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#### Contention One is Food Security:

#### Ag markets are heavily consolidated through anticompetitive behavior---threatening the stability of the US supply chains.

Diana L Moss and Laura Alexander 20, President of the American Antitrust Institute and Vice President of Policy at the American Antitrust Institute. “When COVID-19 is the Symptom and Not the Disease: Consolidation, Competition, and Breakdowns in Food Supply Chains,” American Antitrust Institute, 5-7-2020, https://www.antitrustinstitute.org/work-product/when-covid-19-is-the-symptom-and-not-the-disease-consolidation-competition-and-breakdowns-in-food-supply-chains/

The integrity and stability of the food system is a matter of national health, safety, and security. Disruption of the meat or any other food supply chain is potentially catastrophic. But few analysts have looked beyond the immediate COVID-19 pandemic to isolate one of the deep-rooted causes of weakness, or even breakage, in supply chains. Were our food processing, manufacturing, and distribution markets more competitive, the current crisis (and government intervention) would be neither necessary nor warranted. Much like AAI’s recent commentary on COVID-19 and consolidation in medical equipment markets, this commentary explains how a lack of competition can imperil the stability and security of the food system.[3]

THE ROLE OF COMPETITION IN ENSURING STABLE, RESILIENT FOOD SUPPLY CHAINS

COVID-19-related disruptions are, in part, a symptom of underlying competition problems in our food system, and an early warning sign of the harms yet to come. Competition benefits consumers and producers in myriad ways. These include fair prices, high quality products and services, and incentives to innovate. Another key benefit of competition is promoting diversity and redundancy in sources of agricultural inputs, processing, manufacturing, and distribution. This promotes resiliency and stability in the interconnected markets that form the food system.

Supply chains are routinely subjected to shocks such as extreme weather, disease, and conflict.[4] But those that feature robust competition at various levels are far more likely to ensure the reliable and stable distribution of essential food products. If some parts of the supply chain are disrupted, competition works to ensure that rival suppliers fill the void to meet demand.

As the COVID-19 pandemic illustrates, food supply chains can fail the “resiliency” test. While a number of factors may account for this, we cannot ignore the role played by the wave of consolidation that has fundamentally reshaped the food system in the U.S. over the last two decades. Consolidation has diminished competition in the agricultural inputs, processing, manufacturing, and distribution segments. As the closures of meat processing plants demonstrate, when the few large firms that control these critical segments fail, the supply chain can break.

#### Lackluster antitrust merger enforcement efforts and favorable law allows for firms to engage in anticompetitive mergers.

Diana L Moss and Laura Alexander 20, President of the American Antitrust Institute and Vice President of Policy at the American Antitrust Institute. “When COVID-19 is the Symptom and Not the Disease: Consolidation, Competition, and Breakdowns in Food Supply Chains,” American Antitrust Institute, 5-7-2020, https://www.antitrustinstitute.org/work-product/when-covid-19-is-the-symptom-and-not-the-disease-consolidation-competition-and-breakdowns-in-food-supply-chains/

Merger control is designed to prevent acquisitions that are likely to substantially lessen competition. This includes acquisitions of head-to-head rivals; customers or suppliers; and potential rivals. Vigorous enforcement prevents harmful outcomes by stopping illegal mergers in their “incipiency.” The U.S. antitrust agencies have historically divided up the food supply chain for the purposes of reviewing food and agriculture mergers. The Federal Trade Commission (FTC) reviews most proposed transactions involving the downstream part of the supply chain, including food manufacturing and retail grocery.[9]

The U.S. Department of Justice (DOJ) reviews mergers in the upper part of the supply chain, such as food processing (e.g., grain milling and meat packing), producers (e.g., cattle feeders and chicken growers), and biotechnology inputs such as GMO traits, seeds, and agrochemicals. It is not clear how the FTC and DOJ coordinate with each other in reviewing mergers along the supply chain, so that the proverbial “right hand knows what the left hand is doing.”

IS MERGER ENFORCEMENT KEEPING UP WITH CONSOLIDATION IN FOOD?

Between 1998 and 2018, almost 1,300 mergers in the processing, manufacturing, and food distribution sectors were reportable to the U.S. antitrust agencies under federal guidelines.[10] Government data reveals that about one-quarter of those transactions were cleared to either the DOJ or FTC for further review. About one-quarter of those “clearances,” in turn, received a request from either agency for additional information. This is a slightly higher rate of “Second Requests” for food mergers, as measured by the percentage of total clearances that received a Second Request, than for mergers across all sectors in the economy. The majority of these deals involved consolidation in the middle part of the supply chain—food processing and manufacturing.

Only a small fraction of the food mergers that were cleared to the DOJ and FTC between 1998 and 2018 were actually challenged by the government. Merger challenges can result in a number of outcomes: successfully enjoining a merger, unsuccessfully enjoining a merger (which then proceeds), forced abandonment of a transaction, and an order containing requirements to remedy competitive harms raised by a deal. The rate at which the government challenged food mergers, as measured by the percentage of total clearances that were challenged, is just below the average across all sectors. More than one-half of the merger deals that were challenged by the agencies were in the retail grocery segment where significant competition has been eliminated over time. The remainder include mergers in beef packing, poultry processing, and dairy, other food products, and broadline foodservice distribution.

Two major government wins were the DOJ’s successful challenge to the merger of two of the largest beef packers (JBS and National Beef) in 2009 and the FTC’s move to block the merger of the two largest broadline food distributors (Sysco and US Foods) in 2015.[11] U.S. consumers and producers need more of this type of aggressive, successful enforcement. But a major failure was the FTC’s approval of the merger of Safeway and Albertsons. The merger was allowed to proceed, subject to the divestiture of almost 150 stores to a regional west-coast grocer, Haggen. The failure of Haggen to maintain the divested stores led to their shuttering only a few months later.[12] In 2019, the DOJ declined to challenge the acquisition of Iowa Premium by one of the largest packers, National Beef, a deal that was opposed by numerous advocacy groups. The merger was projected to adversely affect the important cash market, which determines the base price for cattle sold on contracts or formulas.[13]

As shown in the figure below, over the last 20 years, the intensity with which the agencies have looked harder at food mergers through the Second Request process appears to have waned. The apparent downward trend in Second Requests over the past two decades is troubling. It may signal chronic resource constraints at the agencies. But it also likely reflects the view that has dominated enforcement for the last four decades. Namely, most deals are viewed as pro-competitive because cost-savings and consumer benefits are claimed to outweigh any anticompetitive, harmful effects.

Chart, line chart

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Regardless of the reason, U.S. consumers are still faced with a swath of mergers that have created larger integrated companies that reach to almost every part of the supply chain. These food goliaths can exercise their market power to suppress competition, which is problematic in its own right. But as the COVID-19 crisis has demonstrated, the lack of competition in food processing, manufacturing, and distribution has also created a fragile and unreliable supply chain.

POLICING ANTICOMPETITIVE CONDUCT IN THE FOOD SYSTEM

It should come as no surprise that in a supply chain with less and less competition, other violations of the antitrust laws, including collusion and monopolization, become more commonplace. Indeed, the dominant firms and oligopolies in food processing, manufacturing, and grocery have given rise to numerous concerns. The public and private antitrust cases in the food industry in recent years reflect both the rising incidence of troubling behavior and the challenges and limitations of antitrust enforcement.

The DOJ, for example, has prosecuted violations of Sections 1 and 2 of the Sherman Act in almost 20 cases in the food industry over the last 20 years. Notably, however, the Sherman Act claims appeared to be an afterthought in the majority of these cases, which were motivated principally by kickback schemes that defrauded the public. Competitive injury, and core antitrust concerns such as collusion or exclusionary conduct, did not feature prominently.[14] Smithfield, one of the largest pork processors in the U.S., which was acquired by the Chinese food behemoth Shuanghui International in 2013, was charged with violations on two separate occasions involving failure to comply with requirements under the Hart Scott Rodino Act before purchasing stock in a rival and pursuing an acquisition.[15] DOJ has launched several cartel investigations in food over the last two decades, but, with few exceptions, those investigations have yet to yield indictments or civil complaints.[16]

#### These anticompetitive mergers force farmers into unsustainable farming practices, specifically monocultures

Patrick Woodall 18, Research Director at Food & Water Watch, “Monopoly Power Corrodes Choice and Resiliency in the Food System,” The Antitrust Bulletin, 63.2, https://doi.org/10.1177/0003603X18770063

But already high and increasing levels of economic concentration in the agricultural and food sectors impact far more than consumer and farmer prices. Consolidation has substantially curtailed the choices available to consumers and farmers. Grocery stores now teem with an illusory cornucopia of different products, but the vast majority of the supermarket items are manufactured by a few firms with dominant market positions.

Horizontal and vertical concentration in the agriculture sector has constrained farmers’ choices and autonomy. Concentration in the seed and fertilizer industries has significantly limited farmers’ cultivation options. Perhaps more importantly, the larger, vertically integrated agribusinesses have pushed farmers to increase the size, scale, and intensity of their farms in order to sell their crops or livestock and maintain economic viability. This limits farmers’ options and autonomy to control production decisions on their farms.

#### Lack of variety in ag inputs means our entire supply line can be wiped out by a single crop disease

Martin 13. DePaul JD, “Seed Savers v. Monsanto: Farmers Need a Victory for Wilting Biodiversity,” 24 DEPAUL J. ART TECH. & INTELL. PROP. L 95, HeinOnline

IV. “PLAGUE OF SAMENESS”: BIODIVERSITY CONSEQUENCES Many describe the increasing genetic uniformity as a “plague of sameness,” overtaking vast fields of crops with monoculture agriculture.’16 The economic effect of this “plague of sameness” is enormous: “pest[] and plant diseases are . . . estimated to exact a toll of $20-33 billion each year nationwide.”’ However, the dangers of this plague are not limited to economic concerns. When crops are threatened by pests or disease, genetically uniform crops could be wiped out. Without the ability to locate genetic resistance in any varieties, the world could lose entire major food crops, such as soybeans, corn, rice, and wheat. A. Genetic Resistance According to Cary Fowler and Pat Mooney, “today’s plant breeder will search for one major gene to confer resistance for the new variety.”’ One-gene resistance provides that there will be only “one line of defense” against pests and diseases.’59 When overcome by pest or disease, the gene can no longer provide resistance. 6 0 Breeding, then, is a “step by step evasion of the pathogen,” and the use of one-gene resistance lacks an “ultimate vision of permanent or stabilized resistance.”’6 ‘ In contrast, the traditional “landrace” confers resistance on a new variety as the product of a large number of genes working together.’6 2 The resistance conferred by the traditional “landrace” is long-lasting, because these varieties have survived among pests and diseases “in the center of diversity.”’ 3 Additionally, heirloom varieties, discussed above, are used to breed insect, disease, and drought tolerance into modern crops.’” In contrast to the conventional three- or four-way hybrid varieties, GE varieties, such as Roundup Ready soybeans, are “single-cross hybrids.”1 65 The “plague of sameness” becomes even riskier when farmers plant pure line varieties instead of a mixture of varieties, or where a “few successful crop varieties replace the great diversity of crop and types found in farmers’ fields.” 66 Monoculture agriculture is prominent in developed countries,’16 largely because of the predictability that single cross varieties offer farmers and the agricultural industry.16 1 With this monoculture agriculture, however, when part of the uniform crop is wiped out by pests or diseases, the entire crop is wiped out.’69 Furthermore, when the neighbor farmer plants the same variety, his crop is also wiped out.’ Finally, “when virtually every farmer plants the same variety or group of varieties, the risk becomes dangerous.””’ The lack of resistance and genetic variability leads to the vulnerability of crops to pests and diseases. B. Pest Management First, the “plague of sameness,” or monoculture agriculture, threatens crop resistance to pests. Specifically, “[p]athogens or insect pests that mutate to overcome a crop’s innate resistance or to escape the effects of fungicides or pesticides, together with monoculture conditions, heighten the risk that such novel pests could rapidly spread and cause great losses in crop yield and quality.”’ 72 In recent years, the percentage of annual crop lost to insects has doubled,’7 3 and global crop loss due to pests.’74 The rise of pest problems is an estimated 30-40% of potential yield is also evident through increased pesticide use: from 1945 to 1975, the amount of pesticide employed rose from less than 200 million pounds to 1600 million pounds.’75 Genetic mutations in these pathogens or pests require quick replacement with varieties that have resistance. 76 These replacements require the screening of gene resources to find new resistance. 7 7 However, with a narrowing genetic resource base, varieties that have resistance are slowly disappearing. C. Vulnerability to Diseases Second, monoculture agriculture increases vulnerability to disease causing widespread damage. Two historical examples show the dangers of monoculture agriculture in the face of disease. Ireland’s potato blight in 1846 that led to the Great Famine, was a result of a lack of crop diversity.”’7 The Irish were dependent on the potato for food, and about 90% of the potatoes eaten were a variety called “Lumper. “l79 When blight infected the potatoes, the Lumper variety lacked resistance in the tubers.’” This lack of resistance and the uniformity of the potatoes allowed the blight to dramatically wipe out Ireland’s potato supply. Potatoes “were the first crop in modem history to be devastated by lack of resistance.””’ Not only were potatoes nearly lost as a major food crop, but 1 to 2 million Irish people died or left Ireland as a result of the famine.18 2 In more recent history, the U.S. corn leaf blight of the 1970s provides another example of the dangers of “monoculture” agriculture. Similar to the uniformity of the Irish potato crop, in 1970, almost 85% of U.S. cornfields were planted with one corn variety, Texas cytoplasmic male sterile.’ This type of corn was highly susceptible to a new type of fungus that wiped out 15% of the corn crop and resulted in a $1 billion loss in the United States.’84 While the U.S. hybrid corn industry only “[took] one year to correct the problem and get resistant varieties back on the market,” Fowler and Mooney point out that biodiversity crises such as these raise many “unanswered questions.”’ One of the most troubling questions is: with such a narrow genetic base, will the seed industry be able to find a quick solution the next time a crisis occurs?’86 A potential soybean “rust” crisis in 2004, with a disease “that could ruin a field in two weeks, and . .. up to 80 percent of yield,” spurred plant scientists to screen seed samples in the USDA U.S. crop gene banks.’ Scientists identified some soybean varieties with weak resistance, but mostly found that none was fully immune to the rust.’ As a result, the scientists had to find resistance in wild relatives of soybeans from China, Taiwan, and Australia-countries where soybeans were first domesticated.’89 The dangers of the “plague of sameness” show that crop diversity needs to be preserved for future generations. The Genetic Resources Conservation Program has found that “[n]early every major U.S. food or fiber crop is battling pests and diseases against which it has no resistance.”’ Without resistant varieties from a diverse genetic resource pool, future plant scientists will not be able to locate or introduce resistance into modem crops. As a result, “without these infusions of genetic diversity, food production is at risk from epidemics and infestations.””’ The Food and Agriculture Organization of the United Nations has found that the Earth’s population will grow by 50% in the next fifty years; thus, “crop diversity must be managed in a manner that promotes productivity with reducing diversity.” 92

#### Extinction

Dr. Bruce E. Tonn 21, Professor of Political Science at the University of Tennessee, PhD in Urban and Regional Planning from Northwestern University, BS in Civil Engineering from Stanford University, Senior Researcher in the Environmental Sciences Division of Oak Ridge National Laboratory, Anticipation, Sustainability, Futures and Human Extinction: Ensuring Humanity’s Journey into The Distant Future, p. 33

This second class of existential risks is primarily found in coupled human–natural systems. These could be seen as extinction-level events in and of themselves, but I think they could be initiating or contributory events to human extinction (again see the scenario at the end of Chapter 4). Technically, we also know how to prevent these events or at least how to adapt to them. Here are four to consider:

(1) Significant loss of biodiversity – It is well documented that human behavior is causing a sixth mass species extinction on the earth.44 This is due to many factors including destruction of habitat, spreading of disease (e.g., Chytrid fungus in amphibians), pollution, and climate change. The risk to humanity is that if too many of the species become extinct, global ecosystems could crash, disrupting essential balances of species needed to support ecosystem services and maybe even threatening global balances of oxygen and nitrogen.45

(2) *Agricultural systems failure* – There are numerous additional potentially catastrophic risks facing the world’s agricultural systems. For example, the world currently relies upon only about 14 different crops.46 Unanticipated and unchecked microbial infections could wipe out major portions of the food supply. Soil erosion, extended droughts, fires, and various other natural disasters could also seriously impact the food supply and cause widespread famine.47 At least 75% of the world’s food is dependent in some way on bees for pollination. Currently, the world’s bee population is under extreme stress.48 Many worry that a catastrophic collapse of the world’s bee population could lead to widespread famine and collapse in human population.

#### Only the plan can rebuild resiliency to withstand inevitable food supply shocks.

Patrick Woodall 18, Research Director at Food & Water Watch, “Monopoly Power Corrodes Choice and Resiliency in the Food System,” The Antitrust Bulletin, 63.2, https://doi.org/10.1177/0003603X18770063

Concentration can also reduce quality and compromise safety. According to the U.S. Department of Agriculture (USDA), high concentration levels allow the largest companies to extract more economic value from food purchases, but “consumers typically bear the burden, paying higher prices for goods of lower quality.”7 The substantial scale combined with highly concentrated chokepoints make the food system vulnerable to potentially larger, more widespread food safety problems.

The scale of plants in a heavily consolidated industry means that a single problem in one larger plant can now impact the entire food chain. In 2011, Cargill voluntarily recalled more than 36 million pounds of ground turkey after an illness outbreak caused by antibiotic-resistant salmonella.8 The recall represented several months’ worth of production from a single plant in Arkansas in an industry where the top four firms processed 55% of turkey meat.9 In total, 136 people across thirty-four states were infected, causing thirty-seven hospitalizations and one death, disproportionately caused by the bacteria’s resistance to antibiotics.10

Food safety problems at even modestly sized suppliers can infiltrate a significant portion of the food system, when ingredients pass through the highly consolidated food processing sector. In 2007, the Food and Drug Administration (FDA) received reports of 17,000 pet illnesses, including 4,000 dog and cat deaths, believed to be the result of melamine contamination in imported Chinese gluten ingredients used to make pet food.11 Sixty million packages of over 150 brands of pet food were recalled in the United States, the largest recall in history—and all the pet food originated from one Kansas facility that had used the contaminated wheat gluten.12

A year later, the problem of consolidation and chokepoints struck the human food supply. A 2008 peanut butter salmonella outbreak led to nine deaths and more than 700 illnesses in forty-seven states.13 The problem began at a single company’s filthy plants that manufactured 3% of peanut products—but the company’s peanut ingredients passed through a highly consolidated food industry, leading to a recall of over 3,600 products.14

#### Food insecurity sparks AND drives conflict in numerous hotspots.

Julian Cribb 19, Adjunct Professor, University of Technology, Sydney. Principal, Julian Cribb & Associates. Author, Journalist, Editor & Science Communicator, "Hotspots for Food Conflict in the Twenty-first Century," in Food or War, Chapter 5, 2019, pg. 141-173.

The mounting threat to world peace posed by a food, climate and ecosystem increasingly compromised and unstable was emphasised by the US Director of National Intelligence, Dan Coats, in a briefing to the US Senate in early 2019. ‘Global environmental and ecological degradation, as well as climate change, are likely to fuel competition for resources, economic distress, and social discontent through 2019 and beyond’, he said. ‘Climate hazards such as extreme weather, higher temperatures, droughts, floods, wildfires, storms, sea level rise, soil degradation, and acidifying oceans are intensifying, threatening infrastructure, health, and water and food security. Irreversible damage to ecosystems and habitats will undermine the economic benefits they provide, worsened by air, soil, water, and marine pollution.’ Boldly, Coats delivered his warning at a time when the US President, Trump, was attempting to expunge all reference to climate from government documents.23

Based upon these recent cases of food conflicts, and upon the lessons gleaned from the longer history of the interaction between food and war, several regions of the planet face a greatly heightened risk of conflict towards the mid twenty-first century.

Food wars often start out small, as mere quarrels over grazing rights, access to wells or as one faction trying to control food supplies and markets. However, if not resolved quickly these disputes can quickly escalate into violence, then into civil conflagrations which, if not quelled, can in turn explode into crises that reverberate around the planet in the form of soaring prices, floods of refugees and the involvement of major powers – which in turn carries the risk of transnational war. The danger is magnified by swollen populations, the effects of climate change, depletion of key resources such as water, topsoil and nutrients, the collapse of ecosystem services that support agriculture and fisheries, universal pollution, a widening gap between rich and poor, and the rise of vast megacities unable to feed themselves (Figure 5.3).

Chart

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Each of the world’s food ‘powderkeg regions’ is described below, in ascending order of risk.

United States

In one sense, food wars have already broken out in the United States, the most overfed country on Earth. Here the issue is chiefly the growing depletion of the nation’s mighty groundwater resources, especially in states using it for food production, and the contest over what remains between competing users – farmers, ranchers and Native Americans on the one hand and the oil, gas and mining industry on the other. Concern about the future of US water supplies was aggravated by a series of savage droughts in the early twentyfirst century in the west, south and mid-west linked to global climate change and declining snowpack in the Rocky Mountains, both of which affect not only agriculture but also the rate at which the nation’s groundwater reserves recharge.

‘Groundwater depletion has been a concern in the Southwest and High Plains for many years, but increased demands on our groundwater resources have overstressed aquifers in many areas of the Nation, not just in arid regions’, notes the US Geological Survey.24

Nine US states depend on groundwater for between 50 per cent and 80 per cent of their total freshwater supplies, and five states account for nearly half of the nation’s groundwater use. Major US water resources, such as the High Plains aquifers and the Pacific Northwest aquifers have sunk by 30–50 metres (100–150 feet) since exploitation began, imperilling the agricultural industries that rely on them. In the arid southwest, aquifer declines of 100–150 metres have been recorded (Figure 5.4).

[Figure omitted]

To take but one case, the famed Ogallala Aquifer in the High Plains region supports cropping industries worth more than US $20 billion a year and was in such a depleted state it would take more than 6000 years to replace by natural infiltration the water drawn from it by farmers in the past 150 years. As it dwindles, some farmers have tried to kick their dependence on groundwater – other users, including the growing cities and towns of the region, proceeded to mine it as if there was no tomorrow.25 A study by Kansas State University concluded that so far, 30 per cent of the local groundwater had been extracted and another 39 per cent would be depleted by the mid century on existing trends in withdrawal and recharge.26

Over half the US population relies on groundwater for drinking; both rural and urban America are at risk. Cities such as New Orleans, Houston and Miami face not only rising sea levels – but also sinking land, due to the extraction of underlying groundwater. In Memphis, Tennessee, the aquifer that supplies the city’s drinking water has dropped by 20 metres.

Growing awareness of the risk of a nation, even one as large and technologically adept as the USA, having insufficient water to grow its food, generate its exports and supply its urban homes has fuelled tensions leading to the eruption of nationwide protests over ‘fracking’ for oil and gas – a process that can deplete or poison groundwater – and the building of oil pipelines, which have a habit of rupturing and also polluting water resources. The boom in fracking and piping is part of a deliberate US policy to become more self-reliant in fossil fuels.27 Thus, in its anxiety to be independent of overseas energy suppliers, the USA in effect decided to barter away its future food security for current oil security – and the price of this has been a lot of angry farmers, Native Americans and concerned citizens.

The depletion of US groundwater coincides with accelerating climate risk, which may raise US temperatures by as much as 4–5 C by 2100, leading to major losses in soil moisture throughout the US grain belt, and the spread of deserts in the south and west. Food production will also be affected by fiercer storms, bigger floods, more heatwaves, an increase in drought frequency and greater impacts from crop and livestock diseases. In such a context, it is no time to be wasting stored water.

The case of the USA is included in the list of world ‘hot spots’ for future food conflict, not because there is danger of a serious shooting war erupting over water in America in the foreseeable future, but to illustrate that even in technologically advanced countries unforeseen social tensions and crises are on the rise over basic resources like food, land and water and their depletion. This doesn’t just happen in Africa or the Middle East. It’s a global phenomenon.

Furthermore, the USA is the world’s largest food exporter and any retreat on its part will have a disproportionate effect on world food price and supply. There is still plenty of time to replan America’s food systems and water usage – but, as in the case of fossil fuels and climate, rear-guard action mounted by corporate vested interests and their hired politicians may well [freeze] ~~paralyse~~ the national will to do it. That is when the US food system could find itself at serious risk, losing access to water in a time of growing climatic disruption, caused by exactly the same forces as those depleting the groundwater: the fossil fuels sector and its political stooges. The probable effect of this will, in the first instance, be a decline in US meat and dairy production accompanied by rising prices and a fall in its feedgrain exports, with domino effects on livestock industries worldwide.

The flip-side to this issue is that America’s old rival, Russia, is likely to gain in both farmland and water availability as the planet warms through the twentyfirst century – and likewise Canada. Both these countries stand to prosper from a US withdrawal from world food markets, and together they may negate the effects of any US food export shortfalls.

Central and South America

South America is one of the world’s most bountiful continents in terms of food production – but, after decades of improvement, malnutrition is once more on the rise, reaching a new peak of 42.5 million people affected in 2016.28 ‘Latin America and the Caribbean used to be a worldwide example in the fight against hunger. We are now following the worrisome global trend’, said regional FAO representative Julio Berdegué.29

Paradoxically, obesity is increasing among Latin American adults, while malnutrition is rising among children. ‘Although Latin America and the Caribbean produce enough food to meet the needs of their population, this does not ensure healthy and nutritious diets’, the FAO explains. Worsening income inequality, poor access to food and persistent poverty are contributing to the rise in hunger and bad diets, it adds.30

‘The impact of climate change in Latin America and the Caribbean will be considerable because of its economic dependence on agriculture, the low adaptive capacity of its population and the geographical location of some of its countries’, an FAO report warned.31

Emerging food insecurity in Central and Latin America is being driven by a toxic mixture of failing water supplies, drying farmlands, poverty, maladministration, incompetence and corruption. These issues are exacerbated by climate change, which is making the water supply issue worse for farmers and city people alike in several countries and delivering more weather disasters to agriculture.

* Mexico has for centuries faced periodic food scarcity, with a tenth of its people today suffering under-nutrition. In 2008 this rose to 18 per cent, leading to outbreaks of political violence.32 In 2013, 52 million Mexicans were suffering poverty and seven million more faced extreme hunger, despite the attempts of successive governments to remedy the situation. By 2100 northern Mexico is expected to warm by 4–5 C and southern Mexico by 1.5–2.5 C. Large parts of the country, including Mexico City, face critical water scarcity. Mexico’s cropped area could fall by 40–70 per cent by the 2030s and disappear completely by the end of the century, making it one of the world’s countries most at risk from catastrophic climate change and a major potential source of climate refugees.33
* The vanishing lakes and glaciers of the high Andes confront montane nations – Bolivia, Peru and Chile especially – with the spectre of growing water scarcity and declining food security. The volume of many glaciers, which provide meltwater to the region’s rivers, which in turn irrigate farmland, has halved since 1975.34 Bolivia’s second largest water body, the 2000 square kilometres Lake Poopo, dried out completely.35 The loss of water is attributed partly to El Niño droughts, partly to global warming and partly to over-extraction by the mining industries of the region. Chile, with 24,000 glaciers (80 per cent of all those in Latin America) is feeling the effects of their retreat and shrinkage especially, both in large cities such as the capital Santiago, and in irrigation agriculture and energy supply. Chile is rated by the World Resources Institute among the countries most likely to experience extreme water stress by 2040.36
* Climate change is producing growing water and food insecurity in the ‘dry corridor’ of Central America, in countries such as El Salvador, Guatemala and Honduras. Here a combination of drought, major floods and soil erosion is undermining efforts to raise food production and stabilise nutrition.
* Food production in Venezuela began falling in the 1990s, and by the late 2010s two thirds of the population were malnourished; there was a growing flood of refugees into Colombia and other neighbouring countries. The food crisis has been variously blamed on the Venezuelan government’s ‘Great Leap Forward’ (modelled on that of China – which also caused widespread starvation), a halving in Venezuela’s oil export earnings, economic sanctions by the USA, and corruption. However, local scientists such as Nobel Laureate Professor Juan Carlos Sánchez warn that climate impacts are already striking the densely populated coastal regions with increased torrential rains, flooding and mudslides, droughts and hurricanes, while inland areas are drying out and desertifying, leading to crop failures, water scarcity and a tide of climate refugees.37 These factors will tend to deepen food insecurity towards the mid century. Venezuela’s climate refugees are already making life more difficult for neighbouring countries such as Colombia.
* Deforestation in the Brazilian Amazon has, in recent decades, removed around 20 per cent of its total tree cover, replacing it with dry savannah and farmland. At 40 per cent clearance and with continued global warming, scientists anticipate profound changes in the local climate, towards a drying trend, which will hammer the agriculture that has replaced the forest.38 Brazil has already wiped out the oncevast Mata Atlantica forest along its eastern coastline, and this region is now drying, with resultant water stress for both farming and major cities like São Paulo. Brazil’s outlook for 2100 is for further drying – tied to forest loss as well as global climate change – increased frequency of drought and heatwaves, major fires and acute water scarcity in some regions. Moreover, as the Amazon basin dries out, it will release vast quantities of CO2 from its peat swamps and rainforest soils. These are thought to contain in excess of three billion tonnes of carbon and could cause a significant acceleration in global warming, affecting everyone on Earth.39

Latin America is the world capital of private armies, with as many as 50 major guerrilla groups, paramilitaries, terrorist, indigenous and criminal insurgencies over the past half century – exemplified in familiar names like the Sandanistas (Nicaragua), FARC (Colombia) and Shining Path (Peru).40 Many of these drew their initial inspiration from the international communist movement of the mid twentieth century, while others are right-wing groups set up in opposition to them or else represent land rights movements of disadvantaged groups. However, all these movements rely for oxygen on simmering public discontent with ineffectual or corrupt governments and lack of fair access to food, land and water generally. In other words, the tendency of South and Central America towards internal armed conflict is supercharged significantly by failings in the food system which generate public anger, leading to sympathy and support for anyone seen to be challenging the incumbent regimes. This is not to suggest that feeding every person well would end all insurgencies – but it would certainly take the wind of popular support out of a lot of their sails. In that sense the revolutionary tendency of South America echoes the preconditions for revolution in France and Russia in the eighteenth and twentieth centuries.

Central Asia

The risk of wars breaking out over water, energy and food insecurity in Central Asia is high.41 Here, the five main players – Kazakhstan, Uzbekistan, Turkmenistan, Tajikistan and Kyrgyzstan – face swelling populations, crumbling Soviet-era infrastructure, flagging resource cooperation, a degrading landscape, deteriorating food availability and a changing climate. At the heart of the issue and the region’s increasingly volatile politics is water: ‘Without water in the region’s two great rivers – the Syr Darya and the Amu Darya – vital crops in the downstream agricultural powerhouses would die. Without power, life in the upstream countries would be unbearable in the freezing winters’, wrote Rustam Qobil.42

Central Asia’s water crisis first exploded onto the global consciousness with the drying of the Aral Sea – the world’s fourth largest lake – from the mid 1960s43, following the damming and draining of major rivers such as the Amu Darya, Syr Darya and Naryn. It was hastened by a major drought in 200844 exacerbated by climate change, which is melting the ‘water tower’ of glacial ice stored in the Tien Shan, Pamir and Hindu Kush mountain ranges that feed the region’s rivers. The Tien Shan alone holds 10,000 glaciers, all of them in retreat, losing an estimated 223 million cubic metres a year. At such a rate of loss the region’s rivers will run dry within a generation.45 Lack of water has already delivered a body blow to Central Asia’s efforts to modernise its agriculture, adding further tension to regional disputes over food, land and water.

‘Water has always been a major cause of wars and border conflicts in the Central Asian region’, policy analyst Fuad Shahbazov warned. This potential for conflict over water has been exacerbated by disputes over the Fergana valley, the region’s greatest foodbowl, which underwent a 32 per cent surge in population in barely ten years – while more and more of it turned to desert.46

The Central Asian region is ranked by the World Resources Institute as one of the world’s most perilously water-stressed regions to 2040 (Figure 5.6). With their economies hitting rock bottom, corrupt and autocratic governments that prefer to blame others for their problems and growing quarrels over food, land, energy and water, the ‘Stans’ face ‘a perfect storm’, Nate Shenkkan wrote in the journal Foreign Policy. 47 Increased meddling by Russia and China is augmenting the explosive mix: China regards Central Asia as a key component of its ‘Belt and Road’ initiative intended to expand its global influence, whereas Russia hopes to lure the region back into its own economic sphere. Their rival investments may help limit some of the problems faced by Central Asia – or they may unlock a fresh cycle of political feuding, turmoil and regime change.48

A 2017 FAO report found 14.3 million people – one in every five – in Central Asia did not have enough to eat and a million faced actual starvation, children especially. It noted that after years of steady improvement, the situation was deteriorating. This combination of intractable and deteriorating factors makes Central Asia a serious internal war risk towards the mid twentyfirst century, with involvement by superpowers raising the danger of international conflict and mass refugee flight.

The Middle East

The Middle East is the most water-stressed region on Earth (see Figure 5.5 above). It is ‘particularly vulnerable to climate change. It is one of the world’s most water-scarce and dry regions, with a high dependency on climate-sensitive agriculture and a large share of its population and economic activity in flood-prone urban coastal zones’, according to the World Bank.49

The Middle East – consisting of the 22 countries of the Arab League, Turkey and Iran – has very low levels of natural rainfall to begin with. Most of it has 600 millimetres or less per year and is classed as arid. ‘The Middle East and North Africa [MENA] is a global hotspot of unsustainable water use, especially of groundwater. In some countries, more than half of current water withdrawals exceed what is naturally available’, the Bank said in a separate report on water scarcity.50

[Figure omitted]

‘The climate is predicted to become even hotter and drier in most of the MENA region. Higher temperatures and reduced precipitation will increase the occurrence of droughts. It is further estimated that an additional 80–100 million people will be exposed by 2025 to water stress’, the Bank added.

The region’s population of 300 million in the late 2010s is forecast to double to 600 million by 2050. Average temperatures are expected to rise by 3–5 C and rainfall will decrease by around 20 per cent. The result will be vastly increased water stress, accelerated desertification, growing food insecurity and a rise in sea levels displacing tens of millions from densely populated, low-lying areas like the Nile delta.51 The region is deemed highly vulnerable to climate impacts, warns a report by the UN Development Programme. ‘Current climate change projections show that by the year 2025, the water supply in the Arab region will be only 15 per cent of levels in 1960. With population growth around 3 per cent annually and deforestation spiking to 4 per cent annually... the region now includes 14 of the world’s 20 most water-stressed countries.’ 52

The Middle East/North Africa (MENA) region has 6 per cent of the world’s population with only 1.5 per cent of the world’s fresh water reserves to share among them. This means that the average citizen already has about a third less water than the minimum necessary for a reasonable existence – many have less than half, and populations are growing rapidly. Coupled with political chaos and ill governance in many countries, growing religious and ethnic tensions between different groups – often based on centuries-old disputes – a widening gap between rich and poor and foreign meddling by the USA, Russia and China, shortages of food, land and water make the Middle East an evident cauldron for conflict in the twentyfirst century.

Growing awareness of their food risk has impelled some oil-rich Arab states into an international farm buying spree, purchasing farming, fishing and food processing companies in countries as assorted as South Sudan, Ethiopia, the Philippines, Ukraine, the USA, Poland, Argentina, Australia, Brazil and Morocco. In some food-stressed countries these acquisitions have already led to riots and killings.53 The risk is high that, by exporting its own food–land–water problems worldwide, especially to regions already facing scarcity, the Middle East could propagate conflicts and government collapses around the globe. This is despite the fact that high-tech solar desalination, green energy, hydroponics, aquaponics and other intensive urban food production technologies make it possible for the region to produce far more of its own food locally, if not to be entirely self-sufficient.

Dimensions of the growing crisis in the Middle East include the following.

* Wars have already broken out in Syria and Yemen in which scarcity of food, land and water were prominent among the tensions that led to conflict between competing groups.
* Food, land and water issues feed into and exacerbate already volatile sentiment over religion, politics, corruption, mismanagement and foreign interference by the USA, China and Russia.
* The introduction of cheap solar-powered and diesel pumps has accelerated the unsustainable extraction of groundwater throughout the region, notably in countries like Libya, Egypt, Saudi Arabia and Morocco.54
* Turkish building of new dams to monopolise waters flowing across its borders is igniting scarcity and potential for conflict with downstream nations, including Iraq, Iran and Syria.55
* Egypt’s lifeline, the Nile, is threatened by Ethiopian plans to dam the Blue Nile, with tensions that some observers consider could lead to a shooting war.56
* There are very low levels of water recycling throughout the region, while water use productivity is about half that of the world as a whole.
* There is a lack of a sense of citizen responsibility for water and food scarcity throughout the region.
* Land grabs around the world by oil-rich states are threatening to destabilise food, land and water in other countries and regions, causing conflict.
* A decline in oil prices and the displacement of oil by the global renewables revolution may leave the region with fewer economic options for solving its problems.
* There is a risk that acquisition of a nuclear weapon by Iran may set off a nuclear arms race in the region with countries such as Saudi Arabia, Syria and possibly Turkey following suit and Israel rearming to stay in the lead. This would translate potential food, land and water conflicts into the atomic realm.

Together these issues, and failure to address their root causes, make the Middle East a fizzing powder keg in the twentyfirst century. The question is when and where, not whether, it explodes – and whether the resulting conflict will involve the use of weapons of mass destruction, including nuclear, thus affecting the entire world.

China

China is the world’s biggest producer, importer and consumer of food. Much of the landmass of the People’s Republic of China (PRC) is too mountainous or too arid for farming, but the rich soils of its eastern and southern regions are highly productive provided sufficient water is available and climate impacts are mild. Those, however, are very big ‘ifs’.

In 1995, American environmentalist Lester R. Brown both irked and aroused the PRC Communist Party bosses with a small, hard-hitting book entitled Who Will Feed China? Wake-Up Call for a Small Planet. 57 In it he posited that Chinese population growth was so far out of control that the then-agricultural system could not keep up, and China would be forced to import vast amounts of grain, to the detriment of food prices and availability worldwide. His fears, so far, have not been realised – not because they were unsoundly based, but because China managed – just – to stay abreast of rising food demand by stabilising and subsidising grain prices, restoring degraded lands, boosting agricultural science and technology, piping water from south to north, developing high-intensity urban farms, buying up foreign farmland worldwide and encouraging young Chinese to leave the country. What Brown didn’t anticipate was the economic miracle that made China rich enough to afford all this. However, his essential thesis remains valid: China’s food supply will remain on a knife-edge for the entire twentyfirst century, vulnerable especially to water scarcity and climate impacts. If the nation outruns its domestic resources yet still has to eat, it may well be at the expense of others globally.

Some western commentators were puzzled when China scrapped its 35-year ‘One Child Policy’ in 2015, but in fact the policy had done its job, shaving around 300 million people off the projected peak of Chinese population. It was also causing serious imbalances, such as China’s huge unmarried male surplus. Furthermore, rising urbanisation and household incomes meant Chinese parents no longer wanted large families, as in the past. Policy or no policy, China’s birthrate has continued to fall and by 2018 was 1.6 babies per woman – well below replacement, lower than the USA and nearly as low as Germany. Its population was 1.4 billion, but this was growing at barely 0.4 per cent a year, with the growth due at least in part to lengthening life expectancy.58

For China, female fertility is no longer the key issue. The critical issue is water. And the critical region is the north, where 41 per cent of the population reside. Here surface and groundwaters – which support not only the vast grain and vegetable farming industries of the North China Plain but also burgeoning megacities like Beijing, Tianjin and Shenyang – have been vanishing at an alarming rate. ‘In the past 25 years, 28,000 rivers have disappeared. Groundwater has fallen by up to 1–3 metres a year. One consequence: parts of Beijing are subsiding by 11 cm a year. The flow of the Yellow River, water supply to millions, is a tenth of what it was in the 1940s; it often fails to reach the sea. Pollution further curtails supply: in 2017 8.8 per cent of water was unfit even for agricultural or industrial use’, the Financial Times reported.59 On the North China Plain, annual consumption of water for all uses, including food production, is about 27 billion cubic metres a year – compared with an annual water availability of 22 billion cubic metres, a deficit that is made up by the short-term expedient of mining the region’s groundwater.60

To stave off disaster, the PRC has built a prodigious network of canals and pipelines from the Yangtse River in the water-rich south, to Beijing in the water-starved north. Hailed as a ‘lifeline’, the South–North Water Transfer Project had two drawbacks: first, the fossil energy required to pump millions of tonnes of water over a thousand kilometres and, second, the fact that while the volume was sufficient to satisfy the burgeoning cities for a time, it could not supply and distribute enough clean water to meet the needs of irrigated farming over so vast a region in the long run, nor meet those of its planned industrial growth.61 Oft-mouthed ‘solutions’ like desalination or the piping of water from Tibet or Russia face similar drawbacks: demand is too great for the potential supply and the costs, both financial and environmental, prohibitive.

China is already among the world’s most water-stressed nations. The typical Chinese citizen has a ‘water footprint’ of 1071 cubic metres a year – three quarters of the world average (1385 cubic metres), and scarcely a third that of the average American (2842 cubic metres).62 Of this water, 62 per cent is used to grow food to feed the Chinese population – and 90 per cent is so polluted it is unfit to drink or use in food processing. Despite massive investment in water infrastructure and new technology, many experts doubt that China can keep pace with the growth in its demand for food, at least within its own borders, chiefly because of water scarcity.63 Adding to the pressure is that China’s national five-year plans for industrialisation demand massive amounts more water – demands that may confront China with a stark choice between food and economic growth. ‘The Chinese government is moving too slowly towards the Camel Economy. It has plans, incentives for officials; it invests in recycling, irrigation, pollution, drought resistant crops; it leads the world in high voltage transmission (to get hydro, wind and solar energy from the west of China). None of this is sufficient or likely to be in time’, the Financial Times opined.64

As the world’s leading carbon emitter, China is more responsible for climate change than any other country. It is also, potentially, more at risk. The main reason, quite simply, is the impact of a warming world on China’s water supply – in the form of disappearing rivers, lakes, groundwater and mountain glaciers along with rising sea levels. To this is coupled the threat to agriculture from increasing weather disasters and the loss of ecosystem services from a damaged landscape.65

China is thus impaled on the horns of a classic dilemma. Without more water it cannot grow its economy sufficiently to pay for the water-conserving and food-producing technologies and infrastructure it needs to feed its people. Having inadvertently unleashed a population explosion with its highly successful conversion to modern farming systems, the challenge for China now is to somehow sustain its food supply through the population peak of the mid twentyfirst century, followed by a managed decline to maybe half of today’s numbers by the early twentysecond century. It is far from clear whether the present approach – improving market efficiency, continuing to modernise agricultural production systems, pumping water, trying to control soil and water losses and importing more food from overseas – will work.66

China has pinned its main hopes on technology to boost farm yields and improve water distribution and management. Unfortunately, it has selected the unsustainable American industrial farming model to do this – which involves the massive use of water, toxic chemicals, fertilisers, fossil fuels and machines. This in turn is having dreadful consequences for China’s soils, waters, landscapes, food supply, air, climate and consumer health. Serious questions are now being asked whether such an approach is not digging the hole China is in, even deeper. Furthermore, some western analysts are sceptical whether the heavy hand of state control is up to the task of generating the levels of innovation required to feed China sustainably.67

Plan B, which is to purchase food from other countries, or import it from Chinese-owned farming and food ventures around the world, faces similar difficulties. Many of the countries where China is investing in food production themselves face a slow-burning crisis of land degradation, water scarcity, surging populations and swelling local food demand. By exporting its own problems, China is adding to their difficulties. While there may be some truth to the claim that China is helping to modernise food systems in Africa, for example, it is equally clear that the export of food at a time of local shortages could have dire consequences for Africans, leading to wars in Africa and elsewhere. How countries will react to Chinese pressure to export food in the face of their own domestic shortages is, as yet, unclear. If they permit exports, it could prove catastrophic for their own people and governments – but if they cut them off, it could be equally catastrophic for China. Such a situation cannot be regarded as anything other than a menace to world peace.

Around 1640, a series of intense droughts caused widespread crop failures in China, leading to unrest and uprisings which, in 1644, brought down the Ming Dynasty. A serious domestic Chinese food and water crisis today – driven by drought, degradation of land and water and climate change in northern China coupled with failure in food imports – could cause a re-run of history: ‘The forthcoming water crisis may impact China’s social, economic, and political stability to a great extent’, a US Intelligence Assessment found. ‘The adverse impacts of climate change will add extra pressure to existing social and resource stresses.’ 68

Such events have the potential to precipitate tens, even hundreds, of millions of emigrants and refugees into countries all over the world, with domino consequences for those countries that receive them. Strategic analysts have speculated that tens of millions of desperate Chinese flooding into eastern Russia, or even India, could lead to war, including the risk of international nuclear exchange.69

Against such a scenario are the plain facts that China is a technologically advanced society, with the foresight, wealth and capacity to plan and implement nationwide changes and the will, if necessary, to enforce them. Its leaders are clearly alert to the food and water challenge – and its resolution may well depend on the extent of water recycling they are able to achieve. As to whether the PRC can afford the cost of transitioning from an unsustainable to a sustainable food system, all countries have a choice between unproductive military spending and feeding their populace. A choice between food or war. It remains to be seen which investment China favours.

However, it is vital to understand that the problem of whether China can feed itself through the twentyfirst century is not purely a Chinese problem. It’s a problem, both economic and physical, for the entire planet – and it is thus in everyone’s best interest to help solve it. For this reason, China is rated number 3 on this list of potential food/war hotspots.

Africa

Food wars – that is, wars in which food, land and water play a significant contributing role – have been a constant in the story of Africa since the mid twentieth century, indeed, far longer. In a sense, the continent is already a microcosm of the world of the twentyfirst century as climate change and resource scarcity combine with rapid population growth to ratchet up the tensions that lead competing groups to fight, whether the superficial distinctions between them are ethnic, religious, social or political.

We have examined the particular cases of Rwanda, South Sudan and the Horn of Africa – but there are numerous other African conflicts, insurgencies and ongoing disturbances in which food, land and water are primary or secondary triggers and where famine is often the outcome: Nigeria, Congo, Egypt, Tunisia, Libya, Mali, Chad, the Central African Republic, the Maghreb region of the Sahara, Mozambique, Cote d’Ivoire and Zimbabwe have all experienced conflicts in which issues of access to food, land and water were important drivers and consequences.

The trajectory of Africa’s population in the first two decades of the twentyfirst century implies that the number of its people could quadruple from 1.2 billion in 2017 to 4.5 billion by 2100 (Figure 5.6). If fulfilled, this would make Africans 41 per cent of the world population by the end of the century. The UN Population Division’s nearer projections are for Africans to outnumber Chinese or Indians at 1.7 billion by 2030, and reach 2.5 billion in 2050, which represents a doubling in the continent’s inhabitants in barely 30 years.70 While African fertility rates (babies per woman) remain high by world standards – 4.5 compared with a global average of 2.4 – they have also fallen steeply, from a peak of 8.5 babies in the 1970s. Furthermore, the picture is uneven with birthrates in most Sub-Saharan countries remaining high (around five to six babies/woman), while those of eight, mainly southern, countries have dropped to replacement or below (i.e. under 2.1). As has been the case around the world, birth rates tend to drop rapidly with the spread of urbanisation, education and economic growth – whereas countries which slide back into poverty tend to experience rising birthrates. Food access is a vital ingredient in this dynamic: it has been widely observed that better-fed countries tend to have much lower rates of birth and population growth, possibly because people who are food secure lose fewer infants and children in early life and thus are more open to family planning. So, in a real sense, food sufficiency holds one of the keys to limiting the human population to a level sustainable both for Africa and the planet in general.

[Figure omitted]

Forecasting the future of Africa is not easy, given the complexity of the interwoven climatic, social, technological and political issues – and many do not attempt it. However, the relentless optimism of the UN and its food agency, the FAO, is probably not justified by the facts as they are known to science – and may have more to do with not wishing to give offence to African governments or discourage donors than with attempting to accurately analyse what may occur. Even the FAO acknowledges however that food insecurity is rising across Sub-Saharan Africa as well as other parts.

In 2017, conflict and insecurity were the major drivers of acute food insecurity in 18 countries and territories where almost 74 million food-insecure people were in need of urgent assistance. Eleven of these countries were in Africa and accounted for 37 million acutely food insecure people; the largest numbers were in northern Nigeria, Democratic Republic of Congo, Somalia and South Sudan

the agency said in its Global Report on Food Crises 2018.71

The FAO also noted that almost one in four Africans was undernourished in 2016 – a total of nearly a quarter of a billion people. The rise in undernourishment and food insecurity was linked to the effects of climate change, natural disasters and conflict according to Bukar Tijani, the FAO’s assistant director general for Africa.72

Even the comparatively prosperous nation of South Africa sits on a conflict knife-edge, according to a scientific study: ‘Results indicate that the country exceeds its environmental boundaries for biodiversity loss, marine harvesting, freshwater use, and climate change, and that social deprivation was most severe in the areas of safety, income, and employment, which are significant factors in conflict risk’, Megan Cole and colleagues found.73

In the Congo, home to the world’s second largest tropical forest, 20 years of civil war had not only slain five million civilians but also decimated the forests and their ecological services on which the nation depended. Researchers found evidence that reducing conflict can also help to reduce environmental destruction: ‘Peace-building can potentially be a win for nature as well, and... conservation organizations and governments should be ready to seize conservation opportunities’. 74

As the African population doubles toward the mid century, as its water, soils, forests and economic wealth per capita dwindle, as foreign corporations plunder its riches, as a turbulent climate hammers its herders and farmers – both industrial and traditional – the prospect of Africa resolving existing conflicts and avoiding new ones is receding. The mistake most of the world is making is to imagine this only affects the Africans. The consequences will impact everyone on the planet.

A World Bank study has warned that 140 million people will have to leave just three regions of the world as climate refugees before 2050 – and the vast majority of these, some 86 million, would be displaced from their homes in Sub-Saharan Africa.75 The second decade of the twentyfirst century has already witnessed a blow-out in the number of Sub-Saharan Africans fleeing north, across the desert into the already dangerously overstressed region of North Africa. From there many have headed by boat for Europe, with shocking loss of life on the way – up to 5000 deaths due to drowning in a single year. The number of Africans fleeing across the Mediterranean has fluctuated, climbing as high as a third of a million people (in 2016) with most of them headed for Italy, followed by Greece, Cyprus and Spain. By this time Europe already had a population of five million Sub-Saharans.76

It is worth recalling, for a moment, that a food failure in the North African grainbowl in the third and fourth centuries was a primary factor in the collapse and demolition of the Roman Empire, from Britain to Asia Minor.

The risk of a tsunami of people attempting to escape Africa for Europe, and to a lesser degree the Middle East, in coming decades is building with ominous intensity. The stress in SubSaharan Africa is already forcing conditions in North African countries closer to crisis point. Were their food systems to fail in domino-succession, the scale of potential movement of desperate people into Europe can only be guessed – but is certainly in the range of tens to hundreds of millions. Large enough, in other words, to swamp the nations of Italy, Spain and Greece and eliminate their governments altogether, forcing many of their own people in turn to flee into northern Europe. Given the crisis caused by a million Syrians fleeing into Europe in 2013, the consequences for European stability and the world economy of an African eruption tens or hundreds of times the size can only be imagined.

The good news is that, in the view of the World Bank, up to 80 per cent of Africa’s climate refugees could be prevented from leaving their homes in the first place by timely climate and development (i.e. food, land and water) action taken by the rest of the world. The bad news, however, is that most of the world’s large oil and coal companies and their climate-denying puppet governments remain implacably opposed to the sort and scale of action necessary, preferring to pull the global house down on their own heads.

Canadian ecologist Paul Chefurka argued in a far-sighted paper that the outlook for Africa by 2040 was grim, even if the continent were able to lock in a 1 per cent year-on-year increase in farm yields. Even then Africa might still be forced to spend half its wealth – an almost impossible proportion – on food imports by 2050, assuming sufficient affordable food was available globally to supply them. Chefurka argued the solutions were:

First, the developed world must get its act together when it comes to foreign aid. Our lack of performance with regard to the Millennium Development Goals is beyond contemptible. A minuscule sliver of the GDP of the richest nations could help prevent a catastrophic outcome for hundreds of millions of people and scores of countries. That we have failed our African brothers and sisters so egregiously is a shame that should follow all of us into the afterlife.

Second, and most importantly, we must develop an immediate crash program of education and contraception in all the regions at risk from this gathering storm. Africa may be the first, but the conditions are ripe for much of South Asia to follow in their footsteps. We must blanket Africa with schools and family planning clinics.77

There is substance to both points. Unfortunately expanding conventional farming with a view to feeding all the Africans in 2050 and 2100 is unlikely to succeed. It is a twentieth-century solution to a twentyfirst-century problem, even with more advanced farming technologies added. It would unleash cataclysmic soil and water loss, gross pollution, the spread of deserts and animal, plant and human diseases, accelerate climate change (through land clearing and the use of fossil fuels and fertilisers) and extinguish the last of Africa’s wildlife. The combined outcome of this would be war, potentially on a continent-wide scale – and it is for this reason Africa ranks second on this list of world food and war hotspots.

Where the true solutions to Africa’s and the world’s food challenges may lie is dealt with in the concluding chapters of this book.

South Asia

The constellation of burgeoning food demand, water scarcity, degrading land, a turbulent climate, social, political and religious feuding and rampant militarisation make the region of South Asia – India, Pakistan, Bangladesh and Sri Lanka – the most dangerous of all for civilisation during the twentyfirst century.

The population of the region has more than tripled since the 1960s. India alone is looking at a population of 1.73 billion by 2050, Pakistan at 306 million, Bangladesh 202 million and Sri Lanka at 23 million – a combined total approaching 2.3 billion.78 The Indo-Gangetic Plain is the bread-basket of the three largest countries and currently feeds more than 900 million from both surface and groundwater.

‘India is facing a perfect storm in managing water. Centuries of mismanagement, political and institutional incompetence, indifference at central, state and municipal levels, a steadily increasing population that will reach an estimated 1.7 billion by 2050, a rapidly mushrooming middle class demanding an increasingly protein-rich diet that requires significantly more water to produce – together, these are leading the country towards disaster', says Professor Asit Biswas of the National University of Singapore.79 ‘India is now facing a water situation that is significantly worse than any that previous generations have had to face. All Indian water bodies within and near population centres are now grossly polluted... Not a single Indian city can provide clean water that can be consumed from the tap on a 24x7 basis’, he adds. This was underlined by a warning from the Indian Supreme Court in 2018 that the capital, New Delhi – population 25 million – was on track to run out of groundwater completely.80 Facing similar water scarcity were 20 other Indian cities, including Bangalore and Hyderabad – heartbeat of the Indian high-tech boom – menacing the lives and jobs of 600 million Indians.81

Free electricity and cheap diesel pumps led to an explosion in the extraction of groundwater across the Indo-Gangetic plain. ‘The best estimate is that at present India uses 230–250 cubic kilometres of groundwater each year. This accounts for about one-quarter of the global groundwater use. More than 60% of irrigated agriculture and 85% of domestic water use now depends on groundwater.’ Over large areas, India’s groundwater levels have been falling precipitously, in places at rates of a metre or more a year, since the start of the twentyfirst century and scientists fear its reserves will be largely exhausted by 2050.82

The World Resources Institute, which keeps a hawk-like gaze on global water issues, notes that more than half of India is already water stressed, affecting more than 600 million people – and the situation will become extremely grave towards 2040 (Figure 5.7).83

Climate change is only making matters worse for South Asia – the rising intensity of droughts, floods and heatwaves threatens to undermine the region’s fragile ability to feed itself. Indeed, according to some projections, parts will be so hot as to become uninhabitable and unfarmable.84 Recent climate modelling identified India as the world’s second most vulnerable country for climate-related hunger, and Bangladesh third, with the situation worsening towards 2 C of global warming.85 The Indian Ministry of Finance concurs, warning that climate could shrink agricultural incomes by as much as 25 per cent in unirrigated farmland and 18 per cent in irrigated areas by 2100.86

[Figure omitted]

South Asia’s main water reserve, the glacial ice of the Hindu Kush and Himalaya which supports two billion people, is in dire straits, according to a study by 210 scientists. A third of it will be gone by 2100, in a ‘climate crisis you haven’t heard of’, said lead author Philippus Wester. Its loss due to global warming holds catastrophic consequences for rivers, groundwater, food production and the cities that rely on it.87

‘Climate change is likely to have a detrimental effect on South Asia out to 2030 and beyond, mainly because of its ability to exacerbate one of South Asia’s biggest challenges: an expanding population and the challenge of feeding, housing, clothing, watering and employing it’, wrote analyst Benjamin Walsh.88 Melting glaciers, increased evaporation and swelling cities are all intensifying existing food and water insecurity and, since climate change cannot be prevented in the short run, governments had better prepare for it, he said. In this sense, Walsh and Biswas tender similar advice: whether or not South Asia can ride out the ‘perfect storm’ will depend on the competence and determination of hitherto somewhat inept governments in taking the essential steps to conserve water and find new ways to produce food. The subcontinent’s existing food and water model is broken and cannot survive the mid century.

On the positive side is the enthusiasm with which South Asia has embraced renewable energy and the IT revolution, expressed in the region’s strong economic growth. These demonstrate that vast and rapid national and regional changes are possible. Water, land and food, however, present far more intractable problems – social, political and technical – on which age-old disputes over religion, ethnicity and caste lie like a pall.

Since India and Pakistan partitioned in 1947, there has been ongoing low-level conflict over the waters of the Indus and the territory of Kashmir. Pakistan considers India is stealing its water and trying to assert hegemony through dam-building, while India claims Pakistan is losing water due to climate change: the scarcer water becomes for either country, the more the tensions escalate. Both sides are heavily armed: India has 2.1 million soldiers under arms, and Pakistan 644,000. Both nations have 120+ nuclear warheads. Between them, they spend US$65 billion a year on their militaries.89 How close they have been to open war is highlighted by legal expert Dr Waseem Quereshi: ‘The tension over water conflicts between India and Pakistan has been soaring. India has threatened that it will scrap the IWT [Indus Waters Treaty] entirely. In response, Pakistan has stated that such a revocation of a bilaterally agreed treaty would be considered an act of war’. 90

Large-scale food, land and water failures anywhere on the Indian subcontinent could spark immense refugee movements in the tens or hundreds of millions, capable of obliterating neighbour countries and igniting wars. They are liable to be on a scale that dwarfs the Syrian refugee problem into insignificance, with worldwide repercussions. For example, some 130 million people on the subcontinent inhabit low-lying coastal regions that will be under the sea by 210091, and that is but a single dimension of the climate–water crisis. The World Bank rates the Indian subcontinent the world’s second most vulnerable region for enforced climate migration, with 40 million climate refugees alone in India by 2050.92 These estimates take no account of the scale of migration that could result from major failures in food or water, or people fleeing resulting conflicts.

The scenario of major collapse in the South Asian food and water system is so appalling that no government or agency, as yet, seems prepared even to contemplate its possibility, or to risk the displeasure of South Asian governments and peoples by speaking openly about it. As a result, the world at large is doing little to forestall or prevent it. However, for whatever the vox populi is worth, when the website Debate.org asked readers to vote on the question “Will India Collapse?”, 76 per cent of respondents (mostly Indians) were of the view that it would.93 The Oslo Peace Research Institute, in a rather more structured attempt to predict the likelihood of future conflicts based on past behaviour, rated Pakistan, India, Afghanistan and Sri Lanka among the countries more likely to face wars up to 2050.94

The great issue for humanity is South Asia’s combined arsenal of 250+ nuclear weapons. Though many of these are thought to be ‘battlefield’ or tactical nukes (as opposed to city busters), there are enough of them to cause a worldwide famine affecting everybody and lasting several years. This insight arises out of the increasing sophistication of global climate models, which can now describe the impact of nuclear release on the global climate system with far greater precision than ever before. Meteorologist Alan Robock from Rutgers University and physicist Brian Toon from the University of Colorado have devoted 30 years to projecting the effects of nuclear war. They estimate that a limited nuclear exchange between India and Pakistan would throw up at least five million tonnes of dust and smoke from burning forests and incinerated cities, lofting it into the high atmosphere where it will linger for up to 20 years. In climatic terms, this would be the equivalent of an asteroid impact on Earth or a large volcanic eruption, they said – enough to unleash a worldwide ‘nuclear winter’. 95

‘We put it into a NASA climate model and found it would be the largest climate change in recorded human history’, Brian Toon told a journalist. ‘The basic physics is very simple. If you block out the Sun, it gets cold and dark at the Earth’s surface’. 96

He continued: ‘We hypothesized that if each country used half of their nuclear arsenal, that would be 50 weapons on each side. We assumed the simplest bomb, which is the size dropped on Hiroshima and Nagasaki – a 15 kiloton bomb. The answer is the global average temperature would go down by about 1.5 degrees Celsius. In the middle of continents, temperature drops would be larger and last for a decade or more’. The effects of this snap cooling on agriculture worldwide were then calculated. The answer was equally chilling: harvests would crash by 20–40 per cent for five years, and for the next five years, linger 10–20 per cent below the pre-war norm. This would result in malnourishment, if not outright starvation, for most of the world’s population (Figure 5.8).

Diagram, engineering drawing

Description automatically generated

Such an event would be more severe than the Little Ice Age of the eighteenth century – which was, it may be recalled, a likely contributing factor in the hunger that led to the French Revolution – or the cool period that brought down the Roman Empire in the fourth century. In today’s overcrowded world it would unleash global hunger, reducing the average daily caloric intake from 2900 to 1900–2000 calories or fewer, which is borderline malnutrition. For people already hungry, such an outcome would be fatal.

Yet that is not the worst of it. A report by International Physicians for the Prevention of Nuclear War (IPPNW) concluded that China, lying immediately downwind of India/Pakistan, would be worst affected by the nuclear winter effects of even a limited atomic war in South Asia. Chinese winter wheat production would fall by up to half, and the rice crop by 21 per cent.

Two billion people in India and China would starve within months, government in both countries would probably disintegrate and, in an echo of their own and Roman histories, the remnants of society would doubtless be riven among local warlords. Most of the nations of Southeast, West, North and Central Asia on their borders would be swept away before the tide of people fleeing the catastrophe.97

How such events would play out for the rest of the world are not easy to predict – but, in all likelihood, the panic occasioned by rising global hunger, soaring global food prices and the loss of two of its largest traders would crash the world economy, toppling more governments and igniting further civil and international conflict, some of it potentially nuclear.

Thus, even a relatively limited nuclear exchange, such as between India and Pakistan, could bring civilisation as we know it to an end. From this brief assessment it can be seen that the Indian subcontinent, more than any region on Earth, holds the key to the future of world food security and hence, the fate of civilisation in this century. For this reason, the South Asian region is rated as the Number One Risk on this list, in terms of food, land and water insecurity and conflict risk, above all others.

The Human Tide

Since lack of food, or fear of it, is a primary motive for people to leave their homes, the number of refugees and displaced people worldwide offers stark testimony to the increasing pressures facing human civilisation and its food supply, as we bang up against the finite limits of the planet we inhabit.

The actual number of refugees and internally displaced people more than doubled in the first two decades of the twentyfirst century, from 32 million in the late 1990s to 68.5 million in 2018.98 Furthermore, the proportion of the world population in flight rose nearly tenfold, from 0.1 per cent to almost 1 per cent, meaning – as the World Economic Forum pointed out – that around one person in every hundred has fled their home.99 In 2018, the UN High Commissioner for Refugees noted these were ‘the highest levels of displacement on record’, that nearly half of all refugees were children under 18 and that, on average, 20 people were being displaced every minute.

On top of this the UN reported 258 million ‘economic migrants’ in 2017,100 mostly from Asia and mainly educated people who had foreseen potential trouble in their homelands, including China and India, and had the resources to move themselves and their families out of harm’s way and to other more secure parts of the globe. Together, then, almost a third of a billion human beings now roam the planet every year in search of new homes and opportunities, freedom from war or hunger. Such a vast number of people already on the road – equivalent to the entire population of the USA – gives some inkling of the colossal people movements which could eventuate from large scale conflicts over food, land and water as the century advances.

It is time to face the fact that movements of a billion humans or more are now entirely possible over a comparatively short time – even though many may die in the process.

In case anyone should consider such vast movements to be impossible, the World Bank notes that the number of global tourists alone already exceeds 1.25 billion a year – which simply goes to illustrate the capacity of modern transport systems.101 Most of those tourists travel by air, road, rail or passenger vessel – however, it should be noted the world also has 52,000 merchant ships, 312,000 general aviation aircraft, 4.6 million fishing boats and tens of millions of larger recreational craft102 capable of being commandeered by fleeing people, should their needs be fierce enough.

As mentioned before, the Bank anticipated that at least 140 million ‘climate refugees’ may be forced to quit just three highly vulnerable regions by the mid twentyfirst century: SubSaharan Africa, South Asia and Latin America.103 In the Bank’s analysis, the main drivers for these immigrants, it should be noted, are factors such as water scarcity, crop failure, sea-level rise and storm surges – not the wars these impacts may also ignite. They would make the exodus much larger. Furthermore, the Bank’s analysis does not include other at-risk regions such as China, Central Asia and the Middle East/North Africa.

The FAO, in its report on the state of world food security,104 commented as follows.

* ‘The number of conflicts is... on the rise. Exacerbated by climate-related shocks, conflicts seriously affect food security and are a cause of much of the recent increase in food insecurity.’
* ‘Conflict is a key driver of situations of severe food crisis and recently re-emerged famines, while hunger and undernutrition are significantly worse where conflicts are prolonged and institutional capacities weak.’

It is important to understand that such disasters are preventable, with sufficient forward recognition of the driving factors, early implementation of suitable preventative strategies and with the co-operation of the global community. At present this cooperation is fragmentary, and few countries feel responsible for preventing the kinds of events described in this chapter, especially those taking place in distant, overseas countries. Yet it is increasingly in their own interests to do so, in view of unavoidable consequences for themselves, both physical and economic.

In the twentyfirst century the risk of mass migration and conflict driven by insecurity of food, land and water is higher than in any previous age of human history. The World Economic Forum (WEF) rated enforced mass migration as the sixth most likely of its top 30 global risks in 2018 and the second worst in terms of its societal impact. It identified ‘profound social instability’ as the risk factor most highly connected to the prevailing range of global trends.105 Furthermore, the ominous and destabilising rise of right-wing populism and renascent fascism in western countries, especially, is in part a direct response to rising fears of mass immigration.106

Eight out of the WEF’s top ten risks of 2018 related to global food security. Furthermore, the World Food Programme (WFP), in its report At the Root of Exodus: Food Security, Conflict and International Migration, drew a direct line between food, war and mass migration: ‘The WFP study found that countries with the highest level of food insecurity, coupled with armed conflict, have the highest outward migration of refugees. Additionally, when coupled with poverty, food insecurity increases the likelihood and intensity of armed conflicts; something that has clear implications for refugee outflows’, it said.107

Food, land and water must therefore now be viewed as strategic components of defence and international security as elemental as naval fleets, air power, armies or weapons. There is no logic to arming ourselves against the possibility of global conflict if, by ignoring its causes, we inadvertently set in motion the very machinery that drives it. Neglecting the strategic importance of food, land and water will deliver increased risk of war and mass migration – while the opposite is also true: attending to them can yield a vital peace dividend by extinguishing or damping down an important casus belli. This issue is developed in Chapter 7.

#### The plan’s market wide approach solves---it changes the institutional and legal framework for evaluating mergers

Peter Carstensen et al 08, PROFESSOR OF LAW, UNIVERSITY OF WISCONSIN LAW SCHOOL, MADISON, SENATOR HERBERT H. KOHL (D-WI) WITNESSES PANEL I: DOUGLAS ROSS, SPECIAL COUNSEL FOR AGRICULTURE, ANTITRUST DIVISION, DEPARTMENT OF JUSTICE, WASHINGTON, DC; PETER CARSTENSEN, , WI.; PANEL II: WESLEY M. BATISTA, CEO, NORTH AMERICA, JBS SWIFT AND COMPANY, GREELEY, CO; STEVE HUNT, CEO, U.S. PREMIUM BEEF, KANSAS CITY, MO; BILL BULLARD, CEO, RANCHERS-CATTLEMEN ACTION LEGAL FUND, UNITED STOCKGROWERS OF AMERICA, BILLINGS, MT; DILLON M. FEUZ, PH.D., DEPARTMENT OF ECONOMICS, UTAH STATE UNIVERSITY, LOGAN, UT; MICHAEL STUMO, LEGAL COUNSEL, ORGANIZATION FOR COMPETITIVE MARKETS, LINCOLN, NE; DAVID BALTO, SENIOR FELLOW, CENTER FOR AMERICAN PROGRESS “HEARING OF THE SUBCOMMITTEE ON ANTITRUST, COMPETITION POLICY AND CONSUMER RIGHTS OF THE SENATE JUDICIARY COMMITTEE; SUBJECT: CONCENTRATION IN AGRICULTURE AND AN EXAMINATION OF THE JBS SWIFT ACQUISITIONS”, 5-7-2008, govinfo.gov/content/pkg/CHRG-110shrg45064/html/CHRG-110shrg45064.htm, Lexis

MR. ROSS: –- but I would like to begin with a brief statement now.

The Department of Justice is committed to maintaining an active involvement in the agricultural sector and to protecting competition there through aggressive antitrust enforcement as warranted. The department takes very seriously the concerns expressed by agricultural producers about competitive problems. In antitrust analysis and enforcement, the department carefully considers market power issues both on the sell side, which is often seen as monopoly, and on the buy side described as monopsony.

The department hears and takes into account monopsony or buy-side market power as a particular concern in merger enforcement for agricultural producers who often sell their products to large agribusinesses. The department has brought a number of enforcement actions in the agricultural sector in recent years and has undertaken special outreach to the agricultural community. We have, for many years, regularly consulted the Department of Agriculture, to obtain the benefit of their expertise in our agricultural work.

The department's legal authority in this area is the antitrust law. Other agencies have other legal authority and agricultural policy is far bigger than antitrust. In our area of authority, we are constantly on the lookout for possible antitrust violations and will not hesitate to take appropriate enforcement action when warranted.

My statement demonstrates that we have been active in enforcing the antitrust laws in the agricultural sector, having filed several important cases to remedy anticompetitive effects that were likely to resolve from proposed mergers and acquisitions, and to stop collusive anticompetitive practices that adversely affected farmers and competition in this key sector of the economy.

I look forward to your questions about our work. Thank you.

[SEN. KOHL](https://advance.lexis.com/document/?pdmfid=1519360&crid=b23b8151-6dd7-4bd9-a94e-c025c1c31293&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A4SGH-1HG0-TWK7-H0KX-00000-00&pdcontentcomponentid=8104&pdteaserkey=sr0&pditab=allpods&ecomp=wbxnk&earg=sr0&prid=b1a756dc-6c07-4f18-8e9b-67d2a8da90f0): Thank you, Mr. Ross.

Mr. [Carstensen](https://advance.lexis.com/document/?pdmfid=1519360&crid=b23b8151-6dd7-4bd9-a94e-c025c1c31293&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A4SGH-1HG0-TWK7-H0KX-00000-00&pdcontentcomponentid=8104&pdteaserkey=sr0&pditab=allpods&ecomp=wbxnk&earg=sr0&prid=b1a756dc-6c07-4f18-8e9b-67d2a8da90f0).

MR. [CARSTENSEN](https://advance.lexis.com/document/?pdmfid=1519360&crid=b23b8151-6dd7-4bd9-a94e-c025c1c31293&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A4SGH-1HG0-TWK7-H0KX-00000-00&pdcontentcomponentid=8104&pdteaserkey=sr0&pditab=allpods&ecomp=wbxnk&earg=sr0&prid=b1a756dc-6c07-4f18-8e9b-67d2a8da90f0): Wow, he was able to get through that in only two-and-a-half minutes. No professor is going to be able to top that performance.

I am truly honored to be offered this opportunity to express my views on the state of antitrust enforcement in markets related to agriculture. I have a longer statement which I hope will be included in the record.

[SEN. KOHL](https://advance.lexis.com/document/?pdmfid=1519360&crid=b23b8151-6dd7-4bd9-a94e-c025c1c31293&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A4SGH-1HG0-TWK7-H0KX-00000-00&pdcontentcomponentid=8104&pdteaserkey=sr0&pditab=allpods&ecomp=wbxnk&earg=sr0&prid=b1a756dc-6c07-4f18-8e9b-67d2a8da90f0): We'll do it.

MR. [CARSTENSEN](https://advance.lexis.com/document/?pdmfid=1519360&crid=b23b8151-6dd7-4bd9-a94e-c025c1c31293&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A4SGH-1HG0-TWK7-H0KX-00000-00&pdcontentcomponentid=8104&pdteaserkey=sr0&pditab=allpods&ecomp=wbxnk&earg=sr0&prid=b1a756dc-6c07-4f18-8e9b-67d2a8da90f0): Thank you. In a nutshell, the government agencies charged with enforcing antitrust law have repeatedly failed to challenge or to remedy competitive problems that confront American agriculture. Most conspicuous failures come in merger enforcement, where a series of decisions either not to challenge mergers or settle for weak, even anticompetitive remedies has resulted in increased concentration on both the input and the output side of agriculture.

What we have in for the American farmer has been caught in an economic vice. When they seek to buy various inputs they need, seed, fertilizer, equipment, herbicide, they face an increasingly concentrated market and exploitive strategies by producers. When they attempt to sell their products, especially I think in the dairy, meat, and grain areas, they have only a very limited number of buyers who use their buyer power to drive down the prices paid for these products.

What I'd like to do is to give you the highlights out of a few -- out of several of the lessons that I think, and example that I think highlight this point. I want to start with the concern that Senator Grassley expressed in particular about the pork industry. Doug Ross says on page 5 of his written statement that mergers that increase market power violate Section 7, and so I want to use the pork industry as an example where there has been a failure to do this.

Smithfield bought farmland in about 2002-2003 and has recently been allowed to buy premium standard brand. First lesson: Buyer power already exists. The RTI study of livestock markets done for GIPSA found that there was statistically significant buyer power in hogs in that period 2002 to 2005 that is during the period when the acquisition of farmland occurred.

But what is important is that the PSB merger, the acquisition of PSB necessarily increased buyer power to the detriment of farmers. Yet the Department of Justice raised no objection, ignored the empirical analysis, and in its statement justifying its failure to sue it made inaccurate factual statements.

The second lesson is a very important one, is that buyer power –- and this comes from the RTI study –- buyer power rises from much lower levels of concentration when measured by the HHI index number than one would find on the -- would expect to predict buyer -- seller power on the seller side of markets. That is, the concentration was in the 1,000 to a 1,300 level in this period when the RTI study found the existence of buyer power. It's an important lesson that has been totally ignored by our law enforcers.

As to milk, Mr. Ross' statement describes the theory of the settlement, none without litigation, no -- there is no consent decree, there's no opportunity to comment on this. The theory was when Suiza bought Dean, that there would be a divestiture and no exclusive dealings. Since then DFA, Dairy Farmers of America, has both become associated with both, the successor to the Dean-Suiza facilities, also gotten linked to Hood and has managed to get exclusive dealing contracts. There is -- and I think Senator Kohl referenced this in his comments, there's an ongoing Justice Department investigation of many years standing of a number of these bad business practices. Apparently nobody has informed Mr. Ross of all the problems that came out of this consent decree.

I've got some hostile comments about the Monsanto Delta Pine and Land settlement which again results, it seems to me, in some very unfortunate results. There are several other comments about that. I will not elaborate further on that. We know that the next panel is going to deal a lot more with the beef industry. But I want to emphasize and it's clear in Mr. Bullard's testimony that the Justice Department is known about of number of anticompetitive, apparently collusive or monopolistic practices in that industry for a number of years. They're well-documented and they've done nothing.

So the bottom line here is that we have a passive and inactive antitrust enforcement process that has resulted in increased concentration, harms to producers of agricultural products, and of course harms then to consumers.

What can Congress do, because you unfortunately can't bring the lawsuits, which I'd love to have you do? First I think, hearings like this do deliver a message to Mr. Ross, and I hope you're just going to take it back to the Justice Department. Secondly, I think your staff can do more to ask for confidential briefings on some of these decisions, yourselves attend those briefings so that you are better able to understand why they are not doing the things that they ought to be doing.

You could also get a GAO study of some of these key decisions in terms of what happened afterwards. Because I think if you look at pork, if you look at dairy, you look at some of these other industries you're going to see the actual harms.

Finally, you know, I actually -- Doug's my sparring partner. We've done these kinds of shows across the country. He's a dedicated civil servant, and he comes down here and he tries his best to justify what his masters are doing. The problem is he was brought in to be a more focused person ready to engage the issues of agriculture, to make sure that the Department of Justice actually understood things. And sadly, it is just clear that those who actually make the decisions haven't got the message.

Therefore, I think it is really time to change the institutional and legal framework for evaluating mergers and anticompetitive conduct in agricultural markets. I think the Grassley-Kohl bill, the Agricultural Competition Enhancement Act, S. 1759 is a really necessary step in that direction. I congratulate you Senator Kohl for being a sponsor of that legislation. It's a great contribution.

Farmers need workably competitive markets. They need a kind of antitrust enforcement that will control both the structure of those markets and the conduct that is allowed to occur.

[SEN. KOHL](https://advance.lexis.com/document/?pdmfid=1519360&crid=b23b8151-6dd7-4bd9-a94e-c025c1c31293&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A4SGH-1HG0-TWK7-H0KX-00000-00&pdcontentcomponentid=8104&pdteaserkey=sr0&pditab=allpods&ecomp=wbxnk&earg=sr0&prid=b1a756dc-6c07-4f18-8e9b-67d2a8da90f0): Thank you, Professor [Carstensen](https://advance.lexis.com/document/?pdmfid=1519360&crid=b23b8151-6dd7-4bd9-a94e-c025c1c31293&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A4SGH-1HG0-TWK7-H0KX-00000-00&pdcontentcomponentid=8104&pdteaserkey=sr0&pditab=allpods&ecomp=wbxnk&earg=sr0&prid=b1a756dc-6c07-4f18-8e9b-67d2a8da90f0).

Mr. Ross, we often hear from farmers and ranchers that they have little bargaining power in comparison to the largest agribusiness conglomerates. Many of them claim that the Justice Department has not fulfilled its responsibility to prevent anticompetitive mergers and practices in the agriculture sector of the economy.

Do you believe that the farmers' concerns about increasing levels of consolidation among agribusiness firms are warranted, and if so why has the Justice Department permitted these consolidations to take place?

MR. ROSS: Senator, we hear the same concerns about market power and we take them very seriously. In fact, they have been important parts of each of the investigations that we have done. And I point, for example, to the Cargill-Continental matter in which the issue of market power was the key one.

We did an analysis and established that in nine regional markets, the buyer power of the merged firm would be anticompetitive. As a result, our relief required that 10 divestitures of port and grain elevators be done in order to preserve competitive alternatives for farmers to sell their grain and soybean.

[SEN. KOHL](https://advance.lexis.com/document/?pdmfid=1519360&crid=b23b8151-6dd7-4bd9-a94e-c025c1c31293&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A4SGH-1HG0-TWK7-H0KX-00000-00&pdcontentcomponentid=8104&pdteaserkey=sr0&pditab=allpods&ecomp=wbxnk&earg=sr0&prid=b1a756dc-6c07-4f18-8e9b-67d2a8da90f0): Well, Professor, what is your view of what you've just heard. Are the farmers and ranchers concerns warranted, and in your opinion has the Justice Department done enough to stop these consolidations especially among food processors?

MR. [CARSTENSEN](https://advance.lexis.com/document/?pdmfid=1519360&crid=b23b8151-6dd7-4bd9-a94e-c025c1c31293&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A4SGH-1HG0-TWK7-H0KX-00000-00&pdcontentcomponentid=8104&pdteaserkey=sr0&pditab=allpods&ecomp=wbxnk&earg=sr0&prid=b1a756dc-6c07-4f18-8e9b-67d2a8da90f0): I think the concerns are very much warranted, and as I referenced, that RTI study in the pork industry which is the most recent confirmation that we have very serious problems of buyer power that are being increased. And if you go back and look at the Justice Department's explanation for why they didn't object to the Smithfield Premium Standard Brand merger, they announced that finished hogs could be hauled 400 miles from North Carolina to Kentucky for processing, and that therefore the farmers of North Carolina were at no risk of being exploited. This is in the face of data that shows that they're at about a 10 percent discount in North Carolina whenever there is a full supply of hogs in the markets, because it's costly to haul your hogs anywhere.

So –- and I think the Continental-Cargill is another example of minimalist enforcement. It was a clearly bad merger. They did the least that they possibly could do. We've not seen a good follow-up on what the consequences of that merger are.

Anecdotally when I talked to grain farmers, what I hear is we went from having two or possibly three buyers to at most two buyers and in many more areas we're seeing only one buyer for our corn, for our soybeans et cetera. This is one of the things that's made ethanol really interesting because those plants do create a different kind of competition right now in corn markets. It doesn't do much for soybeans, doesn't do much for wheat. But it does change the dynamic because there are competitive buyers in the marketplace.

So we really need more focus on this. And again, something I said earlier, the analysis of buyer power is different. Buyers are different from sellers in terms of when they get leverage in the market, what kinds of market shares give you leverage. As a buyer, you are the decider. You're the decision maker with respect to whether or not you buy. That creates power at much lower levels of concentration. We simply have not seen from the Justice Department any recognition of that inherent economic fact.

[SEN. KOHL](https://advance.lexis.com/document/?pdmfid=1519360&crid=b23b8151-6dd7-4bd9-a94e-c025c1c31293&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A4SGH-1HG0-TWK7-H0KX-00000-00&pdcontentcomponentid=8104&pdteaserkey=sr0&pditab=allpods&ecomp=wbxnk&earg=sr0&prid=b1a756dc-6c07-4f18-8e9b-67d2a8da90f0): Professor Carstensen, at this time as you know, millions of consumers all across the United States are suffering from rising food prices in many basic commodities. Do you believe that increasing concentration that we are witnessing in agriculture is a big cause of the higher food prices paid by a consumer? And if that is true, do these higher prices find their way back into the farmers' and ranchers' hands?

MR. CARSTENSEN: The first part is, yes, the concentration has two levels. It has an effect downstream or I should say upstream on the farmers. And it has an effect down stream on the consumers. That is, both ends of this process are subject to exploitation by lower prices to farmers, higher prices to consumers. Best documentation of that comes from Professor Cotterel (ph) in a hearing, I think before this committee a few years involving New England dairy products.

And again, Mr. Bullard's written statement for the committee has a number of -- has a good deal of the documentation that shows that increasing spread between what's being paid at the farm-gate, which is constant or declining, and what's being charged to consumers. So what we are seeing is no, it's not coming back to the farm-gate, it's not coming back to the farmer, but the price to the consumer is going up, it's getting caught in those two levels of concentration.

One of the things I emphasize in my written statement is concentration of retail grocery markets, which is really where you get the leverage over the consumer, and then concentration at the production level.

[SEN. KOHL](https://advance.lexis.com/document/?pdmfid=1519360&crid=b23b8151-6dd7-4bd9-a94e-c025c1c31293&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A4SGH-1HG0-TWK7-H0KX-00000-00&pdcontentcomponentid=8104&pdteaserkey=sr0&pditab=allpods&ecomp=wbxnk&earg=sr0&prid=b1a756dc-6c07-4f18-8e9b-67d2a8da90f0): Thank you.

Mr. Ross, what is your view? Does reduced competition among agribusiness companies inevitably will lead to higher prices and isn't strong antitrust enforcement very important to prevent such loss of competition?

MR. ROSS: Senator, the antitrust laws couldn't be more important to protecting consumer prices and effective competition leads to all kinds of benefits like better quality of products, greater innovation, and the ability of farmers as consumers as well as producers to benefit from a competitive economy.

[SEN. KOHL](https://advance.lexis.com/document/?pdmfid=1519360&crid=b23b8151-6dd7-4bd9-a94e-c025c1c31293&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A4SGH-1HG0-TWK7-H0KX-00000-00&pdcontentcomponentid=8104&pdteaserkey=sr0&pditab=allpods&ecomp=wbxnk&earg=sr0&prid=b1a756dc-6c07-4f18-8e9b-67d2a8da90f0): Thank you.

Senator Hatch.

SEN. HATCH: Well, thank you, Mr. Chairman. And Professor Carstensen, you have written, quote "Strategic behavior by market dominating firms as weakened or eliminated the open market process that in turn give agricultural producers the freedom of flexibility to be the genuinely independent entrepreneurs," Unquote.

Now some think that may be nostalgia for a bygone era. Has not the Department of Justice merely been fulfilling its mandate by only taking actions when it believes that a competitive market happens to be in jeopardy? Or put another way, are you not advocating the department become a regulator ensuring survival of small producers when the department's responsibilities under the law will be to ensure competitive markets, not the competitors themselves.

MR. CARSTENSEN: My father was a historian of agriculture so I -- maybe I've got some residual nostalgic genes.

No, I -- let's be clear about this. Markets are going to change, what's an efficient level of production is going to change. But the benefit of workably competitive markets is those changes are driven by economic fundamentals not by strategic behavior. What I was concerned with in the passage you quoted was the kinds of strategic behavior that adversely affects the functioning of the market and favor some players in the market not based on their inherent efficiencies.

The most recent USDA studies, for example, in pork, show that small pork producers relatively –- hog producers, I guess I should say –- have the same level of efficiency that very large ones do. The problem is going to be market access, finding fair rules. And if we're going to go to a contract world, and I'm not opposed to that necessarily, if contracts are what we do then we need proper rules for the contract market so that again it's fair, open, and efficient. And "efficient" is key here because we do want to have those markets be dynamic to change with the changing technology.

SEN. HATCH: Now, on a related point, you wrote a law review article entitled "Concentration and the Destruction of Competition in Agricultural markets: The Case for Change in Public Policy." And this article was described by the National Agricultural Law Center. It's arguing in favor of using antitrust law to protect independent farmers.

Now, there has been a tremendous amount of consolidation in the livestock markets. However, according to the Congressional Research Service, ranchers and farmers still hold fewer than the 100 cows still -- the ranchers and farmers that hold fewer than 100 cows still control half of the market.

Now, the top 30 feedlots only control 40 percent of the cattle on feed. In fact the USDA believes that there are more than 88,000 lower-capacity feedlots in operation today. Now, my question would be, why should the government interfere in a marketplace where half of the cow-calf businesses appear to be held by smaller farms, and there is more than an ample number of smaller feedlots?

MR. CARSTENSEN: Well, if we were talking about a merger among feedlots, I'd agree with you. I don't see an antitrust issue there. But we're talking about mergers among the buyers from those feedlots that are going to reduce the numbers from five to three and are going to create, I think, and certainly this is consistent with all the other data that we have, going to create substantially more buyer power.

As the next panel is going to focus I think much more on the specifics of the beef industry, the problem is access to the fodder facility. The problem is the terms and conditions under which those feedlots get to sell. We've seen a cyclical long-term decline in the number of feedlots that exist and in the number of cattle that are being put on feed, and what that tells us generally is that we're looking at the kind of situation that looks a lot like there's exploitation of monopsony power or oligopsony power, that is buyer power, on these downstream --I'm sorry -- upstream suppliers.

One of the important points that your data makes fundamentally is that if you're going to be a 100-head feeder or a 10,000-head feeder, looks like you can compete in the market as long as you have access to the meat processors, to the cattle slaughter facilities. What we're focused on here today is a merger at that buying level. That's the place where the problem will exist for all of the different feeders that you're identifying.

SEN. HATCH: Okay. And Mr. Ross, just have some questions to you. During the previous administration Cargill acquired Continental in the already concentrated grain trader market. Specifically, the number of grain traders was reduced from four to three. However, the Department of Justice insisted that the combined Cargill-Continental sell 10 percent of its operations to a competitor. Why then in 2003 did the Department of Justice decline to take action on the Smithfield-purchased Farmland Food's pork processing plants? Was this also not a highly concentrated market? And why the difference in enforcement action, just so we understand better?

MR. CARSTENSEN: Thank you, Senator. We welcome opportunities to be more transparent about the bases on which we decide to enforce or not, where appropriate.

In the Cargill matter, we did extensive analysis of the market including talking to many experts in the area including farmers, and our analysis showed that there would be the kind of any competitive consequences, that is a substantial lessening of competition in a market in nine regional markets and therefore we required relief of the sort that we have described.

By contrast, in the pork matter involving Smithfield farmland, we did a similar kind of analysis and the fact showed a different result. We looked at the procurement areas for each of Farmland's plants and how many packers would buy hogs in the same procurement areas and the slaughter capacity of each of the competing packers.

Our conclusion was that neither Smithfield nor Cargill, which you will recall was one of the potential buyers there, would make as much as 30 percent of the live hog purchases if it had acquired Farmland's assets. And our conclusion was that there would still be at least six competing packers where the acquirer had competing plants. So we thought that was a basis on which not to take action because there was no anticompetitive result.

SEN. HATCH: Thank you, Mr. Chairman. My time is up.

[SEN. KOHL](https://advance.lexis.com/document/?pdmfid=1519360&crid=b23b8151-6dd7-4bd9-a94e-c025c1c31293&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A4SGH-1HG0-TWK7-H0KX-00000-00&pdcontentcomponentid=8104&pdteaserkey=sr0&pditab=allpods&ecomp=wbxnk&earg=sr0&prid=b1a756dc-6c07-4f18-8e9b-67d2a8da90f0): Thank you, Senator Hatch.

I'd like to say that we are going to –- as a result of our concern about these mergers and their impact on higher food prices, we are asking the GAO to make a study to look at whether or not there really is a correlation between these two critical factors.

Professor Carstensen, Senator Grassley, and I have written a bill that would shift the burden of proof so that merging parties and agricultural mergers have to justify that their mergers do not harm competition rather than the other way round which is as it is now. Do you support this idea, and if you do tell us why?

MR. CARSTENSEN: I think it's a very good idea because it really requires not just the vague waving of hands in the Justice Department office saying that there are going to be no harms, but actual proof in a court of law where the defendant merging parties have to come in and genuinely justify the non-anticompetitive implication of the merger.

And especially as the court decisions have accumulated of late, courts have really been putting an extraordinary burden on the Justice Department, the Federal Trade Commission, to establish that any particular merger will tomorrow result in serious harm. The statute actually only calls for evidence that the merger may substantially lessen competition or tend to create a monopoly, so that this restores in many respects the classic statement of what the standard should be, and I think it's a wonderful idea.

[SEN. KOHL](https://advance.lexis.com/document/?pdmfid=1519360&crid=b23b8151-6dd7-4bd9-a94e-c025c1c31293&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A4SGH-1HG0-TWK7-H0KX-00000-00&pdcontentcomponentid=8104&pdteaserkey=sr0&pditab=allpods&ecomp=wbxnk&earg=sr0&prid=b1a756dc-6c07-4f18-8e9b-67d2a8da90f0): Mr. Ross, I assume you agree. (Laughs.)

MR. ROSS: Senator, surprisingly enough, Professor Carstensen has also referred to me as his punching bag and here again we will disagree. (Laughs.) The Antitrust Division is satisfied that the burden of proof in all merger enforcement actions should be the same, whether for agriculture or any other part of the economy that it works effectively and I'm aware of no case in which we wouldn't decline to take a case to court because of the burden of proof.

[SEN. KOHL](https://advance.lexis.com/document/?pdmfid=1519360&crid=b23b8151-6dd7-4bd9-a94e-c025c1c31293&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A4SGH-1HG0-TWK7-H0KX-00000-00&pdcontentcomponentid=8104&pdteaserkey=sr0&pditab=allpods&ecomp=wbxnk&earg=sr0&prid=b1a756dc-6c07-4f18-8e9b-67d2a8da90f0): Thank you.

Senator Feingold?

SEN. RUSSELL D. FEINGOLD (D-WI): Thank you, Mr. Chairman. Before I get to my statement and questions let me specifically welcome Professor Carstensen. I've known him and been friends for many years with him and his wife Carol (ph) who was a distinguished and long- serving school board member in Madison.

MR. CARSTENSEN: Just finished.

SEN. FEINGOLD: I'm aware of that.

MR. CARSTENSEN: After 18 years.

SEN. FEINGOLD: I read the paper that comes to my door there -- (laughs) -- and she did a wonderful job. It's good to see you and I thank you for all -- you and all the other witnesses –- for appearing this afternoon.

Mr. Chairman, thank you for holding the hearing to shed light on an important issue for farmers and consumers.

Before I talk about agriculture specifically, I want to note the overall troubling state of concentration across multiple sectors of the economy.

Over the past few years consolidation and related competition concerns have increased a variety -- in a variety of areas including freight, railroads, food retailers, and radio stations, just to mention a few. Just two weeks ago the same subcommittee chaired by my distinguished colleague from Wisconsin considered proposed mega- mergers among airlines and now we are turning to a merger that would reduce the number of major beef meat packers from five to three. This growing concentration rates is today's question about the Department of Justice's enforcement of existing laws as well as the adequacy of those laws to ensure fair, open, and equitable markets.

Increased consolidation and market concentration are serious problems for agricultural producers throughout the nation. As I travel around our state of Wisconsin, as the chairman knows, these issues are consistently raised by farmers and growers with respect to the proposed [JBS Swift](https://advance.lexis.com/document/?pdmfid=1519360&crid=b23b8151-6dd7-4bd9-a94e-c025c1c31293&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A4SGH-1HG0-TWK7-H0KX-00000-00&pdcontentcomponentid=8104&pdteaserkey=sr0&pditab=allpods&ecomp=wbxnk&earg=sr0&prid=b1a756dc-6c07-4f18-8e9b-67d2a8da90f0)acquisition that is important to my constituents that the facilities in Wisconsin remain operational and there's no loss of jobs. I also have various concerns, serious concerns, that the combination of the third, fourth and fifth largest beef meat packers will significantly reduce the number of potential cattle buyers, and as a result depress prices.

Wisconsin is not the leader in beef cattle production. The prices for these animals form the basis for the prices paid for cull dairy cows, and could therefore have a significant impact on the bottom line of thousands of Wisconsin's family dairy farmers.

Exacerbating this horizontal concern is the significant vertical integration that the post-merger company would enjoy from the major cattle feeding operation of Five Rivers Ranch Cattle Feeding. Both the prepared testimony of Mr. Stumo and Mr. Bullard highlight how this captive supply will negatively impact competition prices paid to farmers and ranchers.

Earlier this year, I signed a letter with several of my colleagues expressing some of these concerns to the attorney general. Mr. Chairman, I would ask unanimous consent that that be included in the record.

[SEN. KOHL](https://advance.lexis.com/document/?pdmfid=1519360&crid=b23b8151-6dd7-4bd9-a94e-c025c1c31293&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A4SGH-1HG0-TWK7-H0KX-00000-00&pdcontentcomponentid=8104&pdteaserkey=sr0&pditab=allpods&ecomp=wbxnk&earg=sr0&prid=b1a756dc-6c07-4f18-8e9b-67d2a8da90f0): It will be done.

SEN. FEINGOLD: Mr. Chairman, I hope that the Justice Department will get serious of our protecting consumers and agricultural producers from increased consolidation and market concentration.

Mr. Ross, in Professor Carstensen's written testimony he says, quote, "The Antitrust Division has an open investigation of the conduct of the milk industry. But the matter has been pending for years without any action." Unquote. The statement goes on to describe the industry as rife with a panoply of anticompetitive practices that have resulted in serious losses of income and coercion of farmers.

And I have heard similar frustration directly from dairy farmers and others in the dairy industry in Wisconsin. What do you have to say with regard to the status of the investigation, and Professor Carstensen's observation?

MR. ROSS: Senator, we take concerns about the dairy industry as well as any other part of the important agriculture economy very seriously. Without confirming or denying a particular investigation which should be inappropriate, we continue to monitor any anticompetitive practices that are brought to our attention and we do an extensive analysis to determine whether an antitrust enforcement action is appropriate.

As my statement indicates, we have been active in the dairy industry involving the Suiza-Dean merger and other dairy areas. So we continue to have active knowledge and monitoring of the important sector in agriculture that involves a key industry in your state.

SEN. FEINGOLD: I look forward to following on that, Mr. Ross. Also, Professor Carstensen described the controls that DOJ placed on the Dean-Suiza merger as ineffective, specifically as written testimony says -- quote -- "In addition, the press release announcing approval implied that the new firm would not enter into a long-term exclusive dealing contract with dairy farmers of America, the largest cooperative. However, Dean and DFA quickly found a way around that commitment." Unquote. Could you shed some light on that, on the merger commitment? Did the Antitrust Division err in not making the provision broader to include partnerships and joint ventures in that prohibition?

MR. ROSS: Senator, our analysis was a careful and thorough one, and the remedy we devised before allowing that merger to go forward was one that was based on extensive analysis of the market conditions on the ground. If there are concerns about what has happened subsequently, we welcome anybody bringing that to our attention and we will examine it very seriously.

SEN. FEINGOLD: Well, it does sound like a potentially troubling oversight to me.

Professor, do you have anything to add on that?

MR. CARSTENSEN: (Laughs.) The investigation was completed. The staff recommended that there be litigation. It has been sitting, at least according to the information I have, in the assistant attorney general's office for more than a year.

The key regional attorney, I believe, has now reached retirement and retired. And the government -- this alleged complaint –- that was never a complaint in Dean-Suiza; it was what's called a "fix-it- first." They bargained for about nine months about the divestiture. More divestiture was made than originally proposed. It was settled with whatever confidential documents were exchanged between the parties.

Since there was no consent decree, there was no Tunney Act disclosure requirement, no opportunity for anybody to comment on this. And then all kinds of problems began to emerge for the dairy world because the -- of this relationship not only with Dean, new Dean, but also NDH, National Dairy Holdings that was owned in substantial part by DFA and then it gets linked to Hood. So you've got one, two, and three all tied together.

One credit to the Justice Department. They did go after a small dairy acquisition –- and it's in Mr. Ross' statement –- in Kentucky, that DFA attempted to pull off and one of the good things about that particular piece of litigation, because they actually went to trial on that, was that it did bring to light a good deal of the dubious transactions, the discriminatory transactions within the DFA empire. But for the Justice Department to claim that they're monitoring the situation is to say that they're doing nothing.

SEN. FEINGOLD: And in it -- although Mr. Ross indicated willingness to be open to any sort of things that have happened since, it sounds to me like this could have been prevented in the first place by proper drafting. Is that a correct statement?

MR. CARSTENSEN: If they had gone the consent decree route, yes, they could have drafted that. The state attorneys general are involved in these investigations. The Justice Department is the party that hasn't been heard from.

SEN. FEINGOLD: Chairman, may I ask one more question?

[SEN. KOHL](https://advance.lexis.com/document/?pdmfid=1519360&crid=b23b8151-6dd7-4bd9-a94e-c025c1c31293&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A4SGH-1HG0-TWK7-H0KX-00000-00&pdcontentcomponentid=8104&pdteaserkey=sr0&pditab=allpods&ecomp=wbxnk&earg=sr0&prid=b1a756dc-6c07-4f18-8e9b-67d2a8da90f0): Go ahead.

SEN. FEINGOLD: Thank you very much for the additional time. As the Chairman knows and I am grateful for his support, I have worked with Senator Grassley for a number of years on legislation called the Fair Contracts for Growers Act that would make mandatory arbitration clauses and agricultural contracts unenforceable.

Now, the Judiciary Committee passed this bipartisan bill early in this Congress by a wide margin and the farm bill seems poised to at least take a step in the right direction by requiring that growers be given a specific option to opt in or out of any mandatory arbitration clause.

But the government needs to make sure that this provision has some teeth and I'll explain why by asking our witnesses to put themselves in the work boots of a poultry grower.

So first off you've taken out a loan for several hundred thousand dollars to build poultry houses.

There's only one poultry company contracting with growers in your region and they supply you with chicks and feed and determine your payment based on the weight gain and condition of the animals at the end of each approximately seven-week flock-to-flock contract.

Your most recent contract has a new clause that commits you to mandatory binding arbitration, with arbitration of procedures dictated by the company. As required by the new farm bill language you were told you have a choice whether to opt in or opt out of this provision. You've seen some information about large upfront fees required for arbitration and don't think you have enough cash to cover them if a dispute arises. So you want to decline the arbitration clause knowing that you may have a chance to go to the arbitration if a dispute arises and the company still wants to arbitrate after the fact.

Well, what if one of your neighbors opted out earlier in the year and he has since been plummeting down the grower ranking for weight gain or is being threatened with termination as a bad, quote, "bad producer" unquote. Does that make you think twice before opting out?

Seem like law school here?

MR. CARSTENSEN: (Laughs.) Yes, yes and I'm on the wrong side of the table, suddenly.

SEN. FEINGOLD: For once -- (laughs.)

MR. CARSTENSEN: Yeah, yeah. That's -- I mean that must be the –- an enormous problem with an opt-in/opt-out legislation of this sort. It - you know I am -- arbitration, when agreed to by the parties at the time of dispute is fine. It can be actually a very efficient dispute resolution mechanism when it is imposed on parties, and especially when there is unequal bargaining power as in the poultry example that you have and that's a very real world example. Opt in, opt out, do you want to continue to be my poultry raiser, you know, in which case you're going to opt for whatever I want you to opt for, because I'm -- I as the contractor, I'm going to have the power.

So it's such a theoretically interesting step if you imagined equal bargaining power, but in the real-world terms it really doesn't solve the problem.

SEN. FEINGOLD: Mr. Ross, do you want to comment on that?

MR. ROSS: Certainly, Senator, this sounds like a provision in which there may be disagreement among farmers over whether they like it or they don't like it. Some may and some may not. In any event contract provisions really fall outside the purview of antitrust enforcement action except when they are a part of a larger analysis in a merger context.

SEN. FEINGOLD: All right. And thank you for the additional time, Mr. Chairman.

[SEN. KOHL](https://advance.lexis.com/document/?pdmfid=1519360&crid=b23b8151-6dd7-4bd9-a94e-c025c1c31293&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A4SGH-1HG0-TWK7-H0KX-00000-00&pdcontentcomponentid=8104&pdteaserkey=sr0&pditab=allpods&ecomp=wbxnk&earg=sr0&prid=b1a756dc-6c07-4f18-8e9b-67d2a8da90f0): Thank you very much, Senator Feingold. And gentlemen, we appreciate you being here today. You have brought to light many of the important issues that we're discussing and studying and thanks for coming.

(New panel introduced.)

[SEN. KOHL](https://advance.lexis.com/document/?pdmfid=1519360&crid=b23b8151-6dd7-4bd9-a94e-c025c1c31293&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A4SGH-1HG0-TWK7-H0KX-00000-00&pdcontentcomponentid=8104&pdteaserkey=sr0&pditab=allpods&ecomp=wbxnk&earg=sr0&prid=b1a756dc-6c07-4f18-8e9b-67d2a8da90f0): We'll turn now to the second panel.

Our first witness on the second panel will be Wesley Batista. Mr. Batista is the president and the CEO of [JBS Swift](https://advance.lexis.com/document/?pdmfid=1519360&crid=b23b8151-6dd7-4bd9-a94e-c025c1c31293&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A4SGH-1HG0-TWK7-H0KX-00000-00&pdcontentcomponentid=8104&pdteaserkey=sr0&pditab=allpods&ecomp=wbxnk&earg=sr0&prid=b1a756dc-6c07-4f18-8e9b-67d2a8da90f0)and Company. Prior to becoming CEO of [JBS Swift,](https://advance.lexis.com/document/?pdmfid=1519360&crid=b23b8151-6dd7-4bd9-a94e-c025c1c31293&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A4SGH-1HG0-TWK7-H0KX-00000-00&pdcontentcomponentid=8104&pdteaserkey=sr0&pditab=allpods&ecomp=wbxnk&earg=sr0&prid=b1a756dc-6c07-4f18-8e9b-67d2a8da90f0)Mr. Batista was the chief operating officer of JBS' beef operations in Brazil and in Argentina.

Our next witness will be Steve Hunt. Mr. Hunt is the CEO and cofounder of U.S. Premium Beef and chairman of the board of National Beef Packing Company. Prior to his involvement with the U.S. Premium Beef, Mr. Hunt worked in various areas of commercial banking including direct agricultural lending and credit training.

Our next witness will be Bill Bullard. Mr. Bullard is the CEO of the Ranchers-Cattlemen Action Legal Fund, United Stockgrowers of America or R-CALF USA. Prior to joining R-CALF USA, Mr. Bullard served as the executive director of the South Dakota Public Utilities Commission. He's also a former cow and a calf rancher.

Our next witness will be Dillon Feuz. Professor Feuz teaches agricultural economics at Utah State University. His primary research interests are livestock marketing as well as farm and ranch marketing -- management.

Next, we'll have Michael Stumo. Mr. Stumo serves as the general counsel for the Organization of Competitive Markets which is a nonprofit research and advocacy organization with a focus on competition issues in agriculture.

And finally, we'll have David Balto. Mr. Balto's a senior fellow at the Center for American Progress where he focuses on competition policy, intellectual property laws as well as health care. He has also worked as an antitrust attorney at the Antitrust Division of the Department of Justice, Federal Trade Commission, as well as in the private sector. We appreciate all of you being here today.

If you will rise and raise your right hand?

(Witnesses sworn in.)

[SEN. KOHL](https://advance.lexis.com/document/?pdmfid=1519360&crid=b23b8151-6dd7-4bd9-a94e-c025c1c31293&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A4SGH-1HG0-TWK7-H0KX-00000-00&pdcontentcomponentid=8104&pdteaserkey=sr0&pditab=allpods&ecomp=wbxnk&earg=sr0&prid=b1a756dc-6c07-4f18-8e9b-67d2a8da90f0): Mr. Batista, we will start with you.

MR. BATISTA: Mr. Chairman and other members of the committee, thank you for the opportunity to introduce [JBS Swift](https://advance.lexis.com/document/?pdmfid=1519360&crid=b23b8151-6dd7-4bd9-a94e-c025c1c31293&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A4SGH-1HG0-TWK7-H0KX-00000-00&pdcontentcomponentid=8104&pdteaserkey=sr0&pditab=allpods&ecomp=wbxnk&earg=sr0&prid=b1a756dc-6c07-4f18-8e9b-67d2a8da90f0)to the Committee and to discuss our commitment to invest in America's meatpacking industry.

I am the CEO of [JBS Swift](https://advance.lexis.com/document/?pdmfid=1519360&crid=b23b8151-6dd7-4bd9-a94e-c025c1c31293&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A4SGH-1HG0-TWK7-H0KX-00000-00&pdcontentcomponentid=8104&pdteaserkey=sr0&pditab=allpods&ecomp=wbxnk&earg=sr0&prid=b1a756dc-6c07-4f18-8e9b-67d2a8da90f0)and want to share with you today, JBS' vision. Our goal through this transaction is to invest our skills, energy and expertise and money to grow the U.S. (meat pack?) industry. We want to expand U.S. sales of beef and pork domestically and around the world. In the process, we will keep and create U.S. jobs.

We are operators of beef, pork, and lamb processing plants, not financial investors. My father started our business in 1955 when he slaughtered just one or two animals per day to supply restaurants in the new capital city of Brasilia. We are still a family business. JBS now has global operation that we plan to use as a platform to expand the sales of U.S. beef and pork around the world.

Our history is clear. When we acquired Swift last year, we expanded operations, we added shifts -- additional shifts, we hired more employees, we improved operation, and we bought more cattle. With respect to the Smithfield and National facilities, we will do the same – buy more animals, expand operation, and hire more workers.

That's what we are doing right now. We will continue to compete aggressively for the purchase of cattle and the sales of beef by all available commercial means, and we will increase our demands and sales over time. This will benefit ranchers and feedlots.

We will keep plants open, make them more efficient, and expand sales of U.S. beef. We also look forward to hiring more workers consistent with changes in U.S. immigration law. We view the U.S. labor force as a great resource.

A couple of questions have been raised that we would like to address. The first is our relationship with producers. We will continue to work with producers as we always have. I have had meetings with employees, cattle producers, and community leaders in Kansas, Colorado, Texas, and we feel -- and feel we are being embraced. I will continue to do this.

There is one major region in the nation which contains the vast majority of all the major slaughtering plants for steers and heifers. That region is the beef belt. It includes North Texas, Colorado -- not North Texas I'm sorry, Oklahoma, Iowa, Kansas, Nebraska, and Eastern Colorado. None of the Smithfield plants are in the beef belt. Most of the Smithfield plants handle primarily Holstein steers and cows.

Regarding the crucial beef belt, after this merger, JBS, Cargill, Tyson, and the regional and local plants will continue to compete intensively for the purchase of cattle.

With cattle moving on trucks, there will be many competing plants wanting to buy animals in the beef belt.

In terms of consumer price, beef products are sold throughout the nation by numerous competitors of all size. [JBS Swift](https://advance.lexis.com/document/?pdmfid=1519360&crid=b23b8151-6dd7-4bd9-a94e-c025c1c31293&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A4SGH-1HG0-TWK7-H0KX-00000-00&pdcontentcomponentid=8104&pdteaserkey=sr0&pditab=allpods&ecomp=wbxnk&earg=sr0&prid=b1a756dc-6c07-4f18-8e9b-67d2a8da90f0)sells primarily, commodity beef and some case-ready beef and pork. In contrast, National Beef sells very successful branded beef products, and we plan to expand those operations. Swift and National will continue to sell into different and competitive national markets. In fact, when selling to large national retailers, there will be intensive competition among national, regional and local players.

I want to end with one final point. The JBS history in the U.S. is before you. Swift was floundering, had reduced its work force shutting down shifts, and sold plants before JBS purchased Swift. Then, after we bought Swift, we expanded operation, added additional shifts and hired more workers. We kept local managers.

We are investing billions of our company's money in the United States with a goal to grow the industry, to hire more U.S. workers, and increase demand for U.S. beef and pork around the world. We are fully cooperating with the Department of Justice review and hope that the review can conclude as swiftly as possible so that we can implement our growth strategy on beef and pork.

We appreciate this opportunity to tell our story before this committee and looking forward to answering your questions.

On a personal note, my family and I greatly enjoy living in America, in our home in Fort Collins. This is a great country.

Mr. Chairman, thank you very much.

[SEN. KOHL](https://advance.lexis.com/document/?pdmfid=1519360&crid=b23b8151-6dd7-4bd9-a94e-c025c1c31293&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A4SGH-1HG0-TWK7-H0KX-00000-00&pdcontentcomponentid=8104&pdteaserkey=sr0&pditab=allpods&ecomp=wbxnk&earg=sr0&prid=b1a756dc-6c07-4f18-8e9b-67d2a8da90f0): Thank you Mr. Batista.

Mr. Hunt.

MR. HUNT: Chairman Kohl, I appreciate this opportunity to come before you today to talk about JBS' proposed transaction to carve National Beef from U.S. Premium Beef.

I'm the CEO of U.S. Premium Beef and the chairman of National Beef, but most importantly, I'm a fifth generation cattle producer. I speak to you today on behalf of U.S. Premium Beef owners and independent producers, which on March 14th overwhelmingly voted to favor proceeding with this transaction. They believe the livelihood of all cattle producers is dependant upon health and growth of the beef industry and that's why we agree with JBS' vision.

U.S. Premium Beef is a one-of-kind producer-owned beef processing company, formed to link producers with consumers through ownership of processing. As a result, we've been able to design a supply of cattle specifically bred and managed to meet consumer preferences, which results in premiums back to the producers and the processing company.

U.S. Premium Beef was formed in 1997. In addition to processing customer cattle throughout the United States, we have processed over six million cattle of U.S. Premium Beef members. In addition to that we have paid out over $117 million in cash premiums to our members since we began. We've also paid an additional $87 million in cash dividends. That was the result of our ownership in processing.

In other words, our producer owners have become beef processors through U.S. Premium Beef. We have been able to realize the financial rewards from the ranch to the consumer's plate. Simply put, through value-based pricing our company gives producers economic incentive to deliver more valuable consumer-preferred beef.

Since our formation, we have been working to diversify our business geographically through expansion, acquisition of other protein businesses, and pursuit of businesses in markets outside the United States. This has been essential in managing risks our owners take in ownership of processing. This is a strategy that our producers pursue on the ranch and other producers and other businesses pursue as well.

Since the discovery of BSE in the United States in 2003 and a subsequent loss of the export market, losses and prospects of the declining herd have left the beef industry in a position where few want to invest. In 2006, Hicks Muse announced that they were selling Swift. Smithfield Foods has also made the decision to exit the beef processing industry.

Whereas prior to 2003, our company was routinely approached by willing investors and partners, today we witness very few, if any, parties willing to invest in the U.S. beef processing industry, except one.

JBS, a family owned business based in Sao Paolo, Brazil –- you've just heard from Wesley Batista –- with U.S. headquarters in Greeley, Colorado, is willing to invest over $3 billion dollars in our U.S. meat processing industry. They believe that by putting our companies together, we can create more value and increase efficiencies not only necessary to sustain our industry, but to begin growing it again.

More importantly, JBS has the same vision for industry growth and success as we do. Since acquiring Swift last year, JBS has expanded production and purchased more cattle. They also have looked for ways to expand demand for U.S. beef by pushing into new international markets. They're able to use their unique perspective to introduce U.S. beef to foreign companies and new customers.

For U.S. Premium Beef, this partnership with JBS is a natural decision that enables our producer owners to broaden our investment into a well-diversified, multi-protein world leader in value-added products while at the same time we're able to maintain our founding principles of value-based pricing and dissemination of valuable carcass data to every single producer on every single animal.

JBS respects what we have accomplished at U.S. Premium Beef/National Beef, and wants to build upon value-added strategy to help bring more value to producers so we can begin expanding production once again. After completion of our proposed transaction with JBS, more producers will have the ability to market through our unique producer-owned company by delivering cattle to more plants, thus reducing freight costs and improving efficiencies for producers and the processing company. Our confidence in JBS' dedication to expanding demand for U.S. beef through this strategy is exemplified -- is a strategy that is exemplified by U.S. Premium Beef's agreement to become a substantial investor in JBS.

The farmer and rancher owners of U.S. Premium Beef have a right and an obligation to pursue sound business strategies employed by our competitors, recommended by universities and applauded by Congress. These include value-added strategies through vertical integration from the bottom up, product diversification to lay off risk and foreign investment to participate in a growing consumer global market.

As you know, the Department of Justice is reviewing the proposed transaction. I am confident its review will be thorough and when complete will lead to and will recognize the benefits of this transaction.

The beef processing industry is highly competitive, with Cargill, Tyson, JBS and a number of other processors remaining to compete fiercely for cattle and to sell beef to our sophisticated customer base. This transaction will enhance this competition by allowing the combined company to perform more efficiently and provide a platform for growth in the future.

Mr. Chairman, thank you for this opportunity, and I look forward to answering questions later.

[SEN. KOHL](https://advance.lexis.com/document/?pdmfid=1519360&crid=b23b8151-6dd7-4bd9-a94e-c025c1c31293&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A4SGH-1HG0-TWK7-H0KX-00000-00&pdcontentcomponentid=8104&pdteaserkey=sr0&pditab=allpods&ecomp=wbxnk&earg=sr0&prid=b1a756dc-6c07-4f18-8e9b-67d2a8da90f0): Thank you Mr. Hunt.

Mr. Bullard.

MR. BULLARD: Mr. Chairman, thank you for this opportunity.

I represent the thousands of men and women who own and operate cattle operations all across this country. As the CEO of R-CALF USA our organization endeavors to ensure that our independent cattle producers can remain profitable long into the future.

I want to describe our industry to you. United States cattle industry is the single largest segment of American agriculture.

It produces $50 billion annually, 11 states produce over a $1 billion a year. This industry is intrinsically important to the overall prosperity of rural America. It's important that the subcommittee realize that while the four major packers do control the steer and heifer market, that steer and heifer market represents only 27 million of the 45 million cattle that are sold every year.

Our U.S. cattle industry is a dynamic industry and in that industry we have various value-added segments. So while we have 45 million cattle sold every year, 27 million are sold into this highly concentrated marketing structure consisting of just four firms. And it is at this segment of the industry that –- which serves as the portal to actually cause harm throughout the industry if there's any price distortion that occurs within that segment.

Our industry can be viewed as a pyramid. At the base of the pyramid you have the seed stock producers, the breeders. The breeders sell breeding animals to the cow-calf producers. The cow-calf producers produce a new calf every year. They'll keep that calf for four to six months. That calf is then sold to a backgrounder. A backgrounder will grow that animal to what might be called its adolescent years. The backgrounder could then sell that animal to a stocker. The stocker would run that animal for about four months. So it takes about 18 months from the time that an animal is birthed until it's actually sold in the steer and heifer market to one of these four (animals?).

Our industry in this pyramid, those segments that I described, the breeder, the cow-calf producer, the stocker, the feeder, we have about 970,000 of them left in the United States. And as you move up this pyramid you get closer to the feeding sector, there's about 93,000 feeders left in the United States. But that industry is becoming increasingly consolidated as well, because there's now fewer than 2,500 feeders that actually sell approximately 23 million cattle to these four meat packers.

So what I've described is an industry, a dynamic industry that is intrinsically important to the prosperity of rural America, that's valuable in every state of the union. But this industry has the price-making segment at the top of the pyramid, and any distortion in that price will reverberate all the way down through the industry.

A 3 percent reduction in price, for example, which is about what they found in terms of detrimental impacts of further concentrations in this industry, a 3 percent impact would reduce that $50 billion annual revenue generations down to $1.5 billion, a loss of $1.5 billion. This would be damaging to the 970,000 independent producers as well as damaging to the rural communities that they support.

This industry has been besieged by market power for quite some time. And we have ample evidence to demonstrate this and I've provided that in my written testimony. For example we've lost 40 percent of our producers just since 1980. We had 1.6 million cattle producers in 1980; we're down to about 975,000 today.

Our size of the U.S. cattle herd has been reducing for many, many, years. We have decreased the size of the herd today to where it was about back in 1950s. And while we have reduced the size of our production capacity by reducing our herd size, we have also been experiencing a disruption of the historical cattle cycle. That cattle cycle has provided a bellweather indicator of the competitiveness of this industry. And recently, USDA acknowledged that the analogous hog industry that is also experiencing a loss in its hog cycle, that loss is attributed to a changing market structure, a market structure that is evident by further consolidation in concentration.

I want to leave you with this: Our industry is in a state of emergency right now. We continue to experience contraction. This merger is going to exacerbate the current contraction of this industry, and like the hog industry as already described –- we had 667,000 producers in the '80s down to 67,000 today; you lost 90 percent of all the producers in that industry –- we're going to see the same thing in the cattle industry unless the Department of Justice and unless the U.S. Senate and the U.S. House take specific action to reverse the pressing course. Because like Congress was unaware of the tremendous exodus of hog producers, we will -- you will be unaware of the exodus of cattle producers, because it will happen one cattle operation at a time, in one rural community at a time until we wake up one morning and see we've lost the critical mass within this industry to maintain a viable market.

Thank you.

[SEN. KOHL](https://advance.lexis.com/document/?pdmfid=1519360&crid=b23b8151-6dd7-4bd9-a94e-c025c1c31293&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A4SGH-1HG0-TWK7-H0KX-00000-00&pdcontentcomponentid=8104&pdteaserkey=sr0&pditab=allpods&ecomp=wbxnk&earg=sr0&prid=b1a756dc-6c07-4f18-8e9b-67d2a8da90f0): Thank you, Mr. Bullard.

Mr. Feuz -- Dr. Feuz.

MR. FEUZ: Thank you Senator Kohl for the opportunity to speak to the committee --

[SEN. KOHL](https://advance.lexis.com/document/?pdmfid=1519360&crid=b23b8151-6dd7-4bd9-a94e-c025c1c31293&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A4SGH-1HG0-TWK7-H0KX-00000-00&pdcontentcomponentid=8104&pdteaserkey=sr0&pditab=allpods&ecomp=wbxnk&earg=sr0&prid=b1a756dc-6c07-4f18-8e9b-67d2a8da90f0): I don't think your mike is on.

MR. FEUZ: Thank you Senator Kohl.

I want to begin my comments by just reiterating the change that has taken place in the packing industry over the last 20 years, when you look at the major players, Tyson who acquired IBP, Smithfield who acquired Moyer Packing, and Packerland; ConAgra who was a major player in 1987, exited the industry in 2002, and most recently Swift who went out with the JBS acquisition of those.

I point that out to -- as a fact that this is not a static industry but one where firms continue to enter and exit the industry. From a pure economic point of view I would have much greater concern about the level of concentration in market power if I did not see firms entering and exiting the industry.

Secondly, I point out that there are likely as not excessive profits being generated in this industry due to the level of concentration, or you would likely see the players that are there remaining in that industry to capture those excessive profits. Certainly, I don't think if IBP were strong enough, they would have allowed Tyson to acquire them. Nor would have ConAgra, a major agribusiness firm that continues to be involved in agriculture, divested themselves of both cattle feeding and beef packing had they been earning excessive profits due to concentration.

As I look specifically at this merger, I see three potential benefits. First of all, as [JBS Swift](https://advance.lexis.com/document/?pdmfid=1519360&crid=b23b8151-6dd7-4bd9-a94e-c025c1c31293&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A4SGH-1HG0-TWK7-H0KX-00000-00&pdcontentcomponentid=8104&pdteaserkey=sr0&pditab=allpods&ecomp=wbxnk&earg=sr0&prid=b1a756dc-6c07-4f18-8e9b-67d2a8da90f0)has noted, they bring outside capital and new ideas into an industry, that's probably needing both. As you look at the packing industry of the last couple of years, margins have been very small in that industry. And certainly some of the existing players are probably in a financial condition that they would not be able to continue operations without an additional capital. Perhaps even more important is the addition of some new ideas, particularly I think in the export market area where JBS Company has shown a history of being very aggressive in the world export markets. And I think that they can bring that level of expertise to the U.S. and increase our exports, particularly into some markets where we have previously not had access.

Another benefit I think has been highlighted somewhat by Mr. Hunt from U.S. Premium Beef. They have had one of the premier pricing grids for fed cattle, particularly upper-quality fed cattle that has been in the industry, that has allowed independent producers to receive a premium if they were producing a higher-quality animal.

Unfortunately, in the present situation, transportation has restricted the producers that could really benefit from that, because all those cattle had to be slaughtered, basically in Western Nebraska's two national plants. With this merger, that will become much more geographically dispersed into the Northeast, the Western markets as well as throughout Iowa, Nebraska, Kansas, and Texas, as there's greater plants that would have that grid available.

And lastly, I think on the market-power issue alone, perhaps three strong players competing for a limited supply of cattle would be more aggressive in the market place than what I view as currently two strong majors and one weak major within two regional competitors, one of which itself was probably in some financial difficulty. As I talked with the one feedlot operator in Utah, he mentioned to me that perhaps one strong player in the market would be better than a weak or no player.

On a couple of cautionary notes, certainly, the loss of a bidder in a market place is a concern. Going from four major players to three in the primary cattle feeding area will be of concern. However, if the plants stay open you'll still have the same competition for the number of cattle.

Perhaps of greater concern would be in the cow/calf and dairy market in the Southwest where you may be going from two independent firms, Smithfield and National to one in those areas. That could be a concern.

Lastly, I want to close –- I've heard several comments today about a concern for the overall food price level and what this merger may do, and I would suggest that if the Senate is concerned about the price of food, it would be much more advantageous to look at what I view as a ill-advised corn ethanol policy that is doing far more damage than the livestock industry, and will continue for the next few years than what this merger or others would do in that industry.

[SEN. KOHL](https://advance.lexis.com/document/?pdmfid=1519360&crid=b23b8151-6dd7-4bd9-a94e-c025c1c31293&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A4SGH-1HG0-TWK7-H0KX-00000-00&pdcontentcomponentid=8104&pdteaserkey=sr0&pditab=allpods&ecomp=wbxnk&earg=sr0&prid=b1a756dc-6c07-4f18-8e9b-67d2a8da90f0): Thank you, Dr. Feuz. Stumo.

MR. STUMO: Thank you, Senator Kohl. I would ask that my written comments be submitted in the records, please.

[SEN. KOHL](https://advance.lexis.com/document/?pdmfid=1519360&crid=b23b8151-6dd7-4bd9-a94e-c025c1c31293&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A4SGH-1HG0-TWK7-H0KX-00000-00&pdcontentcomponentid=8104&pdteaserkey=sr0&pditab=allpods&ecomp=wbxnk&earg=sr0&prid=b1a756dc-6c07-4f18-8e9b-67d2a8da90f0): It will be done.

MR. STUMO: The organization for competitive markets is -- has members including feeders, large, medium, and small, across the spectrum. They're not here speaking today because they're afraid.

They're afraid of retaliation in the marketplace, if they say that their fears about the lack of competition when the packer/buyers discipline them every week, and every day in the market.

When my members speak to DOJ, they insist on confidentiality agreements, so nobody will find out, so they won't lose yet another buyer.

They insist on it. They wish competition -- they appreciate the packers, they appreciate Tyson, Cargill, Swift, National and Smithfield, all of them, but they do not appreciate the chokehold on market access that public policy and the packers have combined to create.

That chokehold is choking off the number of open, negotiated market shackle space in these plants that is available for these sellers and feedlots to sell into.

When you exert market power, you want to grab the bottleneck. In the oil market, in the oil merger of BP-Amoco, Cushing, Oklahoma was the bottleneck pipeline where price was set, and that's where you wanted to have your hands wrapped around.

Here you want to have your hands wrapped around rationing shackle space. There is the Great Plains; you'll see the overlap between JBS plants and National Beef plants. People will tell you that feeders in that area all have four buyers there.

They do not. They may have three, two, or the small guys may beg for someone to come look at their cattle. It didn't use to be. Through the consolidation -- people say it makes no difference. They come up with "happy theories" as to why it will be happy for everybody.

We have heard them today. They are untrue. The results are that a declining number of cow operations and declining cowherd -- We have 300 million people in this country today, increased from 200 million in 1967.

They eat a lot of beef. We should produce more beef to feed them. We don't. Oligopsony power is predicted to be inefficient because it depresses prices, it depresses output.

Oligopsony in this industry has met that prediction. As we concentrate, we depress price, we depress output. We hear vague claims of over-capacity, but yet we're going to expand the capacity. Which one is it?

If there's over-capacity, it's because of Oligopsony depressing price and depressing production, and that is bad. We could produce more beef. We could produce more beef to feed the U.S.

This is what public policy has wrought. It is poor performance. DOJ has failed. DOJ gets all wrapped up in competitive conduct. The judges have not treated them well.

Structure matters. This is -- 65-miles-an-hour is the speed we set on the highway. It's clear everybody knows you can drive safe over that, but it's highly likely to create more accidents than going the speed-limit.

Structure is the same. We can argue about whether there's going to be unreasonable practices or something, but it's highly likely we will have bad results like you see on the right, we have had.

It is a poorly performing country when we eat more food -- our ag sector. DOJ has failed in the Smithfield versus Premium Standard merger, because of marginally competitive market they allowed merger to monopoly in the southeast U.S.

Ghastly result. One packer -- they allowed it. Not an objection. Monsanto bought Delta and Pine Land Company. That merger was rejected in 2000, but they took another run at it and by golly, this DOJ let it happen, with an insignificant divestiture of Stonefield (ph).

Thus Monsanto has 50 percent of the cottonseed market in the U.S., 75 percent in some key regions. Prices go way up, they also choked off competing research by other competitors like DuPont, Syngenta, and others to kill the baby in the crib, so there will not be competition in the future, with future innovation.

We like innovation and choice, and we like competition. We don't have it. All the arguments that say we do, are based as you heard, perhaps, may, this could happen, that sort of thing, there's no proof.

That's why your Bill 1759 shifts the burden of proof so they have to actually prove it. They can't just think and utter happy thoughts, so judges accept it and ignore all the proof of anticompetitive harm.

Antitrust is out of balance. We could have a flourishing agriculture in diary, beef and pork. We could have lower seed prices, more choice and innovation in seed corn, cotton, and soy.

We do not because of the failures of the Department of Justice. 1759 is a good start and DOJ needs to stop allowing marginal competitive industries to become more non-competitive.

Thank you.

#### That restores competition by making companies proactively justify their practice

Pat Mooney et al. 17, co-founder and executive director of the ETC group, IPES Food Panel, October 2017, “TOO BIG TO FEED”, http://www.ipes-food.org/\_img/upload/files/Concentration\_FullReport.pdf

Implementation of current legislation poses further problems. In the US, of all 15,000 M&A deals that took place between 2005 and 2014, only about 3% were subject to scrutiny by anti-trust regulators (The Economist, 2016). In the EU, of the 1,300 mergers considered between 2004 and 2012, 83 – or 6.4% of cases – were found to raise concern (European Competition Network, 2012), but only 8 were prohibited as only M&As passing a certain market turnover threshold27 are considered relevant for anti-trust.

However, the tide may now be turning. In 2016, regulators from 26 jurisdictions28 intervened in more merger cases than they had done in previous years (Allen & Overy LLP, 2017). While 7 deals were prohibited and 13 deals abandoned in 2015 in all sectors of the economy, 2016 saw 8 deals prohibited and 23 deals dropped (ibid). Of note, only 2 of the 8 deals were prohibited by EU legislators and none by the US, though both jurisdictions are still considered global leaders in anti-trust.29

The agri-food sector has itself remained largely immune from the new tide of anti-trust activity. In its 2014 review of mergers, the OECD acknowledged that the regulatory trend is to make M&As easier for merging parties, and recognized that current policies tend to play out to the detriment of those most negatively affected by food system concentration (OECD, 2014). The capacity of anti-trust regulators to keep pace with rapidly expanding agri-food M&As remains weak (Schanbacher, 2014). Even though fines have been levied against several companies for abuses of power, regulators (particularly in the EU and US) have come under increasing fire for failing to address the impacts of existing agri-food sector concentration and the new generation of M&As (Leonard, 2014) – including the influence exerted by firms over political processes. The reluctance to file cases in major agricultural industries has itself been alleged to reflect corporate lobbying influence (see Impact 8).

Nonetheless, the growing resolve to tackle anti-competitive practices across the economy may now be permeating food systems. Steps being taken in a variety of different jurisdictions and in a variety of sectors may be starting to create a less conducive environment for M&A activity. In some cases, these measures seek to redefine anti-competitive practices and to reframe the scope of anti-trust rules. Steps to date may not be sufficient to reverse the current direction of travel. However, they point the way to key entry points where action is already occurring and could be taken further:

i) Addressing unfair practices in supply chains. Legislative and judicial bodies around the world are showing more interest in tackling excessive power in food supply chains and its impact on farmers and consumers alike:

• In 2010, an investigation by the South African Competition Commission charged a number of leading milk processors with price fixing for raw and processed milk, and restricting market competition.

• In June 2017, the South African Commission began an investigation into the grocery retail market, on the basis of unfair competition practices within the sector.

• In 2016, the European Commission published a report on unfair business-to-business trading practices in the food supply. The EU Directive on Unfair Commercial Practices adopted in 2005 is also currently undergoing evaluation to assess whether the regulatory framework is meeting its purpose of supporting small and medium sized enterprises and curbing abuses within the food supply chain.

ii) Considering the collective impact of sector-wide consolidation and redefining a competitive market. As M&A activity has escalated, a number of calls have been made for mergers to be considered as a whole, rather than in isolation, to acknowledge the unprecedented power a handful of consolidated firms to collectively shape food system dynamics (ETC, 2017; Friends of the Earth, 2017; TWN, 2017). Actions are being taken and proposals are being made for new ways of defining and measuring anti-competitive practices, often on the basis of considering food systems as a unique sector with high social importance:

• “Creeping concentration”, i.e. a series of minor mergers leading to high levels of market concentration, is coming to the attention of regulators in Australia and elsewhere.

• In Ireland, the Competition Authority considers concentration along the whole supply chain in order to assess market power resulting from vertical integration (OECD, 2014).

• In France, the M&A vetting process has been amended to give more space to the participation and the concerns of competing enterprises not immediately affected by the proposed merger. A related law further stipulates that companies looking to close a site – including following a takeover – must frst set it up for public sale and/or attempt to find a buyer.

• In South Africa, the 2012 review of the Walmart (US) and Massmart (South Africa) merger sparked unprecedented public debate. Though the merger was ultimately approved with conditions, it highlights the possibility of drawing on a more integrated competition review process. During the review, a number of government departments brought forward opinions and conditions on the case, allowing authorities to recognize the impacts of mergers beyond consumer welfare and competition, including employment and displacement of small business suppliers.

iii) Shifting the burden of proof onto companies. Some proposals are now being made for companies to proactively justify their M&A activity:

• In July 2017, the US Democrats presented their new political platform, the “Better Deal”, urging a new precautionary approach to current and future mergers. The vision included setting new standards for a more holistic, long-term view of concentration’s effects on the economy and society, and better monitoring of a company post-merger. While still focused on consumer welfare, in September 2017, Democrats on the US Senate Judiciary Committee’s anti-trust panel stipulated that companies seeking a mega-merger would have to show that the deal would not hurt consumers and demonstrate its benefits, rather than simply relying on the FTC to judge the impact of mergers on consumers (US Democrats, 2017). The Better Deal goes so far as to acknowledge the detrimental impact on farmers and rural communities likely to result from the Dow-Dupont, Monsanto-Bayer and Syngenta-ChemChina mergers, as well as the influential role large corporate actors have in shaping policy. It identifies the food and beverage sectors as two of the five key industries requiring more stringent anti-trust monitoring.

#### Absent federal enforcement, lobbying is inevitable

John Ikerd 20, BS, MS and PhD in Agricultural Economics from the University of Missouri, former Head of Extension Agricultural Economics at the University of Georgia, Professor Emeritus from the University of Missouri, February 2020, “Reclaiming the Future of Farming”, Prepared for presentation at the MOSES Organic Farming Conference, <http://web.missouri.edu/~ikerdj/papers/WIMOSESFutureFoodFarming.pdf>.

What happened to stop, or at least delay, the great agricultural transformation that seemed so promising at the turn of the century? I think the futurists, myself included, failed to appreciate the growing economic and political power of the multinational agribusiness corporations and their determination to dominate the agricultural economy. When the federal government essentially quit enforcing corporate antitrust policy in the 1980s, it essentially freed the large corporations to take control of government. Economic colonization3 is a term that seems appropriate to describe the corporate domination of rural areas around the world, including rural America. The term is typically used in reference to the so-called developed nations using their economic power to continue dominating less-developed nations that were previously colonized politically. Instead of colonization by national governments, the colonization today is being carried out by large, multinational corporations. Much like colonial empires of the past, the economically valuable ecological and societal resources of rural areas, including rural people and cultures, are being exploited not to benefit rural people but instead to increase the wealth of corporate investors. These large, publicly traded corporations are purely economic entities with no capacity for concern or commitment to the future of rural communities. Their only interest is in extracting economic wealth from rural areas.

Whether intentional or coincidental, industrial agriculture has been the primary means of colonizing rural America. Agribusiness corporations gain political legitimacy and elicit economic concessions from local government officials through false promises of rural economic development. The largely unregulated industrial agriculture erodes the fertility of the soil and poisons the air and water with chemical and biological wastes. Comprehensive corporate contracts replace thinking, caring farmers with tractor drivers and corporate hired-hands. Once the productivity of an area has been depleted, the corporations will simply move their operations to other areas of the nation or world where land is still productive and labor costs are cheaper— as we have seen in with pineapple and sugar cane production moving out of Hawaii. Rural communities are left with depleted soils and aquifers, streams and groundwater polluted with agricultural chemical and biological wastes, and farmers who no longer know how to farm.

Obviously, farming communities did not become places where the knowledge workers of the 21st Century have chosen to work and live. Wendell Berry—farmer, philosopher, and author—in a 2017 letter to the New York Times described it this way: “The business of America has been largely and without apology the plundering of rural America, from which everything of value—minerals, timber, farm animals, farm crops, and “labor”—has been taken at the lowest possible price. As apparently none of the enlightened ones has seen in flying over or bypassing on the interstate highways, its too-large fields are toxic and eroding, its streams and rivers poisoned, its forests mangled, its towns dying or dead along with their locally owned small businesses, its children leaving after high school and not coming back. Too many of the children are not working at anything, too many are transfixed by the various screens, too many are on drugs, too many are dying.”4

The promise of a social and economic renaissance became social and economic desecration. A 2017 Wall Street Journal article labeled rural America as the “New Inner City.” In terms of poverty, education, teenage births, divorce, premature death, disability, and unemployment, rural counties now rank below inner cities.” 5 Drug abuse and crime, once urban problems, now plague rural communities. The rural communities that thrived socially and economically during the 1940s and 1950s, when I was a member of Future Farmers of America, are but a distant memory.

What did we gain from all of this economic desecration of rural America? Very little! Admittedly, American consumers on average spent less of their disposable income on food in the late 1990s than in the 1970s. Over the past 20 years, however, food prices have risen faster than the overall rate of inflation.6 Furthermore, industrial agriculture didn’t feed the hungry. In fact, more people are now classified as “food insecure” than back in the 1960s.7 In 2018, one-in-nine Americans were classified as food insecure and one-in-seven American children lived in foodinsecure homes.8 Whatever has been gained by lower food costs has been more than offset by rising costs of health care. An epidemic of diet related illnesses; obesity, diabetes, hypertension, heart disease, and cancers, now threatens the physical and financial future of the nation. Costs of health care are projected to account for one-fifth of the GDP by 2016.9

Why did we Americans let this happen? Or was it inevitable? The industrialization of American agriculture was made possible by post-World War II agrochemical and mechanical technologies, however, it was “made inevitable” by supportive government policies. The specialized, mechanized, large-scale nature of industrial farming that makes it economically efficient also makes it inherently economically risky. Farmers are forced to make large investments in land, buildings, and equipment in operations that are inherently vulnerable to unpredictable weather that can devastate crops, diseases that can wipe out livestock and poultry operations, and to unprofitable prices in markets characterized by periodic overproduction. So, American taxpayers were asked to absorb much of these risks through U.S. farm policies— including various kinds of price supports, deficiency payments, subsidized crop insurance, disaster payments, subsidized interest rates, loan guarantees, and investment tax credits. All of these programs, in one way or another, incentivize or subsidize industrial agriculture.

The industrialization of agriculture was a bold experiment, and it was well-intended—at least by many of its earlier advocates. I was one of those advocates during the first half of my 30 year academic career. I thought by improving the economic efficiency of farming, we would bring down the cost of food and make good food affordable for everybody. I thought the focus on economic efficiency would create profit opportunity for progressive farmers and support economically viable rural communities. However, during the farm financial crisis of the 1980s, I was forced to face the hard, cold reality that it had done none of these things. The industrialization of agriculture was well intended, but it simply didn’t work.

Regardless, many farmers continue to support it because they feel trapped by large investments in land, buildings, and equipment. They are trapped by government policies that encourage and enable them to keep doing what they are doing. They are also trapped by a “commercial farming culture” that has been skillfully crafted and protected by corporate agribusiness. So, what will it take to reclaim the future of farming? One of my professors at the University of Missouri, and later a mentor, was Harold Breimyer—a distinguished agricultural economist. Harold frequently reminded his students and others that “Americans can have any kind of agriculture we want.” He said we simply need to implement the right farm policies to get it. He was right. If we are to fundamentally change American agriculture, we must fundamentally change U.S. farm policy.

So what will it take to bring about another transformation in American farm policy? I personally believe it will take nothing less than a major consumer/taxpayer revolt. The corporate agri-food establishment has used its economic power to gain political power and now has firm control of the farm and food policy making in Washington DC and in statehouses across the country. No substantive change in farm policy can survive the political process without the endorsement or acquiescence of the corporate agricultural establishment.

Each new Farm Bill promises to conserve and protect natural resources and support independent family farms and rural communities. With each new Farm Bill the negative environmental and societal impacts of agriculture continue to grow and there are fewer independent family farms and fewer economically viable farming communities. Conservation programs such as Sod Buster, Swamp Buster, and the Conservation Reserve Program that limit crop production are more about temporary surplus reduction than permanent environmental protection. If we keep accepting the same kinds of farm policies we have accepted in the past, under both Democratic and Republican administrations, we are going to keep getting the same kind of agriculture we have been getting.

We need to start with a common understanding that the only politically defensible justification for government farm policies is to ensure domestic food security. That’s why government food assistance programs have always been administered through the U.S. Dept. of Agriculture (USDA). Logically, programs promoting farm exports should be administered by the Dept. of Commerce and biofuels programs by the Department of Energy. Domestic food security was the political justification for the initiation of U.S. farm policies of the 1930s, which included the Food Stamp program. The nation was in an economic depression. Farm families were going broke in numbers that put the nation’s food security was at risk. Depression era farm programs attempted to provide domestic food security by providing economic security for family farmers.

Domestic food security was also the political rationale for the later shift in farm policies in the early 1970s to programs that incentivize and subsidize industrial agriculture. Hunger in America had again become a major public concern during the 1960s. During the early 1970s, the Nixon/Butz administration used the promise of domestic food security to convince Congress of a need to change U.S. farm policy—and it worked. U.S. farm policies since the 1970s have succeeded in creating the kind of agriculture envisioned by the Nixon/Butz era policy experts. They simply failed to anticipate the negative environmental, social, and economic consequences.

However, for the first time since the 1970s, I see the possibility for a revolutionary, transformational change in U.S. farm policies. We have presidential candidates who are vowing to take on the corporate agricultural establishment and restore economic competitiveness to agricultural markets. Several candidates have also vowed support for a 2019 Congressional Resolution calling for a Green New Deal10 that would fundamentally change U.S. environmental, social, and economic policies—including farm policies. Perhaps most important, it reaffirms the responsibility of government to ensure domestic food security—enough good, healthful food for all. The resolution focuses on the challenges of climate change but calls for fundamental changes that would reach far beyond reducing emissions of greenhouse gasses. The ecological, social, economic inequities in farming, rural communities, and society in general are but different dimensions of same basic problem and will require a common solution.

The Green New Deal has not been approved by the U.S. Congress. It is simply a proposed congressional resolution that has never been formally debated in Congress or put to a serious vote. Still, it has been endorsed, to one extent or another, by every major contender for the Democratic nomination for President of the United States for the upcoming 2020 national election. This is the first time since the 1970s that many of the policy proposals have even been seriously discussed. The Green New Deal will be opposed by virtually every major organization and by many farmers who feel trapped in the current industrial system of commodity production. However, it is supported by a large number of progressive farm organizations and by many farmers who have been advocates for sustainable agriculture, by one name or another, for decades—without the support of their government. In the Green New Deal, there is still hope that the bright future of small, family farms I talked about in 1999 will become a reality.

### 1AC

#### Plan: The United States federal government should establish a structural presumption against agricultural mergers.

### 1AC

#### Contention Two is Sustainable Ag

#### Conventional farming requires chemical inputs that destroy ecosystems and pollinators and bio-accumulate, risking extinction---a disruptive collapse is inevitable unless a transition starts now

Friedemann 17 – Alice Friedemann, Systems Architect and Engineer For Over 25 Years, Science, Energy, and Agriculture Writer, Investigative Journalist and Energy Expert, Founder of Energy Skeptic, Author of When Trucks Stop Running: Energy and the Future of Transportation, “Chemical Industrial Agriculture is Unsustainable. Here’s Why”, Resilience, 5-27, http://www.resilience.org/stories/2017-03-27/chemical-industrial-farming-unsustainable-heres/

We hear a lot about how we’re running out of antibiotics. But we are also doomed to run out of pesticides, because insects inevitably develop resistance, whether toxic chemicals are sprayed directly or genetically engineered into the plants.

Worse yet, weeds, insects, and fungus develop resistance in just 5 years on average, which has caused the chemicals to grow increasingly lethal over the past 60 years. And it takes on average eight to ten years to identify, test, and develop a new pesticide, though that isn’t long enough to discover the long-term toxicity to humans and other organisms.

And this devil’s bargain hasn’t even provided most of the gains in crop yields, which is due to natural-gas and phosphate fertilizers plus soil-crushing tractors and harvesters that can do the work of millions of men and horses quickly on farms that grow only one crop on thousands of acres.

Yet before pesticides, farmers lost a third of their crops to pests, after pesticides, farmers still lose a third of their crops.

Even without pesticides, industrial agriculture is doomed to fail from extremely high rates of soil erosion and soil compaction at rates that far exceed losses in the past, since soil couldn’t wash or blow away as easily on small farms that grew many crops.

But pest killing chemicals are surely accelerating the day of reckoning sooner rather than later. Enormous amounts of toxic chemicals are dumped on land every year — over 1 billion pounds are used in the United State (US) every year and 5.6 billion pounds globally (Alavanja 2009).

This destroys the very ecosystems that used to help plants fight off pests, and is a major factor biodiversity loss and extinction.

Evidence also points to pesticides playing a key role in the loss of bees and their pollination services. Although paleo-diet fanatics won’t mind eating mostly meat when fruit, vegetable, and nut crops are gone, they will not be so happy about having to eat more carbohydrates. Wheat and other grains will still be around, since they are wind-pollinated.

Agricultural chemicals render land lifeless and toxic to beneficial creatures, also killing the food chain above — fish, amphibians, birds, and humans (from cancer, chronic disease, and suicide).

Surely a day is coming when pesticides stop working, resulting in massive famines. But who is there to speak for the grandchildren? And those that do speak for them are mowed down by the logic of libertarian capitalism, which only cares about profits today. Given that a political party is now in power in the U.S. that wants to get rid of the protections the Environmental Protection Agency (EPA) and other agencies provide, may make matters worse if agricultural chemicals are allowed to be more toxic, long-lasting, and released earlier, before being fully tested for health effects.

Meanwhile chemical and genetic engineering companies are making a fortune, because the farmers have to pay full price, since the pests develop resistance long before a product is old enough to be made generically. Except for glyphosate, but weeds have developed resistance. Predictably.

In fact, the inevitability of resistance has been known for nearly seven decades. In 1951, as the world began using synthetic chemicals, Dr. Reginald Painter at Kansas State University published “Insect Resistance in Crop Plants”. He made a case that it would be better to understand how a crop plant fought off insects, since it was inevitable that insects would develop genetic or behavioral resistance. At best, chemicals might be used as an emergency control measure.

Farmers will say that we simply must carry on like this, there’s no other choice. But that’s simply not true.

Consider the corn rootworm, that costs farmers about $2 billion a year in lost crops despite spending hundreds of millions on chemicals and the hundreds of millions of dollars chemical companies spend developing new chemicals.

To lower the chances of corn pests developing resistance, corn crops were rotated with soybeans. Predictably, a few mutated to eat soybeans plus changed their behavior. They used to only lay eggs on nearby corn plants, now they disperse to lay eggs on soybean crops as well. Worse yet, corn is more profitable than soy and many farmers began growing continuous corn. Already the corn rootworm is developing resistance to the latest and greatest chemicals.

But the corn rootworm is not causing devastation in Europe, because farms are smaller and most farmers rotate not just soy, but wheat, alfalfa, sorghum and oats with corn (Nordhaus 2017).

Before planting, farmers try to get rid of pests that survived the winter and apply fumigants to kill fungi and nematodes, and pre-emergent chemicals to reduce weed seeds from emerging. Even farmers practicing no-till farming douse the land with herbicides by using GMO herbicide-resistant crops. Then over the course of crop growth, farmers may apply several rounds of additional pesticides to control different pests. For example, cotton growers apply chemicals from 12 to 30 times before harvest.

Currently, the potential harm is only assessed for 2 to 3 years before a permit is issued, even though the damage might occur up to 20 years later.

Although these chemicals appear to be just like antibiotics, that isn’t entirely true. We develop some immunity to a disease after antibiotics help us recover, but a plant is still vulnerable to the pests and weeds with the genetics or behavior to survive and chemical assault.

Although there are thousands of chemical toxins, what matters is how they kill, their method of action (MOA). For herbicides there are only 29 MOAs, for insecticides, just 28. So if a pest develops resistance to one chemical within an MOA, it will be resistant to all of the thousands of chemicals within that MOA.

The demand for chemicals has also grown due the high level of bioinvasive species. It takes a while to find native pests and make sure they won’t do more harm than good. In the 1950s there were just three main corn pests. By 1978 there were 40, and they vary regionally. For example, California has 30 arthropods and over 14 fungal diseases to cope with.

When I was learning how to grow food organically back in the 90s, I remember how outraged organic farmers were that Monsanto was going to genetically engineer plants to have the Bt bacteria in them. This is because the only insecticide organic farmers can use is Bt bacteria, because it is found in the soil. It’s natural. Organic farmers have been careful to spray only in emergencies so that insects didn’t develop resistance to their only remedy. Since 1996, GMO plants have been engineered to have Bt in them, and predictably, insects have developed resistance. For example, in 2015, 81% of all corn was planted with genetically engineered Bt. But corn earworms have developed resistance, especially in North Carolina and Georgia, setting the stage for damage across the nation. Five other insects have developed resistance to Bt as well.

GMO plants were also going to reduce pesticide use. They did for a while, but not for long. Chemical use has increased 7% to 202,000 tons a year in the past 10 years.

Resistance can come in other ways than mutations. Behavior can change. Cockroach bait is laced with glucose, so cockroaches that developed glucose-aversion now no longer take the bait.

It is worth repeating that chemicals and other practices are ruining the long-term viability of agriculture. Here is how author Dyer explains it:

“Ultimately the practice of modern farming is not sustainable” because “the damage to the soil and natural ecosystems is so great that farming becomes dependent not on the land but on the artificial inputs into the process, such as fertilizers and pesticides. In many ways, our battle against the diverse array of pest species is a battle against the health of the system itself. As we kill pest species, we also kill related species that may be beneficial. We kill predators that could assist our efforts. We reduce the ecosystem’s ability to recover due to reduced diversity, and we interfere with the organisms that affect the biogeochemical processes that maintain the soils in which the plants grow.

Soil is a complex, multifaceted living thing that is far more than the sum of the sand, silt, clay, fungi, microbes, nematodes, and other invertebrates. All biotic components interact as an ecosystem within the soil and at the surface, and in relation to the larger components such as herbivores that move across the land. Organisms grow and dig through the soil, aerate it, reorganize it, and add and subtract organic material. Mature soil is structured and layered and, very importantly, it remains in place. Plowing of the soil turns everything upside down. What was hidden from light is exposed. What was kept at a constant temperature is now varying with the day and night and seasons. What cannot tolerate drying conditions at the surface is likely killed. And very sensitive and delicate structures within the soil are disrupted and destroyed.

Conventional tillage disrupts the entire soil ecosystem. Tractors and farm equipment are large and heavy; they compact the soil, which removes air space and water-holding capacity. Wind and water erosion remove the smallest soil particles, which typically hold most of the micronutrients needed by plants. Synthetic fertilizers are added to supplement the loss of oil nutrients but often are relatively toxic to many soil organisms. And chemicals such as pre-emergents, fumigants, herbicides, insecticides, acaricides, fungicides, and defoliants eventually kill all but the most tolerant or resistant soil organisms. It does not take long to reduce a native, living, dynamic soil to a relatively lifeless collection of inorganic particles with little of the natural structure and function of undisturbed soil”.

When I told my husband all the reasons we use agricultural chemicals and the harm done, my husband got angry and said “Farmers aren’t stupid, that can’t be right!”

I think there are a number of reasons why farmers don’t go back to sustainable organic farming.

First, there is far too much money to be made in the chemical herbicide, pesticide, and insecticide industry to stop this juggernaut. After reading Lessig’s book “Republic, Lost”, one of the best, if not the best book on campaign finance reform, I despair of campaign financing ever happening. So chemical lobbyists will continue to donate enough money to politicians to maintain the status quo. Plus the chemical industry has infiltrated regulatory agencies via the revolving door for decades and is now in a position to assassinate the EPA, with newly appointed Scott Pruitt, who would like to get rid of the EPA.

Second, about half of farmers are hired guns. They don’t own the land and care about passing it on in good health to their children. They rent the land, and their goal, and the owner’s goal is for them to make as much profit as possible.

Third, renters and farmers both would lose money, maybe go out of business in the years it would take to convert an industrial monoculture farm to multiple crops rotated, or an organic farm.

Fourth, it takes time to learn to farm organically properly. So even if the farmer survives financially, mistakes will be made. Hopefully made up for by the higher price of organic food, but as wealth grows increasingly more unevenly distributed, and the risk of another economic crash grows (not to mention lack of reforms, being in more debt now than 2008, etc).

Fifth, industrial farming is what is taught at most universities. There are only a handful of universities that offer programs in organic agriculture.

Sixth, subsidies favor large farmers, who are also the only farmers who have the money to profit from economies of scale, and buy their own giant tractors to farm a thousand acres of monoculture crops. Industrial farming has driven 5 million farmers off the land who couldn’t compete with the profits made by larger farms in the area.

But farmers will have to go organic whether they like it or not

It’s hard to say whether this will happen because we’ve run out of pesticides, whether from resistance or a financial crash reducing new chemical research, or whether peak oil, peak coal, and peak natural gas will cause the decline of chemical farming. Agriculture uses about 15 to 20% of fossil fuel energy, from natural gas fertilizer, oil-based chemicals, farm vehicle and equipment fuel, the agricultural cold chain, distribution, packaging, refrigeration, and cooking to name a few of the uses.

At some point of fossil decline, there won’t be enough fuel or pesticides to continue business as usual.

Farmers will be forced to go organic at some point. Wouldn’t it be easier to start the transition now?

#### Without a transition, ecocide is inevitable---Land conversion is empirically denied

Andrew Kimbrell 03, JD, Executive Director at the Center for Food Safety, “The Myth: Industrial Agriculture Benefits the Environment and Wildlife”, Fatal Harvest: The Tragedy of Industrial Agriculture, 1-4-2003, http://www.keepmainefree.org/myth5.html

Industrial agriculture is the largest single threat to the earth's biodiversity. Fence-row-to-fence-row plowing, planting, and harvesting techniques decimate wildlife habitats, while massive chemical use poisons the soil and water, and kills off countless plant and animal communities. Industrial agriculture’s mythmakers have been so successful in their efforts to shape opinion that they must believe we’ll swallow just about anything. They now assure us that intensive farming methods that rely on chemicals and biotechnology somehow protect the environment. This myth, as illogical as it may sound to an informed reader, is increasingly widespread in America today and is increasingly accepted as valid. What’s worse, agribusiness is saturating the media with misleading reports of the purported ecological risks of organic and other environmentally sustainable agricultural practices. A typical claim of the industrial apologists is that the industrial style of agriculture has prevented some 15 million square miles of wildlands from being plowed under for “low-yield” food production. They continuously assert that the biggest challenge of the 21st century is to increase food yields through modern advances in agricultural science, which include the genetic engineering of commercial food crops. They also claim that if the world does not fully embrace industrial agriculture, hundreds of thousands of wildlife species will be lost to low-yield crops and ranging livestock. There is a plethora of evidence that busts this myth. At the outset, the idea that sustainable agriculture is low-yield and would result in plowing under millions of square miles of wildlands is simply wrong. Relatively smaller farm sizes are much more productive per unit acre — in fact 2 to 10 times more productive — than larger ones, according to numerous government studies. In fact, the smallest farms, those of 27 acres or less, are more than ten times as productive (in terms of dollar output per acre) than large farms (6,000 acres or more), and extremely small farms (4 acres or less) can be over a hundred times as productive. Additionally, in contrast to industrial agriculture, sustainable or alternative agriculture minimizes the environmental impacts of farming on plants and animals, as well as the air, water, and soil, often without added economic costs. The simple use of composted organic manures is a cost-effective alternative to chemical fertilizers, and increases soil microbiology and fertility, decreases erosion, and over the long term helps preserve wildlife habitats. Organic and diversified farming practices increase the prevalence of birds and mammals on farmlands and ensure biological diversity for the planet. In sum, in terms of preserving and augmenting soil productivity and the biodiversity of the planet, small-scale sustainable agriculture is far more beneficial and efficient than its industrial counterpart. Moreover, instead of being a boon to the environment as the myth proclaims, industrial agriculture is currently the largest single threat to the earth's biodiversity. There are two primary reasons for this: the devastation of wild species caused by chemical use, and the destruction of wildlife habitat from industrial agriculture's inefficient fence-row-to-fence-row plowing, planting, and harvesting techniques. Chemicals and the Environment Pesticide use — endemic to industrial agriculture — has been clearly identified as a principal driving force behind the drastic reduction of biodiversity on America's farmlands. According to Tracy Hewitt and Katherine Smith of the Henry Wallace Institute, there are no fewer than 50 scientific studies that have documented adverse environmental effects of pesticide use on bird, mammal, and amphibian populations across the United States and Canada. The Virginia Department of Game and Inland Fisheries, for example, found that at least 6 percent of the breeding population of bald eagles along the James River were killed annually by insecticide poisonings. Professor David Pimentel estimates that 672 million birds are affected by pesticide use on farmlands and 10 percent of these — 67 million — die each year. In Texas, where some 15 million acres of croplands are treated with pesticides, tens of thousands of migratory waterfowl come in direct contact with the treated grains, risking sickness and ultimately death. Between 1977 and 1984, half of all the fish killed off the coast of South Carolina were attributed to pesticide contamination. These are only a few of the many tragic examples of wildlife destruction in the United States alone. Chemical fertilizers — which are also a key component of industrial agriculture — pose an even greater risk to soil and water quality, threatening biodiversity and wildlife populations around the globe. Aquatic and marine life are especially vulnerable to the tons of residues from chemically treated croplands that find their way into our major estuaries each year. In the Chesapeake Bay, native sea grasses, fish, and shellfish populations have declined dramatically in number in the last few decades due to extremely high nitrogen and phosphorous levels caused by the excessive use of chemical fertilizers. According to Kelley R. Tucker of the American Bird Conservancy, use of inorganic fertilizers also tends to reduce overall plant species diversity on farmlands, allowing farm edges to be dominated by only one or a few types of plants. Bird populations suffer as a result because they are highly dependent upon the variety of insects that are supported by diverse, native landscapes. Habitat Destruction In addition to the environmental damage caused by chemical pesticides and fertilizers, the huge monocultured fields characteristic of industrial agriculture have dramatically reduced a number of wildlife populations by transforming habitats, displacing populations of native species, and introducing non-native species. Among countless other wild plants and animals, important game species such as prairie chickens, bobwhite quail, cottontail rabbits, and ring-necked pheasants have been greatly reduced or eliminated in areas of industrial agriculture. Diversified farming techniques, on the other hand, incorporate numerous varieties of plants, flowers, and weeds, and encourage the proliferation of various wildlife, insect, and plant species. No myth can hide the fact that decades of industrial agriculture have been a disaster for the environment. Its chemical poisoning has caused eco-cide among countless species. And it has resulted in irreversible soil loss, reduction in soil and water quality, and the proliferation of non-native species that choke out indigenous varieties. Without question, the tilling, mowing, and harvesting operations of industrial agriculture have affected, and continue to catastrophically destroy, wildlife and soil and water quality. By contrast, sustainable and organic farming methods result in the reduction of land under the plow and the increase of biodiversity and wildlife on farmlands and beyond.

#### Consolidation halts that transition---3 internal links

#### First, Crowd-out---it leads to the replacement of small farms with large farms across industries

Kristen Tam and Olivia Bielskis 21, Researchers for UCLA Law Library, “Stimulating Antitrust Enforcement to Expand the Regenerative Agriculture Movement”, 4-1-21, UCLA Law Library, <https://escholarship.org/uc/item/0m16g2r5>

As defined by the United States Department of Agriculture (USDA), a “farm” is any place from which $1,000 or more of agricultural products were produced or sold during the year.11 This section discusses the historical and current consolidation trends in the agriculture marketplace for farms, meatpacking firms, and many other food corporations. I find that the overall number of farms has decreased while the size of each farm or firm has increased, and the number of farms in higher sales classes have increased along with their subsequent share of farmland.12 Farm numbers have decreased since the onset of the 20th century, however, due to Robert Bork and the Chicago School’s influence that prioritized economic efficiency and consumer prices over small businesses,13 the number of farms in the United States started decreasing at faster rates. In 1975, there were 2.5 million farms across the country,14 which declined by an average of 2.41 percent per year.1516 Comparatively, from 1980 to 1985, the number of farms decreased by an average of 6.15 percent per year,17 alluding to increased rates of consolidation. While farm numbers continue to decrease, output production size and the Gross Cash Farm Income (GCFI) of large farms has increased. From 2012 to 2018, the number of farms decreased from 2.11 to 2.03 million farms, while the average farm size increased from 429 to 443 acres.18 Specifically, the growth in land holdings has increased the greatest in the largest farms. In 1987, 57 percent of the United States cropland was operated by midsize farms with 100 to 999 acres of cropland while only 15 percent was operated by large farms over 2,000 acres.19 In 2012, cropland operated by midsize farms drastically decreased to 36 percent while cropland operated by large farms increased to 36 percent, more than doubling the figure from 1987.20 In addition to holding control of more land and market power, and decreasing competition in the marketplace, these larger farms hold a disproportionate majority of agricultural commodity profits. In 1991, small farms, defined as farms whose income is less than $350,000, took in 46 percent of agricultural profit, while in 2015, small farms took in only 25 percent of agricultural profit.21 Large farms, who make more than $1,000,000 held 31 percent of the GFCI in 1991, while in 2015, their share increased to 51 percent.22 The trend towards, seeing as the number of farms and packaging plants decrease while the number of animals raised per farm increases. From 1987 to 2017, there was a 28.50 percent decrease in the number of cow, pig and chicken farms.23 While the number of farms decreased, the midpoint numbers for the number of livestock per farm increased; where half of the livestock are above, and half are below it. In 1987, the midpoint number of cows for each livestock feeding industry was 80, while in 2012, this increased to 900, an increase of 1,025 percent.24 The number of meatpacking plants, consolidation is also prevalent in the livestock, poultry and meat packing industries where farmers sell their animals to be slaughtered, packaged, and distributed, also decreased which allows meatpackers to run roughshod over farmers by giving them power to pay their desired lower prices, disadvantaging farmers. Consolidation in other food industries is increasing as well, seeing as in 2012 four firms owned 89 percent of the peanut butter industry, a staggering figure which increased to 92 percent in 2017.25 In 2015 the two largest corn seed firms owned 78 percent of the market share,26 in 2017 the four largest jelly firms owned 85 percent of the industry,27 and in 2018, two firms owned 87 percent of the mayonnaise market share, a $1.6 billion dollar industry.28 These figures showing monopolization exemplify the formidable proportions to which the agriculture and food industry is consolidated. These trends underscore how the regulation mechanisms in place to promote competition and prevent monopolization are not working.

#### Second, Tech Lock-In---increasing reliance creates new path dependencies that make a transition to sustainable tech impossible---it’s a linear risk

Jennifer Clapp 20, Canada Research Chair in Global Food Security and Sustainability and a professor in the School of Environment, Resources, and Sustainability at the University of Waterloo, “Precision Technologies for Agriculture: Digital Farming, Gene-Edited Crops, and the Politics of Sustainability,” Global Environment Politics, 20.3, https://direct.mit.edu/glep/article/20/3/49/95048/Precision-Technologies-for-Agriculture-Digital

Technological Lock-In

Key dynamics identified in the broader literature about technological lock-in—whereby technological systems develop along established pathways from which it is difficult and costly to deviate—are reflected in current debates over precision technologies for agriculture. Technological lock-in typically occurs when powerful social forces drive technological development in certain directions. These social forces are often the result of earlier events—technological, political, and psychological—that cement the societal dominance of certain technological systems over others (McKinnon 2019). This temporal nature of the process means that lock-in can become self-reinforcing over time and can ultimately crowd out other potential technological systems that might offer more benefits over the long run (Arthur 1989). In instances of lock-in, the cost of not adopting a new technology that fits into a dominant technological system can often be higher than the benefits of actually using that technology, even if there are better ways to resolve the problem (McKinnon 2019). In such situations, potential adopters typically make decisions about the costs of adopting (or not adopting) novel technologies in the short term, even in cases when the benefits of switching to a different system may be higher over the long term. This dynamic tends to give the momentum in debates regarding novel technology adoption to those voices that reinforce the dominant technological system while weakening the influence of those promoting alternative systems (Vanloqueren and Baret 2009).

The lens of technological lock-in helps shed light on the ways in which the structural context of the dominant agricultural system shapes the political dynamics surrounding current versus possible alternative systems in the debate over precision technologies. The current industrial model rose to dominance through historical patterns of progressive adoption of industrial agricultural technologies that established new path dependencies. The development of hybrid seeds in the 1920 and 1930s and the monoculture planting practices that accompanied them, for example, encouraged monocrop agriculture and the adoption of tractors to replace horses. When monocropping resulted in new vulnerabilities to insects and weeds in crop systems, the response was the adoption of agrochemical sprays to control those pests. Subsequently, agricultural biotechnology emerged as a means by which to address high levels of agrochemical use, by engineering crops to be resistant to pests or resistant to what were thought to be relatively benign herbicides, such as glyphosate (Sassenrath et al. 2008).

Although advocates promote precision technologies as part of a more sustainable trajectory, they are deeply enmeshed with elements of the established industrial agricultural system. Most of the corporate research into gene editing and variable-rate spraying equipment, for example, is focused on the use of these technologies in conjunction with herbicides—specifically glyphosate—which have already been locked into dominant agricultural practices. New precision technologies are also deeply enmeshed in the dominance of digital technology systems in society more broadly. The prevalence of and familiarity with digital technologies in society for nonfarming activities, such as for obtaining news and weather forecasts or social media, work to lock-in digital farming adoption by farmers. As farmers sign on to these new digitally linked farming technologies, their entrenchment in the industrial agriculture system to which most of those technologies are tethered only deepens. And as farmers become increasingly reliant on and skilled in the use of digital technologies to guide their farming decisions, lock-in becomes self-reinforcing, because farmers lose the ability to evaluate trade-offs and make decisions in the absence of digital assistance as well as the ability to repair their own digital equipment and machinery (Carolan 2018; Rotz et al. 2019).

#### Third, Proprietary Cropping Systems---they increase market power, raise the barrier for new entrants, and divert innovation to only system-based competition

Diana Moss 20, Ph.D., President, American Antitrust Institute, January, “Consolidation And Concentration In Agricultural Biotechnology: Next Generation Competition Issues,” https://www.antitrustinstitute.org/wp-content/uploads/2020/01/CPI-Moss.pdf

The most recent series of agricultural biotechnology mergers have created large, integrated, proprietary cropping systems of traits, GM crop seed, and crop protection. Such systems were evident as early as first-generation technologies, such as Monsanto’s early generation glyphosate herbicide Roundup and Roundup Ready 1 soybeans. Even then, the exclusive nature of systems was evident, as one farmer aptly noted: “[I] can’t mix chemicals with other companies’ products to remedy Roundup resistance.” More recently, Monsanto extended its newer generation RR2 soybean platform to encompass more complex traits and herbicides with its Roundup Ready 2 Xtend dicamba-tolerant integrated cropping system. Dow-DuPont made a similar move with its Enlist 2,4-D tolerant system. Recent merger proposals are motivated, among other reasons, by the drive to build out integrated, proprietary systems that do not interoperate with rivals’ products. This goal was apparently behind Monsanto’s failed bid for Syngenta which “…would [have] enable[d] the combined company to deliver integrated and sustainable solutions across all the major technology-driven platforms of breeding, biotechnology, crop protection, microbials and precision agriculture.”26 Monsanto and Bayer also touted integrated solutions as a major strategic benefit of their proposed merger.27 Integrated, proprietary systems raise a number of troubling issues. First, economic evidence from soybeans and cotton indicates that seed prices under vertical integration tend to be higher than under licensing arrangements across firms. This suggests that vertical integration may increase the exercise of market power and firms’ ability to extract economic benefits from seed dealers and farmers.28 Second, integration enhances both the ability and incentive to bundle proprietary products in proprietary systems that do not interoperate with rival technologies.29 This is likely to raise entry barriers for unintegrated rivals competing at standalone levels such as seeds or crop protection and that cannot enter at multiple levels. Such smaller rivals may be victims of exclusionary conduct, for example, if the Big 3 induce distributors to accept bundled products. A third problem is that proprietary systems of integrated, proprietary technologies shifts the competitive paradigm from competition at the individual levels of traits, GM crop seed, and crop protection to competition between systems. Arguably, a sector dominated by only three large firms will not provide sufficient head-to-head competition between systems to facilitate beneficial market outcomes. This poses significant risks for growers, who could be locked into single proprietary cropping systems at higher prices, with limited flexibility and choice. It would also harm consumers, who could pay higher prices and lose choice in how their food is grown and sourced.

#### Big Ag leads to ecological collapse---it destroys biodiversity, causes gulf hypoxia, and increases emissions

Matthew R. Sanderson and Stan Cox 19, social scientist at Kansas State University, research scholar in ecosphere studies at The Land Institute “Big Agriculture Is Leading to Ecological Collapse,” Foreign Policy, 10-14-2019, <https://foreignpolicy.com/2021/05/17/big-industrialized-agriculture-climate-change-earth-systems-ecological-collapse-policy/>

Today, there is more carbon dioxide in the atmosphere than at any point in the past [3.6 million years](https://research.noaa.gov/article/ArtMID/587/ArticleID/2742/Despite-pandemic-shutdowns-carbon-dioxide-and-methane-surged-in-2020). On April 5, atmospheric carbon dioxide exceeded [420 parts per million](https://www.esrl.noaa.gov/gmd/ccgg/trends/monthly.html)—marking nearly the halfway point toward doubling the carbon dioxide levels measured prior to the Industrial Revolution, a mere [171 years ago](https://www.ipcc.ch/site/assets/uploads/sites/2/2018/12/SR15_FAQ_Low_Res.pdf). Even amid a pandemic-induced economic shutdown—during which global annual emissions dropped [7 percent](https://research.noaa.gov/article/ArtMID/587/ArticleID/2742/Despite-pandemic-shutdowns-carbon-dioxide-and-methane-surged-in-2020)—carbon dioxide and methane levels set records in 2020. The last time Earth held this much carbon dioxide in its atmosphere, sea levels were nearly 80 feet higher and the planet was 7 degrees Fahrenheit warmer. The catch: Homo sapiens did not yet exist.

Change is in the air. U.S. Director of National Intelligence Avril Haines [announced](https://www.nytimes.com/live/2021/04/22/us/biden-earth-day-climate-summit) climate change is “at the center of the country’s national security and foreign policy.” Business-as-usual is no longer a viable strategy as more institutions consider a future that will look and feel much different. In this context, it is striking to read a recent piece in Foreign Policy arguing “[big agriculture is best](https://foreignpolicy.com/2021/04/18/big-agriculture-is-best/).”

“Big agriculture is best” cannot be an argument supported by empirical evidence. By now, it is vitally clear that Earth systems—the atmosphere, oceans, soils, and biosphere—are in [various phases of collapse](https://www.swissre.com/media/news-releases/nr-20200923-biodiversity-and-ecosystems-services.html), putting nearly [one-half of the world’s gross](https://www.swissre.com/media/news-releases/nr-20200923-biodiversity-and-ecosystems-services.html) domestic product at risk and [undermining the planet’s ability to support life](https://ipbes.net/global-assessment). And big, industrialized agriculture—promoted by U.S. foreign and domestic policy—lies at the heart of the multiple connected crises we are confronting as a species.

The litany of industrial agriculture’s toll is long and diverse. Consider the effects of industrial animal agriculture, for example. As of this writing, animal agriculture accounts for [14.5 percent](http://www.fao.org/news/story/en/item/197623/icode/) of total anthropogenic greenhouse gas emissions annually. It is also the source of 60 percent of all nitrous oxide and 50 percent of all methane emissions, which have [36 times and 298 times](https://www.epa.gov/ghgemissions/understanding-global-warming-potentials), respectively, the warming potential of carbon dioxide. As industrial animal agriculture has scaled up, agricultural emissions of methane and nitrous oxide have been going in [one direction only](https://www.ipcc.ch/site/assets/uploads/2018/02/ar4-wg3-chapter8-1.pdf): up.

Efforts to scale industrial agriculture are undermining the planet’s capacity to support life at more local scales too. Consider Brazil, home to the Amazon Rainforest, which makes up [40 percent](https://www.worldbank.org/en/news/feature/2019/05/22/why-the-amazons-biodiversity-is-critical-for-the-globe) of all remaining rainforest and 25 percent of all terrestrial biodiversity on Earth. Forest loss and species extinctions [have only increased](https://ipbes.net/sites/default/files/inline/files/ipbes_global_assessment_report_summary_for_policymakers.pdf) as industrial agriculture has scaled up in Brazil. Farmers are burning unprecedented amounts of forest to expand their operations in pursuit of an industrial model. In August 2019, [smoke blocked the sun in São Paulo](https://www.weforum.org/agenda/2019/08/amazon-burning-unseen-rate/), Brazil, 2,000 miles away from the fires in the state of Amazonas.

Efforts to scale industrial agriculture are undermining the planet’s capacity to support life.

In India, the pace of agricultural industrialization is hastening as indicated by [rising agricultural production](https://www.ers.usda.gov/mediaImport/1957187/err-203.pdf) and [declining employment in agriculture](https://data.worldbank.org/indicator/SL.AGR.EMPL.ZS?locations=IN), which now accounts for less than one-half of India’s workforce. Agriculture has been scaled with all the tools of the Green Revolution: a high-input farming system comprised of genetically modified seeds and accompanying synthetic fertilizers and pesticides. As agriculture has industrialized in India, the use of [pesticides](http://ppqs.gov.in/statistical-database) and [fertilizers](https://pib.gov.in/PressReleseDetailm.aspx?PRID=1640400#:~:text=Production%20and%20Sales%2F%20consumption%20of%20Fertilisers%20comfortable&text=2019%2D20%20record%20high%20urea,previous%20year%20i.e.%202018%2D19.) has risen as well.

Although it has become more difficult to breathe the air in Brazil, it has become harder to find clean freshwater in India, where [pesticide contamination is rising](https://link.springer.com/article/10.1007/s10661-015-4287-y). There, the costs of the industrial agriculture model are plainly ecological and human: Unable to drink the water or pay back the loans they took out to finance their transition to industrial farming, an alarming number of Indian farmers are drinking pesticides instead. Almost a quarter-million Indian farmers have [died by suicide](http://www.isec.ac.in/farmer_suicides_An%20all%20India%20study-09Aug2017-revised.pdf) since 2000, and [10,281 farmers and farm laborers](https://www.nytimes.com/2020/09/08/world/asia/india-coronavirus-farmer-suicides-lockdown.html) killed themselves in 2019 alone. In Punjab, the country’s breadbasket, environmental destruction coexists with a raging opioid epidemic ensnaring nearly[two-thirds of households in the state](https://www.theguardian.com/global-development/2019/jul/01/the-indian-state-where-farmers-sow-the-seeds-of-death).

If the events in Brazil and India sound familiar to U.S. readers, it is because there are analogous stories in the United States—where industrial agriculture is rendering entire landscapes uninhabitable. The U.S. Corn Belt, which spans the region from Ohio to Nebraska, produces 75 percent of the country’s corn, but around [35 percent](https://www.pnas.org/content/118/8/e1922375118) of the region has completely lost its topsoil. Industrial agriculture has been pursued with special zeal in Iowa, where there are 25 million hogs and 3 million people. There, water from the Raccoon River enters the state capital of Des Moines—home to 550,000 people—with nitrates, phosphorus, and bacteria that have [exceeded federal safe water drinking standards](https://apnews.com/article/des-moines-lawsuits-courts-iowa-pollution-23798b7c9dfe04bc84f728ce92eeb4db).

At a larger scale, nutrient runoff from industrial agriculture in the U.S. Midwest has created an annual [dead zone](https://www.noaa.gov/media-release/noaa-forecasts-very-large-dead-zone-for-gulf-of-mexico)—a hypoxic area low in or devoid of oxygen—that is the size of Massachusetts. The ecological consequences of industrial agriculture manifest alongside a growing human toll. Rural communities are experiencing [rising suicide rates](https://www.washingtonpost.com/news/wonk/wp/2018/05/24/mapping-the-rising-tide-of-suicide-deaths-across-the-united-states/), especially [among young](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4551430/) people, along with increases in “[deaths of despair](https://www.nytimes.com/2020/01/09/opinion/sunday/deaths-despair-poverty.html)” from alcohol and drugs—an expanding human dead zone.

From suffering U.S. farmers to the pain inflicted on the developing world, everything about U.S. agriculture policy is dysfunctional. The next administration can do better.

Although tragic, these outcomes are neither inevitable nor natural. They are outcomes of U.S. policy choices. Industrialized agriculture has been a hallmark of U.S. foreign policy in the post-World War II era. Under the guise of [development for all](https://avalon.law.yale.edu/20th_century/truman.asp) and the mantra of “[feed the world](https://share.america.gov/u-s-farmers-feed-world/),” the United States has used policy to [dump surplus grain](https://www.cambridge.org/core/journals/renewable-agriculture-and-food-systems/article/true-costs-of-us-agricultural-dumping/ABDB3E76865636EF025C72D94FEECD32) in low-income countries—undermining markets for smallholder farmers—and cultivate foreign markets as importers of high-input, industrial agriculture technologies to scale agriculture. At home, federal policy since the 1970s has explicitly promoted scaling industrial agriculture through the “[get big or get out](https://grist.org/article/the-butz-stops-here/)” imperative.

Society did not arrive at this precipice because agriculture was too small or because industrialized agriculture respected the laws of physics. Instead, we are peering into an abyss of systemic socioecological collapse because every effort has been made to use industrialization to break through all known ecological and human limitations to scaling agriculture.

Industrial agriculture simplifies ecosystems, rendering us more vulnerable to threats. Transformative policies will be required to pull us back from the edge. As a start, the United States could set an example for the Global North with a [50-year farm bill](https://www.nytimes.com/2009/01/05/opinion/05berry.html).

Industrial agriculture simplifies ecosystems, rendering us more vulnerable to threats.

The bill would promote ecosystem diversification and increased resilience by reducing acreage of annual grain crops from 70 percent to 10 percent or less of all cropland while scaling up [perennial crops](https://science.sciencemag.org/content/328/5986/1638) to 80 percent of farmland. The remaining 10 percent would be allocated to other crops, including a diverse array of locally produced vegetables and fruits. Soil and water-conserving perennial varieties of rice, wheat, legumes, and other food-grain crops—which are [now being developed](https://www.cambridge.org/core/journals/global-sustainability/article/is-the-future-of-agriculture-perennial-imperatives-and-opportunities-to-reinvent-agriculture-by-shifting-from-annual-monocultures-to-perennial-polycultures/0F69B1DBF3493462B4D46EB8F0F541EE)—could serve as components of diverse, perennial, multispecies communities of food crops that replicate how nature functions. The bill would promote a transition to smaller, more diverse farm operations as agricultural diversification will work most effectively not on vast, uniform acreages but as mosaics made up of many modest-sized farms.

The bill would be an important step toward returning home as a species that once again lives within context—within limits, [perennially](https://www.resilience.org/stories/2020-12-08/transforming-life-on-our-home-planet-perennially/). Our collective pursuit of “big is best” led us out of context to our peril.

In the face of multiple cascading socioecological crises, Candide, published by the French writer Voltaire in 1759, shows us a way forward. Candide, the book’s protagonist, is mentored by Pangloss, a professor who holds a [Leibnizian optimism](https://plato.stanford.edu/entries/leibniz/) about the world that justifies the status quo as being “all for the best” in the “best of all possible worlds.”

#### Collapse of biodiversity causes extinction

Dr. Luiz Marques 20, PhD in Entomology, Associate Professor of Environmental History in the Department of History at the University of Campinas, Capitalism and Environmental Collapse, p. 247-248

Numerous scholars from various fields of science today are concerned with the ongoing collapse of biodiversity. The first Global Assessment of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES),1 published in 2019, estimates that:

The rate of global change in nature during the past 50 years is unprecedented in human history (…) Human actions threaten more species with global extinction now than ever before. (…) An average of around 25% of species in assessed animal and plant groups are threatened, suggesting that around 1 million species already face extinction, many within decades, unless action is taken to reduce the intensity of drivers of biodiversity loss.

Societies’ very survival depends on their ability to avert the impending threat of biological annihilation via the ongoing sixth mass extinction of species, triggered or intensified by the globalization of capitalism over the last 50 years. Sir Robert Watson, Chair of IPBES (2016), doesn’t mince his words to say what is at stake: “We are eroding the very foundations of our economies, livelihoods, food security, health and quality of life worldwide.” There is no hyperbole in the claim that the collapse of biodiversity and the acceleration of global warming, two processes that interact in synergy, entail an increasing risk of extinction for the Homo sapiens. As pointed out by Cristiana Paşca Palmer, Executive Secretary of the Convention on Biodiversity (2018), “I hope we aren’t the first species to document our own extinction.” Julia Marton-Lefèvre, former Director General of the International Union for Conservation of Nature (IUCN), reiterates this warning for the umpteenth time in a statement to delegations meeting at Rio+20 in 2012:

Sustainability is a matter of life and death for people on the planet. A sustainable future cannot be achieved without conserving biological diversity—animal and plant species, their habitats and their genes—not only for nature itself, but also for all 7 billion people who depend on it.

10.1 Defaunation and Biological Annihilation

Rodolfo Dirzo, Mauro Galetti, Ben Collen, and other co-authors of a review titled “Defaunation in the Anthropocene” (2014) conceptualize one of the central aspects of the current sixth mass extinction of species: the term defaunation is used to denote the loss of both species and populations of wildlife, as well as local declines in abundance of individuals. The defaunation process is in full swing:

In the past 500 years, humans have triggered a wave of extinction, threat, and local population declines that may be comparable in both rate and magnitude with the five previous mass extinctions of Earth’s history. Similar to other mass extinction events, the effects of this “sixth extinction wave” extend across taxonomic groups, but they are also selective, with some taxonomic groups and regions being particularly affected. (…) So profound is this problem that we have applied the term “defaunation” to describe it.

In a 2017 article, Gerardo Ceballos, Paul Ehrlich, and, again, Rodolfo Dirzo warn about the false impression that the threat of biological annihilation is not imminent:

The strong focus on species extinctions, a critical aspect of the contemporary pulse of biological extinction, leads to a common misimpression that Earth’s biota is not immediately threatened, just slowly entering an episode of major biodiversity loss. This view overlooks the current trends of population declines and extinctions. Using a sample of 27,600 terrestrial vertebrate species, and a more detailed analysis of 177 mammal species, we show the extremely high degree of population decay in vertebrates, even in common “species of low concern.” Dwindling population sizes and range shrinkages amount to a massive anthropogenic erosion of biodiversity and of the ecosystem services essential to civilization. This “biological annihilation” underlines the seriousness for humanity of Earth’s ongoing sixth mass extinction event.

#### Gulf hypoxia is growing because of ag runoff---it’ll collapse whole oceans---extinction

Hendy 17 – Dr. Ian Hendy, PhD in Trophic Marine Biology, Research and Communication Officer and Senior Scientific Researcher in Marine Ecology at the University of Portsmouth, Institute of Marine Sciences Laboratories, “Gulf of Mexico 'Dead Zone' Is Already A Disaster – But It Could Get Worse”, Phys Org, 8-14, https://phys.org/news/2017-08-gulf-mexico-dead-zone-disaster.html

Each summer, a large part of the Gulf of Mexico "dies". This year, the Gulf's "dead zone" is the largest on record, stretching from the mouth of the Mississippi, along the coast of Louisiana to waters off Texas, hundreds of miles away. Around 8,776 square miles of ocean, an area the size of New Jersey or Wales, is almost lifeless.

John Muir, the famed naturalist and early conservation campaigner, once said that: "When we try to pick out anything by itself, we find it hitched to everything else in the Universe." His point was that everything in nature is connected, and that no part of our ecosystem exists entirely independently from any other.

It is perhaps no surprise then that ultimate cause of the Gulf of Mexico's dead zone can be found many miles inland. Fertilisers used by farmers then wash into the Mississippi River and eventually into the sea, where nutrients such as nitrogen and phosphorus stimulate an explosion in microscopic algae, creating huge "algal blooms". The algae then die and sink to the bottom, where they decompose. But the same bacteria which decompose the algae also use the sea's oxygen during the process, leaving an "anoxic" ocean.

Fish and other mobile sea creatures are able to escape the suffocating dead zone. Less lucky however are the sponges, corals, sea squirts and other animals who live their lives fixed in one place on the sea bed. Low oxygen levels place them under great stress and we have seen huge mortalities. Such losses will of course ripple up the food web, creating a negative chain reaction of increasing mortality rates in larger and larger animals.

The "dead zone" has grown this year due to increased rainfall in America's Midwest washing ever greater amounts of nutrients into the Mississippi, which ultimately end up in the Gulf. Not only is this a huge conservation issue – the Gulf contains key nursery habitats such as mangrove forests, sea grass beds and coral reefs that benefit adjacent fisheries – but it also has huge consequences for the local fishing economy, particularly the shrimp industry.

Steps are under way to slow down the ecological disaster. Some farmers in the Mississippi basin are using large grassy zones along waterways in order to soak up the agricultural fertilisers and filter out many of the nutrients before they make their way down the Mississippi to pollute the Gulf. However, it remains to be seen whether such measures are effective – and US farmers certainly need to greatly reduce the nitrogen and phosphates they use.

In the century since Muir's death, things have sped up. A larger population demands more food which means more deforestation, more farmland and more fertiliser. The increase demand placed on our land is ultimately affecting the marine environment.

These losses are unsustainable. The marine environment is integral for all life on earth, from an ecological and economic point of view. If we keep losing ecosystem services such as coastal nursery habitats and spawning grounds at this current rate, it will not just be an area the size of a state that is a dead zone, but the whole Gulf, or even whole oceans.

#### Industrial ag causes antibiotic resistant pandemics---extinction

Pamlin 15 – Dennis Pamlin, Entrepreneur and Founder of 21st Century Frontiers, Senior Associate at Chinese Academy of Social Sciences, Visiting Research Fellow at the Research Center of Journalism and Social Development at Renmin University, Advisor to Centre for Sustainable Development at Confederation of Indian Industries, Stuart Armstrong, DPhil from Oxford University, James Martin Research Fellow at the Future of Humanity Institute at Oxford University, “Global Challenges, 12 Risks That Threaten Human Civilization: The Case for a New Risk Category”, Global Challenges Foundation, February, https://api.globalchallenges.org/static/wp-content/uploads/12-Risks-with-infinite-impact.pdf

3.1.4.1 Expected impact disaggregation

3.1.4.2 Probability

Influenza subtypes266

Infectious diseases have been one of the greatest causes of mortality in history. Unlike many other global challenges pandemics have happened recently, as we can see where reasonably good data exist. Plotting historic epidemic fatalities on a log scale reveals that these tend to follow a power law with a small exponent: many plagues have been found to follow a power law with exponent 0.26.261

These kinds of power laws are heavy-tailed262 to a significant degree.263 In consequence most of the fatalities are accounted for by the top few events.264 If this law holds for future pandemics as well,265 then the majority of people who will die from epidemics will likely die from the single largest pandemic.

Most epidemic fatalities follow a power law, with some extreme events – such as the Black Death and Spanish Flu – being even more deadly.267

There are other grounds for suspecting that such a high impact epidemic will have a greater probability than usually assumed. All the features of an extremely devastating disease already exist in nature: essentially incurable (Ebola268), nearly always fatal (rabies269), extremely infectious (common cold270), and long incubation periods (HIV271). If a pathogen were to emerge that somehow combined these features (and influenza has demonstrated antigenic shift, the ability to combine features from different viruses272), its death toll would be extreme.

Many relevant features of the world have changed considerably, making past comparisons problematic. The modern world has better sanitation and medical research, as well as national and supra-national institutions dedicated to combating diseases. Private insurers are also interested in modelling pandemic risks.273 Set against this is the fact that modern transport and dense human population allow infections to spread much more rapidly274, and there is the potential for urban slums to serve as breeding grounds for disease.275

Unlike events such as nuclear wars, pandemics would not damage the world’s infrastructure, and initial survivors would likely be resistant to the infection. And there would probably be survivors, if only in isolated locations. Hence the risk of a civilisation collapse would come from the ripple effect of the fatalities and the policy responses. These would include political and agricultural disruption as well as economic dislocation and damage to the world’s trade network (including the food trade).

Extinction risk is only possible if the aftermath of the epidemic fragments and diminishes human society to the extent that recovery becomes impossible277 before humanity succumbs to other risks (such as climate change or further pandemics).

Five important factors in estimating the probabilities and impacts of the challenge:

1. What the true probability distribution for pandemics is, especially at the tail.

2. The capacity of modern international health systems to deal with an extreme pandemic.

3. How fast medical research can proceed in an emergency.

4. How mobility of goods and people, as well as population density, will affect pandemic transmission.

5. Whether humans can develop novel and effective anti-pandemic solutions.

1. Extensive medical research will be key to preventing and combatting large scale pandemics. The drawbacks are the possibility of accidental release of dangerous pathogens from laboratories and of bioterrorism.

2. As so much is known about pandemic risks compared with other risks, there are more possibilities for specific prepandemic contingency plans.

3. The effectiveness of healthcare systems will be important, especially in less developed nations where the pandemic may overwhelm the system, and then transmit from there to other nations.

4. Global coordination in detection, analysis and treatment are vital for stopping a pandemic in its early stages, and for implementing measures such as quarantines and more advanced countermeasures.

5. Poverty will affect the quality of national healthcare systems, population density and sanitation quality, the movement of local goods and people, and the effectiveness of the political response.

6. Bioterrorists may unleash a pathogen held in storage, such as smallpox.

7. Laboratory security at the top labs is insufficient for the danger at hand, and accidental release is a nonnegligible possibility.

8. Pandemics are one of the risks where there is a possibility for a very large number of direct casualties, depending on the severity of the pathogen.

9. Mass casualties and finger-pointing could destabilise the world political and economic systems.

10. If the pathogen is transmissible to farm animals, this could affect the world food supply.

11. It is unlikely the pathogen would be a recurrent, long-term risk, but variants of it could continue to affect people and animals for many years, dependent on its transmissibility and life cycle.

12. Small pandemic scares could improve global coordination on the issue.

13. Increased population density causes increased transmissibility of the pathogen, especially in urban slums.

14. Some pathogens, such as bird flu, depend on regular contact between humans and “reservoir species” in order to evolve into periodically dangerous strains.

15. If antibiotic resistance develops, humanity could see the resurgence of bacteria-based pandemics.

16. The increased movement of people and products increases the speed and spread of pandemic transmission.

17. Sanitation or its lack will strongly affect the spread of certain pathogens in key areas.

18. The efficiency of global reaction to a new pandemic will be strongly determined by the speed of research on the pathogen during the pandemic.

19. A great risk will arise if a pathogen combines the different dangerous features of current viruses or bacteria.

20. The improvements to surveillance and sensing technologies (including indirect detection via web queries or social media) open the possibility of smarter interventions (such as microquarantines) and faster understanding of the pathogen’s transmissibility.

21. Post-pandemic politics will be important for preventing a civilisation collapse or enabling reconstruction.

22. Many pathogens incubate in species close to humans, before leaping the species barrier.

23. Monoculture food systems make it easier to transmit any pathogen infecting human food animals.

24. The mode of transmission of the pathogen will be critical to its ultimate reach and impact.

25. Various countermeasures are available in terms of detection, virus analysis, treatment, and quarantining. Future research, technological and political developments may open up new methods of fighting the pathogen.

26. Many of the current factors determining pathogen transmission are unprecedented, such as movements of goods and people, the quality of healthcare systems, and the existence of a centralised political response. This means that data from past pandemics will not be as reliable for computing probability distributions.

27. The pandemic risk lies in the “tails” – the extreme events – and these tails must be estimated from few data points, making them tricky and uncertain.

3.1 Current risks during 2013

3.1.4.3 Main events

10-Jun-13: Pandemic Influenza Risk Management: WHO Interim Guidance 278 – Policy

This is an updated document that replaces the 2009 Pandemic Influenza Preparedness and Response: a WHO guidance document.279 It updates its recommendations based on lessons from the influenza A(H1N1) 2009 pandemic (swine flu),280 the adoption by the Sixty-fourth World Health Assembly of the Pandemic Influenza Preparedness Framework281 (for the sharing of influenza viruses and access to vaccines and other benefits), and the States Parties’ obligations on capacity strengthening contained in the International Health Regulations of 2005.282

Of significance was the Report of the Review Committee on the Functioning of the International Health Regulations (2005) on the A(H1N1) 2009 pandemic,283 which concluded: “We were lucky this time, but as the report concludes, the world is ill-prepared to respond to a severe influenza pandemic or to any similarly global, sustained and threatening public-health emergency.” This is reinforced by the fact that the 2009 pandemic is alleged to have infected 24% of the population.284

The main lesson the WHO drew from that epidemic was that member states generally had communication issues (between ministries of health and decision,makers, and with the public), and were prepared for a pandemic of high severity and appeared unable to adapt their national and subnational responses adequately to a more moderate event.

The guidance paper indicates simultaneously the weaknesses of pandemic preparations, the improvements in these preparations, and the continued role of the WHO as global directing and coordinating authority.

24-Jul-13: Bacteria become resistant to some of the last remaining antibiotics 285 – Event

Bacterial infections, such as the Black Death, 286 syphilis, 287 and tuberculosis, 288 have been responsible for millions of deaths, over the thousands of years they have co-existed with humanity. Though these diseases have not been eradicated – overall, a third of the world is currently infected with the tuberculosis bacillus289 – they have been controlled since the introduction of antibiotics, and prognostics have improved tremendously. But recently a rising number of bacteria have developed antibiotic resistance, due mainly to antibiotic over-prescription290 and use in livestock feed.291 This Nature report highlights the worrying way in which Enterobacteriaceae (bacteria with a 50% mortality rate) have become resistant to carbapenems, one of the last remaining antibiotics that had been effective against them.

#### Small farms are key to the implementation of regenerative ag practices---the market power of large farms prevents status quo investment

Kristen Tam and Olivia Bielskis 21, Researchers for UCLA Law Library, “Stimulating Antitrust Enforcement to Expand the Regenerative Agriculture Movement”, 4-1-21, <https://escholarship.org/uc/item/0m16g2r5>

Food Security, a Critical Practice to create a Climate Resilient Future The United Nations IPCC report calls for a rapid greenhouse gas reduction to limit temperature rise to 1.5 degrees celsius by 2050.33 Given that agriculture and forestry accounted for 10.5 percent of greenhouse gas emissions in 2018,34 farming practices can play a crucial role in meeting these goals. Farming the land in ways that build healthy soil, maintain biodiversity, and sequester carbon dioxide are critical measures that will help America cultivate a sustainable food system, protect the land for generations to come, and meet greenhouse gas emission reduction goals. Currently, the practices that dominate the American agricultural landscape often till the soil, plant only one to two crops at a time, and input large sums of fertilizer, herbicides, pesticides, and other chemicals to streamline production. Industrialized agriculture values efficiency, maximizing yield, and decreasing labor input. In contrast, regenerative agriculture practices maintain soil health for long term benefit by applying compost as fertilizer, planting cover crops, implementing diverse crop rotation, rotating livestock grazing, limiting fertilizer and pesticide use, and eliminating tillage practices.35 Although opponents highlight that regenerative practices yield less products per acre and require more labor input, they neglect the significance of their energy input being 30-60 percent less than traditional methods because they do not use machines, fertilizer, and herbicides.36 This practice ultimately increases the long term productivity and stability of food production because it doesn’t rely on the continuous purchasing and application of chemicals into the soil. Instead, it builds soil health by increasing nutrient and water retention, both of which increases land productivity.37 II. Small Farms are More Likely to Implement Regenerative Fertilization Practices One of the defining regenerative agriculture practices is applying compost and manure as fertilizer. There are three different types of fertilization methods that the USDA measures every few years, manure, organic, and commercial that help replenish soil nutrients. Manure is the application of animal bio excretions,38 organic fertilizer is the use of organic matter, compost, animal manures or green manures and does not include any chemical fertilizers,39 and commercial fertilizer is the application of chemically derived fertilizers such as nitrogen, phosphate and potash.40 For these figures, manure and organic fertilizers are categorized as “regenerative fertilizers” because they represent methods that replenish soils with naturally derived as opposed to chemically manufactured nutrients. Small farms, 10.0 to 49.9 acres, are more likely to implement regenerative fertilizer methods than medium sized, 260 to 499 acres, and large sized, 1,000 to 1,999 acre farms. In 2017, 32.74 percent of small farms used regenerative fertilizer, compared to 27.27 percent of medium and 21.63 percent of large farms.41 Small farms are also transitioning away from commercial fertilizer to regenerative fertilizer methods at a faster rate than medium and large farms. From 2012 to 2017, small farms had the greatest percent decrease in number of farms using commercial fertilizers, 6.50 percent, and the largest percent increase for regenerative practices, 6.47 percent. Medium farms experienced a 2.28 percent decrease in the number of farms implementing commercial fertilizers, while a 2.57 percent increase in regenerative fertilizers. Large farms experienced a 2.31 percent decrease in the number of farming implementing commercial fertilizers, while a 2.32 percent increase in regenerative fertilizers.42 This demonstrates that smaller farms are more willing and better suited to implement regenerative practices. Industrial agriculture firms, on the other hand, highly prioritize efficiencies and maximizing profit, thus, are less likely to invest the time and money into learning about and switching to regenerative fertilization practices. While small farms are making the most rapid transition to regenerative fertilization practices that would benefit the market and planet in the long run, the increased market and resource dominance of the largest farms, which have the slowest rates of transition to regenerative fertilization practices, is ultimately hindering the growth of regenerative agriculture in the United States.

Consolidation Negatively Affects Farmers This disproportionate market power gained by a few agriculture conglomerates allows them to reduce prices in order to drive out competition.43 While large farms lack the will to invest in more regenerative farming techniques, small farms that do not employ regenerative practices are primarily hindered by their lack of economic means to do so. As previously stated, individual farmers make less than 15 cents per dollar and, according to a study conducted by the USDA in 2001, 71 percent of poultry growers live below the poverty line.44 Such subpar circumstances are not conducive to having the freedom to invest time and money into switching practices to plant cover crops, not till, and use animal fertilizer. E. Consolidation Negatively Affects Consumers In addition to harming farmers, agricultural consolidation has also resulted in increased food prices for consumers, largely disproving the claims of Bork’s “consumer welfare standard.” In 2014, economist John Kwoka published a book Mergers, Merger Control, and Remedies: A Retrospective Analysis of U.S. Policy where he analyzed 200 mergers from 1976 to 2006 and found that post-merger prices on average increased by 4.3 percent.45 In addition, evidence has shown that market self-correction has not occurred as a result of antitrust underenforcement.4

#### The plan solves---it allows small farms to compete by resolving unequal distribution of market power

Hannah Kass 19, Master’s degree candidate in environmental studies at the University of Pennsylvania, “Breaking Up Big Ag Requires Reasonable Antitrust Enforcement”, 12/26/19, The Regulatory Review, https://www.theregreview.org/2019/12/26/kass-breaking-up-big-ag-antitrust-enforcement/

In 2007, food sovereignty activists from around the world convened in Sélingué, Mali to write the [Declaration of Nyéléni](https://nyeleni.org/spip.php?article290). That declaration asserts that activists should seek to democratize the flows of power, wealth, and resources that have moved predominantly toward the core industrialized countries and multinational corporate agribusinesses, and away from farmers all over the world.

The declaration aims to ensure that the food system protects those who produce and consume the world’s food supply: farmers and people, rather than corporate agribusinesses. Yet in the United States and elsewhere, the food system has a long way to go toward meeting the needs of both farmers and consumers.

Farmers are increasingly driven out of agriculture by the unequal distribution of market power. To ensure fair competition in the agri-food marketplace, it is imperative that the federal government provide the proper enforcement of antitrust regulations. Currently, corporate agribusinesses [hold](https://www.iatp.org/sites/default/files/451_2_89014.pdf) a disproportionate amount of market power in the agri-food economy. Farmers, on the other hand, are under economic pressure to compete in a growing global market, and often must [rely](https://openmarketsinstitute.org/wp-content/uploads/2019/04/190322_MonopolyFoodReport-v7.pdf) on contracting with just a few processing companies to sell their products.

Many of these contracts contain [conditions](https://openmarketsinstitute.org/wp-content/uploads/2019/04/190322_MonopolyFoodReport-v7.pdf) which force farmers to buy seeds and equipment from a small handful of input companies. Often, the big food companies are vertically integrated—that is, the same companies operate at various levels of the supply chain. At the end of the day, farmers only [receive](https://1yd7z7koz052nb8r33cfxyw5-wpengine.netdna-ssl.com/wp-content/uploads/2018/05/042718-FarmerShare-1.pdf) 14.8 cents per every dollar consumers spend on food—yet the costs of production amount to 80 cents per dollar. The majority of the revenue is realized by corporate agribusiness executives and shareholders.

In 2015, the four largest beef firms [controlled](https://openmarketsinstitute.org/wp-content/uploads/2019/04/190322_MonopolyFoodReport-v7.pdf) 85% of the beef market. The four largest U.S. corn seed firms [controlled](https://openmarketsinstitute.org/wp-content/uploads/2019/04/190322_MonopolyFoodReport-v7.pdf) 85% of the corn seed market, and the four largest U.S. soybean seed firms [controlled](https://openmarketsinstitute.org/wp-content/uploads/2019/04/190322_MonopolyFoodReport-v7.pdf) 76% of that market. In 2017, after the Bayer–Monsanto and Dow–Dupont mergers, the four largest global herbicide and pesticide firms now [own](https://openmarketsinstitute.org/wp-content/uploads/2019/04/190322_MonopolyFoodReport-v7.pdf) 84% of the market share.

The [Federal Trade Commission](https://www.ftc.gov/) (FTC) and [Antitrust Division of the Department of Justice](https://www.justice.gov/atr) interpret and implement antitrust statutes. The [Sherman Antitrust Act of 1890](https://www.ourdocuments.gov/doc.php?flash=false&doc=51&page=transcript) renders price-fixing, restraint of trade, and excessive market monopolization illegal, and the [Clayton Antitrust Act](http://euro.ecom.cmu.edu/program/law/08-732/Antitrust/ClaytonAct.pdf) asserts that it is unlawful for any business to merge with or acquire any part of its industry in a manner that significantly damages that industry. Despite these laws, corporate agribusiness’ monopolization of the agricultural market continues to persist at the expense of farmers in the United States.

Over the past 40 years, corporate agribusinesses have benefited from the FTC and Antitrust Division’s lax interpretations of antitrust statutes. These agencies have [permitted](https://engagedscholarship.csuohio.edu/cgi/viewcontent.cgi?article=1065&context=gblr) large corporate agribusinesses to merge and monopolize the market excessively, despite the fact that antitrust statutes were created explicitly to regulate monopolies and ensure fair market competition.

Admittedly, given that the Sherman Act makes it illegal to restrain trade, it might be said that only by allowing agribusinesses to merge, acquire other businesses, and monopolize the market is trade able to continue unrestrained. But that trade is unrestrained only for the big firms. Small farmers are unable to [compete](https://foodfirst.org/wp-content/uploads/2013/12/BK7_4-Fall-2001-Vol-7-4-Freedom-to-Trade.pdf) in the marketplace when the concentration of big firms continues unrestrained, particularly when mergers and acquisitions promote the monopolization of the market.

Consider how small farmers have fared under the consolidation of the meat packing industry. According to the [Packers and Stockyards Act of 1921](https://govtrackus.s3.amazonaws.com/legislink/pdf/stat/42/STATUTE-42-Pg159b.pdf), price-fixing was supposedly rendered illegal, but even with this protection the plight of small farmers has been profound.

In 2004, for example, cattle farmer Henry Lee Pickett [sued](https://caselaw.findlaw.com/us-11th-circuit/1492709.html) meat packer Tyson Foods when he noticed that Tyson was lowering prices in its marketing agreements with farmers. Pickett preferred to charge the cash market price to avoid being paid an unfair price. Even if farmers did not sell their products through marketing agreements like Tyson’s, often they still needed to lower their prices on the open market. Pickett was unable to provide evidence that Tyson’s market agreements were producing unfair competition practices, so he lost his case.

Separately, pork producers also unsuccessfully [fought](https://law.justia.com/cases/federal/district-courts/FSupp2/183/824/2285063/) meat packer Smithfield Foods, citing illegal price-fixing under the Packers and Stockyards Act. The marketing agreements were seen by the judiciary as reasonable business practices because they cut costs to the agribusiness contractors.

In both of these cases, Tyson and Smithfield were protected by the “freedom of contract” principle, which declares that everyone is free to participate in, or opt out of, any contractual agreement. However, the share of this “freedom” in terms of food sovereignty is certainly asymmetrical. When the market price is controlled by an artificially low price created by a marketing agreement, farmers are not free from poverty. When marketing agreements are adopted by the majority of processors, and there are not alternative agreements offered, farmers are not free from opting out of unfair contracts. In effect, farmers are locked into receiving an unfair price for their product.

The [Agricultural Adjustment Act of 1933](http://nationalaglawcenter.org/wp-content/uploads/assets/farmbills/1933.pdf) contained an important policy for agrarian viability: parity pricing, or a price support that covers producers’ costs of production in setting commodity prices. But that policy [lapsed](https://onlinelibrary.wiley.com/doi/abs/10.1526/0036011042722750) in 1973 and has never returned as part of federal agricultural law. Reinstating a parity price for farm products would ensure that consolidated corporate agribusinesses would not be able to fix prices below the costs of production. Farmers would have to be paid a fair price for their products under the law.

Another important solution will be for farmers and food sovereignty advocates to seek judicial review of mergers and acquisitions approved by the FTC and DOJ. When firms are too big, they accumulate too large a share of power, land, and wealth. This inequality inherently renders farmers dispossessed of their ability to compete in the marketplace.

Instilling food sovereignty into our food governance requires prioritizing our farmers’ needs. The law must guarantee a fair price for the food they grow to feed all of us. The judiciary must consider the “restraint of trade” that their previous merger approvals have imposed on farmers, and enforce antitrust laws in favor of farmers going forward.

# 2AC

## Food Security

#### Industrial innovation fails---defensive R&D, narrow technological scope, and barriers to entry

Pat Mooney et al. 17, founder of the ETC group, October 2017, TOO BIG TO FEED, http://www.ipes-food.org/\_img/upload/files/Concentration\_FullReport.pdf

IMPACT 3 Narrowing the scope of innovation: defensive and derivative R&D Consolidation across the agri-food industry has a major impact in shaping R&D pathways and the broader innovation climate in food systems. Over the past 30 years, global private sector investment in agricultural R&D has risen faster than public R&D spending in OECD countries (Pray & Fuglie, 2015). By 2013, private R&D accounted for almost half of agricultural research (Jaruzelski et al., 2017), with public research declining and increasingly focused on complementing and facilitating private R&D (e.g. through IPR protections).24 In its 2011 study on concentration in agricultural inputs, the USDA observed that the share of private R&D performed by the largest firms was even greater than their market shares (based on 2010 figures in Fuglie et al., 2011). For example: • The top eight seed/biotech companies accounted for 76% of all R&D spending in this sector • The top five companies accounted for over 74% of agrochemical R&D • The top four companies performed over 57% of farm machinery R&D • The top eight companies accounted for over 66% of R&D in animal health To put this in perspective, in 2013 the combined R&D budgets of the Big Six agrochemical and seed companies, valued at $6.59 billion, was six times larger than the total USDA Agricultural Research and Information budget ($1.1 billion) (USDA, 2013), and twenty times bigger than the CGIAR’s $332.2 million expenditures on crop-oriented research/breeding in the same year (CGIAR, 2013). The pooled resources and combined weight of increasingly consolidated agribusiness firms has long been touted by industry leaders as the key to a dynamic innovation climate. Such arguments date back to the 1980s, when Don Duvick, the research director of Pioneer Hybrid (then the world’s largest seed company, later merged with DuPont and now merged with Dow) made the case that the increased research capacity of merged companies would allow for greater and faster ‘diversity in time’: input companies would have a research pipe line providing farmers with an annual turnover of varieties in response to rapidly evolving diseases or pests, and other environmental stresses. From this perspective, consolidation is required to deliver the scale (research costs, infrastructure requirements) and scope (global applications) to rapidly invent and deploy new technologies around the world. This stands alongside the ‘diversity in space’ customarily practiced on the farm, whereby farmers protect their harvests with species and genetic diversity in the field (e.g. by intercropping, mixed crop-livestock farming). In addition, a different version of ‘diversity in time’, e.g. the use of crop rotations, has traditionally been adopted by farmers to boost resilience and mitigate risks. By contrast, farmers relying on the research pipelines of agribusiness firms may be left to shoulder the risks, e.g. of pest outbreaks, while seed companies supply their customers with new, resistant seeds in following years. More broadly, evidence from a range of sectors suggests that economies of scale fail to translate into dynamic innovation strategies, with highly concentrated markets often working against innovation. In an overview of innovation in the US automobile, computer and pharmaceutical industries, Adams and Brock (2004, p.49) noted that innovation in oligopolistic markets often comes “reluctantly” from leading companies when it occurs at all. A further study conducted by the US Federal Trade Commission suggests a strong negative correlation between high levels of market concentration and innovation (FTC, 2003). Buyouts are often pursued with innovation in mind, but primarily in terms of consolidating R&D costs - not increasing the quantity or quality of innovation. While private companies now make up a larger portion of total R&D spending in many sectors, the R&D budgets of large firms are frequently downsized as a result of consolidation (Lynch & Chazan, 2014). Moreover, mergers between R&D-oriented firms have been shown to reduce the types of innovation that are practiced (Moss, 2016; Haucap & Stiebale, 2016). The dominant trend is for large firms to buy out, enter licensing agreements, or partner with start-ups to fill in their innovation gaps. While the trend towards scaling innovation is not inherently problematic, analysts – including Chicago School economists - are increasingly concerned by the capacity of dominant firms to stifle bourgeoning competition through buyouts (The Economist, 2017c). Already, the leading companies in about two thirds of the 900 monitored industrial sectors have significantly increased their market share since the 1990s, while startup companies have diminished in number and in size (ibid). While the net R&D figures above suggest that today’s dominant agri-food companies are addressing the innovation challenge head-on, a closer look at research and innovation trends suggests that disincentives to innovation and increasingly defensive modes of R&D (i.e. R&D intended to defend existing products or technologies in the face of new competition or regulations, instead of investing in new ideas) are the reality in these highly concentrated markets. A series of significant and highly-anticipated advances have failed to materialize since the agri-food industry stepped up its consolidation in the 1970s. For example, commercial breeders initially argued that intellectual property protection would give them the incentive to domesticate new species of fruits and vegetables or, at least, to expand the market for a wider range of crops; however, there has been little to no increase or expansion (Dutfeld, 2000; Phillips McDougall, 2013). While the volume of R&D spending in the agrifood sector may be high, the scope remains strikingly narrow. The consolidation and privatization of R&D budgets has focused innovation on a narrow range of crops, technologies and approaches, creating path dependencies that detract from research on traditional crop varieties or social innovation strategies (Rahman, 2009). R&D spending has centered on crops and technologies with the highest commercial returns (Piesse & Thirtle, 2010), providing little space for commercial innovation for crops that are often most important for smallholder farmers in the South, and for delivering diverse, nutrient-rich diets. As much as 40% of private breeding research goes to one crop, maize (Fujisaka et al., 2011). In crop chemicals, the number of new active ingredients undergoing R&D decreased by 60% between 2000 and 2012 (Phillips McDougall, 2013). Recent trends suggest that the majority of patents being registered do not represent new breakthroughs - let alone innovations with relevance for the challenges food systems now face. According to USDA researchers, three firms (DuPont, Monsanto, Syngenta) accounted for nearly three quarters of all US patents issued for crop cultivars between 1982 and 2007 (ibid). As mentioned by industry analysts, “on a global basis, […] a greater share of R&D investment is being spent on defending products as they come of patent, including seed treatment and formulation technologies – rather than new active ingredient research” (ibid). For example, with only a handful of firms selling Bt cotton or GM soybeans (Naseem & Oehmke, 2008), the path dependencies are greater still for GM crops. Once a company has gone through the costs and regulatory maneuvers to bring a pesticide to market, it is more lucrative for companies to breed GM seeds that boost sales of proprietary chemicals than to develop alternative agronomic solutions

to pests, diseases and changing climatic conditions (Glover, 2010). Between 1995 and 2005, pesticide development costs rose by 118%—but the greatest share of R&D expenditures went to preserving sales of old chemical products facing patent expiration. The dependence on a firm’s old proprietary technologies appears to actively constrain innovation (Gapper, 2015). For these companies, the practical cost of bringing a new pesticide to market averages around US$286 million, while the cost of bringing a new GM variety is closer to US$136 million (ETC, 2015). The approaches adopted by dominant firms also impact other companies’ capacity or willingness to innovate. An increasing market share for transnational corporations in transitional economies has been shown to reduce local innovation and knowledge diffusion outside a company’s own networks (Voinea, 2008). Consolidation is also affecting the innovation climate in food processing and retail, cementing a focus on product differentiation over other forms of innovation. Here, new product lines are proliferating faster than ever. The food and beverage industry typically introduces over 21,000 new food and drink products per year (USDA, 2014a). However, this should not be confused with meaningful steps to innovate in terms of how those products are produced, composed, sourced and delivered (and the resulting implications for sustainability). While consumers may believe they are choosing among diverse products made by competing companies, they are often selecting among only notionally – or promotionally – different products from the same firm (ibid). ConAgra, for example, sells six different brands of popcorn, all containing a nearly identical ingredient list. In the US, margarine sales display a similar trend, with two firms – Unilever and ConAgra – accounting for 51.2% and 16.9% of sales through their six and four different brands respectively (Howard, 2016b). Similarly, new products introduced onto the market under different brands, such as breakfast cereals, are often made up of variations of the same ingredients – with a majority of product investment going into marketing rather than innovative R&D (Lawrence, 2008). This illusion of product diversity reflects the extensive and growing consolidation of the sector. A 2013 study of supermarket consolidation in the US found that four leading grocery retailers controlled 63.3% of sales of 100 basic grocery items, and more than 75% of sales for 32 of these items (Food & Water Watch, 2013). This type of consolidation does not preclude genuine innovation between product lines. However, the same supply chains and same logics are likely to underpin many of those products, meaning that much of the choice and diversity at consumers’ fingertips - and the implicit innovation in food retail - may be illusory. Indeed, a number of studies in Europe and the US demonstrate that increased market power results in reduced innovation efforts by manufacturers and food processors (Dobson et al., 2001; Roeder et al, 2000; US Federal Trade Commission, 2003a). As in the input sectors, corporate concentration can lead to barriers to entry – to the detriment of smaller and potentially more innovative actors. For example, new entrants can be shut out when dominant actors pay retailers to exclude products similar to theirs (Howard, 2016b). A defensive R&D paradigm therefore runs across food systems and has been cemented by the rapid consolidation at the field and fork ends of the chain. These trends have major implications for sustainability, allowing resources to be diverted away from investment in product innovation (e.g. reformulation of ingredients) or in improving agricultural practices. The resulting innovation climate reinforces the focus on ‘high-tech’ lab-based micro-innovations that have macro (i.e. global) applications: a privately-owned pesticide, a drying process, or a nutritional supplement. Alternative paradigms based on decentralized ‘wide-tech’ approaches are kept of the table; the potential of a ‘wide tech’ innovation paradigm to underpin more sustainable food systems is discussed in Section 3.

#### Competition is best for innovation---concentration leads to fewer labs, pathways, and stackable traits

Brad Plumer 16, former senior editor “Why the fight over the Monsanto-Bayer deal matters for the future of farming,” Vox, 9-20-2016, https://www.vox.com/2016/9/20/12988616/bayer-monsanto-dupont-dow-agriculture-mergers-innovation

Now, not everyone’s convinced by this pro-innovation case. At the hearing, Diana Moss, president of the American Antitrust Institute, laid out five big counterpoints to consider:

1) For starters, there’s not a lot of great historical evidence that consolidation has led to greater innovation in agriculture. In fact, the opposite might even be the case.

In the late 1990s and early 2000s, she noted, R&D spending among biotech firms as a percentage of sales boomed, as new traits such as insect resistance were being widely introduced. In response, the industry went through a wave of consolidation, with bigger firms like Monsanto buying up smaller companies and patents.

By the late 2000s, however, R&D spending as a percentage of sales had actually slumped back down to mid-1990s levels. "This conclusion," Moss noted, "calls into question long-standing arguments that concentration is needed to generate economies of scale in R&D."

2) Moss also pointed out that while crop yields have been going up over time — a point of pride among biotech companies — seed prices have increased even faster. This, she noted, was "the very problem that biotechnology is purportedly designed to solve." The worry here, in other words, is that while these massive agribusinesses have had R&D successes, the lack of competition has limited the actual benefit to farmers (and hence consumers).

3) Moss quibbled with the claim that companies could get more research and scientific breakthroughs by combining their research divisions. That might be true, but a big worry is that you’d have fewer labs working on a set number of problems in agriculture — which would actually reduce the odds of a breakthrough. Key quote:

The time and cost associated with performing R&D and field-testing and obtaining regulatory approvals create a long pipeline to commercialization. And once through the pipeline, biotechnology firms must market new technology to farmers where crop planning and switching costs increase the time associated with adoption of new technology on a larger scale. In innovation markets, therefore, the importance of maintaining multiple parallel in R&D paths is paramount. As one farmer put it: "The more people you have researching, the better off you are at finding something."

4) Moss also pointed out that a great deal of innovation in seed and crop varieties comes from different competitors working together to "stack" traits. So if Dow has developed a trait that allows cotton to be resistant to worms, and Monsanto has developed a trait that allows cotton to be Roundup Ready, they can join forces, through cross-licensing agreements, to produce cotton with both traits.

But this system works best when there are lots of companies competing against each other. "Farmers benefit most when there are competing stacks to choose from," Moss argued. "Competition maximizes the potential for numerous collaborations and minimizes incentives to refuse to license or to impose discriminatory restrictions in technology licensing agreements. Moreover, competition limits incentives for just a few large players in a tight oligopoly to tacitly or even explicitly ‘agree’ not to compete."

5) All these mergers could make it much harder for smaller companies to break into agriculture with new innovations. Big, vertically integrated firms that sell both seeds and pesticides can create integrated products that require farmers to buy the full package — and lock out small competitors.

The basic thread running through these five points is that competition is crucial for fostering innovation, as farmers have more choices and companies have more incentive to create the most appealing seeds and pesticides for them. Reducing this competitive dynamic is likely to swamp any benefits from increased synergies from mergers.

## Cap K

#### A profit incentive is necessary to shift towards sustainable agriculture and maintain yields

Dr. Valeria Piñeiro et al. 20, Senior Research Coordinator at the International Food Policy Research Institute, 10/12/20, A scoping review on incentives for adoption of sustainable agricultural practices and their outcomes, Nature Sustainability, Vol. 3, p. 809-820, https://doi.org/10.1038/s41893-020-00617-y

Abstract

The increasing pressure on agricultural production systems to achieve global food security and prevent environmental degradation necessitates a transition towards more sustainable practices. The purpose of this scoping review is to understand how the incentives offered to farmers motivate the adoption of sustainable agricultural practices and, ultimately, how and whether they result in measurable outcomes. To this end, this scoping review examines the evidence of nearly 18,000 papers on whether incentive-based programmes lead to the adoption of sustainable practices and their effect on environmental, economic and productivity outcomes. We find that independent of the incentive type, programmes linked to short-term economic benefit have a higher adoption rate than those aimed solely at providing an ecological service. In the long run, one of the strongest motivations for farmers to adopt sustainable practices is perceived benefits for either their farms, the environment or both. Beyond this, the importance of technical assistance and extension services in promoting sustainable practices emerges strongly from this scoping review. Finally, we find that policy instruments are more effective if their design considers the characteristics of the target population, and the associated trade-offs between economic, environmental and social outcomes.

Main

The pressure on agricultural production systems to achieve global food security, in the context of growing demands and the degradation of natural resources, makes it necessary to rethink current production systems towards more sustainable models.

In agriculture, environmental sustainability means good stewardship of the natural systems and resources that farms rely on. Among other things, this involves rotating crops and embracing diversity, planting cover crops, no-till systems (or reduced till), integrated pest management, integration between livestock and crops, agroforestry practices and precision farming. The general aim of sustainable agricultural policies is that they ensure environmental sustainability while enhancing, or at least maintaining, farm productivity.

At present, competing uses for land and water resources contribute to the degradation of natural resource capital, a situation that may exacerbate present-day and intergenerational consequences for farmers, other users and the wider population. Sustainable agricultural practices protect the ecosystem through the more efficient use of natural resources and strengthened capacity for adaptation to climate change and climate variability1. Therefore, their adoption may have significant benefits for the environment. Moreover, the adoption of sustainable practices is likely to help achieve more resilient and productive food systems and enable sustainable production, which would serve to reduce poverty and advance food security2,3. Sustainable agriculture therefore has the potential to directly contribute to several of the United Nations Sustainable Development Goals (SDGs) for 2030, including those relating to poverty (SDG 1), hunger (SDG 2), decent work and economic growth (SDG 8), reducing inequalities (SDG 9), responsible consumption and production (SDG 12), climate action (SDG 13), life below water (SDG 14) and life on land (SDG 15).

The adoption of these sustainable practices usually requires concrete incentives, significant effort from farmers and the support of governments and public–private partnerships at national and local levels. However, the decision to adopt sustainable agricultural practices in response to incentive programmes is not a binary process. Adoption depends on many factors: the conditions of the programme and the incentives offered, as well as the farmers’ environmental preferences, economics and cultural characteristics4,5. Agricultural market trends also affect producers’ decisions6.

This scoping review is thus motivated by the need to systematically evaluate the evidence base 6 the effects of incentives offered to farmers to adopt sustainable agricultural practices. To this end, this scoping review examines nearly 18,000 papers on the various incentives that are offered to farmers by governments, non-governmental organizations, international organizations, development banks and other market actors such as consumers and enterprises.

Three kinds of incentives (market and non-market, regulations and cross-compliance, Box 1), as well as their compulsory or voluntary nature, are assessed to determine whether the type of the incentive affects farmers’ willingness to adopt. This scoping review also examines the relationship between farmer’s adoption of sustainable practices and three types of outcomes: environmental, productivity and economic. Finally, the scoping review draws conclusions on the effectiveness of incentives and the adoption of sustainable farming practices to achieve the desired outcomes. These incentive–adoption–outcome pillars, and the links between them, offer a consistent logic by which to evaluate best practices in sustainable agricultural policy.

This scoping review also considers the broader demographic, social, environmental and economic factors that may drive the observed linkages between incentive, adoption and outcome.

This scoping review finds that regardless of the incentive type, linking programmes to economic benefits (productivity or profitability) is essential for farmers to adopt sustainable agriculture practices in the short term6,7. In the long term, one of the strongest motivations for farmers to adopt and maintain sustainable practices is perceived positive outcomes of adoption for their farm or the environment8,9,10,11. Beyond this, there are important analysis gaps in the existing literature, particularly regarding the interrelationships between the selected incentives, the adoption of best agricultural practices and outcomes. Some suggestions on the next lines of research are included in the analysis.

Box 1 Incentives, definitions and categories

Incentives are instruments used by the public and private sectors to encourage farmers to protect or enhance ecosystem services beneficial to them and others (for example, water quality, soil care, forestry), while simultaneously improving the productivity (yields, labour per hectare and so on) and the competitiveness (such as cost per hectare, profitability, farm incomes) of the agricultural sector. These were classified into three categories.

Market-based incentives encourage behavioural change by providing economic incentives through market signals. Examples of these include prices of input and output, subsidy, compensation, income transfer and other incentives in cash or in kind to agricultural producers. Non-market incentives are a broad basket. The parties of the Paris Agreement expressed that a non-market-based mechanism can be anything, provided it is not market-based51. This includes technical support, technology transfer and fiscal measures, such as putting a price on carbon or applying taxes to improve environmental sustainability.

Regulatory measures are general rules or specific actions imposed by government agencies or private entities to enhance environmental and economic outcomes through improved practices. Examples include certifications and environmental laws and standards. In general, they are mandatory.

Cross-compliance incentives link direct payments to farmers’ compliance with basic standards concerning the environment. They also require farmers to maintain land in good agricultural and environmental condition. In this case, they are mostly voluntary. Examples of these include government subsidies that are conditional on farmers adhering to certain environmental practices.

Show more

Results

The purpose of this scoping review is to understand how incentives motivate the adoption of sustainable agricultural practices and, ultimately, how and whether they result in measurable outcomes. This scoping review looked at the overall landscape of evidence of these instruments and their effectiveness in achieving the key outcomes. As in any scoping review, article screening against the inclusion and exclusion criteria took place in three phases: title screening, abstract screening and full-text screening (Box 2).

This resulted in 577 articles that were evaluated for relevance in terms of connecting either incentives to adoption, adoption to measurable outcomes or both sets of links. A machine learning-based approach helped to identify and cluster common terms and topics covered by the three incentive types (Fig. 1). Programmes fell into three broad categories related to ecosystem and environmental interventions, socioeconomic interventions and technological solutions. Articles typically showcased multiple interventions, with 36% of the total programmes falling under the technical category, and 32% each falling under the ecosystem and socioeconomic categories.

To better understand the links between incentive, adoption and outcome, a stratified random sample of 99 citations were selected from the 577 articles for additional review and data extraction. Of these, six articles were excluded as they were published in a language not spoken by any of the authors of this research or because full-text versions could not be located.

The subset of 93 articles facilitated more in-depth review of the incentive types. Each article contained a link between either incentives and adoption or adoption and outcomes, or both. For each article, the incentive types were identified, farmers’ adoption behaviours as described in the articles were recorded and the corresponding outcomes were noted as a function of the incentives. We found that market and non-market incentives tend to be the most prevalent mechanism (Fig. 2), whereas all three incentive categories are used more or less uniformly to achieve environmental outcomes. Furthermore, profitability-related outcomes tend to require balanced incentive structures, whereas productivity-related outcomes tend to be more market and non-market-oriented (Fig. 2).

Given the importance of understanding when and how incentives drive farmers’ adoption behaviours and how the adoption of specific practices leads to the desired outcomes, additional analysis was needed. We further limited the subset of papers to only those that had a complete set of links between the incentive–adoption–outcome pillars (44 papers) (Supplementary Annex 1). The results of this exercise illustrate how many of the papers with the full logic actually addressed multiple incentive categories and outcomes (Fig. 3). This is an important finding, as it bolsters the earlier observation that multipronged, integrated development interventions, both in terms of incentive structure and expected outcomes, are relatively commonplace. It is also important to note that although environmental and profitability outcomes are more or less equally supported by all three incentives, profitability outcomes are more supported by market or non-market incentives.

There is a clear general association between market and non-market incentives and environmental outcomes (Fig. 3). Nearly half of the interventions seen in the full-text review are considering market or non-market incentives and, simultaneously, just over 40% of the outcomes had an explicit environmental focus (Fig. 4). In general terms, this illustrates that, given appropriate design, market/non-market incentives can be successfully paired with environmental outcomes. Similarly important, it is clear that regulatory-based incentives are either less adequately documented or generally less prevalent in the development community’s menu of incentive-based approaches (left side of Fig. 4). Combined with the previous figures linking incentives to multiple outcome types (Figs. 2 and 3), there is support for the idea that development interventions tend to be moving away from simple productivity-enhancing approaches towards a more holistic style of engagement (Fig. 4 right side).

Assessment of the evidence base

For this study, the incentive–adoption–outcome logic is only valid if evidence is present in the full-text review that backs up the claims regarding the outcomes. Although an assessment of evidence is not typically carried out as part of a scoping review12,13, we opted to undertake one to understand when and how evidence was used to support assertions regarding inventive–adoption–outcome logic. The review team undertook a subjective assessment to label each study according to the strength of the evidence presented and the quality of the methodology used.

Assessments of the quality of the methodology are based on the clarity of the research question, justification of the research approach given the question of the study, clear description of the methodology used and robustness of the chosen methodology. Each article was scored on a scale of 1 to 5, 1 being the lowest. The findings were summarized by intervention type and outcome (Fig. 5). From the 44 articles, 23% received the highest score, followed by 32% with a quality index of 4 and 39% with a score of 3. Less than 10% of the papers were assigned a number lower than 3, which is why there is no yellow border line in the figure. It is important to notice that one article may be included in more than one cell, as it may include more than one incentive and/or outcome.

Relatively speaking, there was a general lack of clear measurement of outcomes, with only 50% of the reviewed papers presenting strong evidence (that is, evidence backed by robust analysis and clearly articulated support). Furthermore, evidence for incentive–outcome relationships is unequally distributed, in terms of the quality and quantity of available evidence, across both the incentive and outcome types (Fig. 5).

This evidence analysis suggests that there is a robust evidence base for environmental outcomes associated with cross-compliance incentives. Likewise, there is strong evidence linking market/non-market incentives and profitability-related outcomes. Both of these observations are generally consistent with the broader literature. This illustrates the need to substantiate measurement and reporting of evidence, especially in relation to the regulatory-based approaches. The current analysis suggests that understanding of regulatory approaches is generally less present in the literature, even though the methodologies were deemed relatively strong. Regulatory interventions tend to target environmental outcomes, but not exclusively, and are often associated with profitability and productivity-enhancing outcomes (Figs. 2 and 3). Given the general emphasis on cross-compliance and market/non-market approaches, perhaps more attention is needed to examine the scope and efficacy of regulatory approaches.

The available evidence allows us to make some standardized conclusions about the effectiveness of incentives for the adoption of sustainable agricultural practices, and the associated productivity and economic outcomes. However, there is little or no evidence on environmental outcomes, as most of the evidence on this respect is qualitative. Most papers only made an approximation of changes towards improvements in agricultural practices and environmental outcomes through qualitative assessment of farmer’s perceptions.

Additional evidence on the effectiveness of incentives in promoting the adoption of sustainable agricultural practices and the associated outcomes is required to move beyond qualitative assessment of farmer’s perceptions. In selected papers where there are reliable data and easy monitoring of implemented sustainable systems, there is no systematic follow-up of the environmental impacts. The results are only measurable through the improvements in the productivity and profitability of producers9. For measuring potential environmental outcomes, some papers compare adoption rates of farmers receiving incentives versus non-receiving farmers8,9,12,14 or relate socioeconomic characteristics of participants versus non-participants8,15.

Most papers simply state the participation rates in terms of the percentage of potential beneficiaries and explain them using influencing factors. Some papers model the adoption according to different incentive levels (such as different tax or levels of payments for environmental services (PES))10,16,17,18,19. In those articles, no complete evidence was found connecting incentives with adoption and outcomes. Stronger identification strategies are also needed to uncover the causal effect of the chain of incentives, adoption and outcomes. We found no randomized controlled trial studies in the selected papers, which constitutes an important gap in the literature as these kinds of experiments are key to more accurately testing the effectiveness of policy interventions, technologies and practices, taking into account socioeconomic, geographical and environmental influential factors. This scoping review reveals important research gaps: methods to detect causal pathways and to quantify the connections.

Type of incentive

However, despite weaknesses and limitations in the evidence base, the evidence provided by previous programmes on what has worked and what needs to be improved is important to consider when designing future incentive programmes. Looking at the articles reviewed in this scoping review, some interesting aspects for each of the three incentive categories can be highlighted (Fig. 6).

Market and non-market-based incentives

One of the general strengths of market-based incentives is that they offer flexible adoption to promote specific behaviour changes. Examples of this include altering market prices, setting a cap or altering quantities of a particular good, improving the way a market works, or creating a market where none previously existed (for example, water trading)20. However, one of the weaknesses of market-based incentives and their flexibility is that they can lead to negative social, environmental and economic changes that were unplanned or not in line with the intended strategic direction10. For example, subsidies may increase the adoption of intercropping and residue mulching, but these practices may crowd out adoption of zero tillage21.

However, a lack of flexibility has been linked to low adoption levels as farmers’ previous experiences of using a particular agricultural practice may significantly influence the types of policy instrument they will apply5. For example, promoting the use of specific crops for the incorporation of nutrients into the soil is more likely to be adopted by farmers who already practice crop rotation21,22,23. This is particularly pertinent for non-market incentives, for which it is important to understand the interaction between a particular practice and the policy instruments designed to achieve its uptake.

Regulatory incentives

Some studies show that instruments perceived as inflexible or too complex, such as legal regulations, were the least preferred by farmers5. Indeed, for regulatory measures, such as forest laws or watershed management programmes, the adoption of practices depends on the effectiveness of law enforcement, supervision and monitoring. For this reason, the adoption of regulatory measures is often linked to accompanying measures such as information sharing, capacity building, technical assistance, training support for the local population and farmer-to-farmer communication networks that build trust and enhance understanding of the potential benefits of conservation practices24. Agricultural extension services, both public and private, have been shown to have a positive impact on adoption rates5,7,12,15,23,25,26,27,28. Connecting these programmes with national extension systems can result in a significant change in agricultural sustainability.

To increase their effectiveness, regulatory measures are often linked to economic incentives including forest trade quotas, certification, access to rural credits or benefits in insurance markets. For example, voluntary community-based programmes are often coupled with short-term financial support to incentivize participation25,29. To improve efficiency in the adoption of the promoted practices, flexible payments may be preferred as participation costs and expected benefits differ depending on individual farmers and geographical location16.

Cross-compliance incentives

Cross-compliance incentives help overcome the barriers that make the adoption of sustainable practices unattractive, such as large up-front adoption costs, lack of capital, restricted access to financial markets and the need to provide for the household’s short-term economic needs. They are based on the hypothesis that incentives should at least compensate for the income loss or additional costs of adopting sustainable practices; and that there should be clear monitoring processes that ensure compliance with the conditionality (the adoption of the sustainable practice).

The main cross-compliance incentives are PES or agri-environment payments. These are incentives offered to farmers, or landowners, in exchange for managing their land to provide some type of ecological service, including water quality, forestry, soil erosion and air pollution. In the case of resource conservation in the Ecuadorian Andes, it was shown that when conservation technologies were offered in conjunction with measures that enhance the short-term profitability of agriculture (such as new crops, biological barriers and improved agricultural production), the adoption of conservation practices increased significantly8. Similar results were found in the Nepal Knowledge Based Integrated Sustainable Agriculture and Nutrition (KISAN) project30. These two examples reflect the broader finding that in most of the reported PES case studies, socioeconomic and environmental outcomes have been positive8,15,30, especially if the PES is accompanied by technical assistance7,12.

Discussion

The decision by farmers to adopt sustainable agricultural practices in response to incentive programmes is not a binary process. Adoption is a continuum that depends on many factors: the conditions of the programme, the incentives offered, the environmental preferences, personal perspectives, experience and education of farmers4. Farmers’ decisions are shaped by personal opinions, such as preferences over conservation measures, beliefs about the programme and degrees of risk aversion21,31. Factors such as income levels, asset ownership, age, and access to other economic opportunities also correlate with the decision to adopt, as they affect the capacity of the target population to reap benefits from the programme5,6,7,12,29,32,33,34. The decision to adopt is also affected by the biophysical characteristics of the land plot, and the institutional and policy context. Even agricultural market trends affect producers’ decisions to adopt agricultural practices3,6. The variety of factors that contribute to the adoption of sustainable agricultural practices necessitates the consideration of context in policy design and the use of differentiated policy instruments16.

Incentives across the spectrum

Direct economic benefits, increased productivity or profitability seem to be the essential condition for the adoption of sustainable practices in the short term7. Regardless of the incentive type, adoption rates are higher when programmes offer short-term economic benefits than those solely aimed at providing a positive ecological outcome. For example, restrictive land-use-change programmes, such as those induced by climate change, which modify the incentives for engaging in agricultural production, agroforestry and other land uses have higher adoption rates when they are connected with an improvement in income13,15.

#### Competition solves their impacts and is the most effective means of solving collective action problems---their ev only assumes unhealthy competition, which the plan solves

Joseph Heath 7, Professor of philosophy at the University of Toronto, “An Adversarial Ethic for Business: or When Sun-Tzu Met the Stakeholder”, Springer, 2007, Journal of Business Ethics 72:359-374

As soon as another buyer or seller enters the market, however, the strategic situation changes completely. The presence of multiple buyers and sellers dramatically reduces the ability of any one

buyer or seller to make a credible ‘‘take-it-or-leave-it’’ offer. If the price that the sellers are charging is above the price at the point where supply and demand curves intersect, then they will wind up with unsold goods at the end of the day. If they are both charging the same price, then one can assume that they will split the sales between them, and so both wind up with unsold goods. Yet this creates a temptation for both sellers. By dropping the asking price somewhat, it should be possible to sell one’s entire inventory. The loss of revenue caused by the lower price will then be made up for by the increased volume of sales. Of course, if one seller does this, then the other has no choice but to respond in kind. The result is lower profits for both of them. This competition will continue until the volume of sales at a given price level leaves neither of them with unsold goods. This is the point at which supply and demand curves intersect (which is why the price at that point is known as the ‘‘market clearing’’ price). The same sort of competition develops among buyers in cases where the price is lower than the market-clearing price – some buyers will be left with unsatisfied demand at the end of the day, and so will have an incentive to defect, by paying more than the going rate, in order to guarantee that they secure enough of the good.3

Clearly, it is not in the joint interest of either suppliers or buyers to compete with one another in this way. Thus, the reason that price competition is desirable is not that it benefits the people involved, but rather that it generates external benefits for society at large. In this respect, it is quite similar to athletic competition. But what are these external benefits, in the case of the competitive market? When suppliers compete with one another it benefits buyers, and vice versa. Thus the competitive market works to eliminate ‘‘deadweight losses’’ from the economy, ensuring that the maximum number of mutually beneficial economic exchanges take place. But more importantly, a competitive market also gives rise to a set of prices, which provide crucial information to everyone else in society about the relative scarcity of the various resources, skills,

goods and services being exchanged. In the same way that an infrared camera takes invisible light and converts it to a wavelength that the human eye can see, the competitive market takes people’s invisible preferences regarding both production and consumption and converts them to something that can be observed with the naked eye, viz. prices. This is what makes economically rational decision-making even roughly possible in every sector of the economy, including the public sector. The operation of the price system therefore allows for a more efficient (i.e. less wasteful) use of resources and labor.

Furthermore, the failure on the part of either producers or buyers to compete with one another can cause considerable mischief, insofar as it sends the wrong ‘‘signals,’’ via the price mechanism, to other economic actors. When suppliers, through collusion or cartelization, are able to maintain prices for some good at above-market-clearing rates, it suggest that there is ‘‘not enough’’ of that good, and so encourages a shift of resources away from other economic activities towards increased production of that good, combined with a shift among consumers toward goods that serve as substitutes (assuming such are available). Similarly, when buyers form a ‘‘consumer co-op,’’ or some similar organization, in order to hold out for lower prices, it sends the signal to suppliers that there is ‘‘too much’’ of the relevant good, and so encourages them to shift investment out of that sector.

This is, of course, the substance of ‘‘invisible hand’’ arguments for the market since Adam Smith. It is why David Gauthier, in his article ‘‘No Need for Morality: The Case of the Competitive Market,’’ argues that in market transactions, moral constraints ‘‘would be not merely pointless, but positively harmful’’ (Gauthier, 1982, 54). One is not merely encouraged to act non-cooperatively in a competitive market, social welfare considerations require one to do so, because the price mechanism requires competition in order to generate the right information about the relative scarcity or need for different goods.

Of course, it is important to recognize that there is nothing magical about the ability of markets to transform private vices into public virtues. This sort of laundering is a general feature of all competitively structured social interactions. And like all other forms of competition, market competition must be governed by a set of rules, restricting the range of strategies that individuals may employ, in order to ensure that it remains healthy. For suppliers, offering to sell at a lower price – and making the necessary changes in the production process that will enable one to do so – is the most important permissible strategy. Adjusting the quantity that is supplied, and making improvements in product quality are also permissible.

But like every other form of competition, market competition also has a tendency to go off the rails when improperly regulated. In principle, there is no reason why firms could not compete with one another by blowing up each others’ factories and hiring assassins to kill each others’ CEOs. Such a scenario is no less implausible than figure skaters sending out thugs to kneecap their opponents. In fact, one need only look at the experiences of the 364 various ‘‘transition economies’’ in the former Communist bloc to see the sort of outrageous behavior that improperly regulated marketplace competition may generate. For example, in 1994, shortly after the privatization of agriculture and food production in Hungary, the country was swept by an epidemic of lead poisoning. After searching far and wide for the cause, doctors and scientists finally tracked down the source of the problem. Manufacturers of paprika – a staple of Hungarian cuisine – had been grinding up old paint, much of it lead-based, and adding it to the spice in order to improve its color. The practice was so widespread that officials in Hungary were forced to order all the paprika in the country removed from store shelves and destroyed. This is a clear example of firms using an impermissible strategy – exploiting an information asymmetry – in order to compete, and other firms being forced to do the same, in order to retain position. The race to the top of the competitive market is thereby transformed into a race to the bottom, one that can have devastating consequences for the society at large.

#### Growth is sustainable, physical limits aren’t absolute, AND resource use is declining now---the alt unleashes global disaster

Ronald Bailey 18, B.A. in Economics from the University of Virginia, member of the Society of Environmental Journalists and the American Society for Bioethics and Humanities, citing a compilation of interdisciplinary research; Reason, “Is Degrowth the Only Way to Save the World?” https://reason.com/2018/02/16/is-degrowth-the-only-way-to-save-the-wor

Unless us folks in rich countries drastically reduce our material living standards and distribute most of what we have to people living in poor countries, the world will come to an end. Or at least that's the stark conclusion of a study published earlier this month in the journal Nature Sustainability. The researchers who wrote it, led by the Leeds University ecological economist Dan O'Neill, think the way to prevent the apocalypse is "degrowth."

Vice, pestilence, war, and "gigantic inevitable famine" were the planetary boundaries set on human population by the 18th-century economist Robert Thomas Malthus. The new study gussies up old-fashioned Malthusianism by devising a set of seven biophysical indicators of national environmental pressure, which they then link to 11 indicators of social outcomes. The aim of the exercise is to concoct a "safe and just space" for humanity.

Using data from 2011, the researchers calculate that the annual per capita boundaries for the world's 7 billion people consist of the emission of 1.6 tons of carbon dioxide per year and the annual consumption of 0.9 kilograms of phosphorus, 8.9 kilograms of nitrogen, 574 cubic meters of water, 2.6 tons of biomass (crops and wood), plus the ecological services of 1.7 hectares of land and 7.2 tons of material per person.

On the social side, meanwhile, the researchers say that life satisfaction in each country should exceed 6.5 on the 10-point Cantril scale, that healthy life expectancy should average at least 65 years, and that nutrition should be over 2,700 calories per day. At least 95 percent of each country's citizens must have access to good sanitation, earn more than $1.90 per day, and pass through secondary school. Ninety percent of citizens must have friends and family they can depend on. The threshold for democratic quality must exceed 0.8 on an index scale stretching from -1 to +1, while the threshold for equality is set at no higher than 70 on a Gini Index where 0 represents perfect equality and 100 implies perfect inequality. They set the threshold for percent of labor force employed at 94 percent.

So how does the U.S. do with regard to their biophysical boundaries and social outcomes measures? We Americans transgress all seven of the biophysical boundaries. Carbon dioxide emissions stand at 21.2 tons per person; we each use an average of 7 kilograms of phosphorus, 59.1 kilograms of nitrogen, 611 cubic meters of water, and 3.7 tons of biomass; we rely on the ecological services of 6.8 hectares of land and 27.2 tons of material. Although the researchers urge us to move "beyond the pursuit of GDP growth to embrace new measures of progress," it is worth noting that U.S. GDP is $59,609 per capita.

On the other hand, those transgressions have provided a pretty good life for Americans. For example, life satisfaction is 7.1; healthy life expectancy is 69.7 years; and democratic quality stands at 0.8 points. The only two social indicators we just missed on were employment (91 percent) and secondary education (94.7 percent).

On the other hand, our hemisphere is home to one paragon of sustainability—Haiti. Haitians breach none of the researchers' biophysical boundaries. But the Caribbean country performs abysmally on all 11 social indicators. Life satisfaction scores at 4.8; healthy life expectancy is 52.3 years; and Haitians average 2,105 calories per day. The country tallies -0.9 on the democratic quality index. Haiti's GDP is $719 per capita.

Other near-sustainability champions include Malawi, Nepal, Myanmar, and Nicaragua. All of them score dismally on the social indicators, and their GDPs per capita are $322, $799, $1,375, and $2,208, respectively.

The country that currently comes closest to the researchers' ideal of remaining within its biophysical boundaries while sufficient social indicators is…Vietnam. For the record, Vietnam's per capita GDP is $2,306.

"Countries with higher levels of life satisfaction and healthy life expectancy also tend to transgress more biophysical boundaries," the researchers note. A better way to put this relationship is that more wealth and technology tend to make people happier, healthier, and freer.

O'Neill and his unhappy team fail drastically to understand how human ingenuity unleashed in markets is already well on the way toward making their supposed planetary boundaries irrelevant. Take carbon dioxide emissions: Supporters of renewable energy technologies say that their costs are already or will soon be lower than those of fossil fuels. Boosters of advanced nuclear reactors similarly argue that they can supply all of the carbon-free energy the world will need. There's a good chance that fleets of battery-powered self-driving vehicles will largely replace private cars and mass transit later in this century.

Are we about to run out of phosphorous to fertilize our crops? Peak phosphorus is not at hand. The U.S. Geological Survey (USGS) reports that at current rates of mining, the world's known reserves will last 266 years. The estimated total resources of phosphate rock would last over 1,140 years. "There are no imminent shortages of phosphate rock," notes the USGS. With respect to the deleterious effects that using phosphorus to fertilize crops might have outside of farm fields, researchers are working on ways to endow crops with traits that enable them to use less while maintaining yields.

O'Neill and his colleagues are also concerned that farmers are using too much nitrogen fertilizer, which runs off fields into the natural environment and contributes to deoxygenated dead zones in the oceans, among other ill effects. This is a problem, but one that plant breeders are already working to solve. For example, researchers at Arcadia Biosciences have used biotechnology to create nitrogen-efficient varieties of staples like rice and wheat that enable farmers to increase yields while significantly reducing fertilizer use. Meanwhile, other researchers are moving on projects to engineer the nitrogen fixation trait from legumes into cereal crops. In other words, the crops would make their own fertilizer from air.

Water? Most water is devoted to the irrigation of crops; the ongoing development of drought-resistant and saline-tolerant crops will help with that. Hectares per capita? Humanity has probably already reached peak farmland

, and nearly 400 million hectares will be restored to nature by 2060—an area almost double the size of the United States east of the Mississippi River. In fact, it is entirely possible that most animal farming will be replaced by resource-sparing lab-grown steaks, chops, and milk. Such developments in food production undermine the researchers' worries about overconsumption of biomass.

And humanity's material footprint is likely to get smaller too as trends toward further dematerialization take hold. The price system is a superb mechanism for encouraging innovators to find ways to wring ever more value out less and less stuff. Rockefeller University researcher Jesse Ausubel has shown that this process of absolute dematerialization has already taken off for many commodities.

After cranking their way through their models of doom, O'Neill and his colleagues lugubriously conclude: "If all people are to lead a good life within planetary boundaries, then the level of resource use associated with meeting basic needs must be dramatically reduced." They are right, but they are entirely backward with regard to how to achieve those goals. Economic growth provides the wealth and technologies needed to lift people from poverty while simultaneously lightening humanity's footprint on the natural world. Rather than degrowth, the planet—and especially its poor people—need more and faster economic growth.

#### Cap net reduces war

Mousseau 19—Professor in the School of Politics, Security, and International Affairs at the University of Central Florida (Michael, “The End of War: How a Robust Marketplace and Liberal Hegemony Are Leading to Perpetual World Peace,” International Security, Volume 44, Issue 1, Summer 2019, p.160-196, dml)

Is war becoming obsolete? There is wide agreement among scholars that war has been in sharp decline since the defeat of the Axis powers in 1945, even as there is little agreement as to its cause.1 Realists reject the idea that this trend will continue, citing states' concerns with the “security dilemma”: that is, in anarchy states must assume that any state that can attack will; therefore, power equals threat, and changes in relative power result in conflict and war.2 Discussing the rise of China, Graham Allison calls this condition “Thucydides's Trap,” a reference to the ancient Greek's claim that Sparta's fear of Athens' growing power led to the Peloponnesian War.3

This article argues that there is no Thucydides Trap in international politics. Rather, the world is moving rapidly toward permanent peace, possibly in our lifetime. Drawing on economic norms theory,4 I show that what sometimes appears to be a Thucydides Trap may instead be a function of factors strictly internal to states and that these factors vary among them. In brief, leaders of states with advanced market-oriented economies have foremost interests in the principle of self-determination for all states, large and small, as the foundation for a robust global marketplace. War among these states, even making preparations for war, is not possible, because they are in a natural alliance to preserve and protect the global order. In contrast, leaders of states with weak internal markets have little interest in the global marketplace; they pursue wealth not through commerce, but through wars of expansion and demands for tribute. For these states, power equals threat, and therefore they tend to balance against the power of all states. Fearing stronger states, however, minor powers with weak internal markets tend to constrain their expansionist inclinations and, for security reasons, bandwagon with the relatively benign market-oriented powers.

I argue that this liberal global hierarchy is unwittingly but systematically buttressing states' embrace of market norms and values that, if left uninterrupted, is likely to culminate in permanent world peace, perhaps even something close to harmony. My argument challenges the realist assertion that great powers are engaged in a timeless competition over global leadership, because hegemony cannot exist among great powers with weak markets; these inherently expansionist states live in constant fear and therefore normally balance against the strongest state and its allies.5 Hegemony can exist only among market-oriented powers, because only they care about global order. Yet, there can be no competition for leadership among market powers, because they always agree with the goal of their strongest member (currently the United States) to preserve and protect the global order based on the principle of self-determination. If another commercial power, such as a rising China, were to overtake the United States, the world would take little notice, because the new leading power would largely agree with the global rules promoted and enforced by its predecessor. Vladimir Putin's Russia, on the other hand, seeks to create chaos around the world. Most other powers, having market-oriented economies, continue to abide by the hegemony of the United States despite its relative economic decline since the end of World War II.6

To support my theory that domestic factors determine states' alignment decisions, I analyze the voting preferences of members of the United Nations General Assembly from 1946 to 2010. I find that states with weak internal markets tend to disagree with the foreign policy preferences of the largest market power (i.e., the United States), but more so if they are major powers or have stronger rather than weaker military and economic capabilities. The power of states with robust internal markets, in contrast, appears to have no effect on their foreign policy preferences, as market-oriented states align with the market leader regardless of their power status or capabilities.

I corroborate that this pattern may be a consequence of states' interest in the global market order by finding that states with higher levels of exports per capita are more likely than other states to have preferences aligned with those of the United States; those with lower levels of exports are more likely to have interests that do not align with the United States, but again more so if they are stronger rather than weaker.

Liberal scholars of international politics have long offered explanations for why the incidence of war may decline, generally beginning with the assumption that although the security dilemma exists, it can be overcome with the help of factors external to states.7 Neoliberal institutionalists treat states as like units and international organization as an external condition.8 Trade interdependence is dyadic and thus an external condition.9 Democracy is an internal factor, but theories of democratic peace have an external dimension: peace is the result of the expectations of states' behavior informed by the images that leaders create of each other's regime types.10 In contrast, I show that the security dilemma may not exist at all and how peace can emerge in anarchy with states pursuing their interests determined entirely by internal factors.11

#### Capitalism is key to space col---that solves inevitable extinction and the case---but it requires sustained growth and social investment

Spring 16 – BA in journalism from Purchase College, SUNY (Todd, "A Case for Capitalism, In Regards to Space Travel," Medium, <https://thepolicy.us/a-case-for-capitalism-in-regards-to-space-travel-d77e50f8116e)//> gcd

In the news yesterday was an article about how Elon Musk plans to start sending men to Mars in the year 2024 — a mere eight years away. Although the project may be ambitious — ridiculous even — if anyone can pull it off it is Elon Musk and his company SpaceX. And regardless of whether he succeeds in his quest or whether he does not succeed, the point will remain: At least he had the courage to try. For years, we have been waiting for N.A.S.A. (or some other government-funded agency) to begin pulling up their breeches when it comes to the manned exploration of our solar system…but thus far they have not been able to get their act together. We have waited and waited, but as of yet nothing has come to pass but brief mention of such travels here and there…like a wind with neither haste nor purpose. As of now, N.A.S.A. does not plan on sending a manned mission to Mars until the 2030s — assuming, of course, they get the government funding they need to undertake such a massive project. Considering the recent cuts to deep space exploration, down nearly $300 million from 2016, I am not certain what the condition of the program will look like in another two years…much less the gap between now and the 2030s. Where, then — if the government and its agencies will not provide us with the money for exploration — will we turn to slake our thirst for cosmic space travel? SpaceX. Private corporations. Capitalism. Seeing this article in the news, reading day after day the story of budget cuts to N.A.S.A. in regards to deep-space exploration and other related programs, got me thinking about just how important it will be for private companies and corporations to undertake these projects…such as Elon Musk’s SpaceX, and countless others (read the full list here). The problem is that we have gotten it into our heads that Capitalism is the root cause of our economic woes in the United States, perhaps failing to understand that such policies are something like a double-edged sword: they could also be our salvation. This article provides a great list of the pro’s and con’s of Capitalism. I would recommend you take the short passing of time it requires to read it through-and-through before continuing. Now then. I have never been for for fully-unhindered Capitalism. I do not believe that the government should stay out of economic affairs entirely, for as provided in the article many of the con’s relate to improper regulation (monopolization) as opposed to something fundamentally wrong, but I do not believe that any government should be going about shoving their claws into every economic affair either. There must be a healthy balance, especially if Capitalism is to work as it is supposed to work. The same goes for any policy. The government should be there to bolster competition between businesses…not favor one or bail-out the other. The more regulation, the more interference or amendment, the less it works…but this mix of regulation and free market must fall in the “goldilocks zone” if the citizens of said society are to reap its full benefit. If not, like planets about a star, the society shall either burn or freeze. O

ne of those benefits is highlighted by Elon Musk’s SpaceX: the intervention of privately-funded companies to do things that a traditional government agency cannot. Namely, the exploration and eventual colonization of Mars in a reasonable, step-by-step timeframe…unlike the “we will get to it eventually” mindset plaguing the bowels of the United States government. Were not the policies in place to foster the growth of private companies, our best chance at getting people out of Earth-orbit — the Bush-approved, now-cancelled, insanely-expensive Constellation program — would have gone the way of promises and well-wishes. It is my hope that Elon Musk and space entrepreneurs like him are not simply blowing steam, and that one day — perhaps even within my lifetime — I could be on my way to a space hotel on the Moon, flying aboard a space airliner with the name of a private company plastered across the side. Regardless, if we humans are to truly become a multi-planet species we must not hinder economic growth with narrow thoughts. We must not become confused that the “problems down here” and the “problem of getting out there” must be in conflict; they do not need to, and we must not suppose they should. They are two separate issues with two unique sets of problems, and thus this policy of taking resources from one to give to the other will only ensure that neither issue is given that which it needs, or enough to fix what must be solved. Therefore I propose that we support these pioneers of space travel in any way that we are able. Let us not forget that solving the issue of “how do we get there” might just lead to the end of our “problems down here”.

#### The alt fails---can’t change behaviors.

RichardHeinberg 15, Senior Fellow-in-Residence of the Post Carbon Institute, “The Anthropocene: It’s Not All About Us”, <http://www.postcarbon.org/the-anthropocene-its-not-all-about-us/>

It’s **hard** to convince people to **voluntarily reduce consumption** and curb reproduction. That’s not because humans are unusually pushy, greedy creatures; all living organisms tend to **maximize their population size** and **rate of collective energy use**. Inject a colony of bacteria into a suitable growth medium in a petri dish and watch what happens. Hummingbirds, mice, leopards, oarfish, redwood trees, or giraffes: in each instance **the principle remains inviolate**—every species maximizes population and energy consumption within nature’s limits. Systems ecologist Howard T. Odum called this rule the Maximum Power Principle: throughout nature, “system designs develop and prevail that maximize power intake, energy transformation, and those uses that reinforce production and efficiency.” In addition to our innate propensity to maximize population and consumption, we humans also **have difficulty making sacrifices** in the present in order to reduce future costs. We’re **genetically hardwired** to respond to immediate threats with fight-or-flight responses, while distant hazards **matter much less** to us. It’s not that we don’t think about the future at all; rather, we **unconsciously apply a discount rate** based on the amount of time likely to elapse before a menace has to be faced. True, there is some variation in future-anticipating behavior among individual humans. A **small percentage** of the population may change behavior now to reduce risks to forthcoming generations, while **the great majority is less likely to do so**. If that small percentage could oversee our collective future planning, we might have much less to worry about. But **that’s tough to arrange** in democracies, where people, politicians, corporations, and even nonprofit organizations get ahead by promising immediate rewards, usually in the form of more economic growth. If none of these can organize a proactive response to long-range threats like climate change, the actions of **a few individuals** and communities **may not be so effective**

at mitigating the hazard. This pessimistic expectation is **borne out by experience**. The general outlines of the 21st century ecological crisis have been **apparent since the 1970s**. Yet **not much has actually been accomplished** through efforts to avert that crisis. It is possible to point to hundreds, thousands, perhaps even millions of imaginative, courageous programs to reduce, recycle, and reuse—yet the **overall trajectory** of industrial civilization remains **relatively unchanged**.

## States CP

#### The CP gets stuck down via the DCC---Circuit court, not SCOTUS

Chris Erchull 14, Staff Attorney for GLAD and former litigation associate at Bulkley, Richardson and Gelinas LLP, 2014, THE DORMANT COMMERCE CLAUSE—A CONSTITUTIONAL BARRIER TO SUSTAINABLE AGRICULTURE AND THE LOCAL FOOD MOVEMENT, Western New England Law Review, Vol. 36, Issue 3, p. 371-405

II. DORMANT COMMERCE CLAUSE

Courts recognize an implied negative aspect to the Commerce Clause of the Constitution,75 and under this doctrine, states are prohibited from enacting legislation that interferes with interstate commerce.76 Because the federal government has taken a prominent role in the regulation of the agriculture industry,77 state laws in this industry are especially vulnerable to challenge under the dormant Commerce Clause.78

Critics say that courts apply the dormant Commerce Clause with unpredictable results.79 The unpredictable application of the dormant Commerce Clause has a chilling effect on potentially revolutionary state legislation.80 The Constitution has long been interpreted to impose restrictions on what states can do to promote local agriculture.81 But the standards used by courts in deciding cases in the context of some industries not related to the production of food are arguably more relaxed from the doctrine as applied to agriculture.82

A. Application of Dormant Commerce Clause to Agriculture

1. Agriculture in the Supreme Court

Since Wickard v. Filburn, the Supreme Court has consistently held that the federal government has primary regulatory authority over the agriculture industry.83 A series of Supreme Court cases thwarted attempts by states to favor local agricultural production, processing, and distribution, relying on the dormant Commerce Clause.84 In particular, the Court’s decisions in Bacchus Imports, Ltd. v. Dias and West Lynn Creamery, Inc. v. Healy come the nearest to addressing the issue of whether it is constitutional for a state to favor local foods.85

At issue in Bacchus was a tax applied to all sales of alcohol in Hawai'i,86 with the exceptions of an alcoholic beverage made from a root native to Hawai'i, known as 'okolehao, in addition to pineapple wine and other non-grape fruit wine.87 The tax was primarily intended to benefit the burgeoning pineapple wine industry in Hawai'i.88 The Court flatly dismissed the state’s argument that the 'okolehao and pineapple wine industries were separate and distinct from the industry of other alcoholic beverages, and that there was no direct competition among the industries.89 While the tax exemption did not discriminate against out of-state interests on its face, the Court found discriminatory intent and effect.90 By determining that the markets were the same and the tax discriminatory, the Court made it clear that states attempting to favor local agricultural production through discriminatory taxes, at least in the production of alcoholic beverages, would be susceptible to constitutional challenges.91 This threat looms over the sustainable agriculture movement today.

The Court reached a similar holding in West Lynn Creamery, where a Massachusetts pricing order required the collection of an assessment on all milk sales.92 The proceeds were then distributed only to in-state dairy farmers.93 The assessment at issue did not facially discriminate against out-of-state interests because it applied equally to all dairy retailers.94 However, the fact that all of the proceeds were distributed to local dairy farmers95 resulted in a discriminatory impact.96 The Court reasoned that the assessment “not only assists local farmers, but burdens interstate commerce. The pricing order thus violates the cardinal principle that a State may not ‘benefit in-state economic interests by burdening out-of-state competitors.’”97 By invalidating legislation based on the benefits provided to local agricultural enterprises, the decision in West Lynn casts a foreboding shadow over prospective legislation that might seek to advance the Local Food movement.

2. Anti-Corporate Farming Initiatives

Laws that limit the corporate ownership of farmland have been enacted in at least fourteen states.98 Some of the explanations that are offered in support of anti-corporate farming initiatives include circumventing the limited liability of corporations, controlling the economic structure of food production and distribution, the lack of investment in local interests by out-of-state corporations, opening land for use by new farmers, and the negative socioeconomic impact of agribusiness on rural communities.99

A landmark 2003 case struck down an amendment to the South Dakota State Constitution outlawing corporate ownership of in-state farmland.100 The Eighth Circuit decision in South Dakota Farm Bureau, Inc. v. Hazeltine “is viewed as critical to the future viability of anticorporate farming restrictions in other states and, more generally, to the ability of state legislatures to shape the structure of agriculture within their borders.”101 The opinion signaled the death of a constitutional amendment that was supported by a majority of voters in South Dakota in 1998.102

#### Resources---Only the fed has the resources and political clout to enforce national monopoly actions.

Stephen Calkins 03, Professor of Law at Wayne State University, “Perspectives on State and Federal Antitrust Enforcement”, Duke Law Journal, 53 Duke L.J. 673, November 2003, Lexis

E. State Antitrust Enforcement in Perspective

The above review makes clear that state antitrust enforcement is based overwhelmingly on the states' comparative advantages. The vast majority of cases involve local or regional markets and competitive effects. State enforcers almost never bring national monopolization cases.

This conclusion is consistent with the expressed views of state enforcers. According to the chair of the Multistate Antitrust Task Force, a state antitrust enforcement issue can be identified by asking, among other things, whether the matter has "a local or regional impact upon the state's consumers or economy," whether "state or local governmental agencies [are] impacted," and whether consumers can "directly or indirectly benefit from state enforcement."

Of course, not every state antitrust case is consistent with states' comparative advantages. For instance, in 2001, Utah sought to enjoin GS Industries' acquisition of Nucor Corporation's Utah-based manufacturing assets because GS Industries planned to move the business to Chile. Utah's action might have had more to do with an interest in employment than in competition. Similarly, in 1999, Indiana sought to enjoin the merger of B.F. Goodrich and Coltec Industries out of concern about the global market for integrated aircraft landing systems and 1100 South Bend jobs. Likewise, in 1993, Pennsylvania sought to enjoin the merger of Russell Stover Candies and Whitman Chocolates, with the attorney general saying that, although the case would be argued solely on antitrust grounds, he "could not, "as a responsible official, ignore the fact that this merger will put 600 people in the Philadelphia area out of work.'"

[\*695] Even when a state is operating in an area of its comparative advantage, it may take action in tension with what many might consider sound competition policy. For instance, last year, the Puerto Rico district court was so outraged at what it saw as the Puerto Rico Secretary of Justice's attempt to use antitrust laws to promote unrelated social policies that it enjoined her from attempting to block a grocery store merger. Even state efforts to pursue antitrust policies may engender controversy. For instance, states have made something of a specialty of pursuing vertical restraints cases, an area of considerable antitrust disagreement. Most fundamentally, the states' increasing success in winning large monetary recoveries has triggered a debate about appropriate levels of deterrence. Discomfort is particularly acute with respect to indirect purchasers: If treble damages based on an entire overcharge can be recovered by a [\*696] direct purchaser, is it fair or proper for indirect purchasers to recover treble damages based on passed-on injuries?

Nonetheless, states overwhelmingly pursue cases within their comparative advantages and based on antitrust doctrines within the mainstream. Monetary remedies, even if substantial, do not change the structure of industry or mandate a change in business operations. Microsoft really is the exception.

II. Federal Antitrust Agencies

While state antitrust enforcers enjoy only three primary comparative advantages, federal enforcers enjoy boundless advantages. The two federal antitrust enforcement agencies, the FTC and the Antitrust Division, enjoy comparatively massive resources, sweeping criminal enforcement powers, an elaborate merger notification system, and traditional respect from Congress and the courts

. In short, the FTC and the Antitrust Division enjoy too many advantages to make a comparison meaningful.

#### Patchwork implementation muddies the plan’s signal, causes capture, and leads to duplication.

Jacob P. Grosso 21, J.D. Candidate at the University of Richmond School of Law and B.A. from George Mason University, “The Preemption of Collective State Antitrust Enforcement in Telecommunications”, University of Richmond Law Review, 55 U. Rich. L. Rev. 615, Winter 2021, Lexis

A. Benefits of Preempting Collective State Action

Preemption would result in cognizable benefits to the regulatory and business spheres. These benefits would include clear guidance, increased enforcement efficiencies, and the ability to pursue nonenforcement agendas and broader policy goals.236 Businesses would receive clear guidance on the legality of their business choices. State antitrust enforcers would redeploy costs to state-specific issues. Federal enforcers would be able to effectively pursue broader policy goals.

Consolidated enforcement and regulatory schemes would provide clarity to businesses through more uniform regulations and decreased litigation concerns. This consolidation, in turn, would reduce costs for the government and the competitors while encouraging competition and unnecessary compliance costs.237 Clear regulations serving a common goal, without the inherent biases of individual state interests, can provide clarity to businesses and preserve the balancing of consumer welfare with the aggregate social welfare. Individual states make decisions based on their individual needs, as seen in the T-Mobile-Sprint merger.238 When federal law conflicts with state law, federal law controls.239 Despite this standard, multistate task forces continue to come forward as the interpreters of federal law.240 This approach poses problems because of the inherent state biases that underlie the enforcement actions. Preemption could decrease the effects of individual state biases on the guidance given to competitors.

Antitrust analysis considers geographic differences in determining the concentration of a market, meaning a one-size-fits-all approach does not work for aggregating individual state markets.241 This restructuring would reduce the effects of an individual state’s interests on collective action.242 While any individual state may be best served by one plan, the economy as a whole might suffer for that decision.243 “Divergent approaches to the exercise of enforcement discretion are not just possible, they are likely.”244 States likely face pressure from several groups that can influence their enforcement decisions, as well as the selfish motivation to protect their consumers regardless of the cost to national welfare.245 Uniform, clear guidance at the federal level, without state interference, will reduce opportunities for the individual motivations of states to negatively impact a clear enforcement s

cheme. Adding states as parties to a telecommunications antitrust lawsuit complicates the suit by increasing the number of parties that must agree to a settlement.246 The effects of the preemption and resulting enforcement system will create efficiencies for federal and state enforcers, as well as for businesses. For telecommunications antitrust enforcement actions, this will limit costs to the federal agencies, prevent the duplication of effort (in reviewing transactions), and eliminate the costs of coordination that NAAG multistate enforcement teams face.247 Extending even beyond telecommunications, this results in a net positive for the antitrust sections of state attorneys general offices to redeploy resources to monitor and combat anticompetitive behavior in the state-specific areas that these sections were designed to handle.248

The reduced litigation could represent a net positive for both state governments and competitors. Even responding to discovery requests from one state can cost two to nine million dollars.249 Dealing with multiple suits, as in the T-Mobile-Sprint merger, causes a compounding of these costs resulting from duplication of effort. For T-Mobile, the firm has now faced multiple reviews concerning the same issues that it believed it had resolved. The FCC review alone took 317 days.250 In total, from the initial merger review submission on April 28, 2018, until April 1, 2020, it took two years to close the transaction.251 The T-Mobile-Sprint merger exemplifies how further delays can slow the competitor’s ability to continue with business, as it must divert attention to compliance and litigation efforts. 252

#### It gets preempted---existing precedent leaves the door open

Olivia Young 19, J.D. Candidate at Loyola Law School in Los Angeles, “CALIFORNIA, ARE YOU THERE? IT'S THE ENTERTAINMENT INDUSTRY CALLING AND WE NEED NET NEUTRALITY,” 40 Loy. L.A. Ent. L. Rev. 247, 2019, lexis

2. Federal Preemption May Still Present a Barrier to State Success

While the D.C. Circuit Court rejected the FCC's broad authority to preempt state regulation of the Internet under RIFO, the Court's opinion appears to leave the door open to other forms of federal preemption as possible alternatives to estop state laws. 366 The Federal Government's power to preempt state law which interfere with its own is derived from the Supremacy Clause of the United States Constitution which, in Article IV, states:

 [\*297]

This Constitution, and the laws of the United States which shall be made in pursuance thereof; and all treaties made, or which shall be made, under the authority of the United States, shall be the supreme law of the land; and the judges in every state shall be bound thereby, anything in the Constitution or laws of any State to the contrary notwithstanding. 367

Out of the Supremacy Clause came various forms of federal preemption, including conflict preemption. 368 Conflict preemption works to protect federal laws by estopping, "state laws that under the circumstances of the particular case stand[] as an obstacle to the accomplishment and execution of the full purposes and objective of Congress." 369Conflict preemption does not serve as an outright ban on all state legislation in a particular area, only that which is in direct interference with federal law. 370

The FCC, in arguing that the Preemption Directive should be upheld, reasoned that application of conflict preemption to state laws interfering with RIFO would render the same, broad preemptory effect as the Directive. 371 The D.C. Circuit Court did not outright disagree with the Commission that the principle of conflict preemption, if applied to a conflicting state law, could render that law moot. 372However, the Court refused to uphold the broad Preemption Directive on this reasoning alone, finding that conflict preemption requires the court to perform a unique, fact-intensive analysis of the specific conflicting state or local law called into question and thus, cannot be used as a basis to block any and all legislation in a specific area. 373 Conflict preemption requires the court to answer, ""an issue incapable of resolution in the abstract,' let alone in gross." 374 Thus, the D.C. Circuit Court's  [\*298] ruling infers that if a conflicting state law were to be presented, it would not be subject to automatic preemption under the Directive, however it could still be preempted if, after analysis, a court found the law to impermissibly interfere with RIFO. 375

#### The CP drains the limited resources of state AGs

Clark L. Hildabrand 14, JD Candidate at Yale Law School, BA from Washington & Lee University, “Interactive Antitrust Federalism: Antitrust Enforcement in Tennessee Then and Now”, Transactions, 16 Transactions 67, Lexis

Judge Richard Posner, who presides over the United States Court of Appeals for the Seventh Circuit, adopts several of these arguments and claims that state enforcement action is unnecessary in light of private actors providing a sufficient alternative that prevents the Department of Justice ("DOJ") and the Federal Trade Commission ("FTC") from monopolizing antitrust enforcement. Furthermore, Judge Posner harshly criticizes the advocacy abilities of state attorneys general: "Since becoming a judge almost twenty years ago, I have been struck by the poor quality of the briefs and arguments of most, though not all, of the lawyers in the offices of the state attorneys general of my circuit." State attorneys general may suffer from a lack of specialization in antitrust law, but, if the advocacy abilities of state attorneys general and their staff are truly so inadequate, then Judge Posner would have less to fear from overzealous state enforcement actions, unless state judges are unable to follow the guidance of [\*72] federal law and state precedent. However, if state attorneys general are unable to effectively enforce antitrust laws, then the possibility remains that state enforcement will expend inefficiently the limited resources of state attorneys general and the courts. For conservative and libertarian scholars, limiting state enforcement actions and focusing federal litigation on punishing only behavior contrary to consumer welfare would remedy the abuses of the federal antitrust laws of the per se era.

#### Avoiding antitrust enforcement lets the AGs focus their finite capabilities on core competencies

Jacob P. Grosso 21, J.D. Candidate at the University of Richmond School of Law and B.A. from George Mason University, “The Preemption of Collective State Antitrust Enforcement in Telecommunications”, University of Richmond Law Review, 55 U. Rich. L. Rev. 615, Winter 2021, Lexis

Antitrust analysis considers geographic differences in determining the concentration of a market, meaning a one-size-fits-all approach does not work for aggregating individual state markets. This restructuring would reduce the effects of an individual state's interests on collective action. While any individual state may be best served by one plan, the economy as a whole might suffer for that decision. "Divergent approaches to the exercise of enforcement discretion are not just possible, they are likely." States likely face pressure from several groups that can influence their enforcement decisions, as well as the selfish motivation to protect their consumers regardless of the cost to national welfare. Uniform, clear guidance at the federal level, without state interference, will reduce opportunities for the individual motivations of states to negatively impact a clear enforcement scheme. Adding states as parties to a telecommunications antitrust lawsuit complicates the suit by increasing the number of parties that must agree to a settlement. The effects of the preemption and resulting enforcement system will create efficiencies for federal and state enforcers, as well as for businesses. For telecommunications antitrust enforcement actions, this will limit costs to the federal agencies, prevent the duplication of effort (in reviewing transactions), and eliminate the costs of coordination that NAAG multistate enforcement teams face. Extending even beyond telecommunications, this results in a net positive for the antitrust sections of state attorneys general offices to redeploy resources to monitor and combat [\*649] anticompetitive behavior in the state-specific areas that these sections were designed to handle.

## Infrastructure PTX

#### Won’t pass---the bills are tied, far off, unfinished, and Biden can’t assuage progressives

Jonathan Weisman 10/28, Congressional correspondent and Domestic Policy Editor for The New York Times, B.S. in Journalism and History from Northwestern University; Jim Tankersley, Tax and economics reporter for The New York Times, B.A. in Political Science from Stanford University; Emily Cochrane, Congressional reporter at The New York Times, B.S. in Journalism from the University of Florida, “Crucial Elements of Spending Plan Remain in Flux After Biden’s Appeal to Democrats,” The New York Times, 10/28/21, https://www.nytimes.com/live/2021/10/28/us/biden-bill-plan

President Biden pleaded with House Democrats on Thursday to embrace his “framework” for a $1.85 trillion economic and environmental bill, saying its fate would help determine that of his presidency and his party’s hold on Congress, and its success would restore the nation’s standing on the world stage.

But the president’s appeal appeared to have failed to break the logjam among Democrats. Crucial details of the legislation remained in flux, and progressives declared they would not bow to pressure to quickly throw their support behind a separate $1 trillion bipartisan infrastructure package that has already passed the Senate.

By Thursday night, House leaders had scrapped plans for a vote on the public works measure, and the chamber approved a short-term extension of transportation programs through early December, a sign that passage of both the infrastructure bill and the domestic policy plan may be far off.

It was a setback after an audacious gamble by Mr. Biden, who had delayed his departure for a trip to Europe to try to nail down an accord on his domestic agenda. He used a morning meeting at the Capitol to attempt to rally House Democrats around the emerging deal.

“We have a framework that will get 50 votes in the United States Senate,” Mr. Biden told the group, according to a person familiar with his private remarks. “I don’t think it’s hyperbole to say that the House and Senate majorities and my presidency will be determined by what happens in the next week.”

Later, in public remarks at the White House, Mr. Biden hailed the plan as “historic.”

“No one got everything they wanted, including me,” he said in the East Room before departing on a trip to Rome. “But that’s what compromise is. That’s consensus. And that’s what I ran on.”

House leaders hoped the framework would be enough to persuade the chamber’s most liberal members that Congress was on the verge of passing a truly progressive package — and that those liberals, in turn, would join more moderate and conservative Democrats to send the infrastructure bill to the president for his signature.

“We badly need a vote on both of these measures,” Mr. Biden privately told lawmakers on Thursday morning, according to the person familiar with his remarks.

But liberals were still unsatisfied with a plan that was clearly unfinished — and that omitted many of their cherished priorities.

“What I would say is you have the outline of a very significant piece of legislation — I want us to make it better,” said Senator Bernie Sanders, the Vermont independent and Budget Committee chairman.

The change of course on holding an infrastructure vote on Thursday was a sign that the last-minute visit by Mr. Biden had not been enough to assuage progressives worried about the fate of the economic and environmental bill.

“Members of our caucus will not vote for the infrastructure bill without the Build Back Better Act,” Representative Pramila Jayapal, Democrat of Washington and the chairwoman of the Congressional Progressive Caucus, said in a statement that endorsed the president’s outline. “We will work immediately to finalize and pass both pieces of legislation through the House

together.”

Two crucial holdouts, Senators Joe Manchin III of West Virginia and Kyrsten Sinema of Arizona, had yet to publicly commit to voting for the social policy legislation.

#### Winners win

Paul Waldman 20, Columnist covering politics, “You’re darn right Biden has a mandate. Now he has to act like it.,” 11/9/20, https://www.washingtonpost.com/opinions/2020/11/09/youre-darn-right-biden-has-mandate-now-he-has-act-like-it/

Now that Joe Biden is the president-elect, the skeptical questions have already begun. How is he going to reach out to Republicans? Doesn’t the fact that Democrats lost some seats in the House show how closely divided the country is? Does he really have a mandate?

The answer is this: You bet he does. And he needs to act like it.

In recent years, whenever Senate Majority Leader Mitch McConnell (R-Ky.) was questioned about some extraordinary move he and Republicans were taking, such as rushing Amy Coney Barrett’s confirmation through the process fast enough to create a sonic boom, his usual reply was to smirk and say, “Elections have consequences.” We won, in other words, so we can exercise our power in any way we see fit.

This is what we have come to expect not just from McConnell but also from all Republicans, regardless of the circumstances of their victory. But when it’s Democrats’ turn, we expect them to be tentative and apologetic about using their power, always worried about whether a sternly worded editorial will chastise them for not incorporating enough Republican ideas into their plans.

So let’s take stock of just where Biden and the Democrats stand.

As of this writing, Biden has tallied 4.4 million more votes than President Trump, a number that will keep growing as more results come in. By the time the counting is over, he will likely have bested Trump by 6 million votes or more.

Given the current state of party polarization, that is a positively overwhelming victory; the days when Ronald Reagan could win reelection by 18 points or Lyndon Johnson could win by 23 points are long behind us.

Let’s also not forget that Biden won this emphatic victory despite the extraordinary voter suppression effort that Republicans have assembled in recent years and that accelerated in the past few months as they tried madly to keep as many Democrats from voting as possible. Voter purges, closing of polling places, restrictions on early voting, ID laws, the attack on the Postal Service — they even went after drop boxes, as though allowing people to safely and conveniently drop off ballots was some kind of anti-Trump conspiracy.

Yet despite all the hurdles Republicans put in front of people who were more likely to vote Democratic, Biden still beat Trump soundly.

Furthermore, Democrats control the House and, if they win both seats in the Georgia runoffs, will control the Senate as well. Even though the upper chamber would be divided 50-50, the Democrats there would represent 41 million more Americans than the Republicans do, as Ian Millhiser noted.

It’s not just that Democrats have won more elections (including the popular vote in seven of the last eight presidential contests) and represent more people. Their policy agenda — the substance of any mandate — is overwhelmingly popular as well.

In fact, it’s hard to find a controversial issue on which the Democratic position doesn’t enjoy the support of a majority of the public, sometimes an overwhelming majority. A $15-an-hour minimum wage, universal background checks for gun purchases, strong action on climate change, protecting reproductive rights, a path to citizenship for undocumented immigrants and legal status for “dreamers,” higher taxes for the wealthy and corporations, a public health insurance option — all are hugely popular.

You know who understands that perfectly well? Republicans.

Which is why the campaigns they run are so often about things like who loves America more or which candidate is “weak” and which one is “strong.” But more importantly, they know that if you act like you have a mandate, then you do.

You might recall that when Trump took office in 2017 despite losing the popular vote by 3 million votes, neither he nor any other Republican took it as a reason to trim his sails in any way. They did not say, “We shouldn’t go too far in cutting taxes for the wealthy or gutting environmental regulations or restricting reproductive rights — this is a closely divided country, and we should try to govern in a cooperative way.”

Quite the contrary, in fact; it’s hard to recall a modern president more contemptuous not just of the opposition party but also of the majority of Americans who didn’t support him.

Nor was this anything new.

Like Trump, George W. Bush took office after losing the popular vote, and he didn’t moderate his agenda either (even if he was better-mannered). What they understood is that mandates are, in the end, a kind of collective fiction. They exist only to the extent we decide they do.

On Friday, before news organizations declared him the victor, Biden said that the voters had “given us a mandate for action on covid, the economy, climate change, systemic racism. They made it clear they want the country to come together, not continue to pull apart.” Those two ideas are in tension, because acting on the mandate he received will not bring the country together.

It will make Republicans angry. They will say that they are the victims of oppression and tyranny, that when a duly elected Democrat enacts his agenda it is unfair and illegitimate. They will do everything in their power not only to make Biden fail but also to exacerbate the resentment, anger and division that they see as their path back to power.

There is not a single thing Biden can do to change that. What he can do, however, is act as though his mandate is well-earned and of the highest urgency. He can do what he promised, undeterred by Republican whining. If he does that, the public will get what it voted for. And isn’t that the point of having an election?

#### No capital---blame doesn’t stick

Liz Goodwin 20, staff writer at the Boston Globe, “‘Sleepy Joe?' Trump struggles to stick a label to ‘Teflon Biden’,” BostonGlobe, 7-11-2020, https://www.bostonglobe.com/2020/07/11/nation/sleepy-joe-trump-struggles-stick-label-teflon-biden/

But the 77-year-old Biden has been surprisingly hard to caricature, in part because he has largely stayed in his Delaware home due to the coronavirus outbreak while Trump has struggled to respond to the twin crises of the pandemic and racial justice protests.

Biden similarly survived blistering attacks on his record from his rivals during the Democratic primaries. Senator Kamala Harris memorably lambasted Biden for his decades-old stance against busing to integrate public schools, while liberals derided his stated willingness to compromise with Republican senators — even ones who defended segregation — and his assurances to donors that nothing would fundamentally change if he were elected.

Now, Trump has half-heartedly begun painting Biden as a secret radical, one who wants to “defund the police” and dramatically raise taxes, or at least who will be manipulated into doing so. The move fits into Trump’s larger strategy of warning his mostly white base that civil rights protesters seek to “erase” their history and transform the country, and that Biden will facilitate that.

“Joe is just — look, let’s face it, he’s been taken over by the radical left,” Trump said on Fox News on Thursday night. “I think they brainwashed him.”

In one of Trump’s campaign’s recent digital ads, Representatives Alexandria Ocasio Cortez, Ilhan Omar, and Senator Bernie Sanders silently leap out of the wooden cavity of a Trojan horse topped with the head of Biden, as ominous music plays in the background.

But Biden faced months of criticism from liberals for being too moderate in the Democratic race. Trump’s attacks face a credibility problem.

“They try to say he’s extreme. But of course Joe Biden has been ‘canceled’ every week for the last two years by people who think he’s too centrist,” said Sean McElwee, the founder of the liberal polling firm Data for Progress. “All the stuff that people really hated about Joe Biden in the primary, it’s ended up making it hard for Trump to attack him in the general.”

“It’s hard to say this man is this woke statue destroyer,” McElwee added, referring to Trump’s messaging around statues of Confederates and other historical figures that have been defaced or toppled in recent weeks.

Biden’s own relative blandness as a political figure hurts Trump’s attempts to define him negatively,

as he does not inspire strong feelings in a significant portion of the electorate. Just 22 percent of Americans say they dislike Biden “a lot” compared to 40 percent who dislike Trump “a lot,” according to a July Economist/YouGov poll.

That lack of venom can be seen at recent Trump events, where relatively few fans sport anti-Biden gear, unlike in 2016, when Hillary Clinton was skewered on pins and T-shirts and other paraphernalia, often in sexist terms.

“While I don’t want to say anyone is Teflon, Biden in some ways is unique because of his generic nature,” said Ian Russell, a Democratic strategist who used to run the House Democrats’ campaign arm. “The truth is they don’t have a ‘lock him up’ chant, they don’t have a ‘Crooked Hillary’ equivalent.”

#### Tons of thumpers.

Freddy Gray 11/6, Deputy Editor of The Spectator, “Superbad: Joe Biden’s plummeting presidency,” The Spectator, 11/6/21, https://www.spectator.co.uk/article/superbad-joe-bidens-plummeting-presidency

Poor Joe. He has a lot on his addled mind. He’s been in office for less than a year and his presidency is already a catalogue of crises. On Tuesday, as the President stood on the COP stage in Glasgow, impotently lecturing China and Russia about their absence, another disaster was happening back home. His Democratic party lost the governorship of Virginia, an election widely seen as the first big test of the political temperature in the Biden era. Virginia is increasingly thought of as Democratic territory. This time last year, Biden beat Donald Trump by ten points in the state — so the result looks damning.

Last month, as the polls tightened, Biden decided to invest his own political capital in the race. He joined the Democratic candidate Terry McAuliffe on the campaign trail and tried to brand the Republican challenger, Glenn Youngkin, as a Trumpkin wolf in sheep’s clothing — ‘extremism… can come in a smile and a fleece vest,’ he said.

Biden’s intervention only made a bad situation for the Democrats worse. The fleece-wearing Youngkin was clearly not an extremist. He successfully disassociated himself from red-raw Trumpism. He also picked a culture-war fight and won. He turned education, and the Democrats’ apparent eagerness to brainwash children with critical race theory in schools, into a rallying cause. His opponent moronically said that teachers, not parents, should decide what children learn. Showing even less nous, the National School Boards Association then demanded that protesting parents should be investigated for ‘domestic terrorism’. The Virginia election thus became a ‘nationalised’ battle between American families and Biden’s hyper-progressivist elite. The families won.

It’s silly to read too much into the Virginia result, even if the Democrats also underperformed in other races. Looking ahead to the 2022 midterm elections and beyond, however, the picture for Biden and the Democrats is extremely grim.

America is a lot bigger than Virginia. Yet Biden’s polling has been tanking nationwide

e. His job approval rating has fallen fairly steadily since he took office, from 55 per cent in January to 43 per cent today. He isn’t quite as unpopular as his predecessor at the same stage in his presidency, but Trump’s popularity bounced off a low base throughout. Biden’s seems so far only to go down. And no postwar president has fallen faster.

The number of Americans who think their country is on the ‘wrong track’ is 71 per cent. The young are giving up on Biden: 43 per cent of 18- to 24-year-olds approve of his job performance, a drop of 20 points since June. Perhaps most alarmingly of all for Democrats, the latest NBC poll found that Republicans now hold an 18-point advantage over their rivals when it comes to ‘dealing with the economy’. That is the highest recorded gap since 1991, when the survey started asking the question.

Americans think a lot about money and are understandably worried about what Biden is doing to the financial universe. He came into power promising to ‘restore the soul’ of their nation through preposterous amounts of government spending. What could go wrong?

Various trillion dollar bills barrelled into Congress. Americans didn’t mind at first. People like receiving large stimulus cheques. Media sycophants hailed Biden’s Build Back Better agenda as the 21st-century answer to Franklin Delano Roosevelt’s New Deal. But Biden was conspicuously vague about how the government would pay for it all — aside from his insistence that the two million Americans who earn more than $400,000 a year might have to cough up. Now Build Back Better is Collapsing Very Quickly as political and fiscal realities catch up with the executive branch. A supply-chain crisis is causing bottlenecks across America and the world. Inflation is biting harder in America than in Britain, and institutions are panicking. The Federal Reserve is this week expected to ‘taper’ its enormous stimulatory bond-buying programme. The Biden administration hopes that once its $1.75 trillion infrastructure bill gets through Congress, the public mood will shift in their favour again. But spend, spend, spend is not always the most sensible political strategy. The Democrats have been squabbling over the bill and the Republicans have done a good job of presenting themselves as the voice of economic sanity.

#### U.S. action alone fails

I&I 21, Issues & Insights Editorial Board, “There’s Nothing The U.S. Can Do To Affect Global Temperature”, Issues & Insights, 9/7/21, https://issuesinsights.com/2021/09/07/theres-nothing-the-u-s-can-do-to-affect-global-temperature/

“We simulated the environmental impact of eliminating greenhouse gas emissions from the United States completely,” Dayaratna said in testimony.

“Simulation results indicate that if all carbon dioxide, methane, and nitrous oxide emissions were to be eliminated from the United States completely, the result in terms of temperature reductions would be less than 0.2 degrees Celsius, 0.03 degrees Celsius, and 0.02 degrees Celsius, respectively. These temperature reductions would also be accompanied by minuscule changes in sea level rise (less than 2-centimeter reduction).”

This isn’t hard to understand when it’s put next to the fact that more than half of the world’s human greenhouse gas emissions are produced by 25 cities, all but two of them in China, none of them in the U.S.

It’s truly asinine to believe that Washington and our state lawmakers can do anything about greenhouse gas emissions when China and India have been busy building hundreds of coal plants and that, as of last year, 350 coal-fired power plants were under construction worldwide. China – which, we must point out, produces most of the solar panels installed in the West in factories powered by that country’s “mountain” of coal – is not going to yield to John Kerry’s embarrassing begging that it cut emissions. Beijing will do only what it wishes.

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#### Alexander votes aff---says we should gradually negotiate a transition---BUT agrees that a sudden collapse would be destructive.

Samuel **Alexander 17**. research fellow with the Melbourne Sustainable Society Institute and lecturer with the Office for Environmental Programs, University of Melbourne, Australia. 2017. “Frugal Abundance in an Age of Limits: Envisioning a Degrowth Economy.” Transitioning to a Post-Carbon Society, edited by Ernest Garcia et al., Palgrave Macmillan UK, pp. 159–179. CrossRef, doi:10.1057/978-1-349-95176-5.

In this chapter I want to suggest that radical simplicity would not be as bad as it might first seem, provided people were ready for it and wisely negotiated its arrival, both as individuals and as communities. I am tempted to go further and suggest that radical simplicity may be exactly what consumer cultures need to shake themselves awake from their comfortable routines and habits of consumption; that radical simplicity would be in our own, immediate, self-interests (Trainer 2012). This is a promising possibility, because it seems clear enough that in an age of gross ecological overshoot (Global Footprint Network 2013; Vale and Vale 2013), degrowth as a macro-economic and political programme in wealthy nations requires and depends upon lifestyles of radically reduced consumption. But again, it must be emphasized that reduced consumption under capitalism would be very different to reduced consumption under a planned, equitable degrowth framework, in ways that I hope to explain. It goes without saying, of course, that if a radically lower material standard of living were to be imposed upon people suddenly by force of circumstances and without anticipation and some preparation, most people would find such a dramatic change terrifying and painful—an existential disaster. Such a response would be quite natural and understandable, for many people would have their identities and worldviews shaken beyond recognition. But the subtext of this chapter is that if such dramatic lifestyle changes were to be stoically anticipated and prepared for, even embraced, people could discover that lives of reduced consumption might lead to a new form of abundance, a new form of wealth, a new connection or reconnection with nature, our communities and, indeed, ourselves. This is the possibility, at least, that makes degrowth such a tantalizing movement for deep societal transformation, for it gives rise to the possibility that there could be “an upside to down” (Homer-Dixon 2006; Odum and Odum 2001).

**Concedes no elite buy-in**

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

Before proceeding I should briefly anticipate an objection that will no doubt arise even from this preliminary overview. Let me be clear: the notion of ‘prosperous descent’ is not a prediction. I am not arguing that human beings are going to create a global village of thriving, sufficiency economies, nor do I even suggest that this is likely. And I am certainly not arguing that an unplanned, chaotic civilisational collapse into poverty is going to be ‘prosperous’ (so please do not accuse me of that). My argument is simply that economies of sufficiency, in which the entire community of life can flourish, are the only way to respond effectively to the overlapping crises of industrial civilisation. To oppose Margaret Thatcher with her own words: ‘there is no alternative’.

If this can be established, as I believe it can, it would follow that we should try to create sufficiency economies, here and now, even if our chances of success do not look good. We may never realise the ideal of a sufficiency economy, but having a coherent ideal functions as a compass to guide action. Without a compass, our energies and efforts would lack direction and thus could easily be misdirected with the best of intentions. Indeed, I worry that dominant strains of the environmental movement today can be understood primarily as misdirected good intentions, efforts which tend to be mistaken in attempting to ‘green’ a growth-orientated mode of production that can never be green. Others oppose the existing order without having any conception of what should replace it. Even those who reject the growth economy sometimes fail to understand the radical implications of such a proposal; fail to understand that we cannot give up growth while other aspects of life more or less go on as usual. Sufficiency, I contend, is a revolutionary project.

While I believe the practical question of ‘strategy’ – the question of how to realise a sufficiency economy – should remain open and dependent on context, the ‘theory of change’ that informs these essays is one grounded in grassroots, community-based action and initiatives. That is to say, I contend that until we have a culture or social consciousness that embraces sufficiency, our politicians are not going to be driven to create the necessary structures of sufficiency, nor, in the absence of such a culture, are we going to build new structures ourselves. In fact, even if such a culture of sufficiency emerged, our politicians are likely to be sluggish and non-responsive in supporting it. This means that the primary (although not necessarily the exclusive) forces of societal change must come ‘from below’, from people like you and me, working in our local communities, at the grassroots level. Before all else, we need to create the social conditions for deep transformation. There is a huge amount our governments could do, of course, to create just and sustainable economies of sufficiency, and in certain chapters I explore some available policy options. This can help us imagine alternative forms of human society and organisation. But we must not wait for governments to act, or we will still be waiting while the ship of civilisation sails over the cliff and crashes into the dark abyss below.

#### Effective regulation is necessary to generate healthy competition---that generates positive externalities AND solves their impacts

Joseph Heath 7, Professor of philosophy at the University of Toronto, “An Adversarial Ethic for Business: or When Sun-Tzu Met the Stakeholder”, Springer, 2007, Journal of Business Ethics 72:359-374

Of course, when it comes to competitions our sympathies lie with those who ‘‘break ranks’’ and adopt the non-cooperative strategy of training. Indeed, the point of a competition is to encourage precisely this sort of ‘‘one-upmanship.’’ Yet, why would society want to inflict this peculiar sort of collective action problem upon people? The answer is that desirable competitions also generate positive externalities – benefits to people other than those directly involved. The competition is precisely how society induces those involved to produce these benefits, despite the personal inconvenience that it entails. Olympic athletes, for instance, might prefer not to have to give up their entire lives to train, but the intensity of competition generates a riveting display, in which spectators can see the frontier of human achievement being pushed back year after year.

Thus, the reason that ‘‘society’’ favors competition in certain areas of life has everything to do with

the externalities that are generated. The difference between healthy and unhealthy forms of competition is that, in the former case, the external benefits outweigh the losses incurred by the competitors, while in the latter case they do not. Compare the case of training to that of performance-enhancing drugs (see Simon, 1988). Both have the structure of a defection strategy. When one person starts training, everyone else is forced to train as well, in order to have any chance of winning. In the same way, when one person starts taking steroids, everyone else has to take steroids as well, in order to have any chance of winning. The difference is that training, although it represents an inconvenience to many people, usually improves the athlete’s overall health, whereas performance-enhancing drugs have serious adverse health effects in the long run. (Indeed, it is a testament to the intensity of the race to the bottom among athletes that so many are willing to take them, and so many more would be willing to do so, in the absence of regulations prohibiting it and testing to monitor compliance.)

This is why competitions need to be so carefully monitored and regulated. In general, the participants are motivated by the incentive to defect, i.e. the desire to win, and not by the overall ‘‘social’’ objectives of the competition.2 If this were not the case, then there would be no need to test for performance-enhancing drugs; athletes would simply refrain from taking them on the grounds that they are not ‘‘good for the sport.’’ Yet, the logic of the collective action problem at the heart of athletic competition generally precludes this sort of highmindedness. Thus, healthy competitions are always in danger of degenerating into unhealthy ones. There was no better reminder of this than the scandal that erupted in American figure-skating in 1994, when skater Tonya Harding sent a member of her entourage out to kneecap her primary rival, Nancy Kerrigan. Needless to say, the point of a figure-skating competition is not to see who will be left standing at the end of the day, but rather to see who can perform the most impressive on-ice maneuvers. Practicing is a legitimate way of besting one’s rivals; sending out thugs to handicap them is not. The former generates positive externalities that make the competition a ‘‘race to the top,’’ while the latter clearly transforms it into a ‘‘race to the bottom.’’ Thus, the difference between healthy and unhealthy competition lies not in the intentions of the competitors, but rather in the rules that constrain them, and keep them from employing strategies other than those that generate positive externalities. There is nothing intrinsically right or wrong about any particular competitive strategy (after all, they are all forms of non-cooperative behavior), the question is simply whether the strategies chosen promote healthy or unhealthy forms of competition.

One can see already how this peculiar structure makes the moral evaluation of competitive behavior rather tricky. The problem is that the beneficial consequences of a competition arise necessarily as a by-product of the competitive activity, while the objectives that the participants themselves seek often seem morally objectionable prima facie. The virtues of the competition, such as they are, are associated with the institutional structure (i.e. the set of rules) that constrains the participants’ behavior, and not necessarily the intentions of the participants. Indeed, insofar as a competition does produce beneficial consequences, it is almost as though the participants were guided, by an invisible hand, to promote an end which was no part of their intention.