.003) (.003) (.002) (.002) (.002) (.000) I(Post) −.002 −.001 −.004 .000 .001 .000 (.004) (.004) (.003) (.000) (.001) (.000) Overlap .004 .004 .002 .002 (.003) (.003) (.002) (.002) Observations 154,896 154,896 154,896 154,896 154,896 154,896 R2 .001 .014 .361 .001 .094 .154 Acquirer FE Y Y Case FE Y Y B. Inventor Mobility and Patent Productivity before and after Acquisition Before Acquisition After Acquisition Difference Inventors who move to acquirer after acquisition (22%) 4.572 3.160 −1.412\*\*\* Inventors who move to other firms after acquisition (78%) 4.357 4.089 −.267\* Difference −.215 .929\*\*\* 1.144\*\*\* Note. Panel A studies chemical similarities (via Tanimoto distance) and patent citations of drug projects originated by the acquirer firm. An observation is a pair of an acquired drug and a drug from the acquirer originated within the 5-year window around the acquisition event. Standard errors clustered at the drug project level are displayed in parentheses. Panel B presents inventor mobility and productivity of target firm inventors before and after acquisitions. We compare counts of new patent applications for target inventors who moved to the acquirer to those who moved to other firms. We report t-tests for subsample differences. FE = fixed effects. \*Significant at the 10% level. \*\*\*Significant at the 1% level. View Table Image In columns 4–6, we adopt the same analytical structure to study an alternative measure of technology redeployment, patent citations to acquired projects. Echoing columns 1–3, we find no evidence of technology redeployment. 4. Redeployment of Human Capital Our results could also be due to acquisitions motivated by human capital redeployment (Lacetera, Cockburn, and Henderson 2004; Ouimet and Zarutskie 2011). Such “acqui-hiring”—that is, acquiring start-ups, jettisoning the core business, and retaining the employees (Chatterji and Patro 2014; Kim 2018)—is likely less common in the pharmaceutical industry, which is almost exclusively project driven (Gompers et al. 2016), with strong project-specific intellectual property rights protection, compared to many other industries in which start-ups are valued more for their human capital. However, as in the case of technology redeployment, we would expect that the human capital underpinning overlapping projects would be useful for the acquiring firm, and so this alternative explanation could apply to our main analyses. To formally investigate human capital redeployment, we examine target firm inventor mobility and productivity after acquisitions. To do so, we use data on disambiguated inventor names and organizational affiliations (via patent assignees) from Lai, D’Amour, and Fleming (2009) to track individuals over time and across organizations, following Bernstein (2015) and Brav et al. (2018). Specifically, we construct a list of preacquisition target firm inventors by identifying those who filed at least one patent within the 5-year window before the acquisition. We then track whether target firm inventors stay with acquiring firms and whether those who remain appear to be efficiently redeployed. Table 8, panel B, shows the human capital results. First, only 22% of preacquisition inventors move to the acquirer after acquisition, while 78% move to other firms. Second, while those who stay and those who leave are statistically comparable before the acquisition, patenting roughly 4.5 times in the 5 years leading up to the acquisition, we find no evidence that the retained inventors become more productive in the combined firm. In fact, their average patenting quantity drops by 30%, from 4.57 to 3.16 patents over the 5 years after acquisition. In contrast, inventors who move to other firms have a smaller productivity drop (<10%).39 5. Salvage Acquisitions Another alternative explanation for our results could be that project failure itself might drive acquisitions and in particular overlapping acquisitions. In other words, firms might be motivated to acquire firms because their projects are failing, driven by the potential salvage value of the (likely cheap) reusable assets. Our prior analyses provide some evidence that salvage acquisitions are unlikely to explain our results. First, the development rate of otherwise similar drugs does not differ significantly before acquisition (in Table 2, col. 6), and second, we do not find evidence that the overlapping acquired drugs’ technology is more likely to be redeployed (in Table 8). To directly investigate the salvage-acquisition explanation, we compared reported acquisition values across overlapping and nonoverlapping acquisitions. A salvage-acquisition explanation would predict relatively low valuations for overlapping acquisitions. Alternatively, killer acquisitions should involve paying fair value, and hence we should expect no difference. To perform this analysis, we collected additional information on the value of each acquisition from SDC Platinum and RecapIQ. One note of caution is that this is a selected sample of acquisitions, as it is conditional on the availability of deal value information. The dependent variable in this analysis is the natural logarithm of the total disclosed acquisition amount (USD). The key explanatory variable is the dummy variable on whether the acquisition is conducted by an overlapping acquirer. Table 9 presents the results. We find that acquisitions conducted by overlapping acquirers are not of significantly lower value, compared to nonoverlapping acquisitions. Combined with the above-mentioned results, these results suggest that salvage acquisitions by overlapping firms are not driving our results. Table 9. Project Overlap and Acquisition Value ln(Acquisition Value) (1) (2) (3) Overlap .126 .025 −.082 (.101) (.067) (.114) Observations 14,660 14,660 14,660 R2 .844 .905 .940 Acquirer FE Y Y Y Age FE Y Y TC × MOA FE Y Age × TC × MOA FE Y Note. This table investigates whether overlapping firms are acquired for lower transaction sums than nonoverlapping firms. The sample for this analysis is acquired firms where the deal value amount is available in one of our three main acquisition data sets (Thomson Reuters SDC Platinum, RecapIQ, and VentureXpert). The empirical specification uses the following model: ln(AcquisitionValue)i=β⋅I(Overlap)i+αFE+εi, where the dependent variable ln(AcquisitionValue)i is the natural logarithm of the total disclosed acquisition amount (USD) and I(Overlapi) is a dummy variable indicating the target overlaps the potential acquirer firm. Robust standard errors are displayed in parentheses. FE = fixed effects. View Table Image B. Frequency and Importance of Killer Acquisitions Our findings on differential project development allow us to roughly calculate the pervasiveness of killer acquisitions as well as their impact on industry-wide development decisions.40 In our main analyses, we show that when an acquired project overlaps with a product in the acquirer’s existing product portfolio, the project is less likely to be continued. The unconditional probability of having a development event is 19.9%. Using the estimates from our tightest specification reported in Table 2, column 4, we find that acquired projects with overlap (22.7% of acquired projects) continue at an adjusted rate of 13.4%, while acquired projects without overlap (77.3% of acquired projects) continue development at an adjusted rate of 17.5%. To roughly calculate the number of killer acquisitions, we assume that there are two types of acquisitions that fall into the acquired overlapping category: killer acquisitions that are purely intended to shut down future competitors (and thus have a 0% probability of development) and acquisitions that have the same development likelihood as acquisitions without overlap (17.5%). Given these assumptions and estimates, what would the fraction ν of pure killer acquisitions among transactions with overlap have to be to result in the lower development of acquisitions with overlap (13.4%)? Specifically, we solve the equation 13.4%=ν×0+(1−ν)×17.5% for ν, which yields ν=23.4%. Therefore, we estimate that 5.3% (ν×22.7%) of all acquisitions, or about 46 (5.3%×856) acquisitions every year, are killer acquisitions. If instead we assume the nonkiller acquisitions to have the same development likelihood as nonacquired projects (19.9%), we estimate that 7.4% of acquisitions, or 63 per year, are killer acquisitions. Alternatively, we can estimate the number of killer acquisitions by using the results of Table 3. Specifically, we find that the share of acquired projects for which no positive development event is observed after acquisition is 14.9 percentage points higher for overlapping acquired projects than for nonoverlapping acquired projects. If this higher share of projects that are never developed is due to killer acquisitions, it implies a minimum of 29 (14.9%×22.7%×856) killer acquisitions per year. Another benchmark for understanding the frequency of killer acquisitions is the share of drug projects that actually are at risk of being the target of a killer acquisition. We first define and identify the risk set. It comprises those drug projects that potential acquirers would plausibly want to acquire to kill that come from plausibly acquirable targets. Thus, we define the killer-acquisition risk set as all “follow-on” drugs initiated by “new” firms. We define follow-on drugs as the second (or later) drug project initiated in a TC-MOA category. Such drugs constitute 70% of our total sample. We then identify those follow-on drugs that are initiated by firms that are plausible acquisition targets (i.e., new firms), using three different categorizations: (1) firms with no prior projects, (2) firms with no prior projects in the TC, and (3) firms with no prior projects in the TC-MOA. In our data, the corresponding shares of follow-on drugs are 35%, 66%, and 84%, respectively. Using those numbers as an estimate of the risk set of potential killer-acquisition targets, and using an estimate of 1.5% of all drugs—including those not at risk—as killer acquisitions,41 we estimate that 6.3%, 3.3%, or 2.6% of potential killer-acquisition targets are acquired to kill. These back-of-the-envelope calculations provide a lower bound for the actual number of killer acquisitions, as they assume that killer acquisitions lead to immediate termination and that there are no additional synergies in the development of overlapping drugs. If pure killer acquisitions had a smaller, but positive, likelihood of development, the implied fraction ν of killer acquisitions would have to be even higher to be consistent with our empirical results. Similarly, if there are synergies in the development of overlapping drugs, they would provide a countervailing positive force that masks the observed negative effects on the development of acquired projects with overlap. How would overall development rates in the pharmaceutical industry be affected if antitrust policy directly targeted killer acquisitions? The average development probability in our sample is 18.2%. Consider first the case in which acquisitions of overlapping projects are no longer allowed and that all such projects instead have the same development probability (19.9%) as nonacquired projects (47.5% of all projects). The number of total drug projects for which development continues would increase by 4.3% ([(19.9%−13.4%)/18.2%]×(1−47.5%)×22.7%), or by about 13 drug projects per year (18.2%×4.3%×1,630, where 1,630 is the yearly average number of projects). We can compare these to estimates of the effects of targeted innovation policies in the pharmaceutical industry. One policy—considered successful but also very costly—is the Orphan Drug Act, which focused on encouraging the development of drugs for conditions with small patient pools (i.e., “orphan” diseases) by giving firms substantial tax breaks on clinical trials (up to $30 million per trial), grants, and extended market exclusivity. Economic analysis by Yin (2008, 2009) suggests that the policy resulted in roughly 25 more clinical trials per year from 1981 to 1994, with the effect attenuating over time. Eliminating killer acquisitions would result in innovation effects that are, at a lower bound, as large as half of the size of those from the Orphan Drug Act. It is also instructive to compare killer acquisitions to reverse-payment patent settlements (“pay-for-delay”), a common and related phenomenon in the pharmaceutical industry whereby incumbents pay to temporarily thwart the entry of generic competitors.42 Helland and Seabury (2016) estimate that over the next 25 years, pay-for-delay settlements in pharmaceuticals will generate a deadweight loss of at least $21 billion. Although our analysis does not allow us to compute similar welfare estimates, we believe that killer acquisitions likely cause at least as much anticompetitive harm as pay-for-delay settlements. The FTC reports that in the period from 2004 to 2016, there were between 10 and 20 pay-for-delay settlements per year: 20 if one counts any patent infringement settlement that includes restriction on generic entry and some nonzero payment and only 13 if one excludes cases where the payment was solely for litigation costs above $7 million. In contrast, our analyses suggest that during approximately the same time frame there were 46–63 killer acquisitions per year. C. Ex Ante Innovation Incentives and Welfare Our theoretical and empirical analysis focuses on the acquisition and project development incentives of incumbents and entrepreneurs. Killer acquisitions have an unambiguously negative effect on consumer surplus if, as in our model, they leave the ex ante incentives to originate projects unaffected. Both the entrepreneur and the acquiring incumbent, as well as all of the other incumbents, are better off when such acquisitions are allowed. But consumers are hurt by both the lack of competition and the elimination of innovative new products. In other words, patients suffer because there are fewer drugs and because the drugs that are developed and brought to market are sold at higher prices.43 A comprehensive welfare analysis of the impact of killer acquisitions is, however, much more difficult, given the many different forces involved in the innovation process. In particular, such an analysis would have to quantify the impact on patient mortality, consumer surplus, technological spillovers from innovation, and ex ante incentives to generate new ideas. As a result, a formal welfare analysis is well beyond the scope of this paper, but two points are worthy of discussion. The presence of an acquisition channel may have a countervailing positive effect on welfare if the prospect of entrepreneurial exit through acquisition (by an incumbent) spurs ex ante innovation, as in Phillips and Zhdanov (2013) and Letina, Schmutzler, and Seibel (2020). In our model, entrepreneurs are born with a project and thus do not have to exert effort to come up with an idea, but it is plausible that the prospect of later acquisition may motivate the origination of entrepreneurial ideas. Yet killer acquisitions will motivate such idea origination only if the entrepreneur receives some of the surplus that accrues to the incumbent through the acquisition. If the entrepreneur is left with no surplus relative to the standalone value of her project, she will not increase her innovation efforts. If, on the other hand, killer acquisitions do increase ex ante innovation, this potential welfare gain will have to be weighed against the ex post efficiency loss due to reduced competition. Whether the former positive or the latter negative effect dominates will depend on the elasticity of the entrepreneur’s innovation response. Furthermore, acquisitions may affect the direction of innovation. If entrepreneurs can choose between originating projects that overlap with existing products and those that do not, increased takeover activity and killer acquisitions by incumbents may spur innovation of very similar me-too drugs (Garattini 1997; Arcidiacono et al. 2013) at the expense of the origination of truly novel products.44 This distortion of the direction of innovation in response to the prospect of acquisition will add to the negative welfare impact of killer acquisitions.45

Given these competing forces, the overall effect of killer acquisitions on ex ante innovation (and, therefore, welfare) remains unclear. However, on the basis of our analysis, we think it unlikely that this acquisition channel, which generates significant ex post inefficiencies resulting from the protection of market power, is the most effective way to spur ex ante innovation. In fact, we document a positive reinforcement loop of competition: because killer acquisitions are less likely to occur when incumbents face significant existing competition, raising the level of existing competition not only has well-known immediate benefits for social welfare but also deters incumbents from engaging in killer acquisitions of future competitors, thus increasing future competition and further deterring killer acquisitions.

VI. Conclusion

In this paper, we document that incumbent firms acquire innovative targets and terminate their innovative projects in order to preempt future competition. Empirically, we exploit the setting of drug development, in which we are able to track project development before and after acquisitions. Consistent with the killer-acquisitions motive, we show that incumbents acquire firms with overlapping drug projects and that overlapping acquired drugs are less likely to be developed, particularly when the acquirer has strong incentives to protect his existing market power. Alternative interpretations, such as optimal project selection, delayed development, the redeployment of technological or human capital, and salvage acquisitions, do not explain our results.

Although our analyses focus on the pharmaceutical sector, the core insights extend beyond that specific setting. Acquisitions are the primary form of start-up exit and have become increasingly popular as an exit strategy over time across various industries, suggesting that the potentially damaging consequences reach beyond pharmaceuticals.46 Our results caution against interpreting acquisitions of nascent technologies solely as incumbents’ efforts to integrate and foster entrepreneurial innovation. Instead, a substantial part of what is fueling this trend may actually be killer acquisitions that potentially harm innovation and competition. In particular, the large number of acquisitions of small entrepreneurial start-ups by large incumbents in the tech sector would suggest a fruitful opportunity for investigating whether killer acquisitions extend beyond the pharmaceutical industry. However, the lack of strong intellectual property protection afforded by drug patents, the importance of acquiring and retaining valuable human capital, and the relative data scarcity pose new challenges for any future theoretical or empirical analysis.47

Our results also suggest that antitrust policy should continue to closely scrutinize the impact of acquisitions on corporate innovation, in particular when such acquisitions plausibly prevent the development of future competing products and technologies. The fact that killer acquisitions appear to routinely avoid regulatory scrutiny by acquiring entrepreneurial ventures at transaction values below the HSR review thresholds exacerbates the concern.

Finally, the magnitude of the Schumpeterian gale of creative destruction—whereby start-ups’ inventions topple entrenched and less innovative incumbents—may be smaller than previously documented. Innovation and the share of young firms in economic activity may have declined (Akcigit and Ates 2019) not only because incumbents are more reluctant to innovate but also because incumbent firms with market power acquire innovators to eliminate future competition and thereby inhibit technological progress.

#### The consumer welfare standard is the cause---it’s shrinking the labor share of income through capital accumulation and markups.

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It is well established that real wages for American workers have been stagnant, or even declining, for four decades, with this disturbing phenomenon typically attributed to declining unions, outsourcing and globalization, and federal policies tilted toward the affluent (See Baker and Salop 2015; Knoedler 2019, 306–07; Piketty and Saez 2003). While these factors have all contributed to the stagnation in real wages, this article provides evidence for another less examined component—the rising levels of industrial concentration in the U.S. economy. Industrial concentration has led to rising profit shares, higher price markups, and a decline in business investment. In this article, we connect those phenomena to the rise of the Chicago School of Antitrust and its more lenient antitrust treatment of large corporations that parallels the decline in the labor share for U.S. workers.

First, we briefly examine the emergence of the Chicago School of Antitrust and its link to the increased levels of industrial concentration. We then turn to an analysis of the U.S. manufacturing sector and components of the profit rate to provide evidence for the rising profit shares and the slower capital accumulation in the highly concentrated sectors of U.S. manufacturing. Through analysis of the data on both rising concentration and declining labor share, we argue that the laissez-faire bent of the Chicago School of Antitrust toward corporate bigness should be recognized as another strong contributor to rising income inequality in the United States over this period.

A Very Brief History of Antitrust

American antitrust came to legal fruition with the passage of the Sherman Act in 1890, intentionally written as a broad anti-monopoly statute, followed by the Clayton and Federal Trade Commission Acts in 1914. During this period regarded as the rise of big business, early court cases as well as economists showcased differing views over the benefits and costs of large corporations with market power.1 While recognizing cost savings and market expansion as good for consumers, many economists and courts during this period were nonetheless alarmed about the economic and political power embodied in these firms (Letwin 1965, 71–77; Mayhew, 1998. See also, for example, Dorfman 1971). In part, for these reasons, throughout the 1920s, antitrust theory and policy remained dormant.2

But in the wake of the second great merger wave of the 1920s (Scherer 1990, 153–98), followed by the Great Depression, activist antitrust took hold, influenced by Franklin Roosevelt’s Brains Trusters and a renewed concern about the impact of market power on the larger economy (See Kovacic and Shapiro 2000, 49). Subsequently, the 1940–1970 period became the “Golden Age of Antitrust,” characterized by interventionist interpretations of the antitrust statutes by both policy makers and economists who acknowledged the negative impacts of industrial concentration and anticompetitive conduct (See Stucke and Ezrachi 2017). The theoretical approach was exemplified by the Harvard School of Antitrust through its “structure-conduct-performance”3 paradigm, which highlighted the ability of firms with large market shares to maintain their dominance by creating barriers to entry, in turn enabling them to charge price markups and earn above-normal profits.4 A theoretical and policy consensus emerged that market power presented harms to consumers and to the larger economy (Kovacic and Shapiro 2000, 44–52).5 And, as William Shepherd concludes, activist antitrust helped make the U.S. economy more competitive at that time by the early 1980s (Shepherd 1982, 624).

Concerns about activist antitrust policy among some judges and some economists brought the Chicago School of Antitrust to prominence.6 In theoretical circles, the Chicago School posited that superior efficiency is the sole reason that a firm can maintain market power; otherwise, market share would inevitably be eroded by competitive market forces (See Adams and Brock 1991, 43–80). In policy circles, the Chicago School advised that monopolies that are the result of efficiencies should be encouraged.7 By embracing the efficiency defense (See Bork 1993, 107–110, 124–127, 246–249), and contending that the market will almost always organize itself in the most beneficial way for both corporations and consumers, the Chicago School promulgated the notion that antitrust enforcement does more harm than good by interfering in market processes.8 These judges and economists made the Chicago School a cornerstone of modern U.S. antitrust, leading to a decrease in antitrust oversight of big corporations. In short, the Chicago School of Antitrust introduced into the legal treatment of large firms with market power a “preference for liberty of contract and the associated ideal of competition free from government power, whereas traditional antitrust rests on a preference for eliminating gross inequalities in the marketplace and the associated ideal of competition free from private power” (Adams and Brock 1991, 126).9

The result of four decades of Chicago School antitrust theory and policy on industrial structure in the United States can now be seen in today’s increased levels of industrial concentration. As Jonathan Baker and Steven Salop (2015) contend, the United States now has a “market power” problem which contributes to slower overall growth and increased economic inequality.10 Barack Obama’s Council of Economic Advisors (CEA 2016) highlighted its concern with decreased competition in the U.S. economy. Gustavo Grullon, Yelena Larkin, and Roni Michaely (2019) also report that, over the last two decades, more than 75% of U.S. industries have seen an increase in concentration levels, with an average increase in concentration of 90% (See also Gutierrez and Philippon 2017; Autor et al. 2017; Gao, Ritter, and Zhu 2013; Doidge, Karolyi, and Stulz 2017; Kwoka 2017). Thomas Philippon (2019) supports these findings, arguing that laxer scrutiny and “excessive tolerance”11 of mergers in the United States has contributed to a rise in the pace of merger activity and further consolidation of firms (i.e., the Chicago School of Antitrust).

What are the implications of this increase in industrial concentration for corporations and for labor? Clearly, corporations have done well. Several studies have documented higher returns to capital from higher rates of market power. German Gutierrez and Thomas Philippon (2017) find that the profit share has increased across all industries since the 1970s, consistent with a rise in concentration and market power. The CEA brief (2016) identified higher economic rents especially for firms at the ninetieth percentile. Grullon, Larkin, and Michaely (2019, 698–699) identify “higher returns on assets … driven primarily by a given firm’s ability to extract higher profit margins,” especially for firms in industries with increasing concentration levels.12

Although corporations have enjoyed these higher returns to capital, labor has lost ground over the years: as Joseph Stiglitz (2012) argues, the increase in economic rents has shifted income from labor and toward capital, increasing economic inequality (See also Furman and Orszag 2018). David Autor et al. (2017) also conclude that industries with the largest increases in concentration have seen the largest declines in the labor share. Kaushik Basu and Joseph Stiglitz (2016) find that the increase in economic rents is in turn causing an increase in wealth inequality.

Components of Broadly Defined Profit Rate and Capital Accumulation in Manufacturing

We now turn to our own analysis of the connections between industrial concentration, the profit rate, the labor share, and capital accumulation in U.S. manufacturing. We utilize the NBER-CES Manufacturing Industry Database,13 which provides industry-specific variables over the 1958–2011 period, a period that includes both Harvard and Chicago School’s treatment of antitrust. The data include 473 6-digit NAICS industries, which, for purposes of this analysis, were converted into 3-digit industries to look at the general trends in the manufacturing subsectors over this period. Since NBER-CES does not provide data on net fixed assets, these sub-sectors were made compatible with the classification of U.S. manufacturing by the Bureau of Economic Analysis (BEA) where we can obtain the data on net fixed assets.14 Concentration ratios for sub-sectors of U.S. manufacturing were obtained from the U.S. Census Bureau.

The following equation was then used to develop an accounting framework for the broadly defined profit rate:



R in equation (1) is the profit, defined broadly in this study as non-payroll income. NBER-CES provides payroll data, but not benefits. Thus,



where vship is the value of shipment (total sales), matcost is material cost (intermediate goods), and pay is payroll. K in equation (1) is the capital stock (net fixed assets) and Y in equation (1) is the value added defined as



In equation (1), R/Y is the non-payroll income share and Y/K is the output-capital ratio.

Figure 1 below shows the broadly defined profit rate, r, for total manufacturing, including the durable goods and nondurable goods sectors. After peaking in the mid-1960s, the broadly defined profit rate in manufacturing experienced a sharp decline over the 1965–1982 period. The profit rate recovered somewhat until 1997 before it trended downwards again. The profit rate reached its lowest levels during the great recession of 2007–09.

Figure 1. Broadly Defined Profit Rate in Manufacturing, 1958–2011 (index, 1958 = 1)

Chart, line chart

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Figure 2 shows the components of the broadly defined profit rate, namely the share of non-payroll income, R/Y, and output-capital ratio, Y/K, over the 1958–2011 period. The share of non-payroll income in manufacturing has steadily increased over the period of 1958–2011. In other words, the share of payroll in value added has steadily declined over the same period. The output-capital ratio, Y/K, on the other hand, has declined somewhat sharply over the 1965–1982 period. It stabilized during the 1982–1997 period before trending downwards again. Thus, the decline in the broadly defined profit rate over the 1965–1982 period was mainly driven by the sharp decline in the output-capital ratio while the subsequent recovery was caused by the continuing increase in the share of non-payroll income and the stable output-capital ratio.

Figure 2. Share of Non-payroll Income (R/Y) and Output-Capital Ratio (Y/K) in Manufacturing, 1958–2011 (Index, 1958 = 1)

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Figure 3 shows the broadly defined profit rate and capital accumulation in manufacturing over the 1958–2011 period. Capital accumulation is defined as the rate of growth of net stock of private fixed assets in manufacturing. While the broadly defined profit rate and capital accumulation move mostly in tandem with each other until the early 1980s, they began to diverge thereafter. With the exception of the second half of the 1990s, capital accumulation was weak during the 1982–2011 period while the profit rate showed somewhat significant recovery until the onset of the great recession of 2007–2009.

Figure 3. Broadly Defined Profit Rate and Capital Accumulation in Manufacturing

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Figure 4 shows the share of the investment in broadly defined profit (non-payroll income) in U.S. manufacturing. While the share of investment in the broadly defined profit increased over time during the 1958–1980 period, it declined dramatically in the post-1980 period and never recovered to pre-1980 levels.

Figure 4. Share of Investment in Broadly Defined Profit, 1958–2011 (Index, 1958 = 1)

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In short, the figures above show that the share of the payroll in the value added of manufacturing has continuously declined and the capital accumulation somewhat substantially slowed down in the post-1980 period. This occurs even though the profit rate in manufacturing recovered somewhat significantly after the early 1980s before declining during and after the great recession.15 Below we will briefly examine how these trends were affected by the concentration levels in the subsectors of U.S. manufacturing.

Concentration and Profitability in Manufacturing

We utilized Concentration-4 Ratios to rank 3-digit manufacturing industries by their degree of concentration. The CR-416 is a measure of the market shares of the largest four firms in an industry. The U.S. Census Bureau provides concentration ratios for 1997, 2002, and 2007; hence the profitability and related measures for each sector are ranked and recorded across three different periods: 1997–2001, 2002–2006, and 2007–2011.

Figures 5, 6, and 7 display the trends in the components of the broadly defined profit rate of the manufacturing sub-sectors, ranked by the CR-4 ratios, for the periods of 1997–2001, 2002–2006 and 2007–2011, respectively. These figures show that the most concentrated sectors exhibit a higher share of non-payroll income and a lower output-capital ratio.

Figure 5. Components of the Broadly Defined Profit Rate, Sectors Ranked by CR-4, 1997–2011

Sectors ranked by Concentration-4.

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Figure 6. Components of the Broadly Defined Profit Rate, Sectors Ranked by CR-4, 2002–2006

Sectors ranked by Concentration-4.

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Figure 7. Components of the Broadly Defined Profit Rate, Sectors Ranked by CR-4, 2007–2011

Sectors ranked by Concentration-4.

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Figure 8 shows capital accumulation for sectors ranked by CR-4 ratios for the periods of 1997–2001, 2002–2006 and 2007–2011. The trends are relatively clear for the first two periods, 1997–2001 and 2002–2006; the least concentrated sectors tend to have a higher level of capital accumulation than do the highly concentrated sectors. The period of 2007–2011, however, does not show the same trends of the previous two periods regarding the concentration and capital accumulation.

Figure 8. Capital Accumulation

Sectors ranked by Concentration-4 (First, second, and third rows on the horizontal axis correspond to 1997–2001, 2002–2006 and 2007–2011, respectively).

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Conclusion

Our findings add to a growing body of evidence that rising levels of corporate concentration in the United States and lax antitrust scrutiny have contributed, at least partially, to declining labor shares and the slower capital accumulation in the U.S. manufacturing sector. We see that the mostly unchecked growth of corporate power, as well as the declining bargaining power of labor, are factors fueling income growth at the top and harming everyone else.

The economic impact of these phenomena is becoming a topic of concern for both heterodox and a subset of mainstream economists alike, and increasingly, those who care about democracy. To quote Justice Louis Brandeis, an influential thinker during the time of activist antitrust, “We may have democracy, or we may have wealth concentrated in the hands of a few, but we can’t have both” (Brandeis, quoted in Leonhardt 2018, A23).