# Round 5 Wake Open Source

# 1NC – Round 5 Wake

### 1NC---T

Subsets

#### ‘Antitrust’ applies to the entire economy---targeting single industries isn’t topical

Dr. Babette Boliek 11, Associate Professor of Law at Pepperdine University School of Law, J.D. from the Columbia University School of Law, and Ph.D. in Economics from the University of California, Davis, “FCC Regulation Versus Antitrust: How Net Neutrality is Defining the Boundaries”, Boston College Law Review, 52 B.C. L. Rev. 1627, November 2011, Lexis

Although the two regimes share a commonality of purpose--to protect consumers and to promote allocative efficiencies in production--the two have quite distinct, predominately opposing, means of securing social benefits. As Justice Stephen Breyer stated when serving [\*1629] as a judge on the U.S. Court of Appeals for the First Circuit, although regulation and the antitrust laws "typically aim at similar goals--i.e., low and economically efficient prices, innovation, and efficient production methods"--regulation looks to achieve these goals directly "through rules and regulations; [but] antitrust seeks to achieve them indirectly by promoting and preserving a process that tends to bring them about." The battle between these two regimes may be broadly summarized in a single issue thusly: in the face of the industry-specific regulator, what is (or what should be) the role of antitrust law?

Antitrust law preserves the process of competition across all industries by condemning anticompetitive conduct when it occurs. In contrast, industrial regulation by its nature is a public declaration that, in a given industry, market forces are too weak or underdeveloped to produce the consumer benefits that are realized in competitive markets--regulated industries are carved out from the rest of the economy and are subject to proactive, regulatory intervention that goes above and beyond antitrust enforcement measures. Not surprisingly, regulatory agencies were historically created as substitutes for market forces in the few markets that, by the nature of the product or technology, were natural monopolies or severely prone to monopoly. In the vast majority [\*1630] of markets, however, the antitrust law is the default government control, designed to supplement market forces to inhibit or prevent the growth of monopoly.

Again, although the goals of the two regimes may be similar, the means by which each can achieve those goals are in opposition. Therefore, the threshold determination of which industries are to be singled out for industry-specific regulation, and to what degree, is of vital importance as it simultaneously determines the predominance of the regulator versus the antitrust authority in securing the social good.

#### Voting issue--- the number of potential subsets is infinite which creates a moral hazard to rush to small non-controversial tweaks that shreds limits and ground

### 1NC---T

T Remedies

#### Structural separation does not prohibit anticompetitive business practices

**Khan 19** [Lina M. Khan, Academic Fellow, Columbia Law School, May, 2019, “THE SEPARATION OF PLATFORMS AND COMMERCE,” 119 Colum. L. Rev. 973, 980-983, lexis]

This Article argues that these combined problems of discrimination and information appropriation invite recovering common carriage's forgotten cousin: structural separations. Structural separations place clear limits on the lines of business in which a firm can engage. Rather than prohibit particular business practices, separations proscribe certain organizational structures. In antitrust, structural remedies are contrasted with behavioral ones: Whereas behavioral remedies seek to prevent firms from engaging in specific types of conduct, structural remedies seek to eliminate the incentives that would make that conduct possible or likely in the first place.

Structural prohibitions have been a traditional element of American economic regulation. They have been applied as a standard regulatory tool and key antitrust remedy in network industries, often to prohibit a dominant intermediary from competing with the businesses that depend on it to get to market. While common carriage regimes prevent a firm from discriminating--requiring equal service on equal terms--structural prohibitions eliminate one source of the incentive to discriminate. In this way, common carriage and structural separations often functioned as complements in the service of nondiscrimination.

#### Vote neg for limits and ground – justifies affirmatives that don’t actually change what activities are governable by antitrust and opens the floodgates to mechanisms based on every lawyer’s opinion of how a specific type of antitrust violation should be remedied, makes case neg research impossible

### CP---1NC

States CP

#### The fifty states and all relevant entities through the National Association of Attorneys General Antitrust Task Force should holistically analyzing the scope of potential merger’s market power; reinvestigate current corporations that have unruly market power and require divestiture where appropriate.

#### States solve

Arteaga 21 [Juan and Jordan Ludwig; January 28; former Deputy Assistant Attorney General for the U.S. Department of Justice’s Antitrust Division, J.D. from Columbia Law School; partner in the Antitrust and Competition Group at Crowell and Moring firm, J.D. from Loyola Law School; Global Competition Review, “The Role of US State Antitrust Enforcement,” <https://globalcompetitionreview.com/guide/private-litigation-guide/second-edition/article/the-role-of-us-state-antitrust-enforcement>]

In the United States, competition laws have been implemented and enforced through a dual system where the state and federal governments play distinct, yet complementary, roles in regulating the competitive process. While the Department of Justice (DOJ) Antitrust Division and Federal Trade Commission (FTC) are widely viewed as the stewards of US antitrust laws, state attorneys general have long played an important, albeit varying, role within the United States’ antitrust enforcement regime. This has been especially true during the past 30 years because state attorneys general have become much more effective at coordinating their antitrust enforcement efforts to ensure that they have a meaningful seat at the table in any actions brought jointly with their federal counterparts or are able to bring their own actions when the DOJ and FTC decide not to do so.

Prior to the enactment of the first federal antitrust law – the Sherman Act – in 1890, state antitrust enforcement was quite robust in the United States because at least 26 states had already enacted some form of antitrust prohibition.[[2]](https://globalcompetitionreview.com/guide/private-litigation-guide/second-edition/article/the-role-of-us-state-antitrust-enforcement#footnote-126) In addition, state enforcers had often used general corporation law and common law restraint of trade principles to regulate anticompetitive business practices and transactions.[[3]](https://globalcompetitionreview.com/guide/private-litigation-guide/second-edition/article/the-role-of-us-state-antitrust-enforcement#footnote-125) This well-established state antitrust enforcement infrastructure – coupled with the fact that the Antitrust Division and FTC had only recently been created – permitted state attorneys general to continue playing a leading enforcement role for the first 30 years after the Sherman Act’s passage.[[4]](https://globalcompetitionreview.com/guide/private-litigation-guide/second-edition/article/the-role-of-us-state-antitrust-enforcement#footnote-124) Indeed, state attorneys general successfully prosecuted a number of the most consequential antitrust enforcement actions during this period.[[5]](https://globalcompetitionreview.com/guide/private-litigation-guide/second-edition/article/the-role-of-us-state-antitrust-enforcement#footnote-123)

In the early 1920s, however, state antitrust enforcers began playing a less prominent role because ‘the national dimension of the most important trusts, . . . as well as their ability to restructure in order to evade problematic state laws’, made clear that the federal government needed to step forward in order to adequately protect consumers and the competitive process.[[6]](https://globalcompetitionreview.com/guide/private-litigation-guide/second-edition/article/the-role-of-us-state-antitrust-enforcement#footnote-122) As a result, the DOJ and FTC – whose national jurisdiction and greater resources enabled them to tackle the most pressing competition issues of the time – displaced state attorneys general as the primary source of government antitrust enforcement within the United States.[[7]](https://globalcompetitionreview.com/guide/private-litigation-guide/second-edition/article/the-role-of-us-state-antitrust-enforcement#footnote-121) This largely remained true until the mid-1970s when Congress, in response to the DOJ and FTC’s perceived inactivity, passed two laws that expanded the authority of state attorneys general to enforce the federal antitrust laws and provided them with financial resources to do so.[[8]](https://globalcompetitionreview.com/guide/private-litigation-guide/second-edition/article/the-role-of-us-state-antitrust-enforcement#footnote-120)

In 1976, Congress passed the Hart-Scott-Rodino Antitrust Improvement Act, which, among other things, authorised state attorneys general to bring parens patriae suits (i.e., legal actions brought on behalf of natural persons residing within their states) seeking monetary (treble damages) and injunctive relief for Sherman Act violations.[[9]](https://globalcompetitionreview.com/guide/private-litigation-guide/second-edition/article/the-role-of-us-state-antitrust-enforcement#footnote-119) Congress also passed the Crime Control Act of 1976, which, among other things, provided state attorneys general with tens of millions in federal grants as ‘seed money’ for the creation of antitrust bureaus within their offices.[[10]](https://globalcompetitionreview.com/guide/private-litigation-guide/second-edition/article/the-role-of-us-state-antitrust-enforcement#footnote-118) These laws had their intended effect of reinvigorating state antitrust enforcement.

During the 1980s, for example, state attorneys general once again emerged as vigorous antitrust enforcers, especially with respect to the prosecution of resale price maintenance practices and other vertical restraints.[[11]](https://globalcompetitionreview.com/guide/private-litigation-guide/second-edition/article/the-role-of-us-state-antitrust-enforcement#footnote-117) The rise in the level and prominence of state antitrust enforcement during this period was largely due to a perceived enforcement void at the federal level, where the DOJ and FTC had mostly limited their focus to ‘prohibiting cartels and large horizontal mergers’.[[12]](https://globalcompetitionreview.com/guide/private-litigation-guide/second-edition/article/the-role-of-us-state-antitrust-enforcement#footnote-116) No longer content with ceding antitrust enforcement to federal enforcers, state attorneys general expanded their antitrust dockets from prosecuting purely ‘local matters, such as bid-rigging on state contracts’, to actively investigating and litigating matters with multistate and national implications.[[13]](https://globalcompetitionreview.com/guide/private-litigation-guide/second-edition/article/the-role-of-us-state-antitrust-enforcement#footnote-115) To help ensure that they had a larger seat at the antitrust enforcement table, state attorneys general also increased the coordination of their enforcement efforts and competition advocacy through organisations such as the National Association of Attorneys General (NAAG), which created a Multistate Antitrust Task Force and issued state Vertical Restraints and Horizontal Merger Guidelines during this period.[[14]](https://globalcompetitionreview.com/guide/private-litigation-guide/second-edition/article/the-role-of-us-state-antitrust-enforcement#footnote-114)

### CP---1NC

Regulation CP

#### The United States federal government should: - internalize social costs of industrial agriculture via financial penalties, and enact a comprehensive pollution monitoring program, and - prohibit antitrust enforcement against agriculture firms.

#### That plank solves the whole case by internalizing social costs of industrial agriculture—that incentivizes a shift to small, sustainable farms.

Finney ’21 [Bradley R. Finney, Law Clerk, United States District Court for the Western District of Tennessee, “Agricultural Law Stifles Innovation and Competition,” ALABAMA LAW REVIEW v. 72 n. 4, 2021, p. 828-832]

\*\*Edited for language

2. Decreasing the Price Disparity Would Increase Competition

Agricultural exceptionalism hinders organic agriculture from competing against conventional agriculture.458 In fact, “[c]urrent agricultural policy in the United States . . . largely allows agriculture to externalize its pollution costs to the detriment of the competitiveness of conservation-based agriculture.”459 Organic agriculture causes comparatively low societal costs.460 Organic agriculture achieves this by implementing sustainable practices like rotating crops to improve soil fertility and using environmentally friendly fertilizers.461 Although these methods ultimately result in less pollution and lower societal costs, they are more expensive to implement.462 But because organic farmers do not benefit to the same extent from cost externalization, pricing of organic products more accurately reflects their true costs.463

Conventional agriculture typically does not have to compete with organic agriculture on price.464 With lower up-front costs and the benefit of externalizing the costs of their pollution, conventional agriculture can price its products more cheaply than organic agriculture.465 By rolling back agricultural exceptionalism, regulators would force conventional agriculture to incorporate its true costs into its pricing.466 This would decrease the price disparity between conventional and organic agriculture and would likely increase price competition as a result.

Basic economics demonstrates that regulating the agriculture industry would increase competitiveness among conventional and organic farming. First, curtailing agricultural exceptionalism would increase the price of conventional agriculture’s crops due to its significant pollution costs.467 But limiting agricultural exceptionalism would likely not increase the price of organic agricultural products because organic agriculture pollutes far less.468 Thus, an increase in the price of conventional agriculture food products would close the price disparity between conventional and organic agriculture.469

Due to the increase in conventional agriculture’s price, consumers would purchase more organic crops.470 Consumers would switch to organic because when the price of a good increases, demand for a substitute good increases.471 “For example, if the price of coffee increases, the quantity demanded for tea (a substitute beverage) increases . . . .”472 Additionally, price changes are an influential determinant of consumers’ food demand.473 When the price of a good increases, the amount demanded decreases.474

3. Incentivizing Pollution-Reducing Competition

Currently, firms within agriculture are not competing over decreasing water pollution costs because agricultural exceptionalism protects conventional agriculture from responsibility for these costs.475 Conversely, if agricultural exceptionalism were curtailed, conventional agriculture would then aim to limit any increased expenses from complying with regulations and the internalization of pollution costs.476 This would incentivize competition concerning price and innovation throughout the industry.477 Similarly, there would likely be an increase in technological competition involving innovations that reduce water pollution.478 Firms within the entire industry would compete over having the best technology that most limits water pollution and decreases costs.479 The underlying focus of all of this new competition would be reducing pollution to reduce the parallel costs and, ultimately, increase profits.480 If a firm chose not to compete in this manner, it would likely be uncompetitive in the marketplace and would be replaced by one that would.481

The increased competitiveness would decrease water pollution and benefit society by reducing the amount of water-pollution-related costs, increasing the financial benefits of clean water, and improving overall health.482 The agriculture industry would also benefit by leveling the competitive playing field for the entire industry.483 Success would no longer be predicated on which farms took the most advantage of financial and legal support provided by the Government.484 The firms best acquiescing to consumer demand, complying with regulations, limiting costs, and producing the best product could then succeed.485

### CP---1NC

#### The United States federal government should

#### -Relax and reduce food standard regulations and output restrictions

#### -Expand small farming assistance programs and subsidies

#### -Shift eligibility for current agricultural subsidies to land rehabilitating farming operations

#### -Implement expansive policy solutions to climate change and biodiversity, including regulated geoengineering and funding carbon negative technology.

#### Only the CP solves---otherwise every plank is an alt cause.

Watson and Winfree 21 [Philip Watson and Jason Winfree are researchers at the University of Idaho, “Should we use antitrust policies on big agriculture?”, 6-17-2021, 10.1002/aepp.13173] IanM

ALTERNATIVE POLICIES TO ASSIST SMALL FARMS Antitrust-related policies should not be geared towards protectionism of small firms; however, there may be potential ways to help small farmers without potentially increasing food prices. This section is not meant to be a full accounting of the benefits and costs of these alternatives, but rather shows that there are alternatives that may achieve these goals without driving up food costs for consumers. At the crux of antitrust policy is getting rid of any barriers to entry, which can at times be a barrier to small farmers. However, some policies that the USDA has pursued have the unintended consequence of creating barriers, increasing the fixed costs of production, and exacerbating consolidation in agriculture, further putting small farms in a competitive disadvantage. These policies include food standard regulations and output restrictions. Relaxing and reducing these restrictions, while potentially creating other problems, would likely help small farmers. Subsidize small and beginning farmers There are currently a large number policies that the USDA and other agencies are pursing to encourage small and medium-sized producers[12](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-note-0013_66) as well as new farmers[13](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-note-0014_67). Some groups support the **expansion of these** types of programs to **assist small** and beginning **farmers** because they feel that US agricultural **policy has** **unduly subsidized big commodity agriculture** for years at the expense of small farms. Conversely, others argue that subsidizing small farms disproportionately benefits rich consumers who are able to afford the price premium on niche foods. However, **irrespective of** the relative **efficacy of** programs and **subsidies to** **support small farms, these efforts will not** likely **lead to higher prices** for basic food products, which should be central to the agricultural policy. **The same cannot** **be said for using antitrust** policies **to break up “big ag**”. Relax food standards A good example of policies for increasing fixed costs is food standards. Implementing regulations, such as food quality standards, can increase the level of market concentration in agriculture because it requires all firms to add costly measures, effectively increasing the fixed costs of production. While some of the costs from regulations, such as food standards, might be variable, research has typically shown that it leads to higher fixed costs (Bovay & Sumner, [2017](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0009)). If these regulations increase fixed costs, it financially incentivizes firms to become larger. Therefore, when such policies are implemented, policymakers should be cognizant of the pressure of such policies. This is not to say that food safety policies are always unwarranted, but the costs of such policies should be taken into account. So, while many advocates of antitrust intervention in agriculture cite food safety as a reason in favor of intervention, food safety standards are likely exacerbating consolidation in agriculture and encouraging larger firms. Reduce output restrictions Output restrictions through collective marketing were a hallmark of early exemptions given to agriculture through the Capper–Volstead Act. These exemptions were seen as an avenue to help farmers overcome the inherent “zero-profit condition” that results from commodity production. However, although they are becoming less common, output restrictions in agriculture can help established and larger firms and can hinder smaller and/or new farms. To create new entries into the market, any output restrictions should be minimized. While marketing orders do not commonly invoke volume controls, such controls can hinder competition from small farmers. For example, handler withholding policies and minimum quality standards can be used, at least potentially, to control the supply of commodities. While such restrictions may be beneficial to some firms because they can increase prices, they sometimes do so by restricting membership of a cooperative and keeping out new producers. CONCLUSION Increases in market consolidation in agriculture certainly comes with a myriad of issues that need to be examined, and, in some cases, policy interventions may be warranted to address market power and any associated externalities. However, given that our food supply is critical, research into how specific interventions are likely to lead to changes in production is vital. Therefore, our concern about the use of antitrust intervention in agriculture is that consumer surplus has been largely absent in the debate. This is curious given that antitrust policy aligns with maximizing consumer surplus and lower prices. In general, the consolidation of farms and the continued growth of “big ag” can be explained by change in the cost curves due to technology. Economic theory tells us that social welfare is maximized when we allow firms to merge if fixed costs are rising relative to marginal costs. Empirically, it does not appear that consolidation is causing an increase in prices. While these changing cost curves do harm some small farms, that effect is smaller than the benefit received by food consumers. To be sure, monopolies can cause great harm to lower income and middle-income consumers (Schmitz et al., [2020](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0042)). But traditionally, monopolies harm consumers by raising prices and creating barriers to entry. This is why antitrust policy, when dealing with agriculture, should focus on consumers and use the “rule of reason” to try to provide cheaper food. Producers can always create niche markets to produce specialty foods if sufficient consumer demand is present, but the primary goal should be to produce food at a lower price. Similarly, if there are economies of scale, large firms should be encouraged in the industry. While concern for small or family farms may be noble, protection of small farms should not come at the expense of lower food prices. Our policy goals in agriculture should be to eliminate any barriers to entry to foster competition that leads to lower prices. While there are other policy concerns, ceteris paribus, lower food prices should be favored over high food prices. If these antitrust policy directives are not followed, the results could be disastrous. Competition has always meant that some firms may not survive, and under changing cost structures this can imply that firms get larger by consolidating other firms. However, in many industries this seems more easily accepted, perhaps due to other sociological factors. While few people give a second thought about the bankruptcy of a start-up technology firm, family farms are seen as virtuous by some observers and the decline of small farms can be seen as problematic. However, the **main goal** of agricultural policy should be to **feed people**. While the typical economic analysis shows that economic welfare is maximized when consumer surplus is maximized, it is even more crucial to focus on consumers when the good is food. Given the obvious necessity of food, policy should be driven by a desire to make food as available as possible.

#### Land restoration focused incentives solve

Ding et al 21 [Helen, Will Anderson, and Rene Zamora Cristales, World Resources Institute Fellows, Smarter Farm Subsidies Can Drive Ecosystem Restoration, https://www.wri.org/insights/how-farm-subsidies-combat-land-degradation, poapst]

Every year, governments give out [$700 billion](https://doi.org/10.1787/928181a8-en) in agricultural subsidies globally. Though well-intentioned, these farm subsidies sometimes [work against](https://www.wri.org/blog/2020/07/redirecting-agricultural-subsidies-sustainable-food-future) their core goal: boosting crop yields and farmer incomes while developing rural areas. Farm subsidies can also inadvertently drive people to clear forests to produce commodities like soy and beef, which caused around [20%](https://www.wri.org/blog/2020/02/agriculture-drove-recent-record-breaking-tree-cover-loss) of global tree cover loss in 2018. This has a major economic toll, too. Deforestation and land degradation lower the productivity of soil in forests and on farms, costing rural communities as much as [$6.3 trillion](https://doi.org/10.1016/j.ecolecon.2016.06.016) a year. Agriculture, forestry and land use change are also a major source of carbon pollution, representing [18.5%](https://www.wri.org/blog/2020/02/greenhouse-gas-emissions-by-country-sector) of climate-warming greenhouse gas emissions in 2016. Governments urgently need to reverse land degradation while significantly increasing crop yields in order to [feed 10 billion people](https://www.wri.org/blog/2020/07/redirecting-agricultural-subsidies-sustainable-food-future) by 2050. This year, governments specifically need to protect the food security of the [97 million people](https://blogs.worldbank.org/opendata/updated-estimates-impact-covid-19-global-poverty-turning-corner-pandemic-2021) that the COVID-19 pandemic pushed into poverty in 2020. Achieving that outcome is only possible if they support the small farmers — working on less than two hectares each — that produce [up to 34%](https://www.sciencedirect.com/science/article/pii/S2211912417301293) of the world’s food supply. A [new WRI report](https://www.wri.org/research/farm-restoration-subsidies) highlights how governments can shift public farm subsidies to stimulate inclusive rural development while protecting the environment and smallholder farmers. By providing farmers with fertilizers, pesticides and technical support, agricultural subsidies brought millions of people out of poverty during the Green Revolution in the 1950s and 1960s. But today, many programs are encouraging farmers to use an excessive amount of pesticides and fertilizers in the quest for immediate yield improvements, without accounting for how these chemicals can damage the soil and hurt long-term productivity. By shifting these underperforming subsidies, which have contributed to the degradation of 75% of the Earth’s land, governments can better achieve their goals of helping rural economies. These revamped incentive programs can — without hurting farms’ bottom lines — help farmers restore the health of the land while building climate resilience into local economies. Investing in land restoration does not mean divesting from agriculture; it means supporting a low-carbon version of farming that can provide sustainable returns for decades. Agroforestry, where farmers add trees to cropland, and silvopasture, where they grow trees on their livestock’s grazing land, are widely adopted techniques in parts of Africa, Asia and Latin America that improve the health and productivity of the land in the long-term.

### DA---1NC

Leadership DA

#### The plan’s uncertainty and disruption to capacity for tech innovation decimates growth of the ag sector

Dr. Don Racheter 17, President of the Public Interest Institute, Master's Degree and Ph.D. in Political Science from the University of Iowa, Taught at the University of Iowa and Central College, “Upcoming Mergers Benefit America's Farmers”, Des Moines Register, 8/6/2017, https://www.desmoinesregister.com/story/opinion/columnists/iowa-view/2017/08/06/upcoming-mergers-benefit-americas-farmers/537250001/

America’s farmers are being challenged to prepare for a global, growing population and a robust international trade market.

Not only has every farmer had to increase the number of people that he or she is responsible for feeding by almost 130 people since 1960, but international markets also are eager for Iowa’s soybeans and other agricultural products.

These market-based problems need specific market-centric solutions. By leaning on the power of an innovative and dynamic private sector, we can ensure our farmers have the tools to compete in any economic climate.

Industry leaders such as Bayer, Monsanto, Dow and DuPont are meeting these challenges head-on with a commitment to developing the latest technologies that make America’s farms both more efficient and effective. These efforts have filled the gap in public investment to groundbreaking agricultural research and development. According to the USDA Economic Research Service, government investment in agricultural R&D dropped to just 30 percent of total agricultural R&D funding since 2013.

Today, the private sector is responsible for many of the innovations that are currently shaping the future of farming in America, and more resources in the private sector means farmers can expect these advances in technology faster. The latest breakthroughs in precision farming techniques are helping farmers target their crop treatments, saving small farms money while also limiting their environmental footprint. For example, John Deere tractors use GPS sensors so that farmers don’t cover the same area twice, which can reduce their fuel input by up to 40 percent.

More permanent partnerships, such as the potential merger between Bayer and Monsanto, will ensure that leading ag companies are able to invest additional resources to bring advanced solutions to farmers. Farmers will be able to spend less time and resources on daily challenges, enabling them to meet the international demand for Iowa’s ag products.

As opponents to mergers pop up as frequently as weeds after a strong rain, we should examine what might possibly be driving their motivation. Rather than truly believing that these mergers harm consumers, many are driven by political motivations. Case in point is the July 21 commentary by Austin Frerick ["To save rural Iowa, oppose Monsanto-Bayer mega-merger"], a little-known former U.S. Treasury economist under the Obama Administration. One can’t help but question Mr. Frerick’s perspective given his support for greater government interference in the marketplace while government investment in R&D has continued to decline.

Cloaking a progressive agenda behind a call for consumers to reject private sector investment by two leading ag companies with a stake in America’s farming future is both disingenuous and harmful. Anyone who has spent any real time in a farmer’s field knows that what agriculture really needs is to attract, not reject, more investment in innovative agricultural technologies.

What critics fail to highlight is that the Bayer-Monsanto merger is the perfect example of bringing together two companies that operate in largely complementary fields to develop new tools and products with more capital. In fact, Bayer focuses mostly on crop protection, while Monsanto is known for seeds and traits capabilities. Alone, it can take each company more than a decade to create a new product for farmers, but together, the time could shorten significantly.

In an ever-changing free market, it is natural for businesses to seek to maintain a competitive advantage over their rivals by expanding their offerings to the consumers they serve. Bayer-Monsanto’s focus on finding the next generation of farming technology will spur their competitors to do the same to keep up.

Farmers are constantly battling uncertainty in their line of business and don’t have time for political posturing. The benefits from greater private sector investment in innovation from these upcoming mergers are clear and demonstrable and are necessary for the future of American farming.

#### Ag innovation cements U.S. tech leadership and lets us counter the BRI

Dr. Gordon M. Goldstein 21, Adjunct Senior Fellow at the Council on Foreign Relations, Graduate of Phillips Academy Andover and Columbia University, where he was an International Fellow and awarded a BA, MIA, M.Phil and Ph.D in Political Science and International Relations, and Erik R. Oken, Managing Director, Global Head of Consumer Retail Investment Banking at JPMorgan Chase & Co., “America’s New Challenge: Confronting the Crisis in Food Security”, Council on Foreign Relations Blog, https://www.cfr.org/blog/americas-new-challenge-confronting-crisis-food-security

The United States has historically used food policy to strengthen its relationship with friends and allies through initiatives such as the U.S. Food for Peace Program, the 1960’s “Green Revolution” or the so-called “Third Agricultural Revolution” which featured research and technology transfers that significantly increased agricultural production globally while feeding millions and increasing U.S. influence worldwide.

The United States is once again poised to use its rich history of innovation in foreign agricultural policy to both enhance its influence with friends and allies where food insecurity is a major issue—the Middle East, Africa, and emerging economies in Asia. These include some of the same countries that China is courting through its “Belt and Road” initiative, which seeks to construct a massive infrastructure network around the world.

The United States should leverage its private and public sources of capital and innovation, in partnership with new and incumbent players in the corporate community, to accelerate the transition to global food sustainability.

Advances in emerging technologies hold the promise to both alleviate the food crisis and amplify American influence abroad. The next era of food sustainability will be influenced by breakthroughs in global technology such as fifth generation telecommunications, robotics, artificial intelligence, and nanotechnology. Specific areas of technology investment that will contribute to higher levels of productivity and efficiency in food generation with a decreased impact on the environment encompass initiatives in agricultural biotechnology, such as genetics, microbiome, breeding and animal health; alternative food products, including plant-based forms of alternative protein, which are surging in popularity and adoption; farm management systems, including sensing and data analytics software; farm robotics, including automation and drone based monitoring; and new farming structures, such as indoor farming and aquaculture.

#### Nuclear war

Nouriel Roubini 17, Professor at NYU’s Stern School of Business and Chairman of Roubini Macro Associates, was Senior Economist for International Affairs in the White House's Council of Economic Advisers during the Clinton Administration, ““America First” and Global Conflict Next”, Project Syndicate, 1/2/2017, <https://www.project-syndicate.org/commentary/trump-isolationism-undermines-peace-worldwide-by-nouriel-roubini-2017-01>

Today, too, a US turn to isolationism and the pursuit of strictly US national interests may eventually lead to a global conflict. Even without the prospect of American disengagement from Europe, the European Union and the eurozone already appear to be disintegrating, particularly in the wake of the United Kingdom’s June Brexit vote and Italy’s failed referendum on constitutional reforms in December. Moreover, in 2017, extreme anti-Europe left- or right-wing populist parties could come to power in France and Italy, and possibly in other parts of Europe.

Without active US engagement in Europe, an aggressively revanchist Russia will step in. Russia is already challenging the US and the EU in Ukraine, Syria, the Baltics, and the Balkans, and it may capitalize on the EU’s looming collapse by reasserting its influence in the former Soviet bloc countries, and supporting pro-Russia movements within Europe. If Europe gradually loses its US security umbrella, no one stands to benefit more than Russian President Vladimir Putin.

Trump’s proposals also threaten to exacerbate the situation in the Middle East. He has said that he will make America energy independent, which entails abandoning US interests in the region and becoming more reliant on domestically produced greenhouse-gas-emitting fossil fuels. And he has maintained his position that Islam itself, rather than just radical militant Islam, is dangerous. This view, shared by Trump’s incoming National Security Adviser, General Michael Flynn, plays directly into Islamist militants’ own narrative of a clash of civilizations.

Meanwhile, an “America first” approach under Trump will likely worsen the longstanding Sunni-Shia proxy wars between Saudi Arabia and Iran. And if the US no longer guarantees its Sunni allies’ security, all regional powers – including Iran, Saudi Arabia, Turkey, and Egypt – might decide that they can defend themselves only by acquiring nuclear weapons, and even more deadly conflict will ensue.

In Asia, US economic and military primacy has provided decades of stability; but a rising China is now challenging the status quo. US President Barack Obama’s strategic “pivot” to Asia depended primarily on enacting the 12-country Trans-Pacific Partnership, which Trump has promised to scrap on his first day in office. Meanwhile, China is quickly strengthening its own economic ties in Asia, the Pacific, and Latin America through its “one belt, one road” policy, the Asian Infrastructure Investment Bank, the New Development Bank (formerly known as the BRICS bank), and its own regional free-trade proposal to rival the TPP.

If the US gives up on its Asian allies such as the Philippines, South Korea, and Taiwan, those countries may have no choice but to prostrate themselves before China; and other US allies, such as Japan and India, may be forced to militarize and challenge China openly. Thus, an American withdrawal from the region could very well eventually precipitate a military conflict there.

As in the 1930s, when protectionist and isolationist US policies hampered global economic growth and trade, and created the conditions for rising revisionist powers to start a world war, similar policy impulses could set the stage for new powers to challenge and undermine the American-led international order. An isolationist Trump administration may see the wide oceans to its east and west, and think that increasingly ambitious powers such as Russia, China, and Iran pose no direct threat to the homeland.

But the US is still a global economic and financial power in a deeply interconnected world. If left unchecked, these countries will eventually be able to threaten core US economic and security interests – at home and abroad – especially if they expand their nuclear and cyberwarfare capacities. The historical record is clear: protectionism, isolationism, and “America first” policies are a recipe for economic and military disaster.

### DA---1NC

TRADE-OFF DA

#### The FTC’s focusing on international outreach to globally coordinate investigations---new authorities and burdens trade off, crushing cooperative controls over AI---no agency is a magic pudding!

--ICN = international competition network

Boswell et al. 19, Matthew Boswell is the Commissioner of Competition of the Competition Bureau Canada; Laureen Kapin (moderator) has practiced consumer protection law with the U.S. Federal Trade Commission for the past 18 years; Molly Askin (moderator) is Counsel for International Antitrust at the U.S. Federal Trade Commission’s Office of International Affairs; Fiona Schaeffer is an antitrust partner at Milbank LLP; Maria Coppola (moderator) is counsel for international antitrust at the U.S. Federal Trade Commission, where she is responsible for the agency’s enforcement and policy work with Europe; Marcus Bezzi has been Executive General Manager at the Australian Competition and Consumer Commission (ACCC) since early 2009, “FTC Hearing #11: The FTC’s Role in a Changing World,” 3/26/19, https://www.ftc.gov/news-events/events-calendar/ftc-hearing-11-competition-consumer-protection-21st-century

MR. BOSWELL: Oh, okay. Well, I'll go back to what has been a common theme, which is supporting the ongoing personal relationships between people around the world. You know, people move in and out of jobs. You have to keep those relationships, and it can be expensive. And it can be to certain outside parties hard to justify to expend those resources on having people attend, for example, ICN workshops so that they know people around the world, they're sharing best practices, we’re not reinventing the wheel. Somebody has come up with a good way to do something, we should have those relationships where we can learn it, but it costs money to invest and to always invest in relationships.

MS. KAPIN: Well, I want to thank everyone. I think we heard a recognition that we should recognize the value of infrastructure, some common protocols and definitions and best practices can also help us overcome the challenges for international cooperation. But first and foremost, what I heard echoed was the recognition that this human glue really is the stuff that lets us stick together and accomplish our common goals. So, Molly?

MS. ASKIN: I think one thing I've also heard is the importance of the networks that we have seen evolve over, if we’re looking at the past 25 years, either be founded in the first instance or have changed in their mission to really be able to be nimble enough to address some of these important issues and give agencies a forum for interaction that can facilitate both the tools and the relationships. So thank you all very much for participating. And we are now going to go into a 15- minute break and return for the next panel at 11:30. Thank you.

MS. KAPIN: Thank you.

CONSUMER PROTECTION AND PRIVACY ENFORCEMENT COOPERATION

MS. FEUER: Okay, it’s about one minute early, but we’d like to get started. I’m Stacy Feuer. I’m the Assistant Director for International Consumer Protection and Privacy here at the FTC’s Office of International Affairs. This entire morning we’ve heard about a number of very interesting enforcement developments and challenges all over the world. Now we’re going to take a deeper dive into enforcement cooperation in the area of consumer protection and privacy. One of the most interesting aspects of our work here at the FTC on international consumer protection and privacy matters is the very wide range of issues we cooperate on, everything from telemarketing scams to online subscription traps to cross-border data transfer mechanisms, and to other privacy law violations. Equally remarkable to me is the incredibly wide range of authorities that we cooperate. So, for example, we cooperate with not only consumer protection agencies but data protection authorities, criminal regulators, and sometimes telecommunications and financial regulators. Our panelists that we have here today represent these different strands of our enforcement cooperation activities. They will highlight the issues involved in some of these different cooperation strands, and I will introduce them individually as we move through this panel. I do want to remind you at the outset that we have comment cards available, and please do send up questions. We’ll try and be a little interactive and ask some of your questions during the panel and not just wait until the end. So please ask away. So we’ve segmented our panelists into mini- groups so as to better draw out some of the cooperation strands. I’ll turn first to James Dipple- Johnstone who is the Deputy Commissioner at the UK’s Information Commissioner’s Office and ask him, and then followed by Deputy Assistant Secretary Jim Sullivan from the Department of Commerce’s International Trade Administration for their thoughts about cooperation and particularly focusing on the privacy sphere. We are so pleased that you are both here. So, Commissioner Dipple-Johnstone, can you begin?

MR. DIPPLE-JOHNSTONE: Yes, and thank you, Stacy, and thank you to FTC colleagues for your invite and the opportunity to speak with you today. I’m looking forward to our discussion of these important issues, and it was interesting to hear the different perspectives from the previous panel. A little bit about the Information Commissioner’s Office first, given there’s a range of different types of organizations on the panel, in case it helps with my comments later on. With the implementation of the GDPR, which has already been referenced this morning, I’m pleased to hear, and the new equivalent legislation in the UK, the ICO has been through a significant growth process over the past 12 to 18 months. We’ve taken on new powers, and as has been mentioned this morning, as many other organizations, we’ve been through a capability growth over the past few months, which has begun to see us work more internationally and deal with more complex and challenging caseload. This reflects in part the importance the UK Government places on data protection and consumer protection, but also the seriousness of some of the recent scandals we’ve seen, for example, that involving Cambridge Analytica recently. In granting powers, the UK Parliament has gone further than many other EU legislatures to ensure that the ICO has both the funding through its funding regime to give us the financial resources, but also the new powers to do its work in the digital age. There was significant national debate in the UK about these new powers, many of which are actually quite intrusive and are more common in law enforcement agencies than in a traditional data protection authority and the balances in checks and balances being put in place to go with those powers through the UK’s Information Rights Tribunal who oversee our work and our individual case judgments. I couldn’t come here and talk to you without recognizing there’s quite a lot of difference within the ICO as well. As well as our data protection remit, we have a remit for access to information. So one part of the office is working very hard around keeping privacy concerns and how data can be safeguarded and secured and only disclosed where appropriate; another side of the office is hearing appeals about how to make public information more widely available. We have around 700 officers and new powers to seize equipment, search premises, examine algorithms in situ for bias to make sure that they are working effectively, and audit company systems and processes. We also have powers which were touched upon this morning as well, around the power to compel provision of information from wherever and whomever holds it, which is quite a wide remit for an office of our type. We deal with around 50,000 citizen complaints each year and undertake around 3,500 investigations across different parts of our office. And we cover both the commercial sector, but also the public and law enforcement sector. In many ways, as colleagues are, we're learning as we go with these powers and these new resources. And one of those key areas of learning has been that which has been touched upon this morning. And that’s the importance of working collaboratively with others internationally. Many of the most significant files on my desk -- and I have responsibility for the enforcement and investigation arms of the office -- in the last 12 months, we’ve engaged with 50 international colleagues on various different files. And most of the major cases we have on at the moment are involving international colleagues, either as joint investigations, seconding staff to and from other offices, or sharing information and intelligence about the work we're doing. As our citizens become more aware and concerned about the use of data and as the digital economy becomes the economy, people expect this kind of international engagement. And with this in mind, we value hugely the UK's positive relationship with its colleagues on this side of the Atlantic, the FTC, but also our colleagues in Canada who have been speaking this morning. We value the different networks we're involved in. There have been mention of some of those networks already, but in particularly GPEN, the Global Privacy Enforcement Network, but also those networks which involve looking at unsolicited communications, which continues to be a significant part of my office's work. We learn a huge amount from these relationships, as well as the sort of human glue that was described this morning, just the opportunity to discuss tactics, approaches, to understand how each other work is a real positive that comes out of that work and allows us to do our jobs more effectively. To support this, we have a number of legal gateways to share and receive information. These are backed by strict protections within UK domestic law, which bite both collectively on the organization but also the individual officials within that. They are backed by criminal sanctions, and nothing focuses the mind like those. In the course of our investigation, we could use one or any of MOUs, MLATs, and we’ve heard about the challenges with the time scales that MLATs take. Membership arrangements, such as GPEN or the International Conference of Data and Privacy Commissioner arrangements or, indeed, Convention 108. This very much depends on the exchange of information, what's involved, who it’s going to, who’s asked for it, and what we need to do our work. Of particular note are the DPA 2018, which is the Data Protection Act in the UK. That contains formal information gateways. That allows us to share information for law enforcement purposes or for regulatory purposes where there’s an overlap and there’s a public interest. Of relevance to the FTC in particular is Schedule 2 of the DPA. That sets out the conditions for public interest and information- sharing within the UK law. And I understand the UK has been working through these for a number of years from the 1998 act and now into the 2019 act and working with colleagues at the FTC through the SAFE WEB Act provisions and the criteria for sharing information there with foreign enforcers. And that's been a huge positive. Just in the short time I've been with the Office over the last two years, there have been a number of cases that we've been working on, on sharing information and understanding. And, of course, this goes alongside our EU work. We mustn’t forget that. We are a competent authority under the GDPR, the EU provisions for the one-stop-shop mechanism. And around a fifth of those cases in the mechanism over the past year have involved the UK as either a lead supervisory authority or a concerned supervisory authority. Many of the big issues we are grappling with is privacy authorities, algorithmic transparency, adtech, microtargeting and profiling of citizens, part of the bread and butter of those cases we're working through. And our ability to work with international colleagues, in particular the FTC, has been really helpful in us discharging our role, notably on the Ashley Madison file, but also on other confidential matters more recently, where we found the insight afforded by our bilateral arrangements with the FTC help us fill in the missing pieces. They help us make better investigations. We know that the FTC has helped us by using its SAFE WEB powers to obtain information for us, in particular with some of the -- I think you call them robocalls here, but unsolicited communications in the UK, and that information has been hugely beneficial in protecting UK citizens. And we hope the reciprocal has been helpful to the FTC and colleagues here. And I’m mindful of time, but in closing, I'd just like to say we're very keen in the ICO to continue to use these positive engagements and continue to build them, particularly as you come to look at the renewal of the SAFE WEB Act. Thank you. MS. FEUER: Thank you very much. Deputy Assistant Secretary Sullivan, how does the issue of privacy enforcement cooperation come within your purview at the Department of Commerce?

MR. SULLIVAN: So in my role, I'm in the International Trade Administration, which is one of the agencies at the Commerce Department, and one of the offices that I oversee is responsible -- they are the US Government Administrator for and our interagency lead on different privacy frameworks -- international privacy frameworks, including both privacy shield frameworks, the EU and US Privacy Shield and the Swiss-US Privacy Shield. We're also very actively engaged in promoting the expansion of the Asia-Pacific Economic Cooperation and Cross-Border Privacy Rule system, APEC CBPR as it’s called. And we work extremely closely with the FTC on those issues around the world as we see a growing number of countries grappling with privacy while trying to balance innovation at the same time, which as everyone here knows, I'm sure it's not always the easiest formula. So that's a quick summary of what we do at Commerce. I'll leave it at that for now.

MS. FEUER: Great, great. Well, it's interesting to hear you both speak about the importance of enforcement cooperation in the privacy area, James, for your agency on many, many individual files and Jim as the sort of overarching systemic systems for cross-border transfers. So I want to follow up with a few questions. So, James, sort of the elephant in the room, we've heard a lot this morning in the first panel about privacy as a "barrier" to regulatory enforcement cooperation. And I’m wondering what your view is of that statement or assertion and what kinds of tools do agencies need to cooperate effectively given some of these limitations and, of course, in privacy enforcement investigations?

MR. DIPPLE-JOHNSTONE: Yes, yes. And it's not something we've -- you know, which is uncommon to us. We get that call often. I mean, we want to be clear, we're not the “ministry of no.” But, actually, what’s really important in this space is to do that groundwork and that thinking about what information do you need, how is it going to be transmitted, how is it going to be secured, what purpose is it going to be used for. And we often find there are many avenues and routes to be able to share information. We also get the -- interesting when we ask for information, we sometimes get from colleagues internationally, we can't because of privacy. And, oh, that's an interesting concept. How do we work through that? We've often found there is a way through. Sometimes where these arrangements are being agreed internationally and where, for example, it was mentioned this morning about the challenge with the advent of the GDPR, IOSCO working with colleagues at the EDPB and needing to sort of tease through that, it can sometimes be tough to be the first going through that process, but once those processes are in place, people understand how they work, those relationships are built, that common understanding is built. Things do flow a lot quicker and a lot easier in subsequent cases. And so very much it’s that sort of keep talking, keep engaging. And, importantly, I've recently come back from an international conference working group, where one of the key challenges has been that with the scale and pace of change internationally with enforcement agencies and enforcement bodies, some of which, again, was referenced this morning, just keeping pace of who can do what where and with what data is really important. So if those international networks can really help their members understanding where the right levers are and how their respective national laws work, that can only be a good thing.

MS. FEUER: Thank you. Well, Secretary Sullivan, in your experience, how important has the issue of enforcement cooperation been with the foreign governments and stakeholders that you have negotiated these international data transfer mechanisms with, and how important are the powers that the FTC has in those discussions?

MR. SULLIVAN: So, again, I'm going to refer to the three frameworks that I cited just a moment ago. And both the enforcement power and the international cooperation authority granted to the FTC under the SAFE WEB Act are both integral to the functioning of those frameworks, I think. Without them, they would lack legitimacy or credibility. You have to have some teeth behind these frameworks so that folks know that companies are going to be held accountable for the pledges and the promises and commitments they're going to make to comply with the principles or the practices that they have pledged to comply with in accordance with these frameworks. I don't know how that would be possible without what we just cited to, both the powers to enforce but also to coordinate with other enforcement agencies cross-border.

MS. FEUER: Thanks. As a follow-up, I asked you about how important this is for foreign governments, but I'm wondering what you hear from your industry stakeholders here in the US.

MR. SULLIVAN: I don't want to generalize. We certainly hear a lot. I think there's a strong recognition among most of the stakeholders that we engage with, sort of along the lines of what I just said. I mean, first of all, what would be the incentive to comply with something that really didn't have any teeth? I think they know increasingly how important it is to align their practices with these frameworks, given a lot of the developments. We’ve seen recently, and it's I think -- they generally -- and I am generalizing -- they do want to see strong frameworks that are actually enforceable and, they do want to see, as I think James just alluded to, greater collaboration because that’s going to lead to more consistent best practices or principles and approaches to a lot of these issues as opposed to just this fragmented, diverse, ad hoc approach to a lot of these same dilemmas that we're all facing.

MS. FEUER: Thank you. I want to ask my fellow panelists, while we're talking about privacy, whether there was anything that they want to add in sort of response to what Commissioner Dibble-Johnstone and Secretary Sullivan were talking about. So does anyone want to -- it looks like Marie-Paule wants to hop in.

MS. BENASSI: Yes. What I would like to say is that we should make a difference between issues related to privacy and to the confidentiality of investigations. And very often, indeed, it is quite a common answer to refuse cooperation, to say, oh, no, we cannot share information because of problems of privacy. But in the European Union, first of all, I think we have solved this, and I think that our GDPR itself helps a lot to clarify that authorities can exchange information, including information which contains personal data. And so this enables, in principle, very seamless type of cooperation in the European Union, because for law enforcement purposes, we can exchange this information between authorities in one member state or in other member states. And this -- I think in this way, the GDPR is an enabler. And when we look into the implementation of the GDPR for international cooperation, we should also look at it in the same way as an abler and enabler, because if it is respected; then exchange of information for law enforcement purposes should be facilitated. And, for example, we are also doing adequacy decisions, for example, with some other countries in order to also create the seamless facilities, including for law enforcement purposes.

MS. FEUER: Thank you. Anyone else? Kurt.

MR. GRESENZ: So I agree with Marie-Paule's sentiments there. You know, the issue that we encountered at the SEC as a civil agency with administrative investigatory powers, while the Department of Justice was out in front with an umbrella agreement to facilitate cooperation in the criminal sphere under the public interest mechanism, which is something that James talked about at the beginning, it was less clear how that applies in the civil or administrative context. So the step that IOSCO took to negotiate what is the first administrative arrangement under the GDPR will enable the second step of what Marie-Paule talked about, which are transfers of personal data from the EU to jurisdictions and authorities outside the EU. And now with that process, as Jean-François in the earlier panel talked about, having been blessed by the European Data Protection Privacy Board, we in the security space are looking forward to the data protection authorities in the 28, possibly 27, EU members states adopting that and approving that and so it can be the standard with the securities authorities who are IOSCO members.

MS. FEUER: Thanks. So I want to shift us now from what has been a privacy-heavy conversation to more of a focus on consumer protection. Our second pair of panelists represent two of the different strands of the kind of consumer protection enforcement cooperation we do here. So to hear about the EU enforcement model, we'll have Marie-Paule Benassi from the European Commission’s DG Justice, and to hear about our cross-border work with our Canadian criminal counterparts, we'll hear from Jeff Thompson, Acting Superintendent in Charge of the RCMP's Canadian Anti- Fraud Centre. So, Marie-Paule, can you start us off?

MS. BENASSI: So thank you, Stacey and thank you for the FTC to invite me. So, first of all, I would like to remind you that the European Union is currently counting 28 member states, and it's very well known for being something very complicated, and I would like to try to break that myth. But unfortunately, I think, or fortunately for a better understanding of the complexity of the Union, I think that Brexit and the interest which this is bringing in the headlines is also maybe shedding some light on why it is so complicated. So we have an integration of EU-level and national laws, a model, and this is where I think it’s simple. It's based on a very simple principle. We have one EU law in a certain domain, and it tries to harmonize national laws using key high-level principles. What is not harmonized is how this law is implemented. So it is -- except in a very few cases, it is implemented nationally. It is enforced nationally, and we try to do this in a way which preserves the diversity of the enforcement model in the member states. And so in the area of consumer protection, it is how it works. And the European Commission for which I'm working has no direct enforcement power. It is the member states which have the enforcement powers. So when I speak of enforcement, it means enforcement of the law towards businesses and other possible subjects because the European Commission is in charge of checking that the member states are enforcing the laws correctly, but we are not directly involved to stamp out illegal practices. In the area of consumer protection, so we have a strong role. And this role has been strengthened in the recent past. What is our role? Our role is to facilitate the cooperation of the member states because this is a EU, I would say, a harmonized law, and we want it to be implemented in a consistent manner in all the member states. And to do this, the only solution is cooperation. So we have a long tradition of cooperation inside the European Union and now we are doing it via a law which is called the Consumer Protection Cooperation Regulation. This law is establishing the framework for cooperation. So we start by first saying even if the member states are very different, they should have similar type of powers, so investigative powers. For example, the power for mystery shopping, the power to request information on financial flows, the power to obscure illegal content online. Another thing, also, is the framework for cooperation. So we have two types of cooperation now in our new legislation. One is what we call the bilateral cooperation, the more traditional cooperation, where one member state asks -- requests enforcement cooperation from another member state. But now we have this new system which is E- level coordination. And there, the European Commission has a new role because we have a role of market surveillance. And from this role, we can ask the member states to check some practices that we think are likely to be illegal. And if the member states find that there is sufficient evidence to start an investigation, then the Commission is coordinating this investigation. We also have a new power in terms of intelligence I mentioned. And we are also doing coordination of priorities. So, in fact, the role which we have is quite strong. And the new model, which we are going to implement from January next year, in fact, is already functioning, maybe in a lighter way. And it's working. So we have in the past done some coordinated actions, which are concerning. For example, illegal practices by big companies operating at the level of the European Union. Today, we are publishing a press release on an action done in the field of car rental, for example. So with the authorities, we have been working together with the authorities to find -- to analyze bad practices of the five leaders of this sector, and we wrote a common position asking these companies to change their practices. They made commitments, and now we have been monitoring the commitments and concluding that finally these companies are implementing these commitments. This is a negotiated procedure, so this is another element I would like to stress. These EU-level actions are not based on strong enforcement means because they don't exist at the European level. They are based on a coordinated approach and the cooperation with the traders. If the traders refuse to cooperate, do not cooperate sufficiently, or do not follow their commitments, then what is going to happen is coordinated enforcement action by the member states. And we have just added something very recently which is a system of fining that can be applied for this kind of EU-level infringement and coordination of the fines. And this is a big -- it's not yet completely finalized, but it's going to be a big step forward because in certain member states, they don't even have a fining system for consumer offenses. So we are building the system. So for the future, what is -- what can we do? We can do international agreements. So there is a possibility on the basis of this framework to agree international cooperation agreements with certain countries. And the framework which I've described can be applied also with the said countries to the extent possible, of course, depending on the type of base laws that exist in the member states. And what I could say is that we would like to start discussing on the basis of this new regulation with the FTC, if we can progress such an agreement. Why an agreement would be necessary? Because it's important that the formal part is there. Because as we heard from various speakers, the formal part is an enabler also for an efficient cooperation. This system, however, has several challenges. One of the challenges, as I said, it’s based on negotiation with traders. So it doesn't work when there is fraud, fraudulent operators. This is really required to develop additional cooperation, for example, with police forces because in most of our EU member states, they don't have this possibility of going against fraudulent operators. They need the cooperation of police, so this is an area where we need to develop in the future. And then relation with competition, relation with data protection, these are the future avenues for our cooperation. Thank you.

MS. FEUER: Thank you very much, Marie- Paule. And that was the perfect segue to Jeff Thompson, who is from the RCMP's Canadian Anti-Fraud Centre. And, Jeff, maybe you can sort of talk us through a little bit about what some of the tools and challenges you face and we face in cooperating on US- Canada cross-border fraud matters.

MR. THOMPSON: Sure. Thank you, Stacy. It's a pleasure to be here today to talk about international cooperation and consumer protection. Since the start of my career, I've learned that cross- border fraud was an evolving criminal market that cannot be tackled by any one country alone and even more so today. Consumer Sentinel reporting shows more than 1.4 million reports were received in 2018, up from 433,000 in 2005. Similarly, the Canadian Anti- Fraud Centre data shows annual losses to fraud continues to increase, reaching 119 million in 2018, a 495 percent increase since 2005. So it's easy to say that mass marketing fraud and cross-border fraud continues to be a threat to the economic integrity of Canada and the US, furthermore, if you consider technology, voice-over- net protocols, social media, virtual currencies, money service businesses, and other key facilitators that continue to provide criminals and criminal organizations behind a scam opportunities to operate across multiple international jurisdictions. And as we heard this morning, while this is an evolving threat, there is good news. There are, indeed, existing strategies that do exist and tools that provide an effective approach to attack on this criminal market. In fact, as we heard this morning again, the history between Canada and the US is long. It dates back to 1997, when Former President Clinton and Prime Minister Chretien met at the first US Cross- Border Crime Forum. It was at this meeting that telemarketing fraud first got identified as a major Canada-US cross-border crime concern. And it also made a number of recommendations, including the establishment of a multiagency task force, the development of consumer reporting and information- sharing systems, enforcement actions, and better public education and prevention measures. Since then, both US and Canada cooperate to implement and refine a number of these strategies, and while all recommendations made are important, I'm going to focus my discussion on the existing multiagency task force, or in today's terms, strategic partnerships. This case and work that the partnerships have done showcase an effective enforcement approach. They highlight intelligence-led policing and integrated policing models, along with providing insight into some of the tools and approaches to consumer protection. So if we consider the cross- border fraud partnerships as an intelligence-led approach, what we see is a group of key stakeholders joining efforts to achieve a common enforcement objective, namely, reducing fraud. To give you a practical idea of this, I think back to some of my early meetings at the Toronto Strategic Partnership. I did not fully recognize or appreciate the significance of the discussions held around the table. Members from several different agencies and organizations discussed top reported scams, scam trends, top offenders, current investigations, and gaps and challenges in enforcement options. Oftentimes, this intelligence-led approach was started by members from the Federal Trade Commission or the Canadian Anti-Fraud Centre, bringing intelligence developed from their respective central databases, Consumer Sentinel and the Anti-Fraud Centre database. This dialogue helped identify the new and emerging scam trends and discussion around the key facilitators to the scams. It also helped to coordinate joint priority setting, identify lead agencies, investigative assistance, and actions required to complete the files, and in many cases helps with deconfliction amongst the agencies. Sharing information around the table was a key factor, and as long as there’s a willingness to share, there is a way to share. There is also a common trust and understanding amongst the partners to share information within the confines of law. Thus, the partnerships serve as an intelligence-led approach in as far as they create a platform to share and synthesize information from multiple perspectives. Turning now to consider the partnerships as an integrated policing approach, we begin to realize that criminals and criminal markets can be disrupted through civil, regulatory, or criminal investigations and that different agencies and different laws all play a role. If we dissect again the Toronto Partnership, we have a minimum of eight different organizations: the Federal Trade Commission, the Royal Canadian Mounted Police, the United States Postal Inspection Service, Toronto Police, the Ontario Provincial Police, the Ministry of Consumer and Government Services, the Competition Bureau of Canada, and the Ministry of Finance. The FTC alone has 70 different laws that it enforces. Who really knew that the Ministry of Consumer and Government Services enforces numerous consumer protection laws such as the Loan Brokers Act, which can be used to go after the advance-fee loan scammers? Or that, again, as we heard this morning, CASL legislation also has clauses that allow for foreign enforcement to request assistance from respective Canadian law enforcement partners? At the heart of an integrated policing model is a give-and-take approach. And in the US-Canada cross-border partnership context, this approach is formalized by MOUS. As recent as 2017, the Federal Trade Commission and the Royal Canadian Mounted Police formalized an MOU that identifies best efforts that participants can use to further the common interest of combating fraud. The language used highlights the foundation of information-sharing and cooperation. Participants shall share materials, provide assistance to obtain evidence, exchange and provide materials, coordinate enforcement, and meet at least once a year. So, again, if we take a practical view, the strategic partnership model against cross-border fraud uses intelligence-led and an integrated policing approach that allows investigators from Canada and the US to move beyond simply coming together to talk about cross-border fraud concerns to developing investigative plans that identify investigative steps and processes needed to gather that evidence. Each participant brings a range of tools that can be leveraged to ensure the effective cooperation. One such tool that we’ve heard plenty of today is the US SAFE WEB Act. From a Canadian-US perspective or from the Canadian perspective, I mean, it provides us an avenue to formally seek investigative assistance in the US from the FTC. It also formally acknowledges by name some of the regional partnerships that exist today. This act alone has assisted strategic partnerships in countless cases, at least 22 by my count since 2007, and as we’ve heard, a lot more. These cases have led to arrests -- civil arrest charges, civil forfeitures, and, most importantly, victim restitution, which in the Canadian context is often rare to see. This includes Operation Telephony, which involved more than 180 actions brought by the Federal Trade Commission, including actions in Canada and the US, and it also includes the Expense Management Case that we heard about in the last panel involving $2 million that was eventually turned over to the FTC for consumer redress. And while there's a history of success and continuing work and outcomes to look forward to, we know that the criminals adapt. Today's frauds typically involve solicitations coming from one country targeting consumers in another country and funds going to yet another one. Mass marketing fraud is truly a transnational crime. We know that in a number of cases, the criminals and criminal groups involved are deeply rooted in Canada and the US and that moreso today, the work being done by these partnerships exposes these international networks who are also providing each other an opportunity to leverage our international networks to tackle this problem collectively. And we’re already doing this to some extent. The International Mass Marketing Fraud Working Group is another example of how Canada and the US cooperation has extended beyond North America. As recently as March 7th, this group announced -- or the US Department of Justice announced the largest ever nationwide elder fraud sweep, and the International Mass Marketing Fraud Working Group played a role. At least eight different countries were engaged. At the same time, there are other challenges, such as the willingness of other countries to identify mass marketing fraud as a transnational threat, whereas in many cases fraud or financial crime is not a priority. And this even holds true today to some extent. The parties and law enforcement agencies are subject to change, and the ability of any one agency to solely lead a partnership can be impacted by this change. Albeit, there's still partnership models that work in which chairs to partnerships rotate and changing priorities are acknowledged. In May of 2018, the RMCP coordinated a national mass marketing fraud working group meeting whereby we acknowledged the changing nature of mass marketing fraud and sought to renew our efforts. We also sought input from key US stakeholders. The Federal Trade Commission and the United States Postal Inspection Service were at these meetings. And while work continues to renew this renewal, such as the emergence of a Pacific partnership to replace Project Emptor, there's still work to be done. So in concluding, there’s a long and successful history of Canada-US enforcement in consumer protection, and that demonstrates effective cooperation through integrated and intelligence-led approaches and that this continued cooperation is integral to combating this transnational crime today. Thank you.

MS. FEUER: Thank you very much, Jeff. So I think that we now have a couple of very interesting issues out on the table about consumer protection and enforcement cooperation, both the EU model of the CPC network and the FTC Canada model, which focuses on these seven strategic partnerships that exist in Canada. So I want to ask a few questions of our panelists, Marie-Paule and Jeff Thompson, and then I do want to turn back to Secretary Sullivan. But, first, Marie-Paule, I did want to ask you one thing. I know that the CPC network uses a technological tool to facilitate the cooperation among the 28 member agencies. I'm wondering your thoughts about how well that works and how it might work in a more multilateral context.

MS. BENASSI: Thank you, Stacy, for this. So, first of all, I think I would like to make two types of tools. One is the system which we use to network, and I would say this is based on technologies of collaborative websites. And we have been using them now since several years and we are quite confident that it is safe for exchanging information and including information on containing personal data, for example, on businesses or on witnesses, and also it can be adapted. But currently, the CPC system doesn't contain a lot of cases. So it's growing organically, I would say. And it's also very much used to exchange information, best practices, for example. In the future, we are building something which is going to be a case management system and it will contain several modules, including a module for our external [indiscernible]. So we are going to open this to various entities -- NGOs, entities. And so we are going to build doors, in fact, in such a way that the two systems can communicate, but without having [indiscernible] you know, for -- so that the stakeholders will only see their external areas. And I'm quite confident that we can build the same type of modules for international cooperation with our technology. But what I would like to say is that we are also developing technologies for online enforcement tools. And what we want is to create, for example, a system where we would have an internet lab that could be used by the various member states, and we are also building capacities of administration in the EU countries. We are developing training, and we think also that this kind of tools could benefit from pooling of expertise from various agencies, including in an international context.

MS. FEUER: Thank you. So I want to turn -- before I turn back to Jeff Thompson, I want to turn back to Secretary Sullivan and ask what are the tools that can be used to facilitate cooperation under the various cross-border mechanisms? And why are they important?

MR. SULLIVAN: So in terms of why they’re important, I mean, again, a lot of this is probably self-evident to those in this room, but the data explosion we've seen is only going to continue. And we now have these cross-border data flows that really do benefit stakeholders across our societies and our economies. So you’ve seen these cross-border data flows help enable consumers, for example, to access more and better services and products. They help our companies to increase the efficiency of operations and innovation, and they help nations in terms of their competitiveness and their ability to help create jobs and facilitate economic growth. So this is all great. The problem we're dealing with is that different counties now take very different approaches to how they regulate these data flows specifically on privacy. And so what I wanted to just touch on a bit was what we do, the Commerce Department, in conjunction and partnership with the FTC to deal with this issue, this dilemma. How do you continue to facilitate these cross-border data flows when you are dealing with countries that have all adopted varying approaches, legal regimes, or policy priorities. I touched on the three frameworks, and I just quickly wanted to go through some of the tools within those frameworks, if I could, which from our perspective are absolutely critical to digital trade because, again, right now, there is no single comprehensive binding multilateral approach governing these cross-border data flows. So you know, again, I'm repeating myself a bit but we have stakeholders that we meet with all the time coming in, telling us about this constantly shifting and evolving and rapidly accelerating policy landscape that they have to deal with. So in response to this challenge, one approach that we've taken, as I alluded to earlier, for example, is the APEC CBPR system. And it's basically a voluntary enforcement code of conduct based on internationally recognized data protection guidelines. It establishes principles for both governments and for businesses to follow to protect personal data and to allow the data flows between APEC economies. To join this system, an APEC economy has to designate a third party called an accountability agent. And that accountability agent is empowered to audit a company's privacy practices and take enforcement action as necessary in some instances, but if that accountability agent cannot do that, resolve a particular issue, an APEC economy, their domestic enforcement authority serves as a backstop for dispute resolution. And in the United States, the FTC is our designated regulator, obviously, and enforcement authority for the CBPR system. And they enforce the commitments that are made by the CBPR participating companies to comply with the principles that they have committed to comply with. I do want to note all CBPR participating economies also have to join the cross-border privacy enforcement arrangement, CPEA, to ensure cooperation and collaboration among their designated enforcement authorities. To date, if memory serves, I know the FTC has brought four enforcement actions against companies for making deceptive statements about their participation in CBPR, and it’s also used its authority under the SAFE WEB Act to enhance cooperation with other privacy and data protection regulators within APEC. So, again, as I noted at the outset, FTC enforcement and international cooperation are absolutely critical to the credibility, to the integrity, and the success of the CBPR system. There are currently eight economies in APEC of the 21 economies participating in the system: the US, Japan, Mexico, Canada, South Korea, Singapore, Australia, and Chinese Taipei. And the Philippines is currently working on joining the system as well. I want to underscore that if this system were to scale across APEC, the framework would help underpin over a trillion dollars in digital trade. So we regard that as a very big priority and, again, we cannot emphasize enough just how critical the FTC is to that framework. And it's also a similar dynamic with the EU. It's been, the FTC, extremely integral to the success of both privacy shield frameworks. We all know, and it’s been touched on, about a year ago, GDPR was put into effect in Europe. And like the predecessor directed before it, it imposes certain restrictions on the ability of companies to transfer certain data from Europe to other jurisdictions, so we have Privacy Shield. And, again, like CBPR, it's a voluntary enforceable mechanism that companies can use to promise certain protections for data transferred from Europe to the United States, and the FTC enforces those promises made by Privacy Shield-participating companies in its jurisdiction. Again, I talked about how big APEC was and how these data flows underpin trade there. The EU is actually the largest bilateral trade investment relationship with the US in the world. That, too, is valued at over a trillion dollars. And I know the Transatlantic economy accounts for about 46 percent of global GDP, about one-third of global goods trade, and the highest volume of cross-border data flows in the world. And the Privacy Shield program is absolutely key to underpinning this economic relationship. We have about 4,500 companies now participating in the program. They've all made these legally enforceable commitments to comply with the framework, and they range from startups and small businesses to Global 1000 and Fortune 500 companies across every sector, from manufacturing and services to agriculture and retail. And I do want to note that about 3,000 -- nearly 3,000 -- of those companies are actually SMEs, so it’s not just the big tech companies that we're talking about. So to help protect data against improper disclosure or misuse, the Commerce Department and the FTC do work together, and they move swiftly to ensure that participating businesses who join Privacy Shield and certify under Privacy Shield are complying with their obligations. And over the last two years, Commerce, for example, has implemented a buying arbitration mechanism and new processes to enhance compliance oversight and reduce false claims. And by the same token, the FTC has enforced companies’ Privacy Shield declarations and commitments by bringing several cases pursuant to Section 5 of the FTC Act, which prohibits unfair and deceptive acts. We also refer false claims participation in the program to the FTC, which have often resulted in FTC settlement agreements. And under those agreements, the FTC can obtain certain remedies such as remediation measures and compliance monitoring that are, I think, generally otherwise unavailable in an enforcement action. And to date, the FTC has brought about four false claims cases. So, again, as with CBPR and APEC, the FTC has been just an essential element in bridging the gap between the EU and the US approaches to privacy. And, again, I'll just end by saying you're not going to get buy-in legitimacy or credibility without that enforcement power and that collaboration and cooperation that we're all talking about today. So thank you.

MS. FEUER: Thank you very much. I want to turn back to Jeff for a minute. So everyone has done, I think, a really fantastic job of outlining the tools. And, Jeff, you talked about these partnerships, and I guess I'd like to know a little bit more about the partnerships in terms of their status today, whether you think that they kind of could be adapted for a more, I guess, global enforcement model and whether you have any ideas about how cross-border cooperation and consumer protection matters could be improved.

MR. THOMPSON: Sure. Thanks, Stacy. So, yeah, the status of the partnerships -- as I mentioned, the partnerships stem from a 1997 meeting. There were three partnerships created across Canada -- one in Vancouver, one in Toronto, Ontario, and one in Montreal, Quebec. At one point in time, we saw this increase to seven Canada-US cross-border partnerships, but that wasn't maintainable for a number of reasons, primarily being there wasn't a lot of enforcement work in Atlantic Canada and Saskatchewan, for instance. So, I mean, things changed. And, again, as I said, priorities change. So right now we have three partnerships, including the new Pacific partnership which replaced Project Emptor. The Montreal Canada project, Project Colt is also defunct currently, but I mentioned we're working on renewing these efforts and coordinating something there. So, right now, as it stands, there’s the Alberta Partnership and the Toronto Strategic Partnership, and the Montreal Partnership. As far as improvements go, one area for I think more global enforcement cooperation that we discuss a lot at the office is disruption. And by disruption, I'm not talking about actual enforcement action. I'm talking about cooperation with private sector partners, using the data that we capture in our central fraud databases to block, say, shut down foreign numbers, to get bank accounts blocked. In Canada, we're sharing information with banks and credit card providers to go after the subscription traps, the continuity schemes, the counterfeit sales of other goods online and nondelivery goods. So the information we house that there's other alternatives to enforcement, and those are some of the areas that need to be improved on internationally.

MS. FEUER: Thank you very much. I now turn to Kurt Gresenz, who is the Assistant Director at the SEC’s Office of International Affairs. And, Kurt, as we heard earlier from Jean-François Fortin, securities enforcement collaboration is truly global and truly impressive, I have to say. I'm interested in hearing more from your perspective to inform our thinking about the cooperation in the areas that fall within the FTC's jurisdiction.

MR. GRESENZ: Thank you, Stacey. Let me start out by giving the disclaimer I’m required to give, that these are my views, only my views, and not necessarily those of the Securities and Exchange Commission, its Commission, or its staff, which I like doing because that frees me up now to say what I would like to say, which hopefully follows what the SEC would say. Okay, so let me start out with building on some of the themes that have been talked about. One of the reasons, I think, that we have been successful in forging a pretty broad alliance of securities authorities around the world that are cooperating is by virtue of the fact that the IOSCO principles of securities regulation are part of what national economies are assessed against as part of the financial sector assessment program that is done by the IMF. So essentially when the IMF and team comes into a jurisdiction to grade you on your financial resiliency and financial regulation, they're going to look at the IOSCO principles. And the IOSCO principles say that your securities has to have certain minimum powers and also the ability to share information across borders for enforcement purposes. And I think that has been one of the key tools that has caused one of the things that Jean-François talked about from early adoption, say two dozen countries in 2002 under the MMOU to where we are now as 121, that it's an easy way to getting a failing grade by not being signed up to the MMOU. And national legislatures have, for the most part, made the amendments to their domestic law to enable them to meet the MMOU standards. So in the scale of cooperation, Jean- François talked about over 5,000 requests that were made under the MMOU last year. The SEC is, as you might expect, a big user of those, probably 600 to 800 of those were ours. So we have an incentive in that process working smoothly. And where the parallels are, I think, for me is when I talk to my colleagues at the FTC, we're talking about consumer protection. And the concept of investor protection is essentially the same concept. The investor is our consumer. And one of the focuses of our enforcement priorities is on the mom-and-pop investor, the retail investor who really is somebody that will benefit from an active securities authority acting in their stead. In the securities context, one of the things Jeff talked about was he mentioned you have people set up in one country, you have targeting of investors somewhere else and then you have sending the funds elsewhere. I would actually build on that. In an ICO case for example, the entities might be incorporated in two or three different jurisdictions. The investors might be targeted in the UK, Australia, and the US. They might be storing their documents in a fourth or fifth jurisdiction or in the cloud so it’s very difficult to, you know, figure out where those are to begin with. So those are the challenges, and building through those, and I think we've had a good discussion of the privacy challenges, but two things I want to mention that also came up in the earlier points is one is what I call regulatory arbitrage, which somebody called regulatory competition. Cooperation works very well, but we also have to be cognizant that there are competing policy concerns with how we approach our enforcement tasks. So for example, a sophisticated fraudster is going to have some basic awareness of what the regulatory scope is in a given jurisdiction. And these people may set up shop in particular places and do things in particular places for taking advantage of whatever the legal system is there, and often that legal system may be one that is less conducive to cross-border sharing. So then as we advance down the path of the investigation, either related to that or other things, regulators move at different speeds. They may have different approaches as to how they approach witnesses. Are we going to go let everybody know in advance? I will tell you that from an SEC investigative perspective, which I'm sure people around the room and at this table would share, that people acting in a manner that is entirely consistent with their own investigative processes and procedures, but that may be contrary to what somebody is doing elsewhere. Those are things that are going to almost always result in people wanting to control their own investigation, perhaps at the expense of greater coordination. And I think that's where, you know, discussion is certainly important. And I don't know if this is really privacy. Maybe this goes to confidentiality. Also, different authorities have different legal requirements when it comes to what types of information they have to disclose in a particular setting. So let's say that we transmit files to an authority who assigned assurances of confidentiality and then we read a newspaper report that talks about things that we disclosed on a confidential basis, and then we drill down and it turns out that, well, yes, they kept it confidential but not from a lawful request, and it might be a Freedom of Information Act request or something like that. So that’s obviously going to be something that maybe you don't anticipate on the front end, but it might chill information exchanges going forward. And then the case of the ambitious prosecutor, he or she who may leak to the press. I know that that’s always a source of great consternation, whether it's the SEC or DOJ or elsewhere, when you read confidential details that are unattributed by a source who’s not authorized to speak about something that you thought you transmitted in confidence. So I do want to talk about those. I think the last thing I want to talk about in challenges is one of the things that we are dealing with frequently at the SEC, and I think we sort of have a little bit of a handle on it, and I know it must be something that the FTC confronts, also, but the law has been unsettled for a number of years as it relates to the Electronic Communications Privacy Act and what type of records we can get from internet service providers, and maybe who a subscriber is, who is the identity of a particular account. Maybe that’s something that is reachable, but what about the cases where you know there's communications and you want those communications, and maybe there's impediments there. I know that the criminal authorities can go through a warrant process for things like that. What is the recourse of an administrative agency where we don't necessarily have recourse to a criminal mechanism to show just cause, due cause, probable cause, reasonable suspicion, whatever the standard is. So cooperation works, but we have to be, I think, vigilant of the challenges to that, and like we’ve already talked about in the GDPR space, how do we get to a solution that works for most people most of the time.

MS. FEUER: Thank you very much. So let me ask you one follow-up, which is about your statutory authority which underlies your ability to cooperate. I know that you have some tools that you've had since the 1970s that are somewhat similar to what we have in SAFE WEB. And I'm wondering how they actually underpin what you do and how effective you think having that statutory authority has been.

MR. GRESENZ: So there are three sections that I'll talk about. And absent these three things, we would not be able to meet the IOSCO principles, which means we wouldn't be able to sign the MMOU, which means the Treasury Department would be unhappy when we were adjudged to be noncompliant in an FSAP in these areas. The first one is what I call our access request authority, and what this says is the Commission has discretion to share confidential file materials with any person, provided that person demonstrates need and can make appropriate provisions of confidentiality. And I think more or less that tracks what the FTC can do, although maybe the Safe Web is restricted to regulatory authorities, where the SEC, in theory, has discretion to share with any person. Our Commission has delegated that authority to exercise the discretion to the staff in the area where I work with, which is cross-border enforcement cooperation. Now, typically, my office will look at any request for access for SEC files that comes from a foreign authority, and we will make a baseline determination of whether sharing is appropriate with that organization or not. Obviously, if they’re an MMOU signatory, that question is easier. So that's the first one, the ability to give access to materials and files. The second one is to use our compulsory power on behalf of a foreign authority. And I think, again, here, there's probably parallels all down the line with the FTC's existing authority, is we have to make sure that there's -- well, for us to start with, the requesting authority has to be a foreign securities authority, which means do they enforce laws that fall within their securities regulation. Number two, the authority has to be able to provide reciprocal assistance. And, again, if it’s an MMOU party, that's already written in and baked into our principal cooperation mechanism. The sharing has to be consistent with the public interest of the United States, and we go through that process of the deconfliction process with the US Department of Justice. So that's something else that is taken care of. And one interesting fact here is it's not necessary for the conduct to be a violation of US law. So, for example, if it's illegal in Country X but it may not be illegal here, we do have the authority to assist in appropriate circumstances. The third piece after the access request and the compulsory authority, you know, of course, you list three and then you forget the third one. Let me come back to that one. I should have made a note when I was thinking about this.

MS. FEUER: Okay. Well, that's great. So we have a lot here to work with to start us off on questions, and there are so many strands to the strands that we've brought out that it's hard to know where to start, but I am going to start with two questions that have come in. And the first really builds on, Kurt, what you were just talking about, that your investigative assistance power doesn't require the law violation to be a law violation in the United States if it is a law violation in another country. And we actually have a question on that. And this is, I think, to the consumer protection and privacy areas where I think laws diverge more than they do in the securities arena. But the question is this, when an act or practice would violate consumer protection law in a consumer's home country but it isn’t against the law in the seller's country, should agencies cooperate? When there is a conflict of laws, what should consumer and privacy agencies do? And I'm going to throw that out to the panel and see who hops on it. James?

MR. DIPPLE-JOHNSTONE: Is it helpful to say just in terms of our experience at the ICO's offices for that very reason is our legal gateways are framed with a public interest test? And that's a very widely drawn public interest test, so it doesn't need to be a specific offense in the UK for us to be able to cooperate and exchange information, for that very reason is there is quite a variety.

MS. FEUER: So that's helpful to know. By way of background, the FTC's -- yes, I work for the FTC -- the FTC’s authority to obtain investigative assistance for foreign counterparts relates to unfair or deceptive acts or practices, as well as violations of laws that are substantially similar to those that the FTC enforces. So we have a little bit more defined statutory language, although as you can see here, it allows to us cooperate with a wide variety of agencies. Anyone else want to opine on this first question from our audience? Marie-Paule?

MS. BENASSI: Yes, thank you. It's a very important and interesting question. So in the European Union, we have laws which are harmonized, fully harmonized, or minimum harmonization. So our system of cooperation for enforcement actions are based on the minimum harmonization, when it is minimum harmonized. So it means that you cannot take an enforcement action for a violation which goes beyond the minimum harmonization and which would not be the same in one -- in your member state where the trader is established compared to the member states of the consumer. But requests for information and other types of assistance I think can function. And what we see when we work with cooperation in an informal setting with other jurisdictions outside of the European Union is that very often the principles -- at least the principles are quite the same. And so it’s on this basis, I think, that in many cases exchange of information can be possible.

MS. FEUER: Jeff.

MR. THOMPSON: Yeah, I think this touches a little bit on what I was referring to with disruption as well. Enforcement is not the only answer where we can't enforce the law in another country or a law doesn't exist that prohibits a certain action. However, we may be able to work with, again, private sector partners or other agencies to block these services from being offered in Canada. Binary options was a great example in Canada where we worked with credit card companies, and Canadian law prohibits the sale of securities if somebody is not registered. So, therefore, there was no binary options. Companies registered in Canada, therefore, any sales to Canadians are against our laws. So we're able to work with Mastercard and Visa and the credit card companies to prevent any Canadian transactions for binary options.

MS. FEUER: So that’s very interesting. So there are really a range of options here from a very broadly defined public interest standard to the European Union's concept of minimally or maximally harmonized laws, which essentially means whether every EU country has the exact same law or whether they have more leverage and freedom to implement laws differently. To the example that Jeff has given with disruption and also being able to cooperate across the civil and criminal divide, because we obviously cooperate with the RCMP as a criminal agency, and many of our colleagues, for example, the UK ICO, has criminal authority as well as civil authority. Kurt, I saw you want to say one more thing here.

MR. GRESENZ: Yes, I was actually thinking about a topic that you and I have talked about. So one of the questions that can come up in the work that I do is there might be a hesitation on the part of some of our foreign counterparts to work with us in some cases if they are afraid that an SEC outcome will foreclose them from acting. And I think this is the result of different legal interpretations of what amounts to double jeopardy. So you know, in the US, depending, we have different sovereigns for different purposes. What some of my colleagues overseas have said that essentially should the SEC take some action, even administrative action against an actor where the conduct is based on something the foreign authority is looking at that that could potentially preclude the foreign authority from doing any action at all? So that's in one direction we have to be sensitive to that. You know, the question there is let's say we ask for help in a case and they're looking at it and they say, well, we don't want to tell you because you're going to take action and then we're going to be left with nothing. And, again, we would work through that stuff, but it's a real issue. You know, from our side, we take Foreign Corrupt Practices Act violations seriously. And from an economic perspective, my personal view is there's a really good strong reason to do that. That's not always the approach that some foreign jurisdictions take. And we have from time to time encountered hesitancy to help us on our FCPA investigations on the SEC side, not speaking for the Department of Justice, because of a view that well, you know, I don't understand how that falls into a securities violation. It could be just code for, well, we don't really look at it in that way from our country. So we don't think we can help you. Again, people have to decide are they going to step up and are they going to help.

MS. FEUER: Right. So really interesting question and really interesting responses. I want to turn to another question that sort of focuses on one of the hot topics of today, which is this. Congress is considering passage of a comprehensive data protection and privacy law. How might that change or affect the relationship between US regulators and those in Europe and elsewhere, particularly as it relates to privacy investigations and litigation? And I'm going to put James on the spot first.

MR. DIPPLE-JOHNSTONE: Okay. Well, I think in many ways, you know, we should look at the opportunities. There are many countries around the world which are looking either at their first data protection act or privacy act or enhancing the one they’ve got. And I think the key things are to make sure that, you know, as referenced by the international conference, that there are those opportunities to collaborate and cooperate to ultimately do what we’re all there to do, which is to keep our citizens safe. And this will continue to be a theme as we go forward. Countries like India are looking at the data protection bill, going through their Parliament and their legislative process. They will be significant, given the scale and size of their economies and their country. So we should look for the opportunities to work better together.

MS. FEUER: And I thought you were going to mention GPEN again.

MR. DIPPLE-JOHNSTONE: Well, GPEN provides a great opportunity to do that, both in terms of the cooperation, but also more importantly the technical challenges, the assistance. One of the great things GPEN does, if I can make a plug for it, is coordinate around sweeps, so looking at upcoming threats and risks that might affect privacy authorities and sharing that load out and sharing that learning out in terms of all of us looking consistently at threats within each of our nations and then bringing together the results of that for a common discussion.

MS. FEUER: So any other observations on the question? It focuses on whether changes in privacy laws might affect cooperation, but I think the question is really broader. As we talked about this morning, many countries are in the process of updating their laws, whether it be consumer protection laws, privacy laws, securities laws, maybe? And so I wonder how this whole issue of changing laws, changing standards affects the way or the opportunities or the challenges for cooperation. And I'll throw that out to whoever wants to go first. Secretary Sullivan.

MR. SULLIVAN: So I'll just say, we in the International Trade Administration have been working with the National Telecommunications Information Administration and the National Institute of Standards and Technology, also sister agencies at the Commerce Department, to evaluate what, if anything, the Federal Government should do to address some of the privacy concerns that have certainly captured a lot of attention in the last couple of years. I think this goes back to what I was talking about. This is my personal opinion. I think we're probably quite a long ways off from any global standard. I think -- you know, you talked about India, Brazil. A lot of countries, you know, many have been looking to GDPR as an example, but no one is replicating GDPR exactly. There are still these differences, and those are going to continue because, as I think I said earlier, different countries have different cultural norms and legal traditions and histories, and they have different policy priorities that are all going to, you know, result in differences of kind if not degree. Again, I sound like a one-trick pony, but this goes back to the APEC CPBR system because what that basically is, is it takes these internationally recognized norms that we all agree on, which came from the OECD guidelines and the fair information principles before that and said let's all agree to these baselines, because you are going to have these differences. And we have to find a way to bridge these differences between these different regimes that countries have. I think, again, you know, there are aspirations for a single global standard. I don't think that’s about to happen anytime soon, so we’ve got to figure out, you know, how these different regimes can be made to work together. The approach in APEC is this interoperability approach, which I really think has a lot of appeal, is very well developed, and has been embraced, as I said, by a lot of countries in APEC, and we’ve heard a lot of interest from other countries around the world because it really is very flexible and can be adapted. On the one hand, it definitely protects privacy, but it can deal with technology because we in government are always going to be one step behind in regulation and legislation to begin with, but in this space in particular with the technology evolving so quickly, I really think there’s great appeal there.

MS. FEUER: Thanks. Anyone else? Marie-Paule?

MS. BENASSI: I agree with what James Sullivan said. I think it's going to be really incredibly difficult to sort of have a very harmonized universal framework for that data protection but also for consumer protection. And in the European Union, we are -- we have these principle-based laws and even in case of maximum harmonizations, there remain some differences. So our reply is to work on common enforcement actions and develop these actions in a way that they have become also guidance in a way. So -- and they are less theoretical than the law because they are applied to practical problems, practical practices. And in the future, what we want to do is to do more of these actions where, in fact, we have -- we publish the common position of the CPC network in the form of a guidance that can be applied by all the different operators in a certain industry. The other point I wanted to mention is notice and action procedures. So in the European Union, we have a law which is called the E-Commerce Directive, and which provides that marketplaces and social networks do not have a duty to monitor illegal practices, but they have a duty to act upon notification against an illegal practice. And this means, for example, withdrawing the account, obscuring the information. One of the problems of these operators, because we are now discussing a lot with them, is that, first of all, the domain of laws, which should apply, which is enormous and then it's -- for them, it's very difficult in a way to have an efficient action when the domain of law is so big and also the enforcement type are very big. And so I think that also cooperation on common notice and action procedures at the international level with a certain level of recognition, so this is what Jeff is saying about this disruption, so looking into also other type of models which are more based on practical enforcement tools, systems.

MS. FEUER: Thank you. Anyone else? So in the few minutes we have remaining, what I'd like to do is turn to each of the panelists and, similar to the first panel today, ask for a one-, maybe two-minute takeaway of what you see as the most important tools for international cooperation, what you see as your main challenges, and how you might remedy them. So I'm going to put Kurt on the spot and ask our SEC colleague to start first.

MR. GRESENZ: So when you started with tools, I did remember the third tool that was so important that I forgot it, but it actually is very important. So we have two provisions of law which help us protect information we receive from foreign authorities. The first one is a statutory protection that protects from any third parties any materials that we receive from foreign securities authorities. So outside of the litigation context, that essentially gives us ironclad protection for SEC files for enforcement purposes. But more recently, we added a legal amendment, a new tool that protects in litigation any material that would be privileged in the foreign jurisdiction. So let's say, for example, we get confidential financial intelligence from a foreign authority, and as a condition of receiving that, the foreign authority makes a good faith representation that this is for intelligence purposes, and it is privileged from disclosure in our jurisdiction. Under Section 24(f) of our 34 act, that protection would carry over into US law, and there is an absolute privilege it would stand discovery, for example, that it will carry over the foreign privilege to US law. And it could be anything. It could be financial intelligence, it could priest-penitent. I mean, if there is a privilege that is recognized in the foreign jurisdiction and we receive materials pursuant to that privilege without waiver, then there's no examination behind the statute for the court to make. It just has to be the representation. So that, I think, gives us added teeth when it comes to representations that we, in fact, can protect things in our files. So, you know, the takeaway for me is the big difference that I see is it looks like what we do in the security space is much more concentrated. You know, we know exactly who the players are. We see them all the time. There's crossover to some criminal authorities and other domestic agencies, but by and large, we seem to be in a more narrow lane. And I think my takeaway would be that listening to my colleagues here is there's a lot of lanes running in parallel and overlapping and overpasses and other sides that I think that we just don't have that much of in the security space in my view.

MS. FEUER: Thanks. And that raises two interesting points. I think this afternoon we'll have a panel on competition enforcement, and I think there might be a few less lanes, although I know there are some. And, also, your mention of your statutory ability to protect information, we have an analog in the SAFE WEB context for information provided by foreign law enforcement agencies when they ask for confidentiality that gives a privilege against FOIA disclosure. So turning now to Jeff, your top takeaway.

MR. THOMPSON: At the end of the day, what I got out of this is, I mean, there's an increasing abundance of information in the world, and we need to be able to prioritize our enforcement efforts. So it's processing all that information that’s certainly a challenge, and there’s all kinds of technology tools to help us. But not only that, it’s setting the right priorities and working smarter. So the intelligence- led approach, where we’re using the central fraud databases such as Consumer Sentinel or Anti-Fraud Centre to start driving enforcement action in a more targeted and effective manner.

MS. FEUER: Thank you. So intelligence is key to international cooperation. Marie-Paule?

MS. BENASSI: So I wanted to say two things. The first thing Jeff said it already, which is about prioritization. And I think that fraud is becoming internet fraud, all the different facets of it, and its internationalization, I think, is becoming a very big problem in terms of the harm caused to consumers and collectively in the world. And also in this respect, the role of the big platforms, you know? And if we don't prioritize and don't find efficient ways, building also on what this platform can do, I think is going to become more and more difficult to prevent fraud. And we see organized crime moving into these kind of activities, which seems to be giving them the possibility to earn a lot of money very easily. But then we have a different type of problem which we didn't discuss much, because also we have a bit -- had discussions a bit in silos here, but which is how to tackle the new types of misleading practices which are developing and which are based on the data economics. So on this we need to build links between competition, data protection, and consumer protection in order to understand this and see how -- what are the impact on consumers in terms of also the possible harm and also for businesses, possible lack of competition that this type of new data models are creating.

MS. FEUER: Thank you. Secretary Sullivan.

MR. SULLIVAN: So, again, for me, my perspective, the biggest challenge we're dealing with right now is the fragmentation or the vulcanization of the internet around the globe. You're seeing rising delocalization, which, again, I think that just impoverishes everybody, those within the country that have imposed delocalization measures, those that have overly strict restrictions on data flows. I think certainly we share a legitimate and strong desire for consumer privacy with a lot of other countries. And as I noted earlier, we take different approaches. I do think we need to be very wary because these issues, the way we're headed and in the coming years, we're going to be looking at, you know, more and more connected devices that are transmitting data, and this data has to be protected on the one hand, but it can lead to such tremendous opportunities. I mean, in the public sphere, in terms of smart cities and efficiencies and health breakthroughs and precision medicine and detecting disease patterns. And we want to be very wary of going too far in one direction, I think. So I agree with you about the balancing of these interests. And, again, I'll go back to my -- I really think, you know, the EU, for example, and the US do take different approaches, but we ultimately share, at eye level, the very same goal. And I think interoperability between GDPR on the one and CBPR on the other could be a very positive development. I know there was a referential a few years ago with BCRs, binding corporate rules, which is an EU proof mechanism for data transfers and mapping it relative to CBPRs. And, again, these all derive from the same OECD guidelines, and I think there's a lot of overlap. And I know GDPR allows for certification mechanisms, and I think there's a tremendous opportunity there for us to make these systems work together and make sure that we are extending privacy protections around the globe, while at the same time making sure that we're not quashing or squashing innovation and, again, doing damage to our long-term interests. So I think interoperability would be my solution there. And as, again, I've said a couple times already, you know, the FTC is probably the preeminent privacy data protection authority, as it were, in the world going back to the 1970s, has been a great partner as we go around the world and talk to countries on this. And so we should continue to do that. And I hope we can partner with other like- minded countries to that end.

MS. FEUER: Thank you. And the clock is quickly counting down, so I’ll ask Commissioner Dipple-Johnstone to say a final word.

MR. DIPPLE-JOHNSTONE: I will be very quick, then. I mean, I can almost echo the comments of others. I think it’s that keeping updated and keeping pace with vast changes in the landscape and technology and making sure that we don't become the ministries of no, that we support innovation in a very practical sense. And as part of that, it’s making sure we make the right links both internationally with each other but also in each of our respective homes with the other agencies and authorities we have to work with so that the offer we can make internationally is the right one.

MS. FEUER: So thank you very much to the panel for some incredibly thought-provoking ideas. Before we break for lunch, I just want to mention that the Top of the Trade on the 7th floor has catering available for you to purchase. There's a handout on the table just outside with information about nearby restaurants. If you leave the building, you will have to go through security again unless you are an FTC employee. And be mindful that there is a small group of protesters outside the building, so leave ample time to get back in for our fascinating afternoon panels. Thank you. (Applause.)

AFTERNOON SESSION

COMPETITION ENFORCEMENT COOPERATION

MS. COPPOLA: Okay. I’m getting the green light from Bilal Sayyed, our head of Policy. So I think we should get started. Thank you all for coming to this afternoon’s panel. Today, we’re going to talk about enforcement cooperation on the competition side. You’ve just heard, in the break before lunch, about cooperation on the consumer side. It has a very different nature on the competition side. So we’ll be talking about that this afternoon. I’d like to introduce my panelists briefly. Starting with -- going in alphabetical order, Nick Banasevic. Nick is from the European Commission’s DG Competition where he heads the unit that covers IT, internet, and consumer electronics. So we’ve had the very good fortune to cooperate with Nick on a number of cases. Next to Nick is Marcus Bezzi. He is the Executive Director at the Australian Competition and Consumer Commission, where, among other things, he oversees all of the ACCC’s international engagements. So I also have had a great time working with him, even though very often the calls were extremely early for us and extremely late for him. We still have a terrific relationship. Then we have Fiona Schaeffer, who is an Antitrust Partner at Milbank LLP. She has practiced on both sides of the Atlantic. So she brings unique perspective in that sense and has lot of experience in multijurisdictional mergers in particular. Then just to my left -- I was a little thrown off because I thought it was alphabetical and that’s why I was -- yeah, you didn’t look like Jeanne, anyway. So Jeanne Pratt, who is Senior Deputy Commissioner from the Canadian Competition Bureau. She oversees their abuse of dominance and mergers and noncartel horizontal conduct matters. She also has experience at the ACCC. So I’m sure that she will bring that to the discussion today. So those are our panelists and you’re going to hear from them, not from me. Just by way of background, a lot of the cooperation issues that are relevant to the competition enforcement discussion were addressed in this morning’s session. So we’ll try to get into a little bit more granular level so that we don’t repeat what was discussed this morning. Just I guess to set the stage in thinking about cooperation in general, we engage in enforcement cooperation for a number of reasons. Often, we find that it will improve our own analyses. It allows us to identify issues where we have a common interest, it allows us to avoid inconsistent outcomes, and perhaps, most importantly, for the outcome to coordinate remedies. So with that in mind, I have asked the panel to start off -- we’re trying to understand strengths and weaknesses of enforcement cooperation, get some advice for the FTC. So before we delve into specific questions, I’ve asked each of the panelists to deliver the headline of their story. What is your elevator speech? Starting with Nick.

MR. BANASEVIC: Thank you, Maria. Thank you to you and to the FTC. It’s really a great pleasure to be here and, hopefully, share some interesting insights. My elevator ride is 27 floors up and it takes about half a minute. So I don’t know if that’s how long I’ve got. But I think my five-second message is don’t neglect cooperation, it can really bring benefits. Of course, I think the first instinct that we have and what we’re responsible for by definition is our own jurisdiction, and the bread and butter of that is doing individual cases and that’s what we focus on. That’s, as I say, the bread and butter of our work. Beyond that we have our policy, guidance, soft law role which is complementary to the actual case enforcement. I think my core message and, hopefully, I’ll illustrate it during the panel is, although you’re not going to necessarily spend the majority of your time, although you might spend a lot in an individual case on cooperation, I think it’s trying really -- in terms of what agencies can gain and benefit mutually. Don’t view it as add-on activity, something extra that you have to do. It can really bring organic benefits to either an individual case -- and, hopefully, I’ll give some examples -- and also to policy to avoid misunderstandings, to converge where possible. It’s really something that should be fostered over the years. I’ve known Maria and her colleagues and colleagues at the DOJ for many years, and it’s really very useful in terms of building trust, facilitating relationships, and understanding where each of us are coming from. So from my perspective, I’ve had very good experiences over the years and I will give some more insights as we go on.

MS. COPPOLA: Thanks. Marcus?

MR. BEZZI: Well, if Nick had been standing next to me in the elevator, I would say I agree with all of that. I’d also say -- make the point that was made a lot this morning, that commerce is now more global than ever and, indeed, that’s a trend that’s significantly enhanced by the digital economy. And the corollary of that is that enforcers have to respond to the pace of change and globalization by working more closely together. We have to be more joined up and timely. And we need to do this for three reasons. Firstly, because I believe that in doing so, we will facilitate more efficient commerce. It will actually be better for the commercial parties if we are more joined up. Secondly, it will make us better at our jobs. We’ll be more effectively able to police compliance with laws in our jurisdictions. And, finally, because we’ve got scarce resources and working closely together is likely to prevent us from reworking issues, from seeking to reinvent the wheel or overlapping each other’s work. It will make us more efficient. Thanks.

MS. COPPOLA: Great.

MS. SCHAEFFER: Well, hopefully, we’re not in a Dutch elevator so there’s room for me as well. I certainly agree with everything that both Nick and Marcus have just said. I particularly like the idea that cooperation is not the icing on the cake, but, hopefully, the glue, as Kovacic would say, or the icing in the middle. What does cooperation mean? It doesn’t mean achieving the same result on the same timetable in every transaction or investigation. That’s not cooperation. That’s utopia. And that’s never going to exist. But I do think it can and often does mean a greater understanding of the issues, an enhanced understanding, as you said, Maria, for your own investigation and how to address concerns. And it, hopefully, can be used to maximize all of the efficiencies in the process given the substantive constraints and the procedural limitations that each jurisdiction has to live within. So I think from a private practitioner perspective, I agree there is a lot to be gained from cooperation. And I would love to use this panel to talk about practical ways that we can enhance cooperation, again using Kovacic’s human glue analogy, more at that human level than at the formal, procedural MLAT kind of level that I think we’ve all worked with or had our frustrations with over the last decade or so, and have found that it is these informal connections and understandings that have facilitated greater cooperation more than the very formalistic process.

MS. PRATT: Well, I agree with everything that everyone said. The only thing I would add is I don’t think cooperation is only good for enforcement agencies, I think it’s good for business. It allows competition law enforcement agencies to benefit from the experience of one another, reach conclusions quicker, and with less probability of conflict and ultimately, hopefully, increased timeliness and effectiveness of the outcome. But it’s -- as all of these people have said, it’s more than about sharing information, it’s that human glue. It’s having the trust amongst agencies to be able to have productive discussions, to be able to exchange theories of harm, to talk about what they’re hearing from the marketplace, to sort of be in a united front with the businesses so that they understand that it is in their benefit and it will be more efficient for them to cooperate with all of us together. And so I think the result, hopefully, is that investigations aren’t longer, are more focused, and the probability of outcomes being conflicting outcomes is minimized, and ultimately for all of us, the predictability, consistency, and effectiveness of outcomes across jurisdictions is maximized. The Canadian Competition Bureau, as you heard from Commissioner Boswell this morning and as you heard from some of my colleagues from the RCMP, I think Canada generally is a strong advocate for international cooperation and we’re always looking for opportunities to cooperate further, including with respect to not just merger cases, but unilateral conduct cases as well.

MS. COPPOLA: Thanks, Jeanne. Okay. So there’s a lot of human glue. So we seem to all agree that there’s a lot of great things that come out of cooperation, cooperation is very important. I guess drilling down to the next level, what can parties expect for agencies, and I guess for Fiona, what can agencies expect at a more detailed level from cooperation. Why don’t we start with Marcus this time.

MR. BEZZI: Thanks, Maria. Well, there are things like sharing case theories, if waivers are given there will be sharing of information. If we use our formal processes, they can expect them to take a long time. In our experience, MLATs -- well, I’ll just relate one story. We used an MLAT in a criminal matter recently and were absolutely stunned to get a result from the process in one year or a little bit less than one year. That’s the fastest that anyone can ever think of. Mostly, they take two years, three years, four years. We’ve got 19th Century formal cooperation procedures, 19th Century timetable for our formal cooperation procedures. So really we spend most of our time on the informal. And I must say, I listened to some of the sessions this morning and heard people talking about the IOSCO MMOU. I was very envious hearing about how quickly their processes work. They really do seem to operate at a more reasonable speed given the speed of commerce today. I should say that in mergers, the informal cooperation works extremely well and we don’t have to rely upon the formal. A lot of the time in Australia, we use the processes to coordinate remedies and people can reasonably expect us to do that in a fairly efficient way. I think that is a good aspect of the current system.

MS. COPPOLA: Thanks. Jeanne, do you want to –

MS. PRATT: Sure. I mean, we cooperate very closely with the Federal Trade Commission and with the US Department of Justice and the DG Comp. Those are the three jurisdictions or three agencies that we cooperate most with. And if you’re a party either on the merger side or on the conduct side, you can expect that we would have in-depth discussions related to investigative approach, theories of harm, market definition, concerns expressed by market contexts in the various jurisdictions and, frankly, our analysis of the data and evidence that we’ve seen. In some cases, you will see us do joint market interviews of joint market context. We’ll have sometimes joint calls with the parties and we’ll coordinate that interaction with the parties to make sure that the risk of uncertain or conflicting messages is minimized. And where cross border competition concerns are identified, you can expect the Canadian Competition Bureau to engage agencies in remedy discussions, because we need to make sure that those remedy discussions are considered in the broader context, including the need for remedies in one or more jurisdictions and whether a remedy in one jurisdiction may actually be sufficient to address concerns in another, so that we may not need our own consent agreement in Canada. We also look at whether a common monitor should be appointed or looking at the consistency of the language around preservation of assets or hold separate arrangements. And in some cases that cooperation with the Canadian Competition Bureau may ultimately lead to us accepting a remedy that is proposed from a sister agency and it can, where appropriate, ensure the most efficient and least intrusive form of remedy for market participants. So we do cooperate very deeply with our agency. And that, again, is based on a strong foundation of trust that has been built over 20 years of cooperating with the counterparts with whom we cooperate most frequently.

MS. COPPOLA: Thanks, Jeanne, very much. I’m very sorry to have to ask Nick to add to that because I think you about covered the universe. But, Nick, what do you think that parties can expect from cooperation and thinking specifically about your perspective from a shop that deals with conduct matters?

MR. BANASEVIC: I agree with everything so far. So not –

MS. COPPOLA: Okay. Can we be clear? You have to disagree at some point. This would be like dreadfully boring if you –

MR. BANASEVIC: In the post-panel, perhaps. No, but I think, as Jeanne said -- and perhaps -- and this is something I think we’ll develop perhaps as a difference in terms of incentives in conduct in mergers. Most of what my experience, in terms of what parties have incentive-wise, is in conduct. I’ve worked on a few mergers where the incentives have been aligned. We’ve had issues with parties where sometimes they don’t want to give waivers in conduct cases because they feel that that would somehow not be beneficial to them. That is, of course, their prerogative. My personal view is that actually, you know if they’ve got a good story to tell, there’s no issue with giving away, but because it’s precisely those things that we can discuss openly with them and with our colleagues, our sister agencies. But I think exactly the kinds of things that -- whether or not there is a waiver, because I think even without a waiver we’re able to, from our perspective, in terms of what we can gain, talk about theories of harm in the abstract and general levels, test, test theories, test realities. So I think if we’re doing that anyway, there is an interest for parties to give us a waiver. Again, that’s my personal view. But as I say, we’ve had some cases where we haven’t had waivers. To switch, in terms of what -- because I think we do have that responsibility ourselves to parties. And, again, maybe it’s more in mergers that it happens that they have these incentives where they’re aligned in terms of timing, coordination. In terms of what we can expect as an agency, just to develop a bit what I was saying at the beginning, I think, again, it’s not that we must always dream of having the uniform solution worldwide. We all have different legal traditions, different systems. Having said that, I think where we can achieve at least a high level of convergence where possible, I think that’s something that is desirable. So I think we, in terms of both policy development -- and then when we’re doing cases, I think it is invaluable and we each have a lot to gain in terms of, again, coming back to some of the things I’ve said in terms of case specifics, theories of harm, making sure that we’ve got a reality check on whether something is correct or not, testing these theories with each other, and if appropriate, moving the cases forward in the same or similar direction. If not, at least understanding the background to where we’re each coming from and why we may take a different approach. And I found that invaluable over the years in many cases, and I’ll develop that a bit more a bit later.

MS. COPPOLA: Thanks. I think that the last point you mentioned, this idea that the effects of case cooperation are not just contained to the case itself, but to a longer-term story of deepening the understanding between agencies is really important. Fiona?

MS. SCHAEFFER: Sure. Well, I think from the parties’ perspective -- and my comments are primarily in the context of merger reviews -- the goals of what can realistically be achieved from cooperation include reducing duplicative effort, reducing the burdens of investigation, convincing the agency, through cooperation, that just because there is a hill there to climb doesn’t mean that everyone has to climb it. One can climb and report, assuming, of course, it is a similar hill. We hope to have consistent, if not identical, outcomes and that includes, where possible, hopefully convincing an agency that they don’t need to have the same remedy as everyone else just because someone else has a remedy. We don’t have to have every jurisdiction reviewing, believing that it needs to have its pound of flesh in order to believe that it’s conducted an effective review. And that, of course, involves some levels of trust between the different agencies as well, that the enforcement of a remedy in one jurisdiction is going to be sufficiently robust to protect others. And, you know, that may not always be the case and it may vary by jurisdiction. We hope, also, that through cooperation we will, if not have a shorter overall timetable, certainly not a longer one. I think that is sometimes a concern that private parties feel is that a potential cost of cooperation is that you may be put on, in essence, the timeline of the slowest jurisdiction, rather than promoting efficiency throughout the process. I guess a word on waivers just to Nick’s point. In principle, I agree that knowledge is power and I like everyone at the table to have a similar level of knowledge, if we have good substantive points and arguments and documents to share, or even if not so good. The agency can do a better job armed with that knowledge than if there is some game-playing and trying to orchestrate the process and manage who knows what. I do think that that calculus is quite different in merger versus conduct cases. And it’s not a question of giving different agencies the same level of knowledge, necessarily, although in some cases it can be. But I think for us there is a bigger concern in conduct cases that information provided to one regulator and then shared more broadly increases the risk of discovery obligations and private class action consequences that aren’t so much of a practice concern in a merger context. So it’s not the sharing within the agencies necessarily that is the biggest challenge there; it’s what can be done with the information once it is within multiple agencies. We know that we’re dealing with jurisdictions that have very different levels of confidentiality protection, and in some instances, for example, are required to give third parties due process or other government agencies access. So I think there’s a greater feeling of concern about being able to manage the flow of that information in the conduct arena.

MS. COPPOLA: Thanks, Fiona. I think we’ll come back to that point about information exchange in a moment. But I think, before that, I want to pick up on Marcus’ point about keeping pace. I don’t know that -- the 19th Century might be a bit of an exaggeration, but I think even 20th Century tools are not fit for purpose. Last night, I was watching All the President’s Men with my 12-year-old son and they were trying to find the phone number for someone and they had a room full of phone books, and he just kind of said, what’s that, what are they doing? Anyhow, what types of things, what kind of -- what would a tool look like that was fit for the 21st Century? Are these more in the realm of informal cooperation? What tools do you use? What tools do you wish you had? What can we learn from you?

MR. BEZZI: Would you like me to go first?

MS. COPPOLA: Yes. That’s why I’m looking at you. I’m sorry. (Laughter.)

MR. BEZZI: Well, where do I start. So informal -- I’ll start on the informal. And, look, I should say 95 percent of the cooperation that we’re involved in -- probably more than 95 percent is informal and it’s very effective and it involves engagement with the various agencies that we’ve got excellent relationships with. We have many counterpart agencies that we’ve got second generation cooperation agreements with or first generation cooperation agreements with. And they help to create a formal framework in which we can engage in informal cooperation. And I should actually just go back a step. The formal arrangements really do enhance the informal. We have a very formal arrangement with the United States. We have a treaty with the US. I think we’re the only country that has an antitrust cooperation treaty with the US. We rarely use it. I think the number of times it’s been formally used you could probably count on probably less than two hands. But I believe that it promotes the use of waivers, it promotes the cooperation of witnesses, the cooperation of parties with our investigations, and it really facilitates and creates the atmosphere in which informal cooperation works very, very well. So what does that actually mean? It means that we can have case teams that have regular phone calls if we’ve got a common investigation or we’re investigating common or related issues. We can talk about case theories. We can talk about practical things like when we’re going to interview common witnesses. We can talk about lines of inquiry that have not been successful that have been a waste of our time and suggest to each other perhaps don’t bother going there, it won’t lead anywhere or, actually, look here, it’s a better place to look. Those sorts of discussions happen between case teams and they are really valuable. The exchange of information when we’ve got waivers -- confidential information when we’ve got waivers is very, very useful. I should emphasize that we very, very rarely -- in fact, I can’t think of a single occasion that we’ve done it using a waiver, but we very rarely exchange evidence. I can think of two cases where we’ve done that using formal processes. If we want evidence, we will go to the source and get the evidence from the source if we possibly can. It’s much more valuable to us that way, anyway. So I think you said, what would be better? Well, some of the processes that exist under IOSCO where -- and, indeed, exist under the antitrust treaty that we have with the US -- where we can ask counterpart agencies to compel testimony, we can ask counterpart agencies to compel the production of evidence or production of information and to do so in a very timely way, to put in a request that can be responded to in days or weeks rather than months or years. Those sorts of things are things that we aspire to. We get a lot of it informally, I should emphasize that. I don’t want to understate the importance of the informal. But having a more formal framework which would enable more of that -- and I think they have in IOSCO context -- would really be a facilitator of even greater informal cooperation.

MS. COPPOLA: I think we heard on the consumer protection and privacy panel that some of that investigative assistance is already happening on that side. So it’s –

MR. BEZZI: Very much so, yes.

MS. COPPOLA: Since we’re all -- many of us have it housed in the same agency, you would hope that we can have that transfer over to the competition side. Jeanne, could you pick up a little bit on the informal cooperation point and tools?

MS. PRATT: Yeah, I’ll try not to do –

MS. COPPOLA: So we can just –

MR. PRATT: I, again, agree with everything that Marcus said. And I think what I would say is it only works -- those informal cooperation tools, again, only work if you’ve got trust in the legitimacy, the competence, the candor and, frankly, the ethics of your counterparts in the other agency. And you can’t develop that necessarily in the context of just having a case discussion. You’ve got to take the time to have the conversations to understand different frameworks, to understand how they go about doing their work. And, frankly, that in our experience has led to us getting to learn some of the lessons from our colleagues so that we don’t have to repeat the same mistakes and, hopefully, we have also shared some of those with our foreign counterparts. So some of the mechanisms that we use outside of informal cooperation on a case to try and do that are the case team leader meetings that you heard Commissioner Boswell talk about this morning, which I find incredibly useful because it is our officers who are doing the work, that are leading those cases, that will take some time out to talk about how they do their work, what issues they are facing. Sometimes it’s talking about a particular case development or a lesson learned that they have from their jurisdiction. And that builds relationships amongst our staff, it builds trust, it builds confidence in our counterpart’s abilities as economists and lawyers doing the same type of work. Exchanges are another tool. And as was mentioned this morning, I am the very lucky candidate who got to go to the ACCC for a full year and see how they do their merger work, and I benefitted greatly as an individual. But I also I think benefitted the Bureau because we got to see not just how a particular case unfolds, but how you actually manage the organization, how you do your work, what tools you use and, frankly, seeing how something can be so different in some areas, but there’s a lot of commonality in the analysis that we do in mergers.

MR. BEZZI: We loved having you, too, Jeanne. It was great having you.

MS. PRATT: It was a tough winter in Ottawa, I have to say. The other thing that we have found valuable is taking some time out, maybe more publicly, to have workshops on particular issues. The FTC and the DOJ and the Competition Bureau in 2018 had a joint workshop on competition in residential real estate brokerage. And, you know, we had eight years of litigation in the real estate industry surrounding the use and display of critical sales information through digital platforms that wasn’t resolved until years after the US. But because we had taken so long, there had been a lot of evolution in the law and the economy. And so some of the lessons that we learned along the way were also informative to update since the fight in the US. So the only other formal thing that I think I would I say, not the informal, is we have a gateway provision in the Canadian Competition Act, Section 29. So when we’re doing mergers, we don’t ask for waivers in Canada. As long as we’re working on a case and we feel that that cooperation is necessary for enforcement of the Competition Act in Canada, we feel that that gives us the ability to have that conversation with our counterparts. So if you -- and I think this would be particularly useful in the unilateral conduct side where you may be looking at different incentives. The merging parties may want to get through our process as quickly as possible. They, I think, have come to see more of the benefits of our cooperation to get them where they need to get to with less conflict and quicker results. But, you know, that kind of a gateway provision could allow us to have discussions on the unilateral conduct side because the discussion is only as good as the two-way communication allows.

MS. COPPOLA: Thanks. The senior level exchange, I think, would be a big hit here if the destination was Australia. But I guess kidding aside, it’s interesting because what you learn there, you’re coming back and you’re in charge so you can actually implement the changes. So that must have had a terrific effect. Okay, Nick, just thinking a bit more about cooperation in conduct investigations. I almost said antitrust investigations because I was looking at you. What kind of practical experience tips do you have that you would like to share?

MR. BANASEVIC: So I’m going to go back in time a bit and give you a couple of examples of very intense cooperation with the FTC and the DOJ. Actually, let me first say, to go back a step even, for us, cooperation starts at home in the sense that we’ve got the European Competition Network, which in -- I don’t know if “unique” is the word, but it’s the network of us, the European Commission with all the national member state competition authorities in the EEA, the European Economic Area, all applying European competition law. And so we first need to cooperate at home in terms of both just allocating cases and, of course, generally the European Commission does the cases that are over a broader geographic scope, whereas the national agencies tend to focus on more national ones and in terms of substance coordination as well. Beyond that, I think we have extensive international cooperation with all the major competition authorities around the world, including Canada and Australia. But to give the two examples that, for me, have been personally particularly instructive over the years, going back to the beginning of the century is first the Microsoft case with DOJ, where, as background, you remember that the D.C. Circuit Court of Appeals affirmed a monopoly maintenance finding here under Section 2. And that was while our case was still ongoing in Europe. We had an interoperability and a tying abuse, tying of Media Player. And then there was a remedy implemented in the US that changed the way that some things were done. So it had a kind of factual impact on some of the things that we were doing in our case while it was still ongoing. And the issues were also -- even though the liability case here was little bit different, through the remedy, there was an interoperability element as well. So the kinds of issues were very similar. We met, I think, for a period of a few years twice a year. We would come here once a year and the DOJ would come to see us in Brussels. And it was invaluable just to exchange theories, to understand where each side was coming from, and to develop a trust and understanding over the years. So I think it’s fair to say that even though the issues were different, there wasn’t always perfect agreement, but it was a relationship that we valued and that really brought a lot in terms of understanding where we were coming from and in my view, at least, having a solution that was not necessarily exactly the same, didn’t lead to an overt situation of conflict, which, again, in my view was greatly facilitated by these contacts. The second example is the kind of policy and case area standard essential patterns. This goes back to even Rambus with the FTC where we had a similar case ourselves in Europe. But more generally and more recently, or five, six years ago, I guess, this issue of injunctions based on standard essential patterns. The FTC -- I think it was 2013 you had the consent decree with Motorola and we had a prohibition decision against Motorola a year earlier on the same kind of issue. And, again, take a step back or try and remember, this is a very -- I don’t know if “novel” is the word, but it was a controversial area of law. And perhaps it still is. For us in Europe, at least, we adopted a prohibition decision, which said that injunctions against willing licensees, based on standard essential patterns where you’ve given a commitment to license on FRAND terms, are an abuse. That was confirmed by our Supreme Court, the European Court of Justice, in a separate case, but the principle was confirmed. But it was, and still is, a subject that attracts a great deal of attention and a great deal of controversy. There were many people -- and that debate still goes on. But there were many people saying, how can you possibly do this? There are some people saying that. But against that background of that -- again, I’m not sure if “novel” is the word, but a very complex, important issue, it was really invaluable to have both the case coordination with the FTC on Motorola, where we had regular contact in terms of meetings and calls, and then on the policy level with both the FTC and the DOJ, where essentially we were on the same page in terms of developing this policy and this approach towards how we deal with the specific issue of injunctions based on standard essential patterns. I think particularly because it was an area that was so complex and controversial, my personal view is that we all mutually benefitted from being able to really share these experiences and insight. So those are two examples and there are many more, but it’s really, for me, a manifestation of just concrete case teams talking to each other regularly, being open, exchanging ideas, evidence if appropriate, if you have the waiver, and it’s been a great benefit.

MS. COPPOLA: Yeah, I think interplay of the case level and the policy level is a really good point that really deepens greatly the discussion and understanding. Fiona, we’ve heard kind of rah-rah-rah cooperation and lots of pluses on cooperation. You’ve talked about how cooperation doesn’t mean getting to the finish line at the exact same time. What are some of the practical limitations on cooperation from a private practitioner’s perspective?

MS. SCHAEFFER: Well, I think we start out with very different procedural frameworks in different jurisdictions. We happen to have probably two of the closest jurisdictions here in Canada and the US, on process. But others look quite different in terms of the amount of prefiling work in a merger context that needs to be done, the time that that will take, the uncertainty around when you actually get on the clock in say Europe or China versus in the US. And all of that leads to, you know, in many cases, if not an impossibility, certainly, all of the stars would have to align for the timing to actually be the same. So we are working with different processes, different timetables, and I think we have to accept that the timing is not going to be the same. The question is, can we make it sufficiently compatible that we can have substantive discussions at a similar time frame, particularly on remedies. That will, you know, minimize inefficiencies and maximize the ability to have a consistent compatible remedy. And even when you’ve done all of those things and there’s been I think an earnest, concerted goodwill effort to align those discussions, you’re inevitably going to have cases where, you know, something surprising happens like one jurisdiction decides, yes, we like the remedy package that everyone else has agreed to, but lo and behold, we think there ought to be a different purchaser in our jurisdiction, which shall remained unnamed, than in the rest of the world, which as you can imagine when you’re dealing with products that are sold around the globe under one brand name can be pretty challenging. I’m not sure that cooperation could have changed that result. But you’re always going to have these unpredictable aspects of a multijurisdictional merger review that can occur right up until the end. What can we do to enhance practical day-to- day cooperation, I think your earlier question. A lot of the time when we talk about cooperation, it’s really in a bilateral context. You’ve got parties speaking with Agency A, parties speaking with Agency B, parties speaking with Agency C, and then similar conversations happening between those agencies who are essentially, you know, in some cases, playing Chinese whispers, but reporting on conversations they’ve had trying to find common approaches, common understandings. I wonder sometimes can we expedite -- streamline those conversations to have fewer bilateral conversations and more multilateral conversations in the same room. Just as when we are faced with a conduct or a merger investigation ourselves, trying to understand better the facts, what’s going on, where, we often have multijurisdictional, multicounsel calls. I don’t see why we couldn’t do more of that involving multiple agencies on the same video conference or the same phone call. There is a limit, of course, where you get these huge conversations that, you know, are impossible to schedule, and no one says anything because there’s 100 people on the line. So yes, that level of cooperation can be unwieldy, but I think we can do more to explore having simultaneous conversations. I think there’s been a mindset probably maybe more in the minds of -- well, maybe equally in the minds of the companies and counsel, as well as agencies, that everyone needs to have their kind of process, everyone needs to have their separate meeting, everyone needs to have the merger explained to them, you know, Australian or in Canadian or in -- (Laughter.)

MS. SCHAEFFER: But I don’t think that that’s necessarily the case, not for all meetings or forms of cooperation. So that’s something I think we could do more with.

MS. COPPOLA: That’s a really interesting idea. I mean, we’ve heard earlier, and on this panel, that there’s a lot of joint third party calls. I know at the FTC we have limited experience with joint party calls, but that’s a really neat idea and it’s certainly very 21st Century if it’s video. So thinking I guess -- so those are some of the practical limitations on the practitioner’s side. Thinking about some of the practical limitations on the agency’s side, it seems like the one that has appeared a few times in this discussion is confidentiality. Nick has already talked a little bit about what we can exchange when we don’t have waivers. So what falls within the realm of public or agency nonpublic information, so, as he said, theories of harm, market definition, kind of basic thinking on remedies. But, of course, those discussions are much more robust when we’re saying because of evidence of X, Y, and Z. Marcus, you had mentioned that you have an information gateway in Australia. What does that mean and what can the FTC learn from that?

MR. BEZZI: So an information gateway is a legislative provision that enables our Chairman to make a decision to release material that we’ve obtained through some confidential process either a compulsory power, exercise of a compulsory power, requiring compelled production of information, or otherwise, and it enables us to release that information without the consent of the party whose information it is. So it’s something we don’t do lightly and it’s something we don’t do often. And it’s something we’ll only do if there are -- if we’re really 100 percent confident that people are going to comply with the conditions that are imposed on the release of the information. So if we’re dealing with a trusted agency, and we are confident that they will maintain the confidentiality of the information that we disclose, then we have got the capacity to release it. As I say, it doesn’t happen very often. There will be more than just a set of conditions imposed. There’s usually a fairly rigorous process that we put in place to ensure that the conditions are complied with. So there’s reporting. And after the agency that’s received the information has finished with it, we’ll require them to give the information back. And I should say this is a very similar provision to a provision that the CMA has in the UK and that Canada has. And it, as I say can be -- it’s more useful in being there than in being used, if I could put it that way.

MS. COPPOLA: Right, right. Thanks, Marcus. I think, Jeanne, I’ll have you answer next because he’s just talked about your information gateway. Does this have an impact on kind of target parties, third parties’ willingness to provide information, and what kind of notice do they get before you share the information? What are some of the consequences?

MS. PRATT: Yeah, I mean with great -- it’s -- we have to take that very, very seriously. So when we’re using our gateway provision, we have very transparent policies to stakeholders. It’s written in a confidentiality bulletin what the conditions of sharing are. Every time we do a market contact, it is disclosed to that market contact that we do have the information gateway, that we may use it obviously in an international merger context, that we may share it with our counterpart agencies and discuss it where they have waivers. So I think the lesson for us is transparency is really important to maintain your reputation because without our reputation to maintain the confidential information, we won’t be able to do our job and the effectiveness of our agency is diminished. It’s fundamental, frankly, to how we do our job. So in our confidentiality bulletin, we do set out the conditions quite clearly and we do say that we will seek to maintain the confidentiality of information through either formal international instruments or assurances from a foreign authority. And the Bureau also requires as a condition that the foreign authority’s use of that information is limited to the specific purpose for which it was provided. So our information gateway provides that we can use it for enforcement of the Act, which, for us, means if we’re working on a common case with an agency with whom we have a foreign -- or an instrument and we’ve got those certainties that that is when we will do so. Where there is no bilateral-multilateral cooperation instrument in force, the Bureau does not communicate information protected by Section 29 unless we are fully satisfied with the assurances provided by the foreign authority with respect to maintaining the confidentiality of the information and the uses to which it will be put. And this, again, is where trust becomes key for us, we’re not going to put our reputation and our effectiveness on the line if we are not certain that those conditions will be satisfied. In assessing whether to communicate the information and the circumstances, we do also consider the laws protecting confidentiality in the requesting country, the purpose of the request, and any agreements or arrangements with the country or the requesting authority. If we are not satisfied that it will remain protected, it is not shared. Likewise, when foreign authorities are typically communicating confidential information to the Bureau, they are doing so on the understanding that the information will be treated confidentiality and used for the purposes of administration and enforcement of the Act. I should mention, too, we do have another provision in our Act which ensures that all inquiries conducted by the Competition Bureau are conducted in private and that provides some legislative certainty that it will be maintained in confidence on our end. So I guess I would say the gateway for us, while similar to Australia, I think has been used a little bit different and that mostly is a result of practice, our transparency, the market having a lot of faith in our practices and procedures, to maintain confidentiality. And without it, I don’t think it would be as effective.

MS. COPPOLA: Thanks very much. Nick, turning to the European Commission, I mean, you have sort of the highest level of information sharing and investigative assistance with the ECN and you also have things like the second generation agreement that you have with Switzerland. Do you want to share a little bit of your experience with those?

MR. BANASEVIC: Sure. Again, the ECN is -- again, I don’t want to say it’s the highest level of cooperation, but everything is open there.

MS. COPPOLA: Right, right.

MR. BANASEVIC: There’s automatic transmission of everything, there is -- I mean, that’s a consequence of what the EU or the EEA is in a sense. So it’s critical that we share up front information just about who’s got what case so that we can allocate them most efficiently and to coordinate on issues of substance because we’re all applying the same law. In terms of outside the ECN and outside the EEA, I -- as a general point, I think the main issues have been outlined in terms of maybe there being different incentives -- I’m talking outside Switzerland, which I’ll mention briefly now in terms of different incentives maybe between mergers and conduct. I take Fiona’s point about -- concern about disclosure in another jurisdiction. I understand that. I think the instances that I have referred to in some conduct cases have rather been a concern about not wanting agencies to discuss theories of harm even. So that’s a different thing. And in terms of Switzerland, actually, I think it resonated. I mean, we have a second generation agreement with Switzerland, which means in practice that we can transmit evidence between us without consent. Obviously, we’re talking about where the same conduct has been investigated. And what we found -- and this resonated when Marcus was talking about it -- is actually we haven’t needed to use -- to invoke those provisions. And it’s actually encouraged that that framework, and maybe the trust or the mechanics of how things work, have encouraged information provision without needing to use the formal provisions under the agreement. So I think that’s an interesting point.

MS. COPPOLA: Right, yeah, yeah. Fiona, you’ve touched on this a tiny bit already, but what are -- can you bring out a little bit some of the concerns that agencies might have either about these types of agreements or about granting waivers in the nonmerger context? What are some of the red flags?

MS. SCHAEFFER: From a merging party’s perspective or from an investigated party’s perspective?

MS. COPPOLA: From both.

MS. SCHAEFFER: Yeah, I think there is -- certainly in terms of the exchange of confidential information as opposed to permitting agencies to discuss case theories, I think there is an understandable sense that if an agency really needs that kind of information and has a right to obtain that kind of information domestically, then they should just ask the parties for it directly rather than get it -- you know, it sounds a bit pejorative -- but through the back door. I do think, on the merger side, the incentives are greater to provide it anyway. But I think, also, at the same time, the actual exchange of confidential information is relatively rare and I think its use is overrated. I think the biggest benefit that I’ve seen from cooperation from a private party’s perspective -- and I suspect the agencies might agree with this -- is just being able to discuss the case, the theories, the investigation, the legal analysis, the basic understanding of how the products work, what third party concerns are without, you know, revealing any confidential information. And all of that dialogue I’ve found in all of the deals I’ve worked on, and maybe I’ve just been lucky, but I can’t recall a single case where we facilitated cooperation and we suddenly found that Agency C, that had been going on its normal course of business and investigating without big concerns, suddenly had a new theory of the case that was going to put them into an extended review. I’ve always had the opposite. Namely, Agency C, when we have facilitated contact with Agency A and B, typically has been relieved to know that Agency A and B is investigating these particular various areas, that it doesn’t necessarily have to cover all of the same ground. And I have found that it’s expedited, not prolonged, the review or started new lines of attack that didn’t exist before. And I think that could also hold true, although it’s less tested in conduct cases where some of the theories of harm are just more wacky or radical. And I think agencies that have been at it for a longer period of time, in that investigation or generally, may be able to help other agencies understand what are the real issues here, what are some of the false paradigms or paths that, you know, we looked at five years ago but discovered really weren’t productive.

MS. COPPOLA: Right, right. Sometimes that thinking can go the other way, too. The learning can go the other way. I think I want to circle back on your point on forbearance. But before I do that, does anyone have any reactions to what Fiona was saying about information sharing and thinking of it as a backdoor way when it’s done -- the confidential information between agencies?

MS. PRATT: Well, I think it’s -- I guess from my perspective it would -- I’ve never seen that risk become realized. Because each of our agencies are very concerned about the confidential forecast that we have, that we want to minimize the risk of that because, otherwise, it would be a reputational risk for us doing our job.

I do think a lot of the value, unless you are doing a joint investigation where there is evidence that you need in another jurisdiction, most of the value of that cooperation can come from not providing confidential, competitively-sensitive third party information. So if you have waivers or you have a gateway provision, that facilitates that cooperation quite well.

MR. BEZZI: I agree with that. I mean, parties know -- if ever we are using an information gateway, and it happens rarely, but they know. It’s not done secretly; it’s done in their knowledge; it’s done transparently.

MS. COPPOLA: Fiona, I may have misinterpreted you. When you were talking about backdoor, I think you meant even in the presence of waivers. You didn’t mean out extralegally, right?

MS. SCHAEFFER: Yeah, I meant exchange of confidential information, where there are waivers, but the agency couldn’t get the information directly.

MS. COPPOLA: Right, right. Nick, do you have anything you wanted to add here?

MR. BANASEVIC: Nothing spectacular.

MS. COPPOLA: Okay. I have one question from the audience, but before we -- and I encourage other questions. So now is the time to write them. But before we get to that, I wanted to talk, I think because at the end of the day, the immediate goal in a particular case of cooperation is making sure that you don’t have conflicting remedies, that you have remedies that are, if not identical, at least interoperable. And we’ve heard some discussion today that, you know, there’s been a lot of agencies, more agencies looking at things than there used to be. And sort of the question about should we be giving more attention to cooperation, in the form of forbearance, than coordination. And, Fiona, if you could start that discussion for us.

MS. SCHAEFFER: Sure. Well, we were having a discussion at lunch and Marcus mentioned the magic pudding story. I said to Marcus, will this audience understand the magic pudding story? And looking around the room, I see there are bemused faces. Well, it’s a story we all told our children growing up in Australia where, as a child, I really enjoyed it. The magic pudding just never stopped producing pudding until the entire town was flooded with porridge and pudding everywhere. Well, no agency is a magic pudding. Agencies have limited resources. They can’t just keep on producing. And I think from an agency perspective, as well as from the parties’ perspective, one always ought to ask what are the incremental benefits of this additional investigation we’re doing over -- you know, on top of what five other agencies are doing? What are the incremental benefits of a remedy that is the same or virtually identical to what another agency has obtained as opposed to taking our limited resources and using them for investigations and transactions that these other five agencies couldn’t review? And it’s been interesting to me just to look at how different agencies have been allocating their resources over time. Brazil is an agency that comes to mind. When I come to think about some of the cartel investigations, the merger investigations they focused on maybe ten years ago, my anecdotal perception is that there was a lot more of an international dimension to them than there is today. I think some of the larger Brazilian investigations have involved, in more recent times, transactions in the educational sector and the health care sector, in the domestic financial services sector. And their bang for their buck in those investigations I think is significantly higher than it would be if they were another me-too in a global transaction. Having said that, is it realistic to say if the US is looking at a deal or the EU is looking at a deal or Canada and they’ve got remedies, that everyone else should just back off? No, of course not. But I think at each stage of the investigation, it’s useful for the agencies to ask themselves, what is the incremental value and what are the areas of this transaction that may be specific to our jurisdiction that the other people aren’t covering? What are the holes that we need to fill potentially for our jurisdiction that the others aren’t worrying about as opposed to retreading the same ground? And as counsel to parties to transactions and conduct investigations, we ought to be asking ourselves those same questions about what are the specific impacts of this transaction or our conduct on this jurisdiction.

MS. COPPOLA: Mm-hmm, mm-hmm. That’s very interesting. Thank you, Fiona. Marcus, what did you say to the magic pudding discussion and what are your thoughts on the topic more generally?

MR. BEZZI: Well, exactly, we are not a magic pudding. We have limited resources. We’ve got to use them intelligently. So we’ve got to focus on the things that are most important within our jurisdiction.

Fiona raised the cartel issue and international cartels. We could all spend all of our time doing international cartels and nothing else. But -- and they’re important, don’t get me wrong. Many international cartels have a big impact in Australia. But we’ve explicitly said in our enforcement and compliance policy, which sets out our priorities for enforcement and is adjusted each year, that we will focus on international cartels that have an impact on Australians and Australian consumers. It’s the detriment in Australia that is the focus. If there’s no detriment in Australia, then we’ll let other agencies deal with those cartels.

Similarly, in mergers, we will focus on the detriment in Australia. We’ll focus on a remedy that can fix the problems we have identified in Australia, and if it happens that that remedy has already been devised somewhere else and the remedy somewhere else will completely fix the problem in Australia, then what we can do is accept what’s called an enforceable undertaking, which is essentially a statutory promise, which requires the parties to give effect to whatever the commitment that’s being given outside Australia is, give them -- they are required to give that commitment to us in Australia, and that essentially is -- deals with the problem that we’ve got jurisdiction to deal with.

MS. COPPOLA: Right. That allows you to have something that you can enforce of there is a –

MR. BEZZI: We’ve got something that we can enforce.

MS. COPPOLA: Right.

MR. BEZZI: And we’re recognizing that our resources will be managed in a better way.

MS. COPPOLA: Better focused. Right, right.

Jeanne?

MS. PRATT: Well, I guess speaking -- the Canadian approach in mergers in particular, we actually have accepted and gone probably one step further than what Marcus was saying and not even put a consent agreement in place in Canada because we have been satisfied that the remedy mostly in the United States addresses our concern.

The only way we get there, though, is, again, to have really close cooperation. We need to understand the scope of the issues, we need to understand the scope of the remedy, and, frankly, we also need to have trust in the agency that they are going to enforce that remedy at the end of the day, which we have full faith in the US Department of Justice and the US Federal Trade Commission to do that.

One of the primary reasons that we do use comity and forbearance is because we think it allows a more effective and streamline remedy that’s least intrusive to business, avoids conflict, and simultaneously allows us, as a very small agency north of the 49th Parallel, to focus our scarce enforcement resources.

So two examples I would give, we had one where we accepted the US FTC’s remedy in the GSK/Novartis merger in 2015. So we were satisfied there. We didn’t even need a me-too registered consent agreement. We were fully satisfied that the scope of the remedy addressed our concerns and would address the anticompetitive effects on the Canadian market.

The second one, which is more recent, was a case we cooperated on with the US Department of Justice, UTC/Rockwell last year, which was an aerospace systems review, and in that case just to underscore the importance of the cooperation to get us to the comity, we cooperated closely with the US DOJ and the DG Comp throughout the review.

There were waivers in place in both those jurisdictions by all the parties. We shared information and conducted some joint market calls. We discussed issues of market definition, presence of global effective remaining competition and remedies. And we determined that there were likely a substantial lessening of competition in two product markets for pneumatic ice protection system and trimmable horizontal stabilizers actuators, THSAs.

And Rockwell’s relevant business -- they were located primarily in the US and Mexico and these products were distributed on a global basis. So we got to a place where we didn’t have any assets relevant to the remedy in our jurisdiction and we were fully satisfied that the remedy addressed our concerns.

The other side of comity, which, you know, I’m not sure the parties appreciated at the time, Commissioner Boswell talked about our simultaneous filing of litigation in the Staples/Office Depot merger a couple of years ago. Part of that was we did not see the need to file an injunction the same day because we knew that there would be an injunction proceeding by the FTC. So the parties did actually benefit because they didn’t have to face an injunction proceeding north of the border as well as south of the border. We benefitted greatly from cooperation in that case.

Again, we had one of our Department of Justice lawyers come and was seconded and was actually part of the FTC counsel team to see how the injunctive process worked, to see the evidence go in, and at the end of the day, the injunction in the United States took care of the issues in Canada. So they still benefitted. They probably didn’t like it because it was in the form of litigation, but it could have been worse.

MS. COPPOLA: You know, in GSK/Novartis, it’s interesting, we did a lot of trilateral calls in that case with the EC, Canada, and the US. And that’s not obvious in a pharmaceutical case where you expect the markets to be very different. But, certainly, in trying to understand the markets, I think the third parties were very happy to have one call and not three. So that’s an interesting case.

Nick, we haven’t heard from you yet on remedies coordination or forbearance. Is there anything you want to add?

MR. BANASEVIC: The first thing I want to say is I’m going to look up, after this panel, what a trimmable horizontal actuator is.

(Laughter.)

MS. SCHAEFFER: I was going to say, that’s what you need cooperation for. It takes three agencies to understand that.

MS. COPPOLA: Right.

MR. BANASEVIC: And there was another adjective there as well. But, anyway, for us, I mean, if you look at mergers and conduct, of course, we have an obligatory notification system in mergers, once you reach certain thresholds. I mean, you have to reason every decision whether it’s a clearance of remedies or a prohibition. So there’s no discretion as such in that sense. But, of course, there’s great benefit in the cases that we’re looking at more closely and we’ve got many examples that have been mentioned in terms of coordinating on the substance, on the timing, and, if appropriate, the remedies and the potential impact and how that might read across. Where we have the discretion in terms of choosing which cases we do and which cases we don’t,

with scarce resources that any public body has by definition, is a number of things, but not least the impact -- the potential impact in our market, in our jurisdiction. We’re responsible for a jurisdiction of 500 million people.

So I think it’s likely if we believe that there is an issue in that market that we are going to want to look at it more closely, even if there are similar investigations going on or not around the world. So I think that’s the first thing to say.

That being said, I think I understand as well the argument, particularly in the sector for which I’m responsible, the high-tech sector, companies operate globally, so the issue is raised, well, could you have different solutions in different jurisdictions? I actually think this risk of diversion is somehow overblown in terms of just perception. It’s not that this is going around willy- nilly in every case in every sector. I think that’s slightly a perception issue and, actually, more generally illustrates my core point in the benefits of really having up front, preemptively with partner agencies, discussions about the approach to be taken.

Again, it’s not that one can or need guarantee precisely the same outcome, given the differences possibly in even conduct. I mean, some of our markets are national for some of the products even if the companies are operating globally. But I think there is a great benefit in this up-front shaping, sharing thoughts to, to the extent possible, minimize the risk of divergences.

MS. COPPOLA: We have a question from the audience about the ongoing investigations of the tech platforms. The EC, the Japan Fair Trade Commission, are already investigating these firms. What’s important to effectively investigate, including cooperation? Another question, what you can expect from the FTC, but as I’m not a speaker, but a moderator, I think I will punt that to what can you expect from the investigating agencies. And, Nick, according to this week’s Economist, you guys are the determinators. So I’m going to let you answer that question.

MR. BANASEVIC: Is that a type of actuator? A determinator?

MS. COPPOLA: There’s these like big guns and, yeah, sledgehammers.

MR. BANASEVIC: I’m not allowed to say anything about ongoing cases, so –

MS. COPPOLA: Right.

MR. BANASEVIC: So what was the –

MS. COPPOLA: The question was, how can -- I think the question is, how can those agencies effectively investigate? What kind of joint –

MR. BANASEVIC: I think I have to go back to my examples from the past. I think that’s the most instructive thing. I mentioned two. There have been others where in the US and in the -- particularly the same cases or the same issues have been looked at. In some, we’ve had waivers; in others, we haven’t. I don’t want to monopolize the last 2 minutes and 30 seconds.

MS. COPPOLA: Right.

MR. BANASEVIC: It’s really been of tremendous use. And it’s my opening statement, it’s not an add-on. It can really -- for these big cases where they’re very important, sensitive, and you want to get it right, there’s just a great benefit in sharing experiences, knowledge, with colleagues who have the same -- who want to get it right as well and get the best result. So it’s a very good thing that we shouldn’t have just as just a bolt-on.

MS. SCHAEFFER: Can I just add on to that? Maybe the Cooperation 2.0 for digital platform investigations is not necessarily between antitrust agencies, but between antitrust agencies, consumer protection, and privacy agencies. Because -- and I think the term “forbearance” might come in there as well, in that not everything involving a digital platform is necessarily an antitrust issue.

And we certainly have a lot of intermelding of privacy and consumer protection concerns, as we see with the Australian ACCC report. And how do we jointly investigate those issues or maybe have antitrust not be the primary investigation and enforcement mechanism there?

MS. COPPOLA: We are very close to the end of the session. So I guess, Marcus and Jeanne, starting with you, and if there’s time, we’ll move on to Fiona and Nick. What are your last words of advice for the FTC in the area of enforcement cooperation?

MS. PRATT: I’m not sure I have advice. I think, as you’ve heard, I have found or we have found that gateway provision in our legislation to be particularly useful and, you know, it might be interesting to consider that in your context and whether it’s appropriate.

And I would just want to lastly say thank you very much for having us here. I know the FTC can continue to rely on the Canadian Competition Bureau’s commitment to continuing to build upon the solid cooperation foundation that we have and in particularly dynamic fast-moving markets that we have today. I think the business case for cooperation is only getting stronger and will only get better from here.

MR. BEZZI: So I won’t advise the FTC, but the advice that I’ll give to the ACCC is that we need 21st Cooperation and mutual assistance frameworks.

MS. COPPOLA: Thanks.

Nick, Fiona, anything to add?

MR. BANASEVIC; I’ve said it all, I don’t want to repeat. I think it’s don’t underestimate it, use it, and benefit from the interactions and the knowledge you can have with colleagues.

MS. COPPOLA: Well, thank you all very much for your insights. These have been tremendous. Coming into the panel, I wasn’t sure I would learn anything since I spend most of my day engaged in enforcement cooperation. But I did. So bravo. Thanks so much for participating. I think we’ll move on to the next panel now.

(Applause.)

(Brief break.)

INTERNATIONAL ENGAGEMENT AND EMERGING TECHNOLOGIES: ARTIFICIAL INTELLIGENCE CASE STUDY

MS. WOODS BELL: Hello, everyone. Welcome back from break. I’m Deon Woods Bell. I’m a lawyer in the Office of International Affairs at the Federal Trade Commission. I’m so excited to be here today.

It is my extreme pleasure to introduce Julie Brill. Julie is Corporate Vice President and Deputy General Counsel for Global Privacy and Regulatory Affairs at Microsoft. Of course, everybody in the building knows her as a former Commissioner and friend of the Federal Trade Commission. She’s widely recognized for her work on internet privacy and data security issues related to advertising and financial fraud.

She’s received so many awards we could not list them all in her bio, nor could I enumerate them here today. One of my favorite is the Top 50 Influencers on Big Data in 2015. And one of my favorite memories is working together with her in Brussels on these same issues. Thank you, and please welcome Julie.

(Applause.)

MS. BRILL: Thank you, Deon. I remember that event, too, and it was great to work with you there. And it’s really an honor to be here today to contribute to today’s important discussions on the FTC’s international role in a world transformed by digital technology.

I am particularly excited to begin this session today that focuses on artificial intelligence. We have a truly distinguished panel, some of whom are -- here they come -- of experts from around the world, who will explore the implications of artificial intelligence at a time when innovative technology calls for innovative thinking about policy and regulation.

Today’s discussion comes at a critical moment. During the past few years, how people work, play, and learn about the world has been transformed. Industries have been reinvented. New ways to treat diseases emerge almost every day. Driving all this change are groundbreaking technologies like cloud computing that enable us to collect and analyze data scale that has never before been possible. But what we have experienced so far is just the beginning.

Rapid progress in the field of artificial intelligence has delivered us to the threshold of a new era of computing that will transform every field of human endeavor. Already, almost without us noticing, AI has become an essential part of our day- to-day lives. It powers the apps that help us get from place to place, predict what we might want to buy, and protects our systems from malware and viruses.

This is just a hint of what’s possible. Artificial intelligence has the potential to improve productivity, drive economic growth, and help us address some of the most pressing challenges in accessibility, health care, sustainability, poverty, and much more. Yet, history teaches us that change of this magnitude has always come with deep doubts and uncertainty.

I believe that if we are to realize the promise of artificial intelligence, we must acknowledge these doubts and work to build trust, trust that technology companies are working not just to maximize profits, but to improve people’s lives; trust that we use the personal data we collect safely, responsibly, and respectfully. But as we are learning the hard way, in the technology industry, trust is fragile.

In the wake of the Cambridge Analytica scandal and the spectacle of tech industry experts being hauled before Congress to answer for their business practices, people wonder if technology and technology companies can be trusted. The truth is that technology is neither inherently good nor bad. Cloud computing and artificial intelligence are just tools that people can use to be more productive and effective, basically the equivalent of the first Industrial Revolution’s steam engine. But it is also true that because technology has never been more powerful, the potential impact, both positive and negative, has never been greater.

So where does trust come from? It begins when companies like Microsoft, that are at the forefront of the digital revolution, acknowledge that in this time of sweeping change, we must consider the impact of our work on individuals, businesses, and societies. Today, we must ask ourselves not just what computers can do, but what they should do. This means there may be times when we have to be willing to decide that there are things that they should not do as well.

To guide us as we weigh these decisions at Microsoft, we have adopted six ethical principles for our work on artificial intelligence. It starts with transparency and accountability. We know that trust requires clear information about how AI systems work, coupled with accountability for the people and companies who develop them. We believe strongly in the principles of fairness which means AI must treat everyone with dignity and respect and without bias.

Our fourth principle encompasses reliability and safety, particularly when AI makes decisions that affect people. We also are strongly committed to the principles of privacy and security, for people’s personal information. And we believe that AI solutions should be built using inclusive design practices that affect the full range of experiences of all who might use them.

Now, while these principles are at the center of every decision we made about artificial intelligence research and development, we also know that the issues at stake are simply too large and too important to be left solely to the private sector. Trust also requires a new foundation of laws.

Here in the United States, right now, one area of the law demands our attention above all others. That area is privacy. Because so much of who we are is expressed digitally and so much of how we interact with each other and the world is captured and stored in digital form, how people think about privacy has changed. For more than a century, our understanding of this most fundamental human right has been shaped by the definition set forth by the great American legal thinker and fathers of the FTC, Louis Brandeis, who defined privacy as the right to be let alone. That right will always be important. But, by itself, it is no longer sufficient.

Now, modern privacy law must embrace two essential realities of life in the digital age. The first is that people expect to use digital tools and technologies to engage freely and safely with each other and with the world.

The second is that people expect to be empowered to control how their personal information is used. Whether we protect these two things is one of the critical challenges of our time. What we need is a new generation of privacy policies that embrace engagement and control without sacrificing interoperability or stifling innovation.

This is why we were the first company to extend the rights that are at the heart of the European general protection regulation, and we extended those to our customers around the world, including the right to know what data is collected, to correct that data, and to delete it or take it somewhere else. And over the last year, we’ve seen

the rise of a global movement to adopt frameworks that enhance consumer control mechanisms modeled on those required by Europe’s GDPR.

With participants here from India, Kenya and Brazil, this panel of distinguished guests is a perfect illustration of this important trend. Brazil’s general data protection law, which goes into effect a year from now, includes provisions that extend new privacy rights to individuals and mandates new requirements for notification, transparency, and governance for organizations. All of these requirements that will be new in Brazil are tightly aligned with GDPR.

In India and Kenya, new privacy laws modeled on GDPR are also currently moving through the legislative process.

Here in the United States, the California Consumer Privacy Act includes provisions that give people more control over their data. And Washington State is considering legislation based on consumer rights protected by GDPR as well.

As part of Microsoft’s commitment to privacy, we offer a dashboard where people can manage their privacy settings. Since May of last year, more than 10 million people around the world have used this tool, with the number growing every day. I think it is telling that while millions of people around the world are using our tool, our data demonstrates that US citizens are the most active in controlling their data. All of this should serve as a wakeup call for US companies and the US Government.

At Microsoft, we believe it is time for United States to adopt a new legal framework for access and use of data that reflects our new understanding of the right to privacy. To achieve this, I believe a strong US framework -- frankly, a strong privacy framework anywhere in the world -- should incorporate four core elements, transparency through robust standards that include and appropriate privacy statements within user experiences, individual empowerment that grants people meaningful control of their data and privacy preferences, corporate responsibility that is built on rigorous assessments that weigh the benefits of processing data against the risk to individuals whose data may be processed, and strong enforcement and rule-making. And, here, that means in the United States that should be all embedded at the US Federal Trade Commission.

While updated privacy laws are essential to building trust, new uses for artificial intelligence are emerging that will require special consideration for their own specific regulations. Facial recognition is a prime example. This technology has shown that it can provide new and positive benefits when used to identify missing children or diagnose diseases. But there is a real risk that -- there is a real risk which includes the danger that it will reinforce social bias and be used as a surveillance tool that encroaches individual freedom.

This is why Microsoft has called on the US Government to regulate facial recognition with a focus on preventing bias, preserving privacy, and prohibiting government surveillance in public places without a court order. It is also one of the reasons we have testified in support of the Washington State privacy bill, which includes provisions that address many of these important concerns about facial recognition technology.

We need laws that place appropriate guardrails to ensure that companies don’t take unfair advantage of individuals or violate people’s fundamental rights. That is the essence of trust. We believe that guardrails can be designed in ways that facilitate global interoperability and promote innovation so we can all work together to continue to harness the potential of the digital revolution to improve people’s lives and drive economic growth.

This will require a commitment from all of us to engage in ongoing discussions and consultations that span governments and sectors. This means it’s essential for the US Government and its agencies, including the FTC, to engage in a broad range of discussions with other governments on digital issues like we are doing with the honored guests here today.

Just as important are gatherings like this that will bring people together from around the world to explore policy approaches to new emerging technologies like artificial intelligence. More than 100 years ago, when Brandeis defined the right to be let alone in his famous Law Review article, The Right to Privacy, he described, with great eloquence, the ongoing process by which rights evolve as humanity progresses and how the law adopts and adapts in response.

“Political, social, and economic changes entail the recognition of new rights,” Brandeis wrote, “and the law in its eternal youth grows to meet demands of society.” Brandeis was moved to write this article because of the impact of photography, mechanical printing presses, and other disruptive new technologies of his time.

Today, we stand at the beginning of a new era of disruption and change, a time of technology- driven transformation that will require the recognition of new rights and the development of new laws to meet the demands of our societies. It’s a task that will ask us to convene in hearings like this one and in forums, meetings and conferences around the world to grapple openly and honestly with a host of issues that will touch on virtually every aspect of our lives and our businesses.

We, at Microsoft, look forward to being a part of these conversations and to working in close partnership with all of you to make sure that technology moves forward within a framework of respect for human dignity and with the goal of serving the greater good. Thank you.

(Applause.)

INTERNATIONAL ENGAGEMENT AND EMERGING TECHNOLOGIES: ARTIFICIAL INTELLIGENCE CASE STUDY (PANEL)

MS. WOODS BELL: Thank you. Thank you very much, Julie, for those remarks. You outlined very well the tremendous potential of AI and that’s one of the reasons why we’re here today, to discuss them even further.

Well, I’m still Deon Woods Bell. And my co- moderator here is Ellen Connelly, an Attorney Adviser in the Office of Policy and Planning. And, together, we want to welcome you to our panel on international engagement and emerging technologies focusing on artificial intelligence.

You’re in for a treat. As Julie described, we have quite a panel assembled for you here today. This session is a follow-on to the hearings in November, which focus on the same topic. And following the November meetings, colleagues here at the FTC -- and a lot of influence from Ellen here -- said we should go deeper, we should focus on international issues. So today, we’re thrilled to have this impressive group of international officials, practitioners, and academics here and on the line from Harvard.

During this panel, we’ll touch upon a variety of issues and we’ll go deeper and let you see what these colleagues have to offer. We won’t go into great detail on their bios, but we couldn’t resist showing off a little bit for you and letting you know who they are.

On the line from Harvard is Chinmayi Arun. She’s a fellow at the Harvard Berkman Klein Center for Internet & Society, and she’s the Assistant Professor of Law at the National Law University in Delhi. Her chair is there and her picture will soon be on the line as she can hear us right now.

Next, we have, again, he’s still James Dipple-Johnstone. You saw him earlier. He’s a Deputy Commissioner from the UK’s ICO, and prior to the ICO, he was in the Solicitor’s Regulatory Authority where he had been Director of Investigation and Supervision, and he’s not from the ministry of no.

(Laughter.)

MS. WOODS BELL: Next, Francis Kariuki, Director General of the Competition Authority of Kenya. Mr. Kariuki is the founding member and the current Chairman of the African Competition Forum. He’s also an expert in FinTech.

Next over to Marcela. She’s a partner at VMCA Advogados in Brazil focusing on data protection and antitrust. She’s served as Advisor and Chief of Staff for the President of Brazil’s famous CADE.

Over to Isabelle. She’s President and Member of the Board Autorité de la Concurrence, as she was previously the President of the Sixth Chamber of the Conseil d'État, the French Supreme Administrative Court, and other governmental capacities.

And last but not least, we have Omer Tene. Omer is a Vice President and Chief Knowledge Officer at the International Association of Privacy Professionals. He wears so many hats, we couldn’t list them either. He’s an Affiliate Scholar at Stanford and Senior Fellow at the Future of Privacy Forum.

So, before we get started, we want you to be open to looking to questions. We have our colleagues here. We’re going to have short introductory comments from each colleague, and then after this, we’ll have a moderated panel discussion, and we hope that you enjoy.

MS. CONNELLY: Great. So I will start us off by giving each of our panelists a chance to make a brief introductory statement to describe for us the key competition, consumer protection and privacy issues that they see emerging around the artificial intelligence field. We will start with Chinmayi.

MS. ARUN: Thank you for having me. It’s such an honor to be a part of this panel, and I’m happy to see that the FTC is listening to voices from around the world.

If I were to give you the three or four big highlights of how I would think about AI and the right to privacy in data sets in India, it would be -- the first would be in terms of global companies, usually American companies, operating in India versus Indian companies operating both in India, as well as elsewhere in places like Kenya.

The second would be in terms of data because, as you know, it’s a very big country and it provides large and rich data sets that can be complicated in ways that I’m going to describe to you shortly.

The third is that perhaps some of you have heard that there has been a rich and, again, contentious conversation about the right to privacy in India in the context of state surveillance, but also in the context of state protection. So we’ve had a major case on the right to privacy, and we’ve also got a data protection bill, which is very interesting, so I’m going to describe the highlights of that for you.

And the final -- because we’re discussing this in such an international context is this sort of almost a clash of jurisdictions that arises from the Indians, for example, floating proposals of data localization in certain contexts, but also the ways in which India is coping with norms that are emerging from the US and from Europe.

So the first is very simple, which is that as you know the major technology platforms, like Facebook and WhatsApp and Google, are used extensively in India and they have huge user bases in India, but there are also many Indian citizens that access them and have their data on them. Although I will focus a little bit more on the information platforms, it’s good to know that Airbnb, Uber, and other technology platform companies are also offering services in India.

So our legislation, our new privacy act, our proposed amendment to our information technology act are all coping now with the very real idea that there are many Indian citizens whose lives are affected by these technologies that are designed elsewhere based on rules from elsewhere. At the same time, they’re also trying to keep Indian companies competitive because there are Indian companies offering similar services in India.

Our NITI Aayog, which is sort of our version of the planning commission, has described India as the AI garage for 40 percent of the world, and they’ve got a strategy paper on AI. As you know, the big data set question, it’s complicated because, again, India is looking at it as a way towards machine learning, but there are also concerns of data protection and privacy that arise in that context.

And the big tension really is that, on one hand, the policymakers want to leverage this and have this data and sort of learn from it and, on the other, of course, there’s the question of the privacy rights of Indian citizens and especially of marginalized citizens, people who are not able to assert their rights in the consumer forum.

And the final -- so none of this is law yet, but both in the proposed privacy legislation and in the proposed IT amendment act, the question has arisen of whether foreign companies with a sizable user base in India should be asked to localize data in India. So both these proposed legislations have suggested that these companies might be made to host their data sets in India, and I think that that also is cause for concern if they’re thinking about it from a privacy and data protection point of view.

I’m going to stop here. I just wanted to flag all of this in case anyone has questions later. Thank you so much.

MS. CONNELLY: Thank you very much for those really interesting comments.

We’ll move down the line and next up is James.

MR. DIPPLE-JOHNSTONE: Thank you very much and thank you. It’s an honor to be here on this panel with you today.

So I’ve got four issues. And I think the first, which has already been very ably covered, which is that about public trust and the risk of losing public trust in the rollout of AI systems and the role of regulators needing to work together both within country, but also internationally, which is my second theme.

This is an emerging area, one where I don’t think we still have a clear picture of what AI’s impact on our societies will be. And with that in mind, it’s important that regulators keep themselves up to date, keep relevant and work together with others. And that’s very much the approach we’ve taken in the UK. The ICO has a remit in some of the technology, but actually, we work very closely with, for example, colleagues at the Competition and Market Authority, the Financial Conduct Authority, the Center for Data Ethics and Innovation and the Alan Turing Institute to look at the common issues that face us all and how we can improve our regulation.

An important third issue is to look at not only whether the data’s held -- and when we talk about big data sets, we sometimes think of the big tech companies, but in the UK context, the state has large and valuable data sets, too. The UK National Health Service and the UK Education Service have very comprehensive data sets with millions of data points, which would be of value to a number of organizations around the world.

And we are seeing increasing use of AI in the public sector as a model of efficiency and to help us all strive to meet our budget considerations. AI is being looked at for use to decide whether UK citizens are likely to commit crimes, which crimes should be investigated, who’s likely to reoffend, who’s likely to pay their rent on time. And that is beginning to introduce issues of fairness, accountability, and transparency.

And so that’s why, as a regulator, we are really keen to keep abreast of developments. So we are putting a lot of effort into doing that. We are recruiting post-doctoral researchers to help us look at how to regulate AI. We’ve taken new powers to examine AI’s use and look at AI systems in practice and in operation and we’ve reconfigured the office to set up an entire part of the office that will just focus on innovation and technology.

I said it this morning; I’ll keep saying it. We’re not the ministry of no, but we think the GDPR provisions around data protection impact assessments and our work around, for example, regulatory sand boxes and innovation hubs with other regulators. We’re trying to encourage early dialogue to tease through some of these issues together, because I’m not sure any one of us has the perfect answer for all the scenarios.

MS. CONNELLY: Thank you.

Francis?

MR. KARIUKI: Thank you, Ellen and Deon. It’s a pleasure for me to be here and to share my thoughts in regard to AI.

And my view is as a competition and consumer protection regulator, what am I worried about? And I have about four issues, and these are transparency and information asymmetries. What I would like to say is that AI has both created positive and external -- externalities. And in terms of competition and consumer protection, there’s an argument which has been found that they bring more efficiency in terms of prices and greater transparency compared to the traditional retail sales channels, and this is an inquiry which has been conducted in Europe and it has shown that. And, also, they provide additional benefits on these platforms. For example, AI [indiscernible], such platforms could improve choice and value for consumers.

However, the other challenge of -- an encountered challenge in regard to we don’t appreciate the criteria behind the decisions of AI, they are only known to the designer of these systems, and, therefore, the merchant or the consumer may not be aware of how the system has been created and it’s allocating the prices. So there’s the risk of intentional design of the systems in favor of certain participants in the market.

And this could be quite catastrophic in the continent I come from where there’s a lot of market concentration, and, therefore, the companies which are in Africa then can expand their space by being biased against the consumers in Africa.

The other areas that’s also barriers or pathways to entry are, in Kenya, I’ve seen some positive externalities especially AI has enabled new innovations, where in Kenya we have seen recent expansion of financial services for people who are not included in the financial services. And, therefore, companies have been enabled to expand financial services through lending positions for previously people who were not captured in the financial services and also in the insurance sector.

The challenge I see also from the AI is the line between open and proprietary data. AI often creates what is called, in fair data, an individual that is not perhaps -- not factual but opinion based, and, therefore, we may not get an optimal position for the product which is being offered or the prices which are being offered in the market. And, therefore, the challenge going forward is how do we determine data which is a product and which data is an input, and this choice of where the line is will have significant competitive implications as we move.

Besides information asymmetry, I’ve seen AI can also be used in consumer protection issues, discrimination based on other social issues like the region where people come from or even race, as I had mentioned earlier, and these are some of the things where we need, as regulators, both competition and consumer, to look before we fly, because right now is that we are flying blindly and we might be flying into a storm.

MS. CONNELLY: Thank you.

Marcela?

MS. MATTIUZZO: So first of all, thank you, Deon and Ellen, for the invitation for the FTC, to you both for inviting me personally, but also Brazil to be a part of this discussion.

A lot of the points that have been raised here focus on procedural challenges of AI. What I would like to also mention is perhaps the difficulty in both attaining international convergence in these topics, not necessarily laws that are exactly the same, but that point in the same direction, and also convergence within the many fields of law that are connected to AI.

So here, at the FTC, we’re naturally discussing antitrust, consumer protection, and privacy. And even when we’re speaking only of these three areas of law, we can already see that sometimes the objectives of these policies are not always totally convergent.

So, what I would like to -- just to give an example, I guess, that is comparing privacy and antitrust that to me is very clear. What technology has enabled today is for many companies to unilaterally access information and AI has also allowed that information, this data, to be combined and used efficiently for many purposes. So now we can know who bought something, how that person bought it, and so forth, and create, for example, consumer profiles.

Perhaps from an antitrust point of view, one of the solutions to a potential problem of unilateral abuse of this information would be to share the databases with other companies. So we would have many companies that have the access to the same set of data and, therefore, of course, we can have problems of collusion. But leaving that aside, we would have a level playing field.

If, however, we look from the consumer or data protection side of the discussion, we may come to a very different conclusion. And we may come to realize that, perhaps, consumers don’t want their data shared across different platforms and shared across many companies. So, naturally, both objectives pursued by either antitrust or privacy and consumer protection agencies, in the case of Brazil specifically as I hope to make clear throughout my interventions, we are at very different development stages. When it comes to antitrust and consumer protection, we are much more developed and, as you may be aware and former Commissioner Julie Brill already mentioned, in regards to data protection legislation, our specific legislation was approved just last August, August 2018, and has not yet come into force.

So building policy that brings all of these areas of law together in a coherent fashion to address AI challenges seems to me to be a particularly important goal and a particularly important topic for us to focus on.

MS. CONNELLY: Thank you, Marcela. Isabelle?

MS. DE SILVA: Thanks a lot to the FTC for the invitation. I’m really glad to be here.

I would like to say that, for me, the main point is that we think data, artificial intelligence, algorithm, are really key to the competitive process and that is why we must look at it closely. Of course, those processes affect also the way the state is being run. They also affect and they change society, but for us, the main issue is how do they affect the competitive process and the way companies do business?

So what we see is that we really need to invest a lot more than before in understanding what is going on in the market, in the companies, and also to use all our different tools, legal tools, to gain a better understanding and also to give better vision to the market, and I will try to illustrate this with some examples.

So first of all, we use sector inquiries. That is a tool that is common among agencies. But how do we use it? We really take a lot of time to understand a specific market that we deem to be interesting or a process. So that’s what we did with online advertising last year, and, of course, we had very interesting dialogue and followup with Australia, who has finished a very interesting report on online advertising.

And in this way, we get a lot of information from companies. They are sometimes reluctant to give information, but we have the legal framework that enable us to get a lot of information.

And also we give information back to the market. I think this is really something interesting because some sectors are moving so fast that even the companies engaging in the sector don’t always have the big picture, and that is something that has been deemed very useful in the field of what we did about programmatic advertising and the way it’s being run because it’s a very complex and new ecosystem.

Another type of tool we are using very much is the joint studies with other agencies. That’s what we did with the CMA about closed ecosystem in 2014, what we did with the German agency in 2016 about big data, and what we are doing right now about algorithm still with the German agency.

So what is the interest of this? It’s really to show the impact we see that algorithms have on the competitive process and maybe I will tell about a little bit more about this later. This is really something where we draw about, of course, what the experts have written about algorithm, but also in a very practical manner how do companies use algorithm and how does it change the way they do business in the market?

And, finally, another tool that we use is the conference or hearings like you have today at the FTC, but really focusing on what is new, for example, in the field of algorithm. Last year, we had lots of meetings with scientists, sociology experts about what is new about algorithm and also about companies. For example, we had meetings with Google and Facebook to know how they use algorithm in a very precise and detailed matter to help us to understand how it’s being used.

#### Upside AND downside risks of AI are existential---effective governance is key

Themistoklis Tzimas 21, Aristotle University of Thessaloniki, Faculty of Law, “Chapter 2: The Expectations and Risks from AI,” Legal and Ethical Challenges of Artificial Intelligence from an International Law Perspective, Springer, 2021, pp. 9–32 Open WorldCat, https://doi.org/10.1007/978-3-030-78585-7

Therefore, it is only natural to be at least skeptical towards a future with entities possessing equal or superior intelligence and levels of autonomy; the prospect even of existential risk looms as possible.7

AI that will have reached or surpassed our level of intelligence make us wonder why would highly autonomous and intelligent AI want to give up control back to its original creators?8 Why remain contained in pre-deﬁned goals set for it by us, humans?

Even AI in its current form and narrow intelligence poses risks because of its embedded-ness in an ever-growing number of crucial aspects of our lives. The role of AI in military, ﬁnancial,9 health, educational, environmental, governance networks-among others—are areas where risk generated by AI—even limited— autonomy can be diffused through non-linear networks, with signiﬁcant impact— even systemic.10

The answer therefore to the question whether AI brings risk with it is yes; as Eliezer Yudkowski comments the greatest of them all is that people conclude too early that they understand it11 or that they assume that they can achieve it without necessarily having acquired complete and thorough understanding of what intelli- gence means.12

Our projection of our—lack of complete—understanding of the concept of intelligence on AI is owed to our lack of complete comprehension of human intelligence too, which is partially covered by the prevalent and until now self- obvious, anthropomorphism because of which we tend to identify higher intelligence with the human mind.

Yudkowski again however suggests that AI “refers to a vastly greater space of possibilities than does the term “Homo sapiens.” When we talk about “AIs” we are really talking about minds-in-general, or optimization processes in general. Imagine a map of mind design space. In one corner, a tiny little circle contains all humans; within a larger tiny circle containing all biological life; and all the rest of the huge map is the space of minds-in-general. The entire map ﬂoats in a still vaster space, the space of optimization processes.”13

Regardless of what our well-established ideas are, there are many, different intelligences and even more signiﬁcantly, there are potentially, different intelli- gences equally or even more evolved than human.

From such a perspective, the unprecedented—ness of potential AI developments and the mystery surrounding them emerges as not only the outcome of pop culture but of a radical transformation of our—until recently—self—obvious identiﬁcation of humanity with highly evolved and dominant intelligence.14

The lack of understanding of intelligence and therefore of AI may be frightening but does not lead necessarily to regulation—at least to a proper one. We could even be led into making potentially catastrophic choices, on the basis of false assumptions.

On top of our lack of understanding, we should add a sentiment of anxiety as well as of expectations, which intensiﬁes as an atmosphere of emergency and of expected groundbreaking developments grows. The most graphic description of this feeling is the potential of a moment of singularity, as mentioned above according to the description by Vinge and Kurzweil.

As the mathematician I. J. Good–Alan Turing’s colleague in the team of the latter during World War II—has put it: “Let an ultraintelligent machine be deﬁned as a machine that can far surpass all the intellectual activities of any man however clever. Since the design of machines is one of these intellectual activities, an ultraintelligent machine could design even better machines; there would then unquestionably be an “intelligence explosion,” and the intelligence of man would be left far behind. Thus the ﬁrst ultraintelligent machine is the last invention that man need ever make, provided that the machine is docile enough to tell us how to keep it under control.”15 This is in a nutshell the moment of singularity.

The estimates currently foresee the emergence of ultra or super intelligence—as it is currently labelled—or in other words of singularity, somewhere between 20 and 50 years from today, further raising the sentiment of emergency.16 We cannot even foretell with precision how singularity would look like but we know that because of its expected groundbreaking impact, both states and private entities compete towards gaining the upper hand in the prospect of the singularity.17

Despite the fact that such predictions have been proven rather optimistic in the past18 and therefore up to some extent inaccurate, there are reasons to assume that their materialization will take place and that the urgency of regulation will be proven realistic.

After all, part of the disappointments from AI should be blamed on the fact that certain activities and standards, which were considered as epitomes of human intelligence have been surpassed by AI, only to indicate that they were not eventu- ally satisfactory thresholds for the surpassing of human intelligence.19 Partially because of AI progress we realize that human intelligence and its thresholds are much more complicated than assumed in the past.

The vastness’s of deﬁnitions of intelligence, as well as its etymological roots are enlightening of the difﬁculties: “to gather, to collect, to assemble or to choose, and to form an impression, thus leading one to ﬁnally understand, perceive, or know”.20

As with other relevant concepts, the truth is that until recently our main way to approach intelligence for far too long was “we know it, when we see it”. AI is an additional reason for looking deeper into intelligence and the more we examine it, the most complicated it seems.

The combination of lack of complete understanding of intelligence, the unpredictability of AI, its rapid evolution and the prospect of singularity explain both the fascination and the fear from AI. Once the latter emerges, we have no real knowledge about what will happen next but only speculations, which until recently belonged to the area of science ﬁction.

We are for example pretty conﬁdent that the speed of AI intelligence growth will accelerate, once self—improvement will have been achieved. The expected or possible chain of events will begin from AI capacity to re-write its own algorithms and exponentially self—improve, surpassing human intelligence, which lacks the capacity of such rapid self—improvement and setting its own goals.21

We can somehow guess the speed of AGI and ASI evolution and possibly some of its initial steps but we cannot guess the directions that such AI will choose to follow and the characteristics that it will demonstrate. Practically, we credibly guess the prospects of AI beyond a certain level of development.

Two existential issues could emerge: ﬁrst, an imbalance of intelligence at our expense—with us, humans becoming the inferior species—in favor of non-biological entities and secondly a lack of even fundamental conceptual communication between the two most intelligent “species”. Both of them heighten the fear of irreversible changes, once we lose the possession of the superior intelligence.22

However, we need to consider the expectations as well. The positive side focuses on the so-called friendly AI, meaning AI which will beneﬁt and not harm humans, thanks to its advanced intelligence.23

AI bears the promise of signiﬁcantly enhancing human life on various aspects, beginning from the already existing, narrow applications. The enhanced automation24 in the industry and the shift to autonomy,25 the take—over by AI of tasks even at the service sector which can be considered as “tedious”—i.e. in the banking sector—climate and weather forecasting, disaster response,26 the potentially better cooperation among different actors in complicated matters such as in matters of information, geopolitics and international relations, logistics, resources ex.27

The realization of the positive expectations depends up to some extent upon the complementarity or not, of AI with human intelligence. However, what friendly AI will bring in our societies constitutes a matter of debate, given our lack of unanimous approach on what should be considered as beneﬁcial and therefore friendly to humans—as is analyzed in the next chapter.

Friendly AI for example bears the prospect of freeing us from hard labor or even further from unwanted labor; of generating further economic growth; of dealing in unbiased, speedy, effective and cheaper ways with sectors such as policing, justice, health, environmental crisis, natural disasters, education, governance, defense and several more of them which necessitate decision-making, with the involvement of sophisticated intelligence.

The synergies between human intelligence and AI “promise” the enhancement of humans in most of their aspects. Such synergies may remain external—humans using AI as external to themselves, in terms of analysis, forecasts, decision—making and in general as a type of assistant-28 or may evolve into the merging of the two forms of intelligence either temporarily or permanently.

The second profoundly enters humanity, existentially—speaking, into uncharted waters. Elon Musk argues in favor of “having some sort of merger of biological intelligence and machine intelligence” and his company “Neuralink” aims at implanting chips in human brain. Musk argues that through this way humans will keep artiﬁcial intelligence under control.29 The proposition is that of “mind design”, with humans playing the role that God had according to theologies.30

While the temptation is strong—exceeding human mind’s capacities, far beyond what nature “created”, by acquiring the capacity for example to connect directly to the cyberspace or to break the barriers of biology31—the risks are signiﬁcant too: what if a microchip malfunction? Will such a brain be usurped or become captive to malfunctioning AI?

The merging of the two intelligences is most likely to evolve initially by invoking medical reasons, instead of human enhancement. But the merging of the two will most likely continue, as after all the limits between healing and enhancement are most often blurry. This development will give rise, as is analyzed below, to signif- icant questions and issues, the most of crucial of which is the setting of a threshold for the prevalence of the human aspect of intelligence over the artiﬁcial one.

Human nature is historically improved, enhanced, healed and now, potentially even re-designed in the future.32 Can a “medical science” endorsing such a goal be ethically acceptable and if yes, under what conditions, when, for whom and by what means? The answers are more difﬁcult than it seems. As the World Health Organi- zation—WHO—provides in its constitution, “Health is a state of complete physical, mental and social well-being and not merely the absence of disease or inﬁrmity”.33

Therefore, why discourage science which aims at human-enhancement, even reaching the levels of post-humanism?34 Or if restrictions are to be imposed on human enhancement, on what ethics and laws will they be justiﬁed? How ethically acceptable is it to prohibit or delay technological evolution, which among several other magniﬁcent achievements, promises to treat death as a disease and cure it, by reducing soul to self, self to mind, and mind to brain, which will then be preserved as a “softwarized” program in a hardware other than the human body?35

After all, “According to the strong artiﬁcial intelligence program there is no fundamental difference between computers and brains: a computer is different machinery than a person in terms of speed and memory capacity.”36

While such a scientiﬁc development and the ones leading potentially to it will be undoubtedly, groundbreaking technologically-speaking, is it actually—ethically- speaking—as ambivalent as it may sound or is it already justiﬁed by our well— rooted human-centrism?37

Secular humanism may have very well outdated religious beliefs about afterlife in the area of science but has not diminished the hope for immortality; on the contrary, science, implicitly or explicitly predicts that matter can in various ways surpass death, albeit by means which belong in the realm of scientiﬁc proof, instead of that of metaphysical belief.38

If this is the philosophical case, the quest for immortality becomes ethically acceptable; it can be considered as embedded both in the existential anxiety of humans, as well as in the human-centrism of secular philosophical and political victory over the dei-centric approach to the world and to our existence.

From another perspective of course and for the not that distant philosophical reasons, the quest for immortality becomes ethically ambiguous or even unacceptable.39 By seeking endless life we may miss all these that make life worth living in the framework of ﬁniteness. As the gerontologist Paul Hayﬂick cautioned “Given the possibility that you could replace all your parts, including your brain, then you lose your self-identity, your self-recognition. You lose who you are! You are who you are because of your memory.”40

In other words, once we begin to integrate the two types of intelligence, within ourselves, until when and how we will be sure that it is human intelligence that guides us, instead of the AI? And if we are not guided completely or—even further—at all by human intelligence but on the contrary we are guided by AI which we have embodied and which is trained by our human intelligence, will we be remaining humans or we will have evolved to some type of meta-human or transhumant species, being different persons as well?41

AI promises tor threatens to offer a solution by breaking down our consciousness into small “particles” of information—simplistically speaking—which can then be “software-ized” and therefore “uploaded” into different forms of physical or non-physical existence.

Diane Ackerman states that “The brain is silent, the brain is dark, the brain tastes nothing, the brain hears nothing. All it receives are electrical impulses--not the sumptuous chocolate melting sweetly, not the oboe solo like the ﬂight of a bird, not the pastel pink and lavender sunset over the coral reef--only impulses.”42 Therefore, all that is needed—although it is of course much more complicated than we can imagine—is a way to code and reproduce such impulses.

Even if we consider that without death, we will no more be humans but something else, why should we remain humans once technologies allow us be something “more”, in the sense of an enhanced version of “being”? Why are we to remain bound by biological evolution if we can re-design it and our future form of existence?

Why not try to achieve the major breakthrough, the anticipated or hoped digita- lization of the human mind, which promises immortality of consciousness via the cyberspace or artiﬁcial bodies: the uploading of our consciousness so that it can live on forever, turning death into an optional condition.43

Either through an artiﬁcial body or emulation-a living, conscious avatar—we hope—or fear—that the domain of immortality will be within reach. It is the prospect of a “substrate-independent minds,” in which human and machine consciousness will merge, transcending biological limits of time, space and mem- ory” that fascinates us.44

As Anders Sandberg explained “The point of brain emulation is to recreate the function of the original brain: if ‘run’ it will be able to think and act as the original,” he says. Progress has been slow but steady. “We are now able to take small brain tissue samples and map them in 3D. These are at exquisite resolution, but the blocks are just a few microns across. We can run simulations of the size of a mouse brain on supercomputers—but we do not have the total connectivity yet. As methods improve, I expect to see automatic conversion of scanned tissue into models that can be run. The different parts exist, but so far there is no pipeline from brains to emulations.”45

The emulation is different from a simulation in the sense that the former mimics not only the outward outcome but also the “internal causal dynamics”, so that the emulated system and in this particular case the human mind behaves as the original.46 Obviously, this is a challenging task: we need to understand the human brain with the help of computational neuroscience and combine simpliﬁed parts such as simulated neurons with network structures so that the patterns of the brain are comprehended. We must combine effectively “biological realism (attempting to be faithful to biology), completeness (using all available empirical data about the system), tractability (the possibility of quantitative or qualitative simulation) and understanding (producing a compressed representation of the salient aspects of the system in the mind of the experimenter)”.47

The technological challenges are vast. Technologically speaking, the whole concept is based on some assumptions which must be proven both accurate and feasible.48 We must achieve technology capable of scanning completely the human brain, of creating software on the basis of the acquired information from its scanning and of the interpretation of information and the hardware which will be capable of uploading or downloading such software.49 The steps within these procedures are equally challenging. Their detailed analysis evades the scope of this book.

Some critical questions—they are further analyzed in the next chapters—emerge however: how will we interpret free will in emulation? What will be the impact of the environment and of what environment? How will be missing parts of the human brain re-constructed and emulated? What will be the status of the several emulations which will be created—i.e. failed attempts or emulations of parts of the human brain—in the course of the search for a complete and functioning emulation? Will they be considered as “persons” and therefore as having some right or will they be considered as mere objects in an experimental lab? How are we going to decode the actual subjective sentiments of these emulations? Essentially, are emulations the humans “themselves” who are emulated or a different person? Even further what will human and person mean in the era of emulation?

From a different perspective, the victory over death may be seen as a danger of mass extinction, absorption or de-humanization. In this new, vast universe of emulations will there be place for humans?50

From the above—mentioned discussion, it becomes obvious that at a large extent, the prospect of risk or of expectation is a matter of perspective, for which there is no unanimous agreement in the present. This may be the greatest danger of all, for which Asimov warned us: unleashing technology while we cannot communicate among us, in the face of it.

The existential prospect as well as the risks by AI may self-evidently emerge from technological advances but are determined on the basis of politico—philosophical or in the wider sense, ethical assumptions. This is where the need for legal regulation steps in. Such a need was often underestimated in the past in favor of a solely technologically oriented approach—although exceptions raising issues other than technological can be found too.51 The gradual raising of ethic—political, philosoph- ical and legal issues constitutes a rather recent development, partially because of the realization of the proximity of the risks and of the expectations.

The public debate is often divided between two “contradictory” views: fear of AI or enthusiastic optimism. The opinions of the experts differ respectively.

Kurzweil, who has come with a prediction for a date for the emergence of singularity—until 2045—expects such a development in a positive way: “What’s actually happening is [machines] are powering all of us,” Kurzweil said during the SXSW interview. “They’re making us smarter. They may not yet be inside our bodies, but, by the 2030s, we will connect our neocortex, the part of our brain where we do our thinking, to the cloud.”52

In a well-known article—issued on the occasion of a ﬁlm—Stephen Hawking, Max Tegmark, Stuart Russell, and Frank Wilczek shared a moderate position: “The potential beneﬁts are huge; everything that civilization has to offer is a product of human intelligence; we cannot predict what we might achieve when this intelligence is magniﬁed by the tools AI may provide, but the eradication of war, disease, and poverty would be high on anyone’s list. Success in creating AI would be the biggest event in human history. . . Unfortunately, it might also be the last, unless we learn how to avoid the risks.”53

## Environment Adv

### Small Farms Turn---1NC

#### Big ag is better for the environment than small farms---turns case.

---empirics prove small farms cause more runoff

---small farms require more land conversion to produce the same amount of food, which causes more biodiversity loss

---big ag didn’t cause loss of topsoil---it was the dust bowl which happened way before big ag

---numerous studies prove big ag is comparatively better at reducing emissions than small farms, and the biggest cause of emissions from food is beef, however, only 15% of beef is produced by big ag and small farms cause more because they’ll burn fields due to lack of scale

---similarly---increases in deforestation are caused by small farms who lack the scale and efficiency, so need to clear more land

Nordhaus and Rejto 6-2 [Ted Nordhaus is a leading global thinker on energy, environment, climate, human development, and politics. He is the founder and executive director of the Breakthrough Institute and a co-author of An Ecomodernist Manifesto, and Dan Blaustein-Rejto is the director of food and agriculture at the Breakthrough Institute, where he analyzes the economics and potential of sustainable agriculture policies and practices. He has conducted research with the Environmental Defense Fund, International Center for Tropical Agriculture, and Farmers Market Coalition, “Small Farms, Big Pollution”, 6-2-2021, https://foreignpolicy.com/2021/06/02/big-agriculture-pollution-small-farms-inefficient/] IanM

**Consider** the negative impacts that nitrogen **pollution** from the American corn belt has had on the Gulf of Mexico. Most of that **runoff** comes from **industrial** **farms** for the simple reason that **large-scale**, intensive production is the **dominant form** of agriculture across the region. Shifting production to organic practices, though, wouldn’t much change the situation. **Organic** farms are typically **associated** with higher rates of runoff per calorie of food produced, even as they require [more land](https://www.annualreviews.org/doi/full/10.1146/annurev-resource-100517-023252#_i3). So **unless total production** were very **substantially scaled back**, a corn belt dominated by organic farms rather than conventional ones would require more land while having similar or even greater impacts on waterways and biodiversity.

Sanderson and Cox blame industrial agricultural in the corn belt not only for the dead zone in the Gulf of Mexico but for rendering “entire landscapes uninhabitable” across the region. Millions of Americans still comfortably living in such places would beg to differ. Yes, as Sanderson and Cox note, there are more hogs in the state of Iowa than people. So what? Insofar as the claim is relevant at all, it regards the question of why Iowa has so few people, not why it has so many hogs. And **while** the **expansion** of **hog farming** in the state in recent decades is attributable to **industrial production** methods, the decline of the **human population** is not, as large-scale rural outmigration has been underway in Iowa for [over a century](https://www.card.iastate.edu/ag_policy_review/article/?a=23). As we note in our essay, **rural depopulation** has been much more the cause of the **consolidation** and industrialization of **American agriculture** than it is the result of those **farming practices**.

Sanderson and Cox similarly attribute the loss of topsoil across the region to industrial farming. But while it is true that a **recent study** found that lots of topsoil across the Midwest has been **lost**, that **study** compared **present-day** levels **against** a **baseline** that estimated the **levels of topsoil** in the region **prior to** its **conversion to agriculture**. The study did not **estimate** the **contribution** of **current industrial systems versus earlier**, **less intensive farming practices** across the region. Anyone even slightly familiar with the history of the Dust Bowl, though, can figure out that much of the region’s topsoil was lost long before highly intensive, mechanized agriculture became the norm.

Questionable claims keep coming. Sanderson and Cox **attribute** the **14.5 percent** of global greenhouse gas **emissions** that result **from animal agriculture** to the scaling up of **industrial agriculture**. But a significant **majority** of greenhouse gas **emissions** associated with animal agriculture result from **beef** and **dairy production**. Around the world, only 15 percent of **beef production** is **produced intensively.** **Moreover**, most studies **find** that **industrial animal production** is less **greenhouse gas intensive** than alternative production systems.

Sanderson and Cox claim that **industrial** agriculture is responsible for choking **air pollution** in India. But insofar as agriculture is a major contributor to terrible air quality in Indian cities, it is due to small farmers who burn their fields after harvest, in part because they lack the assets and economies of scale to afford [machinery](https://www.nytimes.com/2016/11/03/world/asia/farmers-unchecked-crop-burning-fuels-indias-air-pollution.html) that would eliminate the need to burn crop residues. They **similarly claim** that **industrial farming** is **responsible** for an increase in **tropical deforestation** in Brazil. In fact, **deforestation rates** in Brazil have fallen dramatically since the turn of the century **thanks to** both stronger **forestry laws** and **more intensive** and **technological farming**. The uptick in deforestation in the region in more recent years, on the other hand, appears to be driven more by smallholder farmers and ranchers who **lack land tenure** and **access to fertilizer**, **seeds**, and **machinery**.

### Big Ag Defense---1NC

#### But the impact is inevitable unless we all eat less, which won’t happen.

---nonindustrial vs industrial is irrelevant because population growth inevitably means a certain demand must be achieved and growing food inevitably results in ecosystem conversion

Nordhaus and Rejto 6-2 [Ted Nordhaus is a leading global thinker on energy, environment, climate, human development, and politics. He is the founder and executive director of the Breakthrough Institute and a co-author of An Ecomodernist Manifesto, and Dan Blaustein-Rejto is the director of food and agriculture at the Breakthrough Institute, where he analyzes the economics and potential of sustainable agriculture policies and practices. He has conducted research with the Environmental Defense Fund, International Center for Tropical Agriculture, and Farmers Market Coalition, “Small Farms, Big Pollution”, 6-2-2021, https://foreignpolicy.com/2021/06/02/big-agriculture-pollution-small-farms-inefficient/] IanM

In the United States, that is arguably true. Most agricultural output—and hence environmental impacts—comes from large-scale, industrial production. Globally, it is not true. In both cases, there is no free lunch. Agriculture, unavoidably, has **environmental** impacts for the simple reason that **growing food** requires the conversion of forests, grasslands, and other ecosystems into fields whose biocapacity is then **monopolized** to **produce** **food** for people.

As **human populations** have **grown** enormously over the last two centuries, from about a billion people globally in 1800 to nearly 8 billion today, and as those populations have **become wealthier** and able to **eat higher** on the food chain, the **impacts** associated with food production have **grown** as well. But that has little to do with the prevalence of **industrial** versus **nonindustrial** agriculture. **Instead**, it reflects the basic realities associated with scaling agriculture globally **to meet** those enormous **new demands.**

### Climate D---1NC

Can’t solve climate---don’t stop emissions from China, India, Brazil deforestation etc.

#### But climate change doesn’t cause extinction.

Kerr et al. ’19 [Amber, Daniel Swain, Andrew King, Peter Kalmus, Richard Betts, and William Huiskamp; June 4; Energy and Resources PhD at the University of California-Berkeley, known agroecologist, former coordinator of the USDA California Climate Hub; Climate Science PhD at UCLA, climate scientist, a research fellow at the National Center for Atmospheric Research; Earth Sciences PhD, Climate Extremes Research Fellow at the University of Melbourne; Physics PhD at the University of Colombia, climate scientist at NASA’s Jet Propulsion Lab; Professor and Chair in Climate Impacts at the University of Exeter, a lead author on the Fourth Assessment Report of the Intergovernmental Panel on Climate Change in Working Group 1; Paleoclimatology PhD at the Climate Change Research Center, climate scientist at the Potsdam Institute for Climate Impact Research; Climate Feedback, “Claim that human civilization could end in 30 years is speculative, not supported with evidence,” <https://climatefeedback.org/evaluation/iflscience-story-on-speculative-report-provides-little-scientific-context-james-felton/>]

There is no scientific basis to suggest that climate breakdown will “annihilate intelligent life” (by which I assume the report authors mean human extinction) by 2050.

However, climate breakdown does pose a grave threat to civilization as we know it, and the potential for mass suffering on a scale perhaps never before encountered by humankind. This should be enough reason for action without any need for exaggeration or misrepresentation!

A “Hothouse Earth” scenario plays out that sees Earth’s temperatures doomed to rise by a further 1°C (1.8°F) even if we stopped emissions immediately.

Peter Kalmus, Data Scientist, Jet Propulsion Laboratory:

This word choice perhaps reveals a bias on the part of the author of the article. A temperature can’t be doomed. And while I certainly do not encourage false optimism, assuming that humanity is doomed is lazy and counterproductive.

Fifty-five percent of the global population are subject to more than 20 days a year of lethal heat conditions beyond that which humans can survive

Richard Betts, Professor, Met Office Hadley Centre & University of Exeter:

This is clearly from Mora et al (2017) although the report does not include a citation of the paper as the source of that statement. The way it is written here (and in the report) is misleading because it gives the impression that everyone dies in those conditions. That is not actually how Mora et al define “deadly heat” – they merely looked for heatwaves when somebody died (not everybody) and then used that as the definition of a “deadly” heatwave.

North America suffers extreme weather events including wildfires, drought, and heatwaves. Monsoons in China fail, the great rivers of Asia virtually dry up, and rainfall in central America falls by half.

Andrew King, Research fellow, University of Melbourne:

Projections of extreme events such as these are very difficult to make and vary greatly between different climate models.

Deadly heat conditions across West Africa persist for over 100 days a year

Peter Kalmus, Data Scientist, Jet Propulsion Laboratory:

The deadly heat projections (this, and the one from the previous paragraph) come from Mora et al (2017)1.

It should be clarified that “deadly heat” here means heat and humidity beyond a two-dimension threshold where at least one person in the region subject to that heat and humidity dies (i.e., not everyone instantly dies). That said, in my opinion, the projections in Mora et al are conservative and the methods of Mora et al are sound. I did not check the claims in this report against Mora et al but I have no reason to think they are in error.

1- Mora et al (2017) Global risk of deadly heat, Nature Climate Change

The knock-on consequences affect national security, as the scale of the challenges involved, such as pandemic disease outbreaks, are overwhelming. Armed conflicts over resources may become a reality, and have the potential to escalate into nuclear war. In the worst case scenario, a scale of destruction the authors say is beyond their capacity to model, there is a ‘high likelihood of human civilization coming to an end’.

Willem Huiskamp, Postdoctoral research fellow, Potsdam Institute for Climate Impact Research:

This is a highly questionable conclusion. The reference provided in the report is for the “Global Catastrophic Risks 2018” report from the “Global Challenges Foundation” and not peer-reviewed literature. (It is worth noting that this latter report also provides no peer-reviewed evidence to support this claim).

Furthermore, if it is apparently beyond our capability to model these impacts, how can they assign a ‘high likelihood’ to this outcome?

While it is true that warming of this magnitude would be catastrophic, making claims such as this without evidence serves only to undermine the trust the public will have in the science.

Daniel Swain, Researcher, UCLA, and Research Fellow, National Center for Atmospheric Research:

It seems that the eye-catching headline-level claims in the report stem almost entirely from these knock-on effects, which the authors themselves admit are “beyond their capacity to model.” Thus, from a scientific perspective, the purported “high likelihood of civilization coming to an end by 2050” is essentially personal speculation on the part of the report’s authors, rather than a clear conclusion drawn from rigorous assessment of the available evidence.

### Bio-d D---1NC

#### Bio-d loss doesn’t cause extinction

Kareiva & Carranza 18, \*Director of the Institute of the Environment and Sustainability at UCLA, Pritzker Distinguished Professor in Environment & Sustainability and Chair, Doctorate, in the Environmental Science and Engineering program, \*\*PhD Student at University of California, Riverside. (Peter, Valerie, “Existential risk due to ecosystem collapse: Nature strikes back”, *Futures*, 102, pg. 39-50, doi: 10.1016/j.futures.2018.01.001)

While there are data that relate local reductions in species richness to altered ecosystem function, these results do not point to substantial existential risks. The data are small-scale experiments in which plant productivity, or nutrient retention is reduced as species number declines locally (Vellend, 2017), or are local observations of increased variability in fisheries yield when stock diversity is lost (Schindler et al., 2010). Those are not existential risks. To make the link even more tenuous, there is little evidence that biodiversity is even declining at local scales (Vellend et al 2017; Vellend et al., 2013). Total planetary biodiversity may be in decline, but local and regional biodiversity is often staying the same because species from elsewhere replace local losses, albeit homogenizing the world in the process. Although the majority of conservation scientists are likely to flinch at this conclusion, there is growing skepticism regarding the strength of evidence linking trends in biodiversity loss to an existential risk for humans (Maier, 2012; Vellend, 2014). Obviously if all biodiversity disappeared civilization would end—but no one is forecasting the loss of all species. It seems plausible that the loss of 90% of the world’s species could also be apocalyptic, but not one is predicting that degree of biodiversity loss either. Tragic, but plausible is the possibility our planet suffering a loss of as many as half of its species. If global biodiversity were halved, but at the same time locally the number of species stayed relatively stable, what would be the mechanism for an end-of-civilization or even end of human prosperity scenario? Extinctions and biodiversity loss are ethical and spiritual losses, but perhaps not an existential risk.

What about the remaining eight planetary boundaries? Stratospheric ozone depletion is one—but thanks to the Montreal Protocol ozone depletion is being reversed (Hand, 2016). Disruptions of the nitrogen cycle and of the phosphorous cycle have also been proposed as representing potential planetary boundaries (one boundary for nitrogen and one boundary for phosphorous). There are compelling data linking excesses in these nutrients to environmental damage. For example, over-application of fertilizer in Midwestern USA has led to dead zones in the Gulf of Mexico. Similarly, excessive nitrogen has polluted groundwater in California to such an extent that it is unsuitable for drinking and some rural communities are forced to drink bottled water. However, these impacts are local. At the same time that there is too much N loading in the US, there is a need for more N in Africa as a way of increasing agricultural yields (Mueller et al., 2012). While the disruption of nitrogen and phosphorous cycles clearly perturb local ecosystems, end-of-the-world scenarios seem a bit far-fetched.

Another hypothesized planetary boundary entails the conversion of natural habitats to agricultural land. The mechanism by which too much agricultural land could cause a crisis is unclear—unless it is because land conversion causes so much biodiversity loss that is species extinctions that are the proximate cause of an eco-catastrophe. Excessive chemical pollution and excessive atmospheric aerosol loading have each been suggested as planetary boundaries as well. In the case of these pollution boundaries, there are well-documented mechanisms by which surpassing some concentration of a pollutant inflicts severe human health hazards. There is abundant evidence linking chemical and aerosol pollution to higher mortality and lower reproductive success in humans, which in turn could cause a major die-off. It is perhaps appropriate then that when Hollywood envisions an unlivable world, it often invokes a story of humans poisoning themselves. That said, it is doubtful that we will poison ourselves towards extinction. Data show that as nations develop and increase their wealth, they tend to clean up their air and water and reduce environmental pollution (Flörke et al., 2013; Hao & Wang, 2005). In addition, as economies become more circular (see Mathews & Tan, 2016), environmental damage due to waste products is likely to decline. The key point is that the pollutants associated with the planetary boundaries are so widely recognized, and the consequences of local toxic events are so immediate, that it is reasonable to expect national governments to act before we suffer a planetary ecocatastrophe.

## Food Adv

### A2: High Prices

#### Antitrust against Big AG undoubtedly skyrockets prices and lowers sustainability

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In recent years, there has been a movement to use antitrust policy to break up “big ag”.[1](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-note-0002_2) The impetus behind this movement seems to stem from a desire to protect small family farms, protect the environment, and “safeguard the US food supply”.[2](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-note-0003_3) However, any antitrust intervention will have effects on food prices and the availability of food. From a **social welfare** standpoint, **food prices** should be of **utmost importance** when thinking about these policies since cheaper food helps all consumers and alleviates food security concerns.[3](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-note-0004_4) Furthermore, the antitrust policy was designed to prevent higher prices from undue market power, not to protect small producers against competition. In other words, antitrust should not be used to protect producers, rather it should be used to maximize consumer surplus; and any desire to maintain small farms should be done through other policy mechanisms.

**Evaluating** the **economic arguments** for and against antitrust interventions in **large agricultural firms** suggests that the **implementation** of such policies would **result in** protectionism. While there has been **consolidation** for decades in the agricultural industry, much of this is due to changes in the cost structure and does not generally create higher prices due to market power. Certainly there are exceptions to this in various agricultural sectors where market power needs to be curbed, but ultimately this is an empirical question that depends on the changes in food prices. We contend that recent consolidation does not seem to have caused a spike in average food prices, and the proponents of antitrust intervention are implicitly arguing for higher food prices, the exact opposite goal of historical antitrust policy.

First, some historical background and examples of recent proponents of antitrust intervention in agriculture are given. We then consider the economic theory that shows us whether consolidation is due to changes in the cost structure or driven by market power. This is followed by a discussion of the determinants and direction of food prices. Other arguments are then discussed such as income equality, supply chain issues, and food security. We then briefly touch on potential solutions to helping small farms, such as rethinking policies that deal with food standards or output restrictions.

BACKGROUND

Antitrust policy in the United States has an interesting history regarding agriculture. In 1890, the Sherman Act dealt with unreasonable restraints of trade, thereby prohibiting monopolies and collusion of prices. In 1914, the Clayton Act strengthened antitrust laws by prohibiting anticompetitive mergers. However, 8 years later, the Capper–Volstead Act (1922) gave specific antitrust exemptions for the marketing activities of agricultural producers (Bolotova, [2016](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0007)). The reasons cited for passing the Capper–Volstead Act included providing protections to agricultural producers, who were seen as a group of small farms who were fundamentally disadvantaged relative to the larger manufacturers, input suppliers, and wholesalers (National Broiler Marketing Association v. US 1978). This effectively increased producer surplus and increased prices received by agricultural producers. This concern for small and family farms continued through the depression with strictly enforced production quotas to increase prices.[4](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-note-0005_6) Nearly a century later, there is still a movement to protect small farmers, in part due to skepticism of large agricultural firms. Currently, many policymakers feel that large food and agricultural firms are problematic, not just because of competition with small firms but also because of a myriad of related issues such as income equality, health/quality of food, environmental issues, and concentrated control of the food supply.

The agricultural industry is not completely unique in that there is a populist movement to protect small firms in the broader economy. Even though market power may be increasing[5](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-note-0006_7), many lament the competition in the broader economy that large and efficient stores bring to communities, making it difficult for “mom and pop” stores across various industries[6](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-note-0007_8). Furthermore, many consumers are leery of the political clout of companies such as Google or Facebook and advocate for antitrust intervention (Zingales, [2017](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0058)). In this model, lower prices are a bug, not a feature, since they eliminate small firms and concentrate information and control of the market. These are essentially arguments against natural monopolies. These sentiments also occur in agricultural markets, as well as some arguments specific to the agricultural industry. For example, in addition to the exit of small farms and control of the food supply, some feel that cheap food can lead to unhealthy food (Meyersohn, [2019](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0040)) or environmental problems (Carrington, [2019 (July 16)](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0012)). While this may or may not be the case, the use of antitrust policy for social issues or externality reduction purposes represents a myopic and ahistorical application of antitrust policy. Furthermore, **it has been shown** that taxing polluters can yield socially optimal outcomes and that monopolies and oligopolies tend to pollute less **than firms** in **more competitive markets** (Benchekroun & Van Long, [1998](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0004)).

In the political realm, law makers have explicitly called for the break-up of large agricultural firms using antitrust laws. For example, in 2007, then presidential candidate Barack Obama issued the platform “Real Leadership for Rural America” which stated he would “strengthen anti-monopoly laws” in agriculture and “make sure that farm programs are helping family farmers, as opposed to large, vertically integrated corporate agribusiness.”[7](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-note-0008_13) In 2019, US senators Cory Booker and John Tester proposed a bill that puts a moratorium on agricultural mergers[8](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-note-0009_14). Additionally, Senators Elizabeth Warren and Bernie Sanders both proposed measures that would break up what they refer to as “unfair farming monopolies”. Specifically, Warren invoked antitrust laws in restricting vertical integration of large agribusiness companies such as Tyson (Daniels, [2019 (March 27)](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0019)), reversing the merger of Bayer AG and Monsanto (Dorning, [2019 (March 27)](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0021)), and limiting warranties for companies such as John Deere that prohibit repairs (Hirsch, [2019](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0032)). More recently, Joe Biden's platform states that he wants to “strengthen antitrust enforcement” so farmers can have “access to fair markets where they can compete and get fair prices for their products”.[9](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-note-0010_18) In general, these politicians have been clear that the goal is to help smaller farms. This push for policy intervention hinges on the arguments that (1) big agribusiness has the potential to exert too much control over an industry that is fundamental to our food supply and (2) it makes it too difficult for smaller (and ostensibly less efficient) firms to compete.

What is conspicuously absent in this debate is a concern for consumer surplus. In other words, much of the debate is focused on protecting small farms by **raising prices**, which is **harmful to consumers**. While protecting farm profitability has long been a mainstay of the Farm Bill policy, it is historically antithetical to the purpose of antitrust law to use it as a means to raise prices. This line of reasoning is also somewhat curious given that food is a basic need. Low prices and consumer surplus is the crux of antitrust policy, and economic theory tells us that, under reasonable assumptions, social welfare is maximized when consumer surplus is maximized. However, in agriculture, the debate seems to revolve around profits between various types of firms. So, as most antitrust debates revolve around consumers, in agriculture, it seems to have become a discussion of “small ag” versus “big ag”. From a producer-surplus perspective, these policies could be seen as an avenue towards income equality. While income equality is a normative position that many take, we argue that any discussion on equality should include consumers.

**Using antitrust** to break up “big ag” could certainly lead to an adverse effect on food prices. The claim that “big ag” is a threat to small farms is based on the argument that large agricultural firms create food prices that are too low and force small, and ostensibly less efficient, producers out of production.10 However, it would be an unusual and counter-productive use of antitrust policy to break up purported monopolies (or oligopolies) in a bid to raise food prices. Antitrust arguments often use the “rule of reason”, which requires proof that firms have engaged in anticompetitive behavior. This implies that the “rule of reason” is used to reduce prices and maximize consumer surplus. Given Engel's law, increasing food prices is regressive, at least on the consumer side. So while increasing food prices could potentially increase profits for small firms (which is ambiguous in terms of regressivity), shifting the costs to food consumers is ill-advised.

The arguments to maintain small farms has many fronts. In addressing the full effect of a policy, it is important to look at both consumer and producer surplus effects of polices rather than focus on one or the other.[11](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-note-0012_20) Many consumers and groups advocate for agricultural firms that are local, resilient, sustainable, environmentally friendly, or organic. While consumers associate these traits with small farms, the causality is unclear. In other words, consumers may advocate for small farms to maintain resilience and sustainability or vice versa. Regardless, there is a clear movement in favor of small family farms (Jaffe, [2019 (May 5)](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0033); Warren, [2019 (March 27)](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0052)).

ECONOMIC CONTEXT

Since antitrust policy is designed to increase competitiveness, we should understand the market structure and how it is changing in agriculture. After all, as Williamson ([1968](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0055)) pointed out long ago, mergers and/or a **more concentrated** market might lead to an increase in **social welfare** if high fixed costs are of more concern than market power. That is, if the benefits of economies of scale are large relative to any added deadweight loss from market power, then **fewer firms** are welfare-increasing since **increased profits** are **larger** than **changes in consumer surplus**. Further, if the cost curve is such that the change in marginal costs from increased production is small or negative, mergers and/or larger firms could increase production and lower prices, thereby benefiting consumers.

The main economic principles that have historically guided antitrust policy are the “rule of reason” and the contestability of markets, not the size of the firms (White, [2021](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0054)). The “rule of reason” implies that market concentration violates antitrust laws only when it constitutes an unreasonable restriction of trade. This “reasonableness” is most commonly evaluated by analyzing prices and consumer surplus (Werden, [2013](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0053)). If prices are not increasing (and corresponding consumer surplus is not decreasing) in the affected market, then the market concentration is generally considered to be not restricting trade. Second, market concentration is susceptible to anticompetitive actions (collusion or monopolization) if it renders the affected market incontestable (Shepherd, [1984](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0047)). A contestable market is when there are de minimis barriers to entry into that market regardless of how much market power a particular firm has in that market. For example, if one firm sells 90% of the cola in a region, but any firm can enter the market with minimal barriers and sell their own cola, then that market is contestable even though it exhibits a high degree of concentration.

Given that agriculture consists of many commodities and often complex supply chains, it can be difficult to make generalizations, and some agricultural markets are more concentrated than others. However, if the agriculture and food market is contestable despite the apparent concentration, it would seem that the goal of breaking up big agriculture would be to **limit competition**, not increase competition. Since the stated goal of these proposed policies is to help small farmers, this implies that it is a protectionist policy, and smaller firms may not be able to produce food at a cost below the market price. In other words, stopping mergers or breaking up large firms will help small firms only if large firms are more efficient and can offer lower prices. This suggests that the competitive market model is the dominant model in this situation.

In a competitive market, the optimal firm size is determined completely by the cost structure since firms will compete down to the lowest price until profits are zero. Under this scenario, firms will minimize average costs (costs per unit), and prices will be set equal to average costs. Assuming that variable costs are increasing at an increasing rate, the average costs are minimized when such costs are equal to marginal costs. At that equilibrium, the optimal price is equal to the average or marginal cost, and the optimal quality level is equal to the total costs divided by the marginal cost. Therefore, the optimal size of firms is determined by the cost curve.

If fixed costs and/or marginal costs are changing, then the optimal firm size is changing as well. Figure [1](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-fig-0001) shows that lower prices can be achieved with higher fixed costs and lower marginal costs, but these prices are lowest when firms are larger. This implies that if costs are changing, but firms are not allowed to adjust their size, this will cause a departure from the minimizing cost equilibrium. So, if firms are not allowed to produce at the optimal quantity, then prices will be higher due to these policies. Given the changes in firm size in agriculture, it is worth examining any changes in costs structures.

Prices and quantities under different cost curves

Changes in the cost structure in agriculture

Clearly the cost structure in agriculture is dynamic and changing over time, and so the **optimal firm size is changing** over time as well. With the growing costs of machinery and capital in agriculture, and the technological advances in machinery and capital, it would appear that fixed costs are increasing relative to variable costs, and consequently marginal costs, in agriculture. It has been a trend for a very long time that economic development typically leads to larger farms (Eastwood et al., [2010](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0023)). Decades ago, it may have been difficult for farms to manage the acreage or herd sizes that they do today. So, at least part of the explanation of the increase in farm size is due to the change in the cost curve (Shapiro et al., [1987](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0045); Tauer & Mishra, [2006](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0050)). This implies that food can be produced more efficiently with fewer firms, and **policies designed to break up large farms and/or save small farms may be counter-productive**. For example, machinery, such as tractors, have become **very expensive**, yet farmers buy new tractors because of the **advanced technology**. So, it must be the case that even if the fixed cost of purchasing some machinery is increasing, it is because it lowers the marginal costs. Under this scenario, changes in technology are driving consolidation in the market and making firms larger.

Regulatory issues can also cause changes in the cost structure and therefore the number and sizes of firms. For example, the Food Safety Modernization Act (FSMA) created fixed costs for firms thereby making it more difficult for small firms to be profitable (Bovay & Sumner, [2017](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0009)), which is a finding similar to previous food safety policies (Antle, [2000](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0001); Crutchfield et al., [1997](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0018)). While there clearly may be benefits from FSMA or other food safety measures, **new regulation undoubtedly increases food costs** that are disproportionately borne by smaller firms and leads to increased consolidation.

Empirical trends confirm the story that the optimal farm size is growing. While economies of scale may not happen at all levels of farm size, typically in developed countries, productivity increases as farm size increases (Foster & Rosenzweig, [2017](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0024)). The number of farmers has long been on the decline, and the market share of farmers is increasing, although this trend seems to have started to level off over the last few decades (Lusk, [2016](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0037)). While this increased concentration in the market may have downsides, it might be explained by economies of scale. Nonetheless, not all farms have grown, and while there are various reasons why some farms are smaller than others (You, [1995](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0057)), changes in the cost structure help explain the economic tensions on smaller farms.

Food prices

While largely absent in much of the debate, **food prices are critical while considering antitrust** policies (Sullivan, [2017 (Aug. 29)](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0049)). The economic theory of antitrust and balancing market power with changes in the cost structure is straightforward, which means this policy is ultimately an empirical question that should hinge on whether or not food prices are increasing. If high levels of market concentration are causing higher food prices, then policy intervention is certainly legitimate. However, in a competitive market, antitrust intervention may lead to higher prices and decrease consumer surplus. Since it is not clear theoretically if mergers and/or fewer firms create higher or lower prices, we should examine trends in food prices. Unfortunately, given the various types of food and changing food preferences, it is not entirely obvious, empirically, whether food prices are increasing or decreasing (Cowen, [2019 (March 19)](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0017)).

The agricultural supply chain can be complex and varies widely depending upon the commodity. While there are many factors that go into prices, as well as many types of food, we can at least examine historical prices. If we take data from 1974 to 2018 from the US Department of Agriculture (USDA), Figure [2](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-fig-0002) shows how prices have changed for food at home, food away from home, and the consumer price index (CPI) in general. As the graph shows, food away from home has become more expensive relative to average goods over the time frame, and especially since 2007. Food at home, on the other hand, has lagged behind average prices since 1979 and is now 14.6% lower than the CPI when compared to 1974 levels and has grown 22.6% less than food away from home. Since consumer units spend on average $4464 (in 2018) on food at home (<https://www-bls-gov.proxy2.cl.msu.edu/news.release/cesan.nr0.htm>), the relative decline in food prices at home compared to the CPI represents a saving of $766 per year.

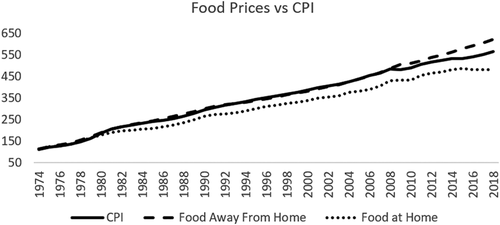
[](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/cms/asset/1a537c02-592f-476b-ba18-5ef1d46350d9/aepp13173-fig-0002-m.jpg)

FIGURE 2

Food prices relative to consumer price index

Many factors go into food prices, and it is difficult to know the magnitude of each factor. For example, food prices spiked around 2007–2008, and Headey and Fan ([2008](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0029)) found this to be due to a myriad of reasons including oil prices, depreciation of the U.S. dollar, and biofuel demand. They also found that this spike in food prices had a harsh effect on the world's poor. However, Gilbert ([2010](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0027)) argued that this spike was more impacted by investments in futures markets. Other factors, including labor and capital supply (Hertel et al., [2016](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0031)), weather (Mitchell, [2008](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0041)), and income (Fukase & Martin, [2020](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0025)), also influence food prices. Therefore, it is difficult to know the exact effect of market structure on prices.

Regardless, it would seem reasonable to assume that market concentration in agriculture would have a more direct impact on prices for food at home compared to food away from home. Furthermore, a relative decrease in food prices translates into considerable household savings. Again, there are certainly exceptions of agricultural markets with high concentrations, and much of the academic literature on antitrust policies in agriculture has focused on these examples (Badruddoza & McCluskey, [2021](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0003); Bolotova, [2021](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0008); Chidmi et al., [2005](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0015); MacDonald, [2017](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0039)). Additionally, Sexton ([2012](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0043)) citing Azzam and Anderson ([1996](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0002)), Ward et al. ([2002](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0051)), Sheldon and Sperling ([2003](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0046)), and Kaiser and Suzuki ([2006](https://onlinelibrary-wiley-com.proxy2.cl.msu.edu/doi/10.1002/aepp.13173#aepp13173-bib-0034)) argues that, while market power in food and agriculture warrants greater consideration in how agricultural markets are empirically modeled, market power has caused only very small departures from competitive prices on both the buying and selling sides of the market. Therefore, since overall food prices appear to be slowly declining relative to CPI, policymakers should proceed with caution in using antitrust policies broadly in agriculture if their goal is to decrease prices.

#### Small farms guarantee higher food prices

Tamar **Haspel 14** – farms oysters on Cape Cod and writes about food and science, 9/2. “Small vs. large: Which size farm is better for the planet?” <https://www.washingtonpost.com/lifestyle/food/small-vs-large-which-size-farm-is-better-for-the-planet/2014/08/29/ac2a3dc8-2e2d-11e4-994d-202962a9150c_story.html>

1. Small, diversified farms are **less efficient** than large ones. Which means that food grown on them is **more expensive**. Marc Bellemare, an assistant professor in the University of Minnesota’s department of applied economics, calls farmers market produce “luxury goods,” and Tim Griffin, director of the Agriculture, Food and Environment program at Tufts University’s Friedman School of Nutrition Science and Policy, explains the dynamic simply: **economy of scale**. “As the farms get larger, it’s easier to invest in labor-saving machinery, technology and specialized management, and production cost per unit goes down,” he says. It’s **Econ 101**.

Even John Ikerd, professor emeritus of agriculture and applied economics at the University of Missouri and an outspoken advocate of the idea that small organic farms ought to feed the world — an idea Bellemare calls “wishful thinking” — acknowledges that we’d need many more farmers to make that happen, and that **food would be more expensive**. How much more expensive is tough to estimate. Advocates of small-and-local tend to say not much (Ikerd guesses 6 to 8 percent), and skeptics tend to say quite a bit. It would undoubtedly vary significantly by region; areas that are densely populated, where land is expensive, or that have lousy weather, where food is hard to grow, would have higher prices.

### A2: Food Impact

#### No food impact.

Vestby et al 18, \*Jonas, Doctoral Researcher at the Peace Research Institute Oslo, \*\*Ida Rudolfsen, doctoral researcher at the Department of Peace and Conflict Research at Uppsala University and PRIO, and \*\*\*Halvard Buhaug, Research Professor at the Peace Research Institute Oslo (PRIO); Professor of Political Science at the Norwegian University of Science and Technology (NTNU); and Associate Editor of the Journal of Peace Research and Political Geography. (5-18-2018, “Does hunger cause conflict?”, *Climate & Conflict Blog*, <https://blogs.prio.org/ClimateAndConflict/2018/05/does-hunger-cause-conflict/>)

It is perhaps surprising, then, that there is little scholarly merit in the notion that a short-term reduction in access to food increases the probability that conflict will break out. This is because to start or participate in violent conflict requires people to have both the means and the will. Most people on the brink of starvation are not in the position to resort to violence, whether against the government or other social groups. In fact, the urban middle classes tend to be the most likely to protest against rises in food prices, since they often have the best opportunities, the most energy, and the best skills to coordinate and participate in protests.

Accordingly, there is a widespread misapprehension that social unrest in periods of high food prices relates primarily to food shortages. In reality, the sources of discontent are considerably more complex – linked to political structures, land ownership, corruption, the desire for democratic reforms and general economic problems – where the price of food is seen in the context of general increases in the cost of living. Research has shown that while the international media have a tendency to seek simple resource-related explanations – such as drought or famine – for conflicts in the Global South, debates in the local media are permeated by more complex political relationships.

# **Block**

## Regs CP

#### Size and technology aren’t intrinsically bad—improved practices solves.

Jeffrey 19—(environmental writer). James Jeffrey. April 17, 2019. “U.S. Needs to Shift to More Sustainable Agriculture—As Do All Countries”. Inter Press Service News Agency. <http://www.ipsnews.net/2019/04/u-s-needs-shift-sustainable-agriculture-countries/>. Accessed 6/22/21.

Increasingly, there is recognition that societies need to work towards an agriculture that is greener, cleaner, and provides better quality, more nutritious food that not only feeds people but improves their diet. This is not a new idea, rather one that has been ignored in our impatient, on-demand society, as well as one that has had to compete against a food and diet industry valued at 66 billion dollars in the U.S., with all the vested interests that go with it.

“It is not necessarily the size of holdings or the level of mechanisation and industrialisation that is a problem, rather it is the way agriculture is practiced, when this has unintentional impacts on the environment,” Jean-Marc Faurès, a former senior advisor on sustainable agriculture at the United Nation’s Food and Agriculture Organisation (FAO), tells IPS.

“In the past, we have looked at productivity as the sole metrics to measure success in agriculture. Measuring agricultural sustainability forces us to go beyond productivity only and include other dimensions, like the environmental, but also the social dimension.”

To better help people understand where the problem areas are occurring, the Barilla Center for Food and Nutrition Foundation (BCFN), a non-profit research centre studying the causes and effects on food created by economic, scientific, societal and environmental factors, has produced a food sustainability index profile for the U.S. and another 66 countries.

Each country profile focuses on three pillars—food loss and waste, sustainable agriculture, nutritional challenges—each of which is broken into multiple relevant categories that are rated green, yellow or red, to indicate progress: green being good, red being bad.

The U.S. score for sustainable agriculture was average due to the land category having repeatedly low scores across indicators such as the impact on land of animal feed and biofuels, agricultural subsidies and diversification of agricultural systems (the U.S. earned a high score for the food loss and waste pillar, but only performed moderately well in terms of nutritional challenges).

“A major issue in the U.S. is the low proportion of land set aside for organic farming as opposed to the large amount used for bio-fuel and animal feed,” BCFN’s Katarzyna Dembska tells IPS. “The large demand for animal feed is directly linked to the meat supply in the country: the additional 225 grams of meat available per capita per day—compared to the recommended intakes—makes the U.S. availability of meat for consumers among the highest in the world.”

Lack of diversification is another problem in the U.S., and around the world, with people fed from just a very limited basket of crops and animals, Faurès says. This increases the vulnerability of agricultural systems to unexpected events—climatic, pests, or market related—but also means that people eat food that is not diversified and is too rich in carbohydrates and not enough in vitamins.

“It is a paradox in a way that many developing countries show much more diverse production systems than developed countries,” Faurès says. “This is in part due to the imperative need for farmers to diversify sources of income and reduce risks related to shocks.”

He emphasises, however, that he isn’t recommending turning to be more like those farming models, which have many of their own problems.

“Moving towards more sustainable agriculture takes different shapes according to your starting point,” Faurès says. “In poor, unproductive areas, the focus is on increasing productivity and reducing vulnerability; in more advanced, input-intensive systems, sustainability implies a move towards greener production systems that make better use of the resources that our ecosystems offer and progressively reduce their negative impacts on the environment.”

#### Monitoring tech advancements make it possible.

Heinzen 14—(JD from Lewis & Clark, attorney for the Environmental Integrity Project). Tarah Heinzen & Abel Russ. April 2014. “Using Emerging Pollution Tracking Methods to Address the Downstream Impacts of Farm Impacts of Factory Farm Animal Warm Animal Welfare Abuse”. Pace Environmental Law Review, Volume 31, Issue 2. <https://digitalcommons.pace.edu/cgi/viewcontent.cgi?article=1744&context=pelr>. Accessed 7/2/21.

As discussed above, CAFO-related water pollution can come from leaking manure storage areas or from fields where manure is applied as fertilizer.50 The pollution may discharge directly into surface water or it may percolate into groundwater. Contaminated groundwater, while clearly posing a public health threat in its own right, also poses a threat to down-gradient, hydrologically connected surface water. The pollutants that come with manure include nitrogen compounds (e.g., ammonia and nitrate), phosphorus compounds, bacteria, and all of the pharmaceuticals that are used in the industrial animal-raising process, mainly antibiotics and hormones. Other pollutants are concentrated in animal feed, and therefore concentrated in animal manure. The following paragraphs describe some of these pollutants and summarize the strengths, weaknesses, and nuances of using them as “fingerprints” of CAFO pollution in ambient water

Nitrogen, usually in the form of nitrate, is the most frequently measured manure pollutant. There are at least two reasons for this. First, it is a ubiquitous pollutant associated with known risks to human health. The EPA has established an MCL of 10 mg/L for nitrate to protect against methemoglobinemia in infants (also known as blue baby syndrome).51 By contrast, natural concentrations of nitrate in shallow groundwater rarely exceed 1-2 mg/L, meaning that groundwater exceeding the MCL can be presumed contaminated.52 In Wisconsin, where the dairy industry spreads many millions of gallons of manure on cropland every year, 9-11% of private wells have nitrate levels above the MCL.53 Community water supplies have had to spend tens of millions of dollars to correct, treat, or replace groundwater with excess nitrate.54 The Wisconsin Department of Natural Resources estimates that “[a]t least 90% of nitrate inputs into [Wisconsin] groundwater originate from manure spreading, agricultural fertilizers, and legume cropping systems.”55 On the national scale, the U.S. Geological Survey estimates that the number of wells with nitrate concentrations above the MCL increased from 16% to 21% between 1993 and 2003.56

A second reason that nitrate is widely measured is that it is affordable to do so. Nitrate can be measured instantly, if imprecisely, with a range of instruments ranging from colorimetric strips (like those commonly used for fish tanks) and photometers, can be measured by sending samples to laboratories for more exact analyses,57 or can be measured with a combination of the two.58

The problem with using nitrate as an indicator of animal manure pollution is that it is so ubiquitous. Nitrate in any given location could have come from the land application of manure, but it could also have come from synthetic fertilizer application and/or septic tanks. Further complicating the issue is the fact that nitrate contamination can persist in groundwater for years or decades.59 It is possible to narrow the range of possible sources using isotopic analysis – a measure of the ratio of different nitrogen isotopes in a sample – but this method will only differentiate between animal waste and synthetic fertilizers, not between animals (e.g., between humans and cows).60

Bacteria, and in particular fecal bacteria including Escherichia coli (E. coli), are another common indicator of manure pollution in groundwater.61 In the Yakima Valley study, the EPA measured total coliform bacteria, fecal coliform, and E. coli.62 E. coli is a good manure indicator in that it is usually present at much higher concentrations than other fecal pathogens.63 There are two principal drawbacks to relying on E. coli, however. First, like isotopic nitrogen analysis, a positive E. coli reading will not distinguish between animal sources. Second, the movement and survival of E. coli in shallow groundwater is dependent on a number of factors, including characteristics of the waste stream and soil type, such that the correlation between E. coli and manure can be unpredictable.64

Advanced analysis of bacterial contamination to help identify a source is known as Microbial Source Tracking (MST). MST is a broad concept that includes many distinct methods, both genotypic (focused on bacterial DNA or RNA) and phenotypic (focusing on bacterial traits).65 Genotypic methods use genetic “fingerprints” that are generated and identified using techniques such as pulsed-field gel electrophoresis, ribotyping, and polymerase chain reaction (PCR).66 The latter method, microbial source tracking using PCR, was at the heart of the Tyson opinion discussed below. PCR methods often focus on the Bacteroides species, which make up 30-40% of fecal bacteria.67 Bacteroides PCR assays can accurately attribute fecal bacteria to human, bovine, equine, or swine sources.68

Phenotypic methods of MST use the physical or biochemical characteristics of bacteria to identify sources of contamination.69 Of particular relevance to this paper are methods that measure antibiotic resistance. As discussed above, antibiotics are commonly fed to livestock to prevent disease and promote growth.70 When host animals are exposed to antibiotics, selective pressure will lead to resistant strains of bacteria in the host animals’ digestive tracts.71 The antibiotic resistance of bacteria in a groundwater sample can be characterized by culturing the bacteria with known quantities of antibiotics and measuring the results. This technique can successfully identify host species including wildlife, cattle, pigs, horses, chickens, and humans.72 A hybrid MST approach, using PCR to identify genes that code for antibiotic resistance, has been used to successfully map the migration of contamination from swine lagoons to underlying groundwater.73

Animal wastes can also be identified by chemicals that animals ingest and excrete. When antibiotics are administered to animals, up to 80% may be excreted as unmetabolized parent compounds.74 Some antibiotics are used exclusively in animals, sometimes in specific types of livestock, but are not approved for human use, and can therefore provide evidence of animal waste contamination.75 Hormones can be another indicator of animal waste contamination. More than 90% of the estrogen in the environment may come from land-applied animal manure.76 As with antibiotics, there are certain hormones that are widely used by humans and animals, or are naturally occurring, and others that are more likely to be associated with specific animals sources.77 Where antibiotic or hormone residues are too variable or too dilute to be reliably detected by grab samples, researchers have utilized in-stream monitors such as the Polar Organic Chemical Integrative Sampler (POCIS). A POCIS sampler can be left in place for several weeks, concentrating polar chemicals from large volumes of water to produce time-weighted average concentrations.78 This method has been used, for example, to detect estrogens downstream of swine and poultry operations where estrogens were below detection in grab samples.79

Metals are another dietary additive that can be found in contaminated water. Arsenic is added to poultry feed to control intestinal parasites and promote growth, while copper and zinc are added to swine feed; all of these metals can be toxic to animals and plants.80 “Trace” amounts of these metals in feed can cumulatively amount to large quantities of metal. The EPA has estimated that 80-90% of the copper, zinc, and arsenic consumed by animals is excreted.81 One author estimated that one year’s worth of poultry waste on the Delmarva Peninsula (including parts of Delaware, Maryland, and Virginia) contained 26,000 kg of arsenic.82

Finally, it may be possible to directly identify the genetic material of source animals in their manure by analyzing mitochondrial DNA. One study, for example, was able to accurately identify the species from which sixteen out of twenty samples were obtained.83 This is another application of PCR methods, but, in contrast to the microbial source tracking methods described above, this application is typically described as “fecal source tracking.”

The ideal, if impractical, way to prove that an animal confinement has contaminated the environment is to use a combination of the methods described above. In its study of nitrate contamination in the Yakima Valley, the EPA used measurements of nitrate and other forms of nitrogen, various metals (“inorganic trace elements” including arsenic, copper, zinc, and others), total coliform bacteria, fecal coliform, E. coli, genotypic microbial source tracking, pesticides, antibiotics, hormones, isotopic analysis of nitrogen, and age dating using sulfur hexafluoride, all to investigate the contribution of various land uses, including dairy manure storage and land application, to high nitrate levels in groundwater.84

VI. COURTROOM ACCEPTANCE OF TECHNOLOGIES TO TRACK CAFO POLLUTION IS STILL EVOLVING

To successfully enforce the CWA and RCRA against factory farm polluters using these methods in federal court, the methods must meet the standards for admissibility and reliability of scientific evidence. In 1993, the Supreme Court issued its opinion in Daubert v. Merrell Dow Pharmaceuticals,85 establishing a new analysis for determining the admissibility of novel scientific evidence at trial. The Daubert court determined that the 1923 Frye86 “general acceptance” test for admissibility set too high a standard for introducing scientific evidence and had been superseded by the Federal Rules of Evidence (FRE).87 The court determined that under FRE 702,88 the judge “must ensure that any and all scientific testimony or evidence submitted is not only relevant, but reliable,” and that “to qualify as “scientific knowledge,” an inference or assertion must be derived by the scientific method.”89 Though the district court judge retains this “gatekeeper” role, however, the court further held that “it would be unreasonable to conclude that the subject of scientific testimony must be “known” to a certainty.”90

Daubert set out four consideration factors for determining the scientific validity, and therefore the admissibility, of scientific evidence: (1) whether the theory or technique can be (and has been) tested, (2) whether it has been subjected to peer review, (3) the known or potential rate of error and the existence and maintenance of standards controlling the technique’s operation, and (4) “general acceptance.” Note that the fourth factor, while no longer the entire test as it was under Frye, is still relevant. Reliability assessment can allow “explicit identification of a relevant scientific community and an express determination of a particular degree of acceptance within that community.”91 It is against this framework that we consider the applicability of promising CAFO pollution tracking methods in enforcement actions.

Oklahoma v. Tyson92 presents an important case study in Daubert’s application to a CAFO enforcement action brought under RCRA. In Tyson, the state sought to hold a large poultry integrator liable for the alleged imminent and substantial endangerment posed by waste disposal from its many broiler chicken operations in the Illinois River Watershed. Oklahoma sought to introduce scientific testimony on the use of PCR methodology, described above but in this case applied with poultry-specific biomarkers, to show that poultry bacteria was contaminating the watershed and obtain a preliminary injunction on waste spreading.93 The court held that the evidence was admissible, but then found it to have little evidentiary weight due to its insufficient reliability. The court reviewed the Daubert factors and held that, though PCR is a well-established method, its application with microbial source tracking and poultry litter biomarkers was “novel and untested,” as the application was not published or peer-reviewed.94

The Tyson court and others have distinguished the scientific methodology in question itself (here, PCR) from the application of that method when determining admissibility. In Tyson, the court reasoned that because PCR is widely accepted the court should be able to consider evidence derived using it; questions as to the reliability of the method’s application in the case go to the weight of the evidence, not its admissibility.95 The circuits are split on this question: the Eighth and Third apply a conservative reading of Daubert, requiring an “each step” analysis under which every scientific procedure used, or application of a generally admissible method, must independently meet the Daubert reliability criteria.96 The majority of circuits, however, take a more liberal approach, applying a Daubert analysis to the scientific methodology in question in order to decide whether the method is admissible. Courts then assess the application of the method when weighing the evidence’s reliability, thereby reserving a larger role for the fact-finder.97 The Tenth Circuit’s opinion in Tyson reflects this more liberal approach.

VII. BUILDING AN ADMISSIBLE EVIDENTIARY FOUNDATION FOR ENFORCING ENVIRONMENTAL LAWS IN THE CAFO CONTEXT

The source tracking methods described above will have to pass the Daubert test in order to support a successful case, and, for the most part, they can and should pass the test. Microbial source tracking has gained widespread acceptance as a scientific approach to identifying sources of pollution.98 Microbial source tracking using PCR, specifically, has also gained widespread acceptance. This is evident in, among other things, the Tyson court’s decision to admit the evidence in that case.99 Where the Tyson court likely erred was in its factual conclusion that the evidence was not reliable enough to support a preliminary injunction because it “ha[d] not been peer-reviewed or published,”100 a judgment that refers directly to one of the four Daubert factors. At the time of the decision, there had in fact already been twenty-seven peer-reviewed publications referring to the use of PCR for microbial source tracking.101 Since then, over seventy more peer-reviewed papers have been published,102 including higher-order studies such as an international comparison of human- and ruminant-specific assays.103 At this point, many or most forms of microbial source tracking using PCR should be seen as having undergone sufficient peer review to be admissible under Daubert.

Microbial source tracking methods, both genotypic and phenotypic, have also developed to the point that they should pass the “rate of error” Daubert analysis. Pre- and post-Daubert cases provide some limited and rough insight into what degree of uncertainty is consistent with reliability. Pre-Daubert, tests reliable at 90-99% have been admissible. One case, for example, involved gas chromatograph methods used to identify the source of hazardous oils illegally dumped into public sewers.104 Under the Frye standard, the court found the methods to be sufficiently reliable to conclude that they were “generally accepted”:

Dr. Bentz testified that tests performed on the [flame ionization detector] found it to be reliable in excess of 90%. Similar tests performed on the FPD found it also to be reliable in excess of 90%. Because the results obtained from each detector are independently reliable, when the results of both detectors agree, they are reliable in excess of 99%.105

On the other hand, a comparative bullet lead analysis method with an error rate of 25-33% was not admissible.106

Post-Daubert, in a case involving a potentially toxic feed additive, and an expert method for detecting the additive in animal tissue, the court concluded that a 20% rate of error “[did] not weigh in favor of admissibility.”107 Another case considered and admitted fingerprint evidence, which, according to the court, “has been admissible as reliable evidence in criminal trials in this country since at least 1911.”108 Although the rate of error was not quantitatively estimated by the government’s expert, the expert did testify that it was “negligible,” and the majority opinion cited testimony from another case that the error rate was “essentially zero.”109 The dissent, however, cited two tests of the method in which “less than half” and “less than sixty percent” of fingerprint examiners made accurate identifications and eliminations, and stated that “[a]n error rate that runs remarkably close to chance can hardly be viewed as acceptable under Daubert.”110

Although these cases are far from exhaustive, and the other Daubert factors will influence any analysis, it might be suggested that methods with error rates of 0-10% are likely to be admissible, while methods with error rates of 20% or greater are likely to be excluded. Methods with error rates of 10-20%, then, can be expected to be hotly contested. Using this rough metric, microbial source tracking should be admissible. One study, mentioned above, used a bovine bacteroides PCR microbial source-tracking assay that had 100% true-positive identification and 0% false-positive identification rates.111 Another study identified PCR microbial source tracking assays that had greater than 90% specificity for humans, ruminants, and pigs.112 The EPA reviewed several antibiotic resistance assays, describing the “average of correct classification,” or ARCC, for each.113 ARCCs ranged from 62-88% for individual species, and from 72-97% when pooled into larger categories like “poultry,” “beef,” and “human.”114 One assay, for example, achieved 92% ARCC using the categories human, livestock, and wildlife.115

VIII. CONCLUSION

Factory farming generates a waste stream with a unique pollution fingerprint. This industry discharges waste laden with DNA markers, and relies on a host of specific dietary additives to promote the survival and profitable growth of animals housed in extremely inhumane conditions. These additives, including antibiotics, hormones, and metals, pass through the animals and enter the substantial waste stream that the industry generates. Developing scientific methods to track these indicator pollutants have the potential to bolster citizen and agency enforcement efforts.

Some of these analytical techniques are becoming increasingly well tested, widely used, and reliable, including microbial source tracking and methods for measuring antibiotics, hormones, and metals. Other methods, such as fecal source tracking, are relatively new.116 These are useful evidentiary tools, but should not be relied upon exclusive of more reliable methods. All of these methods of generating a CAFO “fingerprint” facilitate the enforcement of legal standards for more ubiquitous pollutants like nitrates. The science to support successful cases is advancing rapidly, and these cases are becoming increasingly viable as the law catches up with the state of the science. For example, the Tyson decision would likely be indefensible today. By combining conventional analyses of basic pollutants like nitrates and bacteria with more advanced source tracking methods, animal and environmental advocates have new opportunities to hold CAFO owners accountable for their inhumane and environmentally destructive practices.

#### Links to the AFF---*expanding the scope of antitrust causes regulatory capture.*

Thibault Schrepel 20, Assistant Professor at Utrecht University School of Law, Associate Researcher at University of Paris 1 Pantheon-Sorbonne and Invited Professor at Sciences Po Paris. ARTICLE: Antitrust Without Romance, 13 NYU J.L. & Liberty 326

Private and Pseudo-State Interests. Antitrust authorities can be captured by various outside groups that lead antitrust employees to please them so as to maximize their own future interest. 59 Public choice theorists have pointed out that special interest groups may capture regulatory authorities. 60 This issue cannot be overlooked and [\*344] a precise risk map should be drawn in this area as antitrust authorities' employees may please these groups for personal benefit, to the detriment of consumers. 61 The importance of this issue is growing as the scope of antitrust authorities is expanding, which increases the risk of regulatory capture by interest groups. 62

See, e.g., Bundeskartellamt prohibits Facebook from combining user data from different sources (Bundeskartellamt, Feb. 7, 2019), archived at https://perma.cc/B9S2-9659. For more on this extension of antitrust authorities' power, see Directive (EU) 2019/1/EU of the European Parliament and of the Council of 11 December 2018 to empower the competition authorities of the Member States to be more effective enforcers and to ensure the proper functioning of the internal market, 2019 O.J. L11 3 (Jan. 14, 2019). For risks this creates in terms of regulatory capture, see Michael E. DeBow, Social Costs of Populist Antitrust: A Public Choice Perspective, 14 Harv. J. L. & Pub. Pol. 205, 220 (1991) (explaining that as the government expands the scope and aims of antitrust enforcement, private parties invest more significant sums in manipulating this greater government intervention in the economy).

#### The CP encourages efficiency in any industry.

Kristelia A. García 14, Associate Professor, University of Colorado Law School, “Penalty Default Licenses: A Case for Uncertainty,” NYU Law Review, Vol. 89, No. 4, October 2014, https://scholar.law.colorado.edu/cgi/viewcontent.cgi?article=1071&context=articles

Companies, like individuals, are risk averse. The existence of a fallback option, even a poor one, allows them to take a chance on private negotiation. This is the case because the parties know they have an alternative should the deal not work out. Moreover, the fallback allows them the freedom of dabbling in individual deals with only one partner or a handful of them, affording valuable feedback on which terms work and which ones do not without committing the time and effort required to negotiate individually with all comers. If the private terms prove functional and an industry norm begins to take shape-as in the case of the Clear Channel-Big Machine deal-it can then be extended to the larger, more comprehensive partners and eventually reflected in the underlying legal regime.

CONCLUSION

When coupled with a penalty default, uncertainty can bring greater efficiency to the marketplace by encouraging private ordering, which allows for tailored terms and responsiveness to rapid technological change. This is great news in the music sampling context, where for years scholars, legislators, and industry players have been debating a statutory license. 271 This Article suggests that a penalty default license for samples, coupled with existing uncertainty about the future state of protections for derivative works, might alleviate efficiency concerns by encouraging more and better private negotiation. 272

This prescription is particularly timely given the imminent rewrite of "the next great copyright act," 273 and may find application outside the United States as well. In the European Union, for example, there has been a recent push for single-market licensing of intellectual property rights. 274 Copyright territoriality has largely thwarted this initiative, 275 whereas private ordering has resolved it. In November 2012, for example, Google accomplished something the European Union has thus far been unable to: The company struck a private, multiterritory agreement with thirty-five European countries. 276

Acknowledgment of the role uncertainty and penalty defaults play in increasing effectiveness in the market for statutory licensing and in copyright enforcement is only the beginning. A better understanding of uncertainty as a tool for efficiency has application in any industry facing change as a result of rapid technological growth, evolving consumer preferences, or ambiguity about the future state of the law.

#### Anti-trust is distinct from regulations

Crane 8—Visiting Professor, New York University School of Law (Daniel, “Technocracy and Antitrust,” Texas Law Review 86, no. 6 (May 2008): 1159-1222, dml)

It is common to describe antitrust and regulation as the two competing choices facing governments wishing to place controls on market economies. 133

FOOTNOTE 133. See, e.g., W. KIP VISCUSI, JOSEPH E. HARRINGTON, JR. & JOHN M. VERNON, ECONOMICS OF REGULATION AND ANTITRUST xviii (4th ed. 2005) ("The traditional emphasis of economics textbooks on business and government is on the character of regulations and antitrust policies.").

For example, as a judge on the First Circuit, Justice Breyer—a longtime fan of technocratic solutions 134—described antitrust and regulation as substitutable legal controls:

"[R]egulation" and "antitrust" typically aim at similar goals—i.e., low and economically efficient prices, innovation, and efficient production methods—but they seek to achieve these goals in very different ways. Economic regulators seek to achieve them directly by controlling prices through rules and regulations; antitrust seeks to achieve them indirectly by promoting and preserving a process that tends to bring them about. 135

Historically, bureaucratic regulation and adjudication under antitrust norms were considered the two primary choices for implementing controls on the behavior and structure of large commercial enterprises. 136 The regulatory model was associated with the Interstate Commerce Commission (ICC), which was created three years before the Sherman Act and had regulatory control over national railroads. 137 The ICC was the first independent regulatory body in the United States 138 and provided an early representation of the technocratic model. 139 The commissioners were to be railroad experts insulated from political influence who would engage in the technical business of rate setting, ex ante rule making, and general administration of the nation's railroads. 140

When the Sherman Act was framed three years later and the FTC Act twenty-seven years later, following the ICC model of regulation was a possibility. 141 But Congress chose not to create an antitrust regulatory body along the lines of the ICC. Instead of regulation as an antitrust mode, Congress chose adjudication. The Sherman and FTC Acts create highly generalized and open-textured antitrust norms—no restraints of trade, monopolization, or unfair trade practices 142—which the courts then flesh out through a process of common-law-like iteration in active disputes.143

## Adv CP

#### Plank four solves any environmental impact the other planks don’t.

Pearce ’19 [Fred; May 29; Environmental journalist and author, citing former British Government Chief Scientist David King, Harvard University Physicist David Keith, Kelly Wanser for the Marine Cloud Brightening Project, and other academics; Yale Environment 360, “Geoengineer the Planet? More Scientists Now Say It Must Be an Option,” <https://e360.yale.edu/features/geoengineer-the-planet-more-scientists-now-say-it-must-be-an-option>]

Once seen as spooky sci-fi, geoengineering to halt runaway climate change is now being looked at with growing urgency. A spate of dire scientific warnings that the world community can no longer delay major cuts in carbon emissions, coupled with a recent surge in atmospheric concentrations of CO2, has left a growing number of scientists saying that it’s time to give the controversial technologies a serious look.

“Time is no longer on our side,” one geoengineering advocate, former British government chief scientist David King, [told a conference last fall.](https://www.edie.net/news/9/Sir-David-King--Policy-and-business-action-needed-on-climate--restoration-/) “What we do over the next 10 years will determine the future of humanity for the next 10,000 years.”

King helped secure the Paris Climate Agreement in 2015, but he no longer believes cutting planet-warming emissions is enough to stave off disaster. He is in the process of establishing a Center for Climate Repair at Cambridge University. It would be the world’s first major research center dedicated to a task that, he says, “is going to be necessary.”

Technologies earmarked for the Cambridge center’s attention include a range of efforts to restrict solar radiation from reaching the lower atmosphere, including spraying aerosols of sulphate particles into the stratosphere, and refreezing rapidly warming parts of the polar regions by deploying tall ships to pump salt particles from the ocean into polar clouds [to make them brighter.](https://www.bbc.co.uk/news/science-environment-48069663)

United States scientists are on the case, too. The National Academies last October launched a study into [sunlight reflection](http://www8.nationalacademies.org/onpinews/newsitem.aspx?RecordID=10162018) technologies, including their feasibility, impacts and risks, and governance requirements. Marcia McNutt, president of the National Academy of Sciences, said: “We are running out of time to mitigate catastrophic climate change. Some of these interventions… may need to be considered in future.”

The study’s prospective authors held their [first meeting](http://nas-sites.org/dels/studies/reflecting-sunlight-to-cool-earth/meetings-and-events/) in Washington, D.C., at the end of April. Speakers included David Keith, a Harvard University physicist who has developed his own patented technology for using chemistry to remove CO2 directly from the atmosphere, and Kelly Wanser of the [Marine Cloud Brightening Project](http://www.geoengineeringmonitor.org/2018/04/marine-cloud-brightening-project-geoengineering-experiment-briefing/), which is studying the efficacy of seeding clouds with sea salt and other materials to reflect more sunlight back into space. The project is preparing for future field trials.

China too has an active government-funded research program. It insists it has no current plans for deployment, but is looking, among other things, at how solar shading might [slow the rapid melting](https://royalsocietypublishing.org/doi/full/10.1098/rsta.2012.0086) of Himalayan glaciers.

Geoengineering the climate to halt global warming has been discussed almost as long as the threat of warming itself. American researchers back in the 1960s suggested floating billions of white objects such as golf balls on the oceans to reflect sunlight. In 1977, Cesare Marchetti of the Austria-based International Institute for Applied Systems Analysis discussed ways of catching all of Europe’s CO2 emissions and injecting them into [sinking Atlantic Ocean currents.](https://link.springer.com/article/10.1007/BF00162777)

In 1982, Soviet scientist Mikhail Budyko proposed filling the stratosphere with sulphate particles to reflect sunlight back into space. The first experiments to test the idea of fertilizing the oceans with iron to stimulate the growth of CO2-absorbing algae were carried out by British researchers in 1995. Two years later, Edward Teller, inventor of the hydrogen bomb, proposed putting [giant mirrors](https://www.newscientist.com/article/mg18124403-700-a-mirror-to-cool-the-world/) into space.

Still, many climate scientists until recently regarded such proposals as fringe, if not heretical, arguing that they undermine the case for urgent reductions in greenhouse gas emissions. A group of scientists writing in Nature as recently as April last year, called solar geoengineering “outlandish and unsettling… [redolent of science fiction](https://www.nature.com/articles/d41586-018-03917-8).”

But the mood is shifting. There is broad, international scientific agreement that the window of opportunity to avoid breaching the Paris climate target of staying “well below” 2 degrees Celsius (3.6 degrees Fahrenheit), is narrowing sharply. A pause in the rise in CO2 emissions that brought hope in 2015 and 2016 has ended; the increase has resumed at a time when we should be making progress toward a goal of [halving emissions by 2030](https://report.ipcc.ch/sr15/pdf/sr15_headline_statements.pdf), says Johan Rockstrom, science director of the Potsdam Institute for Climate Impacts Research. CO2 concentrations in the atmosphere — the planetary thermostat — are now at 415 parts per million (ppm) and rising by almost 3 ppm each year, reaching levels that have not been seen in 3 million years. “We have two years left to bend the curve” downward, says Rockstrom.

Some experts contend we may be approaching a moment when nothing other than geoengineering can meet the international community’s promise — made when signing the UN Climate Change Convention at the Earth Summit in 1992 — to prevent “dangerous anthropogenic interference with the climate system.” Myles Allen of Oxford University’s Environmental Change Institute says: “Every year we are not even trying to reduce emissions is another 40 billion tons of CO2 dumped into the atmosphere that we are blithely committing future generations to scrub out again.”

## Environment

### Solvency---2NC

**These are their only solvency advocates.**

#### Merger restrictions don’t stop agricultural consolidation

James M. MacDonald 1, Economic Research Service, USDA; and Marvin L. Hayenga, Iowa State University, 2001, “Concentration, Mergers, and Antitrust Policy,” https://afpc.tamu.edu/research/publications/263/macdonald.pdf

Agribusiness mergers are one strategy for large firms, and they could respond to a ban with other strategic steps. Those seeking scale economies could grow internally by building bigger facilities instead of merging. Because firms have that alternative, a merger prohibition will not necessarily halt increases in concentration based on scale economies. Second, firms could respond to a prohibition on the purchase of large agribusiness firms by purchasing other large firms in the economy and becoming conglomerates. Such moves might be particularly inefficient (cost-raising).

### A2: Size Key

#### No correlation between farm size and good practices.

Black 13—(former Food section staffer at the Washington Post based in Brooklyn). Jane Black. 8/27/2013. “Smarter Food: Does big farming mean bad farming?.” <https://www.washingtonpost.com/lifestyle/food/smarter-food-does-big-farming-mean-bad-farming/2013/08/26/fb1cbb94-0b7f-11e3-9941-6711ed662e71_story.html>. Accessed 7/12/21.

Size, as they say, isn’t everything. As shorthand, the big-equals-bad equation is convenient. But it obscures an inconvenient truth: Plenty of small farmers do not embrace sustainable practices — the Amish farmers I know, for example, love their pesticides — and some big farmers are creative, responsible stewards of the land. “Tony’s is a fantastic operation,” says Helene Murray, executive director of the Minnesota Institute for Sustainable Agriculture. “And he just happens to grow a lot of corn and soybeans.”

Thompson, 57, is a fifth-generation farmer. His family came to the town of Windom in southwestern Minnesota after the Civil War in search of economic and political stability. The family’s Willow Lake Farm was always big. Until the late 20th century, it was diversified, too. The Thompsons raised cattle for beef and dairy, as well as turkeys, sheep and hogs. But in the 1970s, global politics, federal incentives and a growing appetite for grains made corn and soybeans the most profitable crops to grow.

As a young man, Thompson was, as so many of us were, an idealist. He describes challenging his father’s patience with his big plans to transition the farm to organic growing practices. But when he took over, he began to understand that success in agriculture is about finding a balance between economic and environmental sustainability.

“I know I am sending corn into a commodity stream that I have very little control of and very little knowledge of,” Thompson admits. “But I have spent my life trying to understand the margins, trying to slow down the next raindrop and help that raindrop produce a little flower for a bird. It is, maybe, less exciting to talk about. My only opportunity to make change is with the tools I have on the farm.”

Thompson’s farm is not organic as he once dreamed it would be. Indeed, after studying the scientific literature, he finds himself mostly comfortable using genetically modified seeds. The rewards inherent in herbicide-tolerant soybeans outweigh the risks, he says. While he does have some concerns about GM corn, he says, “the prevailing technology is a good path, maybe the best available at the moment. This will change. We will learn.”

Still, Thompson has many tools to improve his farm’s environmental sustainability.

He uses a technique called ridge tilling, which works like this: Instead of plowing the fields with a big tractor, he builds a narrow, elevated bed for his crops. That allows him to turn over smaller stretches of earth, keeping carbon dioxide embedded in the soil rather than releasing it into the air. The ridges also allow Thompson to precisely apply fertilizer to the plants, which means he can use 10 percent less fertilizer and still get the same yield. And the ridges keep the chemicals from running off and entering the groundwater, where they can endanger streams and rivers.

To further deter water and fertilizer runoff, Thompson has built wide buffers between his fields. In them he has planted flowers, such as the gray-headed coneflower, and native prairie grasses. The plants keep the water from reaching the river: “If the grass wasn’t there, the soil would flow directly into the river and remain suspended all the way to the Gulf of Mexico,” Thompson says.

Those buffers also attract pollinators such as butterflies, bees and birds. Neither soybeans nor corn need the pollinators, explains Victoria Wojcik, research program manager at the non­profit Pollinator Partnership in San Francisco. As a result, especially when the price of corn is as high as it is now, it is difficult to incentivize commodity farmers to grow the plants that sustain pollinators: “What is unique is that Tony creates this landscape with no benefit for himself or his bottom line.”

Thompson also has experimented with diversifying what he grows on the farm. Over the years, as the price of corn and soybeans rose and fell, he tried growing specialty grains for the Japanese that are made into tempeh and natto; popcorn, which he packaged on the farm; and specialty wheat, which he milled.

The work was gratifying, Thompson says, even fun. But the premiums he was paid to grow it didn’t even add up to minimum wage for the time spent.

Farmers such as Thompson find themselves in essentially the same situation as many Main Street businesses: Does it make more sense to produce more and sell it at a lower price? Or is it smarter to produce more artisanal products to sell at a premium? “There has been more stability in my life in the commodity corn and soybean business,” Thompson says. “Every time we tried a new product, we encountered risks we couldn’t afford.” And, remember: Stability is what drew the Thompsons to Minnesota in the first place, 150 years ago.

Thompson’s work has drawn local notice. In 2011 he won the University of Minnesota’s Siehl Prize for Excellence in Agriculture, which recognizes individuals who have made extraordinary contributions to the production of food. Within his community, he is considered a leader and a sage. Each August, Thompson holds an agro-ecology summit on the farm and welcomes hundreds of residents and agriculture students. (At this year’s event, Thompson served 800 meals of 100 percent locally sourced food.) But he is far from a national name like Joel Salatin, the most famous farmer in America thanks to Michael Pollan’s bestseller “The Omnivore’s Dilemma,” or even pork producer Bev Eggleston, whose name graces the menu at many Washington restaurants.

New small farms can help reinvigorate agriculture, and they deserve champions. But large-scale farmers who are working toward sustainability also deserve a platform. Like it or not, those farmers grow the staples that feed (and fuel) our country and the world. The small, incremental changes that they make can have dramatic impact — perhaps more than a dozen or even a hundred small farms that adhere to strict environmental standards.

### A2: (Environment)

#### Farming is rapidly becoming sustainable---all environmental metrics are improving

Michael Shellenberger 20, Founder and President of Environmental Progress, Former President of the Breakthrough Institute, Apocalypse Never: Why Environmental Alarmism Hurts Us All, ISBN: 0063001705,9780063001701

As farms become more productive, grasslands, forests, and wildlife are returning. Globally, the rate of reforestation is catching up to a slowing rate of deforestation.19

Humankind’s use of wood has peaked and could soon decline significantly.20 And humankind’s use of land for agriculture is likely near its peak and capable of declining soon.21 All of this is wonderful news for everyone who cares about achieving universal prosperity and environmental protection.

The key is producing more food on less land. While the amount of land used for agriculture has increased by 8 percent since 1961, the amount of food produced has grown by an astonishing 300 percent.22

Though pastureland and cropland expanded 5 and 16 percent, between 1961 and 2017, the maximum extent of total agriculture land occurred in the 1990s, and declined significantly since then, led by a 4.5 percent drop in pastureland since 2000.23 Between 2000 and 2017, the production of beef and cow’s milk increased by 19 and 38 percent, respectively, even as total land used globally for pasture shrank.24

The replacement of farm animals with machines massively reduced land required for food production. By moving from horses and mules to tractors and combine harvesters, the United States slashed the amount of land required to produce animal feed by an area the size of California. That land savings constituted an astonishing one-quarter of total U.S. land used for agriculture.25

Today, hundreds of millions of horses, cattle, oxen, and other animals are still being used as draft animals for farming in Asia, Africa, and Latin America. Not having to grow food to feed them could free up significant amounts of land for endangered species, just as it did in Europe and North America.

As technology becomes more available, crop yields will continue to rise, even under higher temperatures. Modernized agricultural techniques and inputs could increase rice, wheat, and corn yields five-fold in sub-Saharan Africa, India, and developing nations.26 Experts say sub-Saharan African farms can increase yields by nearly 100 percent by 2050 simply through access to fertilizer, irrigation, and farm machinery.27

If every nation raised its agricultural productivity to the levels of its most successful farmers, global food yields would rise as much as 70 percent.28 If every nation increased the number of crops per year to its full potential, food crop yields could rise another 50 percent.29

Things are headed in the right direction regarding other environmental measures. Water pollution is declining in relative terms, per unit of production, and in absolute terms in some nations. The use of water per unit of agricultural production has been declining as farmers have become more precise in irrigation methods.

High-yield farming produces far less nitrogen pollution run-off than lowyield farming. While rich nations produce 70 percent higher yields than poor nations, they use just 54 percent more nitrogen.30 Nations get better at using nitrogen fertilizer over time. Since the early 1960s, the Netherlands has doubled its yields while using the same amount of fertilizer.31

High-yield farming is also better for soils. Eighty percent of all degraded soils are in poor and developing nations of Asia, Latin America, and Africa. The rate of soil loss is twice as high in developing nations as in developed ones. Thanks to the use of fertilizer, wealthy European nations and the United States have adopted soil conservation and no-till methods, which prevent erosion. In the United States, soil erosion declined 40 percent in just fifteen years, between 1982 and 1997, while yields rose.32

### Land Conversion---2NC

#### Downsizing requires massive land expansion AND it’s unique: there’s gradual re-wilding because of high-intensity improvements

Ted Nordhaus 15, Founder and Executive Director of the Breakthrough Institute, “The Environmental Case for Industrial Agriculture”, The Breakthrough Institute, 6/8/2015, https://thebreakthrough.org/issues/food/the-environmental-case-for-industrial-agriculture

Debates about specific agricultural technologies and environmental impacts often lose sigh of the forest through the trees in terms of the relationship between food production and the environment. Low-productivity food systems have devastating impacts on the environment. As much as three-quarters of all deforestation globally occurred prior to the Industrial Revolution, almost entirely due to two related uses, clearing land for agriculture and using wood for energy. Indeed, many places that we now think of as vast wilderness were once farmed. Even the Amazon basin, long thought to have been a primeval Eden turns out to have been the site of extensive agriculture prior to the decimation of the pre-Columbian population due to conquest and disease. Today, forests have come back in New England and many other parts of the world not due to disease, privation, or genocide but rather because agricultural productivity has risen so dramatically that many marginal agricultural lands have been abandoned.

Meanwhile, everywhere that people depend upon bushmeat for protein, forests and other habitat continue to be defaunated. Moreover, low-intensity pasturing of livestock represents the largest single human land use, larger even than cropland. When leading public intellectuals and chefs like Michael Pollan and Alice Waters decry feedlot meat and rhapsodize about the culinary and environmental benefits of grass-fed beef, what they are really proposing is a vast expansion of human impacts on the land.

Even with much lower levels of per-capita beef consumption, there is no way that American beef consumption, much less global consumption, could be met with pastured beef without dedicating much more land to pasture. Even accounting for the immense amount of grain needed to feed cattle, feedlot beef is more land efficient than grass-fed.

In short, were such a thing even possible, attempting to feed a world of seven-going-on-nine billion people with a preindustrial food system would almost certainly result in a massive expansion of human impacts through accelerated conversion of forests, grasslands, and other habitat to cropland and pasture.

#### It’s the single largest cause of biodiversity loss

Dr. Angela Logomasini 12, Senior Fellow at the Competitive Enterprise Institute, Ph.D. in American Government from The Catholic University of America, “Rachel Was Wrong: Agrochemicals’ Benefits to Human Health and the Environment”, Competitive Enterprise Institute, Issue Analysis, Number 8, November 2012, <https://cei.org/sites/default/files/Angela%20Logomasini%20-%20Rachel%20Was%20Wrong.pdf>

Environmental Conservation Benefits

While many environmental advocacy groups suggest that chemicals have tremendously adverse impacts on the environment and wildlife, the fact is that these products have substantial environmental benefits. We consider a few here, such as the impacts on habitats and water quality.

Researcher Roger Sedjo of Resources for the Future notes: “Almost certainly the primary cause of contemporary biodiversity decline is habitat destruction and the degradation that results from the expansion of human populations and activities.”40 Clearing land for agriculture is surely one of those human activities, as is clearing land for living space.

Many people assume that any deforestation is bad. They forget that deforestation has made it possible for developed nations to provide an abundant food supply for domestic and international markets. As populations grow and people switch from gathering food to farming, some deforestation becomes necessary. History shows that once enough agricultural land is set aside and farming practices become sustainable, forests stabilize.

Steven Hayward of the Ashbrook Center at Ashland University documents such trends in his Environmental Almanac 2011, showing how deforestation has declined in recent years in many parts of the world and in some cases reforestation has begun. He notes:

Although data on the global scale are inconsistent and incomplete, the rate of deforestation appears to be steadily declining. Between 1995 and 2005, Asia dramatically reversed its deforestation trends; it is now reforesting rapidly. Africa and South America still experience the highest rates of deforestation.

Brazil, which along with Indonesia had the highest net loss of forests in the 1990s, has significantly reduced its rate of loss. Recent data suggest that Indonesia’s rate of deforestation is also slowing.41

Such reforestation would not be possible without high-yield agriculture and the chemicals that are part of that process.

From a conservationist perspective, the problem is not deforestation and habitat destruction, per se, but mismanagement of resources. This is true for both the developed and developing world. A large part of the problem stems from the tragedy of the commons—the fact that much of the world’s forests are owned by central governments that do not exercise any management or control over the lands. As a result, much of the forests are an open resource lacking a steward, which leads to serious abuse as everyone takes from the forest, yet no one has an interest in maintaining the resource. In addition poverty contributes as clearing more and more land for agriculture becomes necessary to produce food.

There is much debate as to the extent of rainforest deforestation. It is clear that high-yield farming helps reduce encroachment into wildlife habitat, and the measured impact is substantial. If farmers continued to use 1950s technology—when most of the world did not use pesticides and fertilizers— they would have to plant 10 million square miles of additional land to generate the food that is produced today, notes researcher Dennis Avery of the Hudson Institute.42 That is more land than all of North America (about 9.4 million square miles) and almost as much as all the land in Africa (about 11.7 million square miles). Researcher Indur Goklany has also quantified these conservation gains. He explains:

If U.S. agricultural technology had been frozen at 1910 levels— i.e. if cropland per capita had stayed at 1910 levels—then to produce the same output as achieved in 2004, U.S. farmers would have had to utilize 1,007 million acres rather than the 305 million acres that were actually harvested that year. That’s more than four times the total amount of land and habitat under special protection in the U.S. in 1999— including National Parks, National Wildlife Refuges, and National Wilderness Areas. Quite possibly, the increase in land productivity averted a potential catastrophe for U.S. wildlife and perhaps even biodiversity more generally.43

### Other Impact

#### No dead zones nor oceans impact—newest studies

Gupta et al. 21, (4-16-2021, Dr. G. V.M. Gupta, specialized in Marine Biogeochemistry, Director of CENTRE FOR MARINE LIVING RESOURCES & ECOLOGY. Dr. Gupta did his M. Sc in Chemical Oceanography from Andhra University, Visakhapatnam in 1992. He joined National Institute of Oceanography, Visakhapatnam as Junior Research Fellow under the project Coastal Ocean Monitoring and Predictive Systems (COMAPS) and worked on the estuarine/coastal pollution and biogeochemistry of the Bay of Bengal through extensive field surveys. He received his Ph. D from Andhra University in 1999 for his work on Particulate Matter Composition in the Bay of Bengal. He worked as an Environmental Manager in Baroda for one year before joining Integrated Coastal and Marine Area Management - Project Directorate (ICMAM-PD), Chennai as Scientist in 1999., R Jyothibabu, Ch V Ramu, A Yudhistir Reddy, K K Balachandran, V Sudheesh, Sanjeev Kumar, N V H K Chari, Kausar F Bepari, Prachi H Marathe, B Bikram Reddy and Anil Kumar Vijayan. "The world's largest coastal deoxygenation zone is not anthropogenically driven", Environmental Research Letters is a quarterly, peer-reviewed, open-access, scientific journal covering research on all aspects of environmental science. It is published by IOP Publishing, https://iopscience.iop.org/article/10.1088/1748-9326/abe9eb ) //BW

Terrestrial inputs can also contribute to the formation of coastal deoxygenation but the recently emerged evidences suggest that this could not be the only cause. Unlike the major and perennial rivers that flow along the east coast of India into the Bay of Bengal, only small to medium rivers flow along the west coast of India discharging ~76% less freshwater laden with nutrients into the Arabian Sea (Krishna et al 2016). Much of these discharges are confined to a shorter period of about four months coinciding with the SM, with peak discharges in July–August when >80% of runoff occurs that dilute the nutrient load. Though India is the second-largest fertilizer consuming country in the world, transport of nutrients to the coastal sea will be heavily constrained by their highest retention in these monsoonal rivers (~91%; Krishna et al 2016) compared to those in the North America and western Europe (74%; Alexander et al 2002, Boyer et al 2002), and global watershed (80%; Caraco and Cole 1999). This is reflected in the stable isotopic composition of suspended organic matter over the central-western shelf of India which did not reveal significant anthropogenic contribution (Maya et al 2011). Even the minor fraction of nutrients that escape into the coastal sea may not be fully utilized by coastal phytoplankton since rivers also discharge significant amounts of suspended sediments which along with overcast skies during the SM limit the primary production. Besides, it has been shown recently that hypoxic to anoxic waters exist over the south-western shelf of India (Gupta et al 2016, Sudheesh et al 2016, 2020) where no major rivers exist and the degree of coastal deoxygenation remain stable despite the hinterland experienced large-scale developmental activities in the last five decades (Gupta et al 2016). Collectively, these recent studies are suggestive of yet another process, besides that of anthropogenic origin, being chiefly responsible for the observed seasonal deoxygenation over the west coast of India. Nevertheless, the seasonal acute oxygen deficiency along the west coast of India is recurrently happening possibly by both natural and anthropogenic sources but with unknown relative importance. Using the systematic oceanographic Eastern Arabian Sea (EAS) basin-scale data collected from 7 to 10 transects running from estuaries through coastal to offshore regions during different phases of the SM of 2018 (figure 1), we prove that the influence of terrestrial inputs is meagre while the oceanic factors largely drive the development of hypoxia/anoxia along the west coast of India. Apart, we also have focused on the spatio-temporal variation in upwelling and its linkage between dissolved oxygen concentrations of the OMZ and development of anoxia confined only to the central shelf during the progression of SM, which are hitherto unknown. 2. Study area The circulation in the EAS during the SM is characterised by an equator-ward West India Coastal Current (WICC), a poleward West India Under Current (WIUC) and the phenomenon of coastal upwelling (Shetye et al 1990). While this phase of WICC carries Arabian Sea High Salinity Watermass (ASHSW) from the north, the WIUC carries relatively ventilated waters towards the north (Naqvi et al 2006). The upwelling is supported by favourable winds/currents and propagates from south to north with time (Johannessen et al 1987), but its intensity weakens towards the north. These upwelling waters are sourced from the perennial OMZ (Banse et al 2014) and promote the development of deoxygenation over its shelf. Among the estuaries discharging along the west coast of India (figure 1), the Kochi estuary in the south and Amba and Thane estuaries in the north are highly eutrophic compared to those in the central region, viz. Nethravati, Mandovi and Zuari, as the latter are less affected by the developmental activities. 3. Materials and methods We made EAS basin-scale cruises during the three phases of SM viz. early SM (4 June to 9 July), peak SM (3 August to 6 September) and late SM (16 September to 8 October) of 2018 onboard FORV Sagar Sampada and ORV Sagar Kanya. Each cruise covered about 70–90 stations from 7 to 10 coast-offshore transects along the entire EAS (figure 1). Each transect was occupied between 30 and 2000 m depth contours, and additionally, very shallow stations (13 and/or 20 m) were occupied at Kochi, Mangalore, Goa, Mumbai, and Okha. Parallelly, seven main estuaries (downstream regions towards mouth) along the western India (figure 1), debouching adjoining our cruise transects, were studied twice during early SM (June) and late SM (September). The temperature and salinity profiles were recorded using a new Conductivity-Temperature-Depth (CTD) profiler (SBE 11 Plus, Sea-Bird, USA for cruises and SBE 25 for estuaries). Samples were collected from Niskin bottles attached to CTD rosette (cruises) and manually (estuaries). Samples for dissolved oxygen were collected in 125 ml glass bottles, fixed by adding 1 ml of Winkler A (with Azide to remove nitrite interference) and Winkler B, and titrated against 0.001 N sodium thiosulphate potentiometrically (907 Titrando, Metrohm, Switzerland) (Carritt and Carpenter 1966). The small amount of oxygen carried by the reagents was not subtracted, and oxygen was estimated with a precision of ±0.15 µM. The new dissolved oxygen sensor (SBE 43, Sea-Bird) attached to CTD was maintained wet and rinsed regularly with 0.1% Triton X-100 followed by a rinse with fresh water. The oxygen sensor data, well correlated against the measured values (n = 1062; p< 0.001) across the water column, was used in this study. Apparent oxygen utilisation was calculated according to Garcia and Gordon (1992). Samples for nutrients, filtered through Whatman GF/F and preserved with saturated mercuric chloride (0.5% v/v), were analysed using an autoanalyser (Skalar San++) following standard methods (Grasshoff et al 1999), except nitrate which was analysed following the method of García-Robledo et al (2014). Ammonium was measured spectrophotometrically (Grasshoff et al 1999). The precisions of nitrate, nitrite, ammonium, and phosphate were ±0.01, ±0.03, ±0.1 and ±0.01 µM, respectively. For particulate organic matter, 4–6 l of seawater was filtered through 47 mm Whatman GF/F filters (precombusted at 400 °C for 4 h) and preserved at −40 °C. The overnight oven-dried filters for carbon were decarbonated with HCl fumes, whereas nitrogen isotopic composition was measured from untreated filters. Carbon and nitrogen isotopic composition in these filters were analysed using an isotope ratio mass spectrometer attached to an elemental analyser (Thermo Flash 2000 + Delta V) with a precision of <0.1‰ and <0.3‰, respectively. Dissolved organic carbon and nitrogen in the filtrates were analysed using a TOC-TN analyser (Shimadzu) with an accuracy of ±1%. Chlorophyll a in the seawater (2–3 l filtered onto 25 mm Whatman GF/F filters in dark and stored at −80 °C) was extracted in 100% methanol and analysed using high performance liquid chromatography (Shimadzu Prominence) (Roy et al 2015). 4. Results and discussion 4.1. Significance of anthropogenic effect on coastal deoxygenation Temporal changes between early, peak and late phases of the SM upwelling showed two significant features (figure 1): the gradual intensification of shelf oxygen deficiency from hypoxic during early SM to suboxic/anoxic by late SM and the other, a gradient in it, with the suboxia/anoxia (≤5 µM) confined to the central shelf between 11º and 18º N, and hypoxia prevailing to the north and south of it. This reflects that almost half of the western Indian shelf in the central region is under acute stress. There are several factors that appear to unrelate the development of this coastal anoxia to the anthropogenic effect. First, the anoxic central zone is located away from receiving significant anthropogenic inputs unlike in the coastal waters off Kochi (10º N) in the south and Mumbai (19º N) in the north, the two largest coastal cities of west India, which receive substantial allochthonous inputs, yet remained at hypoxia during entire SM. The increased anthropogenic activities have not impaired these coastal waters (Balachandran 2001) as evident from their decadal changes. The Kochi estuary has been transformed from an autotrophic to a highly heterotrophic system between 1965 and 2005 (Gupta et al 2009) due to a 4–6 fold rise in anthropogenic nutrients (Martin et al 2010). Yet, its SM coastal hypoxia remains unchanged during this period (Gupta et al 2016) because the fast turnover rates of nitrogen within the flushing times of the estuary (Bhavya et al 2016) limits its export impact to the nearshore regions only (Gupta et al 2016, Bhavya et al 2017, 2018). This is also true with other monsoonal estuaries of west India which are acting as heavy sink zones and export only <10% of anthropogenic nutrients to the coastal sea (Krishna et al 2016). Second, nutrient concentrations in the lower reaches of seven main estuaries along the west coast during early and late phases of SM showed more than two-fold lower concentrations in the estuaries of the central region, where coastal anoxia is confined, than those in the northern and southern regions (figure 2). Though not measured, the estuarine nutrients during peak SM can contribute to coastal deoxygenation. But the high nearshore surface salinity (upper 4 m) at the central shelf (Mangalore and Goa) during peak SM (34.27–35.36) compared to that of Kochi (24.26) shows weak runoff over the former shelf (figure 3), still, it maintained with nitrate replete (9.5–13 µM) and anoxic conditions (figure 1). Third, we examined the data on the stable isotopic composition of particulate organic carbon (POC) and nitrogen (PN) during the SM (figure 3). High δ15NPN (15.8 ± 1.6‰) and low δ13CPOC (−31.5 ± 1‰) were found in the sewage from a coastal outfall at Mumbai (Sarma et al 2019). These δ15NPN are distinctly higher than our measured values at nearshore regions of Kochi (7.7‰–7.8‰) and the rest of the west coast (8‰–13‰) including those reported off Goa earlier (7.77 ± 1.57‰; Maya et al 2011), indicating an absence of anthropogenic influence due to intense mixing and rapid dilution of these waters once enter the coastal sea. Similarly, except nearshore waters of Kochi during late SM (−15.3‰), the δ13CPOC from rest of the coast, including the anoxic central zone (−20‰ to −25.5‰) and off Goa (−19.0 ± 0.67‰; Maya et al 2011), largely fell in the range reported for organic matter of marine origin (−18‰ to −24 ‰; Cloern et al 2002, Bouillon et al 2003). Since the nearshore waters of Kochi show high δ13CPOC with high salinity during late SM, it precludes the possibility of significant terrestrial influence as it is quite close to the values observed for sea grass or macroalgae (−16‰ to −19‰; Hondula and Pace 2014). Notably, δ13CPOC (−21.7‰ to −22.2‰) during the maximum runoff conditions at Kochi nearshore during peak SM (salinity 24.26–28.1) also did not deviate significantly from the typical marine signature, when it maintained with bottom hypoxia (17–31 µM). These are in accordance with the last three decadal regular monitoring of coastal waters around India, which shows that the coastal waters within ~2 km from the vicinity of population centres, especially mega cities like Kochi and Mumbai, only felt with significant anthropogenic effect (Madeswaran et al 2018) due to their rapid dilution beyond this distance. Thus the observed weak or no anthropogenic signal even at the nearshore stations (8–13 km away from the coast) along the EAS is consistent with no terrestrial nutrients influence beyond ~15 km from the coast in the Bay of Bengal (Sarma et al 2020b). Overall the isotopic data in conjunction with salinity during the study period (figure 3) suggests that the nutrient source of organic matter to the anoxic central zone is likely of marine origin. Higher δ15NPN in the central region (>9‰) compared to Kochi (7.1‰–7.8‰), despite salinity at the former region was higher than the latter, suggest the isotopically enriched source of nitrogen during the formation of organic matter as these values are higher than typical δ15N for phytoplankton in marine waters (Kumar et al 2004). The enriched source of nitrogen for these waters could be sewage (15.8 ± 1.6‰; Sarma et al 2019) or denitrified upwelling (9‰–12‰; Rixen et al 2014) or sediment pore water. However, no significant drop in salinity at these locations indicates the limited contribution of freshwater mediated waste supply. Therefore, it is highly likely that the source of nutrients for the formation of organic matter at these locations is marine-derived natural processes. Moreover, even during peak SM, when significant freshwater was received at Kochi nearshore (surface salinity ~24), no significant increase in δ15NPN was observed implying rapid dilution of terrestrial inputs within few kilometres from the coast. Similar is the case with Mangalore where the low salinity front observed between stations 3 and 4 during peak SM shows δ15NPN of denitrified marine signals (figure 3). To further confirm the possible influence of anthropogenic sources on coastal anoxia, paleoceanographic records are examined. Organic carbon isotopic composition and variability in iron content in the sediment core were taken as proxies for the source of carbon and redox conditions in the water column, respectively. The sediment cores from the shallow stations of the central west coast of India, dated to ~350 years, were found to have a narrowly varied isotopic composition of organic carbon (−23‰ to −21‰) indicating its marine origin (Fernandes et al 2020). The authigenic iron contents in these cores also did not show significant variability between the recent and past centuries. Similarly, almost uniform Fe/Al (0.78 ± 0.04) and Mg/Al (0.32 ± 0.02) ratios in the sediment core in the last ~700 years infer no considerable change in nature and source of detritus (Agnihotri et al 2008). Dinoflagellate cysts are good indicators of ecosystem eutrophication by anthropogenic factors (Price et al 2018), and their tracking history in the sediment core from the west coast of India also did not indicate any sign of terrigenous derived organic matter (D'Silva et al 2012). Unlike the coastal systems of the Gulf of Mexico, Gulf of St. Lawrence, etc where paleo records show a significant impact of anthropogenically derived eutrophication (Rabalais et al 2007, Gilbert et al 2010, Price et al 2018), the studies on coastal system of west India have not shown such effect. These findings along with our earlier observation of unchanged hypoxic conditions compared to five decades ago over the southwest coast of India corroborate the view that the coastal deoxygenation is supported by the oceanic processes (Gupta et al 2016). All these observations collectively strengthen the possibility that the anoxic conditions along the central west coast are not primarily related to the anthropogenic effect. 4.2. Influence of circulation on the variation of OMZ and its expansion onto the coast It is known that the upwelling waters of the EAS originate from the Arabian Sea OMZ (Banse 1959), however, it is unknown till now the depth and dissolved oxygen concentrations of source waters for the upwelling. Our results show that the extent of shelf deoxygenation follows the corresponding spatio-temporal changes in the distribution of dissolved oxygen concentrations in the offshore OMZ. To begin with, the upwelling of deoxygenated waters initiated in the south is progressed up to 15° N by early SM, and to the entire west coast by peak SM (figure 1). While doing so, the shelf exhibited significant deoxygenation gradients with anoxia confined to the central shelf between 11° and 18° N. The upper boundary of OMZ (20 µM oxygen), varied between ~100 m in the south to ~130 m in the north during early SM, shallows with the progression of the season to a peak to ~70 m in the central region by late SM (figure 4), and accordingly forms the source for upwelling (figure 5). Further, the perennial OMZ has a southern boundary at ~12° N (Naqvi 1991), its 0.2 ml l−1 (~9 µM) dissolved oxygen isoline slopes northward up to 18° N (figure 1). These lead to a condition wherein the upwelling waters over the central shelf are sourced from the core OMZ which are suboxic (≤10 µM) while those of the south and north are from hypoxic waters (~20 µM) outside the core OMZ (figure 4). These core OMZ denitrified waters have enriched δ15NPN of 9‰–12‰ at 100–150 m (Rixen et al 2014), the upwelling of these waters contributed to higher δ15NPN over the central shelf (>9‰), consistent with the values reported earlier (Maya et al 2011), compared to the southern shelf (<8‰) (figure 3). Though the upwelling propagates from south to north, its onset in the south is evident at 100 m during January–February, peaks to the surface layers during the SM (June–August), and subsides abruptly thereafter (Gupta et al 2016). However, the present intra-seasonal data shows that while progressing to the north, the peak phase of upwelling over the southern and northern shelves end up at hypoxia while the upwelling over the central shelf is sustained till late SM but with suboxia/anoxia (figure 6). These changes in the coastal waters are also accompanied by similar changes in the offshore waters. The doming of the water column seen at 10° N during early SM shallows and strengthens in size up to 11° N by peak SM, and thereafter shifts to 14° N by late SM (figure 4). This shift, as shown by the weekly averaged satellite data on sea surface height anomalies, is governed by the formation of cold-core eddies in the south and central regions respectively during peak and late SM (figure 7). This leads to a shift in the upliftment of the water column/oxycline from outside core OMZ to within core OMZ during the progression of SM. Consequently, the core OMZ waters of the central region shoal from >100 m to ~70 m between early and late SM, the corresponding change in oxygen regime in upwelling source waters from hypoxia to suboxia (figure 4) influences the intensification of deoxygenation over the central shelf (figures 5, 6 and 8). Such spatial and temporal shifting of cyclonic eddies, influencing the intensity and spatial spread of upwelling and, in turn, the patterns of distribution of dissolved oxygen over the shelf, as seen from the sea surface height anomalies from 2012 to 2017 (figures S1 and S2 (available online at stacks.iop.org/ERL/16/054009/mmedia)), is probably a recurrent feature. The poleward west India under-currents at 50–150 m, gain strength between peak and late SM, carry relatively ventilated waters (Naqvi et al 2006) up to 11–12° N (figures 4 and S3). Their progression also restricts the upwelling of suboxic (<10 µM) core OMZ waters to the north of 11° N and governs the southern boundary of shelf anoxia (figures 1 and 5). The equatorward advection of Arabian Sea High Salinity Watermass (ASHSW >36) with WICC also has a role in maintaining the oxygen gradients between the north and central regions. The oxygenated ASHSW is about 150 m thick in the north and caps the cold (20 °C) and hypoxic (~20 µM) waters (figure 4). The upwelling of these relatively aerated waters over the shelf north of 19° N maintains its hypoxic conditions (figures 5 and 8). But between 18° and 12° N, the ASHSW is gradually eroded to <70 m, enabling an intense upwelling of suboxic waters on to the central shelf. However, the ASHSW still acts as a barrier for upward movement of anoxic layers along the central west coast. Though coastal anoxia is confined to 11–18° N, north of 15° N (for example, off Goa—figure 8) where the pycnocline is thicker, it is less-spread whereas the shallow pycnocline south of 15° N leads to large parts of the water column becoming anoxic, thereby the severity of anoxic volume is higher at Mangalore than at Goa. 4.3. Influence of shelf biogeochemistry and biology on deoxygenation Though physical factors govern the spread of deoxygenated upwelling waters, shelf biogeochemistry and biology also play a crucial role in maintaining the observed gradients. In phase with the decreasing upwelling intensity towards the north, the phytoplankton biomass (column chlorophyll a) between the nearshore and mid-shelf regions during the SM months was higher in the south (77 ± 47 mg m−2) compared to the central (56 ± 26 mg m−2) and northern (56 ± 23 mg m−2) regions. But the corresponding bottom oxygen consumption rates (based on changes in apparent oxygen utilisation), following the decay of plankton, remained relatively higher in the central (1.91 ± 0.8 µM l−1 d−1) than in the southern (1.59 ± 0.6 µM l−1 d−1) and the northern (1.68 ± 0.4 µM l−1 d−1) regions. As the abundance of zooplankton and herbivorous fishes in the suboxic/anoxic (hypoxic) waters of the central (southern) shelf are expected to be lower (higher) (Stramma et al 2011, Gupta et al 2016, Roman et al 2019), the lower grazing loss of phytoplankton in the central shelf results in higher decomposition of sinking organic matter (figure S4) and intensifies oxygen depletion. 5. Conclusions This study clearly shows that the development of seasonal anoxia over the central-western shelf of India is a natural phenomenon caused by the upwelling of core OMZ waters, to which upwelling driven biogeochemical processes add. The incidence and spread of this coastal anoxic zone may vary depending on the interannual variation in the intensity of SM, which in turn is influenced by climatic events. For example, the weak upwelling during El Niño-Southern Oscillation (ENSO) years has led to the incursion of relatively oxygenated waters and no or weak coastal anoxia was formed (figure S5). Even model studies have found prevention of anoxia formation during Indian Ocean Dipole (IOD) years over the west coast of India (Parvathi et al 2017), which also supports our argument of it being driven naturally. The observed weak cyclonic eddies during the IOD (2012) and ENSO (2014–2015) years relative to normal years (figures S1 and S2) also support this. Similarly, the ENSO years of weak winter cooling (Chakraborty et al 2017) can alternately weaken the strength of ASHSW and influence the upwelling intensity. The fact that equatorward spread of ASHSW through WICC interacting with upwelling influences the spatio-temporal variation of oxycline depth is a significant finding as larger the anoxic volume greater the reduction in habitat for higher pelagic organisms, which in turn, alters the trophic food web dynamics (Diaz and Rosenberg 2008, Stramma et al 2011). This is especially true during late SM when fresh water laden salinity stratification (oxic zone) is sharply retreating and upwelling driven anoxic volume is proportionately increasing it leads to a scenario of pelagic fishes gets trapped into the rapidly shrinking habitable oxic volume towards the coast and washed ashore over the central coast (at Goa beach, see figure 2.3.12 of Naqvi 2019). Similar fish mortality were also happening in the regions of sharp hypoxic-anoxic boarders such as one that happened at ~11–12° N during late SM 2019 (figure S6). Nevertheless, the present study, pointing out the natural origin of the world's largest coastal anoxia over the central west coast of India as an example, may infer that not all the coastal anoxic systems around the world are anthropogenically dead zones.

## Food

### \*Big AG K2 Low Prices\*---2NC

#### Big AG is best for low prices---their criticisms misidentify the causes of price inflation

Bork, 21 – (Robert H. Bork is a former special assistant to the US Trade Representative, and is president of the Washington-based [Antitrust Education Project](https://www.antitrusteducationproject.org/)., "Biden's antitrust demagoguery will drive inflation, not cure it," 9-8-2021, https://thehill.com/opinion/finance/571009-bidens-antitrust-demagoguery-will-drive-inflation-not-cure-it?rl=1) nL

Let’s start with **food prices and Big Ag**.

Two University of Idaho economics professors, Philip Watson and Jason Winfree, wrote in [The Idaho Statesman](https://www.idahostatesman.com/opinion/readers-opinion/article253799648.html) that **larger farms and agricultural companies**, which have the **capita**l to invest in **expensive technology** and **economies of scale**, actually have been making food **steadily** more affordable. It is precisely because of these economies of scale that the cost of food, until the disruption of the pandemic, was taking less out of household budgets. The professors conclude that “**breaking up Big Ag** could have the **disastrous effect** of **raising food prices**, which would likely have a disproportionate impact on poorer households.”

If the Biden approach to agriculture and food is demagogic, its approach to oil and gas is risible. The current increase in gasoline prices results from the supply chain disruption caused by the pandemic, exacerbated by recent hurricanes and storms. It also may be partly because of the unrelenting hostility of the Biden administration to American energy, putting [public lands off limits](https://www.npr.org/sections/president-biden-takes-office/2021/01/27/960941799/biden-to-pause-oil-and-gas-leasing-on-public-lands-and-waters), killing the [Keystone XL pipeline](https://www.politico.com/news/2021/01/20/joe-biden-kills-keystone-xl-pipeline-permit-460555) and using regulation to [harass the fracking industry](https://www.cfr.org/in-brief/whats-next-fracking-under-biden), despite the fact that cleaner-burning natural gas has helped reduce America’s greenhouse gas emissions. Technological advances led the United States to surpass Saudi Arabia and Russia in 2018 to become the world’s [leading producer](https://www.investopedia.com/investing/worlds-top-oil-producers/) of oil. Biden’s antitrust policy also may be contributing to the sudden reversal of this energy glut. It was out of antitrust concerns that Berkshire Hathaway [pulled out of](https://keyt.com/news/money-and-business/cnn-business-consumer/2021/07/12/berkshire-hathaway-scraps-pipeline-purchase-because-of-antitrust-concerns/) a major natural gas pipeline deal earlier this year.

What has been the Biden administration’s response to recent shortages? It has not been to stimulate production at home or to help clear pipeline bottlenecks. Instead, national security adviser [Jake Sullivan](https://thehill.com/people/jake-sullivan) issued a statement pleading with OPEC and Russia to [come to our rescue](https://www.reuters.com/world/middle-east/us-call-opec-its-allies-increase-oil-production-cnbc-2021-08-11/). OPEC demurred and Russian President [Vladimir Putin](https://thehill.com/people/vladimir-putin) used Sullivan’s entreaty to issue a humiliating “nyet.”

The **real** cause of inflation, of course, is **recovery from a pandemic** and **the temporary economic depression** it caused. It also might be driven by the reckless spending by presidents and Congresses of both parties. Our [national debt](https://www.usdebtclock.org/) is now 125 percent of our [gross domestic product](https://www.bea.gov/news/2021/gross-domestic-product-second-quarter-2021-advance-estimate-and-annual-update) — higher than the previous high in 1946, when we won a victory over Germany and Japan rather than losing a war to the Taliban.

**Blaming Big Ag** and Big Oil for high prices will be popular. **It also will be perverse**. The **abandonment** of the consumer welfare standard will, if anything, **lead to higher prices** in both food and fuel for those least able to pay for it.

#### Studies prove alternatives to Big AG raise prices and are worse for the environment

Sexton, 11 – (Steve Sexton is an assistant professor of public policy and economics at Duke University's Sanford School of Public Policy, Steven teaches public economics to undergraduate students and environmental and energy economics to doctoral students. His research employs big data, machine learning, and econometrics to analyze policy and consumer and firm behaviors at the intersection of agriculture, energy, and the environment. A UC Berkeley PhD, Steven's research and commentaries have been featured in leading popular press, including the Wall Street Journal and the Washington Post. With experience working for California Governor Arnold Schwarzenegger, he has advised utilities and firms subject to California's Global Warming Solutions Act., "The Inefficiency of Local Food," Freakonomics, 11-14-2011, https://freakonomics.com/2011/11/14/the-inefficiency-of-local-food/) nL

Two members of Congress earlier this month introduced [legislation](http://brown.senate.gov/newsroom/press_releases/release/?id=62ee64a8-f401-4387-9b2f-ab35ed0fbacc) advancing a food reform movement promising to help resolve the great environmental and nutritional problems of the early 21st century. The intent is to remake the agricultural landscape to look more like it did decades ago. But unless the most basic laws of economics cease to hold, the smallholder farming future envisioned by the local farming movement could jeopardize natural habitat and climate change mitigation efforts, while also endangering a tenuous and temporary victory in the battle against human hunger.

The “Local Farms, Food and Jobs Act” sponsored by Senator Sherrod Brown of Ohio and Representative Chellie Pingree of Maine, throws about $200 million to local farm programs. That’s a rounding error in the $3.7 trillion federal budget. But the bill follows on a [federal rule](http://www.foodsafetynews.com/2011/04/usda-rule-to-encourage-local-food-for-school-meals/) that gives preference to local farms in contract bidding for school lunches. It also builds on high-profile advocacy by Michelle Obama, who has become a leader of the food reform movement, joining the likes of Michael Pollan, the author of [The Omnivore’s Dilemma](http://www.amazon.com/Omnivores-Dilemma-Natural-History-Meals/dp/1594200823), and famed-chef Alice Waters. The bill’s introduction came as the world population [hit 7 billion](http://www.freakonomics.com/2011/10/19/what-are-the-impacts-of-seven-billion-people/), a milestone that provides a stark reminder of the challenge agriculture faces to feed a world population expected to grow to 9 billion by 2050. Experts estimate that in the next 50 years, the global food system [likely needs](http://www.guardian.co.uk/environment/2007/aug/31/climatechange.food) to produce as much food as it did in the previous 10,000 years combined.

Amid heightened concern about global climate change, it has become almost conventional wisdom that we must return to our agricultural roots in order to contain the carbon footprint of our food by shortening the distance it travels from farm to fork, and by reducing the quantity of carbon-intensive chemicals applied to our mono-cropped fields.

But implicit in the argument that local farming is better for the environment than industrial agriculture is an assumption that a “relocalized” food system can be just as efficient as today’s modern farming. That assumption is simply wrong. Today’s high crop yields and low costs reflect gains from specialization and trade, as well as scale and scope economies that would be forsaken under the food system that locavores endorse.

Specialization and Trade

Economists have long recognized the welfare gains from specialization and trade. The case for specialization is perhaps nowhere stronger than in agriculture, where the costs of production depend on natural resource endowments, such as temperature, rainfall, and sunlight, as well as soil quality, pest infestations, and land costs. Different crops demand different conditions and vary in their resilience to shocks. So California, with mild winters, warm summers, and fertile soils produces all U.S.-grown almonds and 80 percent of U.S. strawberries and grapes. Idaho, on the other hand, produces 30 percent of the country’s russet potatoes because warm days and cool nights during the season, combined with rich volcanic soils, make for ideal growing conditions.

In 2008, according to the USDA, Idaho averaged 383 hundredweight of potatoes per acre. Alabama, in contrast, averaged only 170 hundredweight per acre. Is it any wonder Idaho planted more acres of potatoes than Alabama?

Forsaking comparative advantage in agriculture by localizing means it will take more inputs to grow a given quantity of food, including more land and more chemicals—all of which come at a cost of carbon emissions.

It is difficult to estimate the impact of a [truly locavore](http://en.wikipedia.org/wiki/Locavores#Strategies) farming system because crop production data don’t exist for crops that have not historically been grown in various regions. However, we can imagine what a “pseudo-locavore” farming system would look like—one in which each state that presently produces a crop commercially must grow a share proportional to its population relative to all producers of the crop. I have [estimated](http://giannini.ucop.edu/media/are-update/files/articles/v13n2_2.pdf) the costs of such a system in terms of land and chemical demand.

My conservative estimates are that under the pseudo-locavore system, corn acreage increases 27 percent or 22 million acres, and soybean acres increase 18 percent or 14 million acres. Fertilizer use would increase at least 35 percent for corn, and 54 percent for soybeans, while fuel use would climb 23 percent and 34 percent, for corn and soybeans, respectively. Chemical demand would grow 23 percent and 20 percent for the two crops, respectively.

In order to maintain current output levels for 40 major field crops and vegetables, a locavore-like production system would require an additional 60 million acres of cropland, 2.7 million tons more fertilizer, and 50 million pounds more chemicals. The land-use changes and increases in demand for carbon-intensive inputs would have profound impacts on the carbon footprint of our food, destroy habitat and worsen environmental pollution.

It’s not even clear local production reduces carbon emissions from transportation. The Harvard economist Ed Glaeser [estimates](http://articles.boston.com/2011-06-16/bostonglobe/29666344_1_greenhouse-gas-carbon-emissions-local-food) that carbon emissions from transportation don’t decline in a locavore future because local farms reduce population density as potential homes are displaced by community gardens. Less-dense cities mean more driving and more carbon emissions. Transportation only accounts for 11 percent of the carbon embodied in food anyway, according to a [2008 study by researchers](https://freakonomics.com/2011/11/14/2008/06/09/do-we-really-need-a-few-billion-locavores/) at Carnegie Mellon; 83 percent comes from production.

Economies of Scale

A local food production system would largely upend long-term trends of growing farm size and increasing concentration in food processing and marketing. Local “food sheds” couldn’t support the scale of farming and food processing operations that exist today—and that’s kind of the point. Large, monocrop farms are more dependent on synthetic fertilizers and tilling operations than small polycrop farms, and they face greater pest pressure and waste disposal problems that can lead to environmental damage.

But large operations are also more efficient at converting inputs into outputs. Agricultural economists at UC Davis, for instance, analyzed farm-level surveys from 1996-2000 and [concluded](http://giannini.ucop.edu/media/are-update/files/articles/v6n4_2.pdf) that there are “significant” scale economies in modern agriculture and that small farms are “high cost” operations. Absent the efficiencies of **large farms**, the use of polluting inputs would rise, as would food production costs, **which would lead to more expensive food.**

**Innovation DA**

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#### U.S. leadership on high-tech solutions to food security’s key to global climate progress and successful competition against China

Gordon M. **Goldstein 21**, an adjunct senior fellow at the Council on Foreign Relations; and Erik R. Oken, 4/22/21, “America’s New Challenge: Confronting the Crisis in Food Security,” https://www.cfr.org/blog/technology-and-youth-represent-nigerias-path-out-woods

The Biden administration has encouraged the world with its renewed commitment to the Paris accord and the goal of combatting the **existential challenge** of global climate change. But that bold objective will not be achieved without a comprehensive parallel American exercise of leadership to **confront the crisis in food security**. Such a strategy is imperative on a global basis and critical to U.S. domestic policy. The challenge of food security will require **leveraging** advances in **tech**nology and demand policy innovation within the U.S. government and deep cooperation between the public and private sectors. If not tackled comprehensively and effectively, failure to mitigate the crisis in the sustainability of our global food supply chain will devastate the multilateral effort to arrest climate change.

The global dimensions of food instability are staggering. As the global population grows to a projected 10 billion in 2050, with a concurrent growth in income, overall food requirements are forecast to increase [PDF] by more than 50 percent. The demand for resource-intensive foods like meat and dairy is projected to grow by 70 percent.

The crisis in food sustainability displays a disturbing daily cadence. The world has lost 1,000 football fields worth of forest every hour, almost 30 million acres annually. According to a recent scientific study, climate change has diminished global food productivity by more than 20 percent over the past 60 years. If crop and pasture yields continue to grow as projected, by 2050 agricultural land will need to increase by an area nearly twice the size of India.

Not surprisingly, the world’s most populous and wealthy countries contribute the most to the crisis in food sustainability. Roughly 40 percent of greenhouse gas emissions from agriculture are clustered in four countries—the United States, China, India and Brazil. Since 1990, roughly 24 percent of global Greenhouse Gas Emissions can be attributed to the food system and our disproportionate reliance on livestock. Further exacerbating the problem is the methane produced in the agriculture industry, which is ~30 to ~80 times as deleterious to the environment as carbon dioxide.

The **U**nited **S**tates suffers from its own acute national challenges. Estimates suggest 23 million people live in so-called “food deserts”—low-income areas with poor access to healthy food. The pandemic, which has led to over 50 million Americans facing food insecurity, has illustrated the weakness in our food system and supply chain resiliency. Americans in lower income segments spend 30-40 percent of their income on food. The food security crisis in the **U**nited **S**tates has recently prompted the Biden administration to propose tens of billions of dollars of new federal assistance to American families at risk.

The **U**nited **S**tates has historically used food policy to **strengthen its relationship with friends and allies** through initiatives such as the U.S. Food for Peace Program, the 1960’s “Green Revolution” or the so-called “Third Agricultural Revolution” which featured research and technology transfers that significantly increased agricultural production globally while feeding millions and increasing U.S. influence worldwide.

The **U**nited **S**tates is **once again poised** to use its rich history of innovation in foreign **ag**ricultural policy to both **enhance its influence with friends and allies** where food insecurity is a major issue—the **Middle East**, **Africa**, and emerging economies in **Asia**. These include some of the **same countries** that **China is courting through its “Belt and Road” initiative**, which seeks to construct a massive infrastructure network around the world.

The **U**nited **S**tates should leverage its private and public sources of capital and innovation, in partnership with new and incumbent players in the corporate community, to accelerate the transition to global food sustainability.

Advances in emerging technologies hold the promise to both alleviate the food crisis and amplify American influence abroad. The next era of food sustainability will be influenced by breakthroughs in global **tech**nology such as fifth generation telecommunications, robotics, **a**rtificial **i**ntelligence, and **nano**technology. Specific areas of technology investment that will contribute to higher levels of productivity and efficiency in food generation with a decreased impact on the environment encompass initiatives in **ag**ricultural **biotech**nology, such as genetics, microbiome, breeding and animal health; alternative food products, including plant-based forms of alternative protein, which are surging in popularity and adoption; farm management systems, including sensing and data analytics software; **farm robotics**, including automation and drone based monitoring; and new farming structures, such as indoor farming and aquaculture.

In addition, the Biden administration needs to drive tax, investment, regulatory and subsidy policies that encourage the increased flow of capital into the transition to viable food sustainability strategies, including investment into cell-based and plant-based meats; the wider implementation of regenerative agriculture practices, including agribusiness marketplaces and farm robotics, mechanization and equipment; and, finally, the reduction of waste throughout the food value chain. The companies and countries that are the leaders in these areas of innovation will not only **strengthen global food supply** but also **capture the i**ntellectual **p**roperty, **info**rmation **and data** that is embedded in the global food supply chain. In addition to addressing an urgent global challenge, American innovation in food security would support the goals of the Strategic Competition Act of 2021, bipartisan legislation crafted by the Senate Foreign Relations Committee that seeks to **counter China’s growing economic and geopolitical and technology competition** with the **U**nited **S**tates.

Meeting the food sustainability challenge will require creativity and a new level of engagement between the public and private sectors. The Biden administration should consider creating a high-level commission of government and private sector experts to compose a multifaceted food sustainability strategy. That group should include the former secretary of state, John Kerry, who has been appointed the president’s special envoy for climate change; the secretary of agriculture, Tom Vilsack; representatives of the National Security Council and the National Economic Council; the Administration for International Development as well as other government agencies working in concert with corporate, academic, and think tank leaders on the issue of food sustainability.

The world is **hungry for American leadership** in the quest to solve the food security crisis. It is time for Washington to act ambitiously, applying imagination and strategic determination to this seminal twenty-first century problem.

**Goldstein says U.S. food leadership sustains multilateral progress on climate change**

David **Spratt 19**, Research Director for Breakthrough National Centre for Climate Restoration, Ian Dunlop, member of the Club of Rome, formerly an international oil, gas and coal industry executive, chairman of the Australian Coal Association, May 2019, “Existential climate-related security risk: A scenario approach,” https://docs.wixstatic.com/ugd/148cb0\_b2c0c79dc4344b279bcf2365336ff23b.pdf

An existential risk to civilisation is one posing **permanent large negative consequences** to humanity which may never be undone, either **annihilating intelligent life** or permanently and drastically curtailing its potential.

With the commitments by nations to the 2015 **Paris** Agreement, the current path of warming is 3°C or more by 2100. But this figure does not include “long-term” **carbon-cycle feedbacks**, which are materially relevant now and in the near future due to the **unprecedented rate** at which human activity is perturbing the climate system. Taking these into account, the Paris path would lead to around 5°C of warming by 2100.

Scientists warn that warming of 4°C is incompatible with an organised global community, is **devastating** to the **majority of ecosystems**, and has a **high probability** of not being stable. The World Bank says it may be “**beyond adaptation**”. But an existential threat may also exist for many peoples and regions at a significantly lower level of warming. In 2017, 3°C of warming was categorised as “catastrophic” with a warning that, on a path of unchecked emissions, low-probability, high-impact warming could be catastrophic by 2050.

The Emeritus Director of the Potsdam Institute, Prof. Hans Joachim Schellnhuber, warns that “climate change is now reaching the **end-game**, where very soon humanity must choose between **taking unprecedented action**, or accepting that it has been left too late and **bear the consequences**.” He says that if we continue down the present path “there is a very big risk that we will just **end our civilisation**. The human species will survive somehow but we will destroy almost everything we have built up over the last two thousand years.”11

Unfortunately, conventional risk and probability analysis becomes useless in these circumstances because it excludes the full implications of outlier events and possibilities lurking at the fringes.12

Prudent risk-management means a tough, objective look at the real risks to which we are exposed, especially at those **“fat-tail” events**, which may have consequences that are damaging beyond quantification, and **threaten the survival of human civilisation**.

Global warming projections display a “fat-tailed” distribution with a **greater likelihood** of warming that is well in **excess of the average amount of warming predicted by climate models**, and are of a higher probability than would be expected under typical statistical assumptions. More importantly, the risk lies disproportionately in the “fat-tail” outcomes, as illustrated in Figure 1.

**UQ**

**Ag innovation’s high---private sector’s key, public funding can’t fill in**

Julian M. **Alston 20**, Distinguished Professor of Agricultural and Resource Economics and Director of the Robert Mondavi Institute at University of California, Davis; and Philip Pardey, Professor of Science and Technology Policy in the Department of Applied Economics, and Director of the University of Minnesota's International Science and Technology Practice and Policy center, May 2020, “INNOVATION, GROWTH AND STRUCTURAL CHANGE IN AMERICAN AGRICULTURE,” https://www.nber.org/system/files/working\_papers/w27206/w27206.pdf

**Government policy** has been a central theme in our discussion of **ag**ricultural innovation because the government plays a central role both in contributing directly to the innovation process, as a major provider of agricultural R&D, and in **setting the rules of the game** that determine the supply of and demand for agricultural innovations. In the current environment for agriculture, demands for private innovation investments are being influenced by government through the prospect of new regulations (or taxes) applied to agricultural production, including technological regulations and environmental **reg**ulation**s** to reduce greenhouse gas emissions and other spillovers from agriculture; and through the influence of policy on the supply of inputs (especially labor and water) to agriculture, and on the markets for farm products. A more subtle influence of government is through changing support for public sector R&D (in terms of both the total investment and the balance of investments) influenced by a changing role of scientific evidence in policy and shifting public preferences.29 These shifts create some opportunities for the private sector and foreclose others.

The **N**ational **A**cademies of **S**cience, Engineering and Medicine (2019) recently published a new agricultural research agenda for the United States entitled Science Breakthroughs to Advance Food and Agricultural Research by 2030. This report identifies innovative, emerging scientific advances for making the U.S. agricultural and food system more efficient, resilient, and sustainable. The report presents five priorities:

1. Increasing understanding of the animal, soil, and plant microbiomes and their broader applications across the food system.

2. Harnessing the potential of genomics and precision breeding to improve plant and animal traits.

3. Capitalizing on agri-food informatics to enable advanced analytics using data sciences, information technology, and artificial intelligence

4. Employing existing sensors and developing new sensing technologies to enable rapid detection and monitoring

5. Prioritizing transdisciplinary science and systems approaches.

A fundamental motivation for this effort was a concern over the **shrinking total support for public agricultural R&D** in the United States and the loss of direction in terms of the focus of the shrinking public funds. Among these five priorities, most of the topics entail significant opportunities for **private entrepreneurial activity** to generate **proprietary research products**. Notably, three of the five are predominantly digital, data-intensive systems.

8. Conclusion

U.S. agriculture was transformed during the 20th century by waves of innovation with mechanical, biological, chemical, and information technologies. Compared with a few decades ago, today’s **ag**riculture is much less labor intensive and **farms are much larger and more specialized**, supplying a much-evolved market for farm products. Over recent decades, the global landscape for agricultural R&D has shifted away from farms, away from the public sector towards the private sector, and away from the United States towards agriculturally important middle-income countries, especially China, India and Brazil. Investments are stalling even though meta-evidence shows that past U.S. investments in R&D have yielded very favorable returns: median reported benefit cost-ratios in the range of 12:1. **Sustained U.S. investment and innovation will be required** to preserve past productivity gains in the face of climate change, coevolving pests and diseases, and changing technological regulations—let alone increase productivity. Great potential exists for innovation in crop and livestock genetics and digital farming technologies to generate new products and production processes, but **innovators have to overcome** increasingly strong **headwinds from social and political forces that seek to dictate technology choices**.

**Mergers Key---2NC**

**Splitting ag companies wrecks the capacity for innovation because it costs hundreds of millions with uncertain returns over decades---only mergers make it viable**

Ed **Wiederstein 17**, Iowa View Contributor, Former President of the Iowa Farm Bureau and Audubon-Area Farmer, “Ag Mergers Could Lead To New Advancements For Farmers”, Des Moines Register, 4/10/2017, https://www.desmoinesregister.com/story/opinion/columnists/iowa-view/2017/04/10/ag-mergers-could-lead-new-advancements-farmers/100290696/

In a world where Twitter is becoming an accepted form of language, we are reminded daily of how **advancements** in **technologies** are **driving our nation’s future**. In Iowa, the **ag**ricultural community has **long understood** and **embraced** this fact.

As an example, Iowa is one of the largest **soybean producers** in the U.S., and farming **continues to evolve** to **maintain** a **key role** in the **global food supply chain**. The **demand** for our nation’s soybeans is **climbing**, as diets around the world **continue to improve** and as soy is **used for other products** including plastics and biodiesel fuel.

Every year we continue to face many of the same **challenges** in Iowa and across the nation. Unpredictable weather patterns make it difficult for farmers to forecast revenues. Protecting crops against pests while sustaining a healthy environment is a challenge. And as the global dietary demands change, farmers must be appropriately **equipped** and **knowledgeable** on how to **evolve** along with it.

While farmers have been facing these challenges for centuries, recent **advancements** in **innovation** have helped us **take leaps and bounds** towards the most protected high-quality crops in history. With the development of more **innovative pesticides** and **advanced sustainability measures** for **soil protection**, we now have the ability to grow **more robust crops** even in less than ideal conditions. In fact, the USDA has reported U.S. farm output has **increased steadily** over the 20th century — with an increase of more than 170 percent from 1948 to the late 2000s.

These advancements are enabling farmers and ranchers to increase their operation’s efficiency and produce a more sustainable harvest. This not only enables higher yields from less land, but also allows for greater diversification in crop production.

We must remember the importance of supporting innovation and advancement in solving new challenges. When **funding** was more plentiful, **land-grant universities** and **extension offices** were able to dedicate more resources to fostering ag innovation. Now, **private** industry plays a **greater role** in this arena, and farmers have **proven willing** to invest in technologies companies are producing through private **r**esearch and **d**evelopment.

For private companies working on these advancements, **staying ahead can be difficult**. Innovative new **tech**nologies can require **over a decade** and **hundreds of millions of dollars** to develop and approve, and private companies are **willing to take the risk** for these advancements that **may or may not** yield a return.

However, it can be argued this amount of **time** and **money** can be **significantly reduced** when leaders in the industry **work together** towards a common goal. That may be **one of the driving factor**s behind why several major ag companies like Bayer and Monsanto and Dow and DuPont are looking to collaborate more through **merging** operations.

As ag companies, including those with significant presence in Iowa and around the Midwest, move towards merging operations, we should consider the challenges they now face in developing new tools to make our farms more productive. The costs and time to market for their products are getting greater and longer for a number of reasons. With their collective experience in crop protection and plant biology, we in the agricultural community may see the next generation of innovative new solutions sooner should these companies come together.

With **innovation** as the **foundation** of our future, we will and should see change that can help **quicken the pace of new solutions** reaching farmers in the field. There is a great need for inventions in the agricultural world that will significantly impact the way we farm with results that will support our economy. Several of the ag companies looking to merge are on the **front lines** of these issues, seeking impactful solutions for our ever changing needs and challenges.

As details of the mergers come forth, the industry and lawmakers will continue examining potential outcomes. It will be **important** for those in Iowa agriculture to not only consider those potential outcomes that **give us pause**, but **also** think critically on the **benefits** we could see from **greater collaboration** between ag’s power players.

**Internal---Turns Case---Solvency---2NC**

**Industry decline turns the case---agencies will cease enforcement during the downturn**

Anika **Dandekar 21**, Political Science at University of California, San Diego, “Politics of Antitrust Enforcement: The Influence of Ideology and Party Control on Regulatory Behavior”, Senior Thesis, 3/29/2021, https://polisci.ucsd.edu/undergrad/departmental-honors-and-pi-sigma-alpha/A.Dandekar\_Senior-Honors-Thesis.pdf

1.3.3 Bureaucratic Approach

Some scholars have tried to explain varying antitrust by changing makeup or preferences of regulatory agencies themselves.

Some suggest that the agencies respond to **external factors**. Amacher et al. (1985) examined FTC enforcement of the Robinson- Patman Act and found that it was **influenced by economic conditions**, **decreasing** during **business contractions** and increasing during periods of expansion. They suggested that this means "the FTC moves to **cushion producer losses**" during **hard economic times**, but **transfers "wealth** to consumers" during **economic upswings**. Lewis-Beck (1979) found that while small increases in the division's budget did not reduce anticompetitive behavior, a major increase in the division's budget might significantly stem merger activity because of a "threshold effect”.

**Ag innovation solves the case---allows increased yields that solve food security, while net reducing ag’s environmental impacts**

-- Threshold is low because ag requires continual innovation just to keep up with evolving pest/disease threats to crops

-- Market demand is moving squarely toward environmentally beneficial ag innovations

Julian M. **Alston 20**, Distinguished Professor of Agricultural and Resource Economics and Director of the Robert Mondavi Institute at University of California, Davis; and Philip Pardey, Professor of Science and Technology Policy in the Department of Applied Economics, and Director of the University of Minnesota's International Science and Technology Practice and Policy center, May 2020, “INNOVATION, GROWTH AND STRUCTURAL CHANGE IN AMERICAN AGRICULTURE,” https://www.nber.org/system/files/working\_papers/w27206/w27206.pdf

Looking forward, we can see great potential for new product and process innovations—in particular digital and other data- and knowledge-intensive **tech**nologies, including genetic innovations—that will enable **more and better food**, fiber, and industrial raw materials to be produced on farms at much lower cost and with a **smaller environmental footprint, worldwide**. Realizing this potential will matter for the future trajectory of global public goods including **climate change**, other **natural resource stocks**, the **world food equation**, poverty and related civil or **military strife**. The extent to which these opportunities will be captured, and when, will be determined to a great extent by forces outside agriculture and outside the R&D and technology sector. These forces will **determine** the availability and direction of resources available for public-sector agricultural R&D, the regulations and **rules** governing the development, deployment, and adoption of new farm and food **tech**nologies, and the demand for products depending on the technologies used to produce them.

Induced Innovation

As noted above, **ag**riculture is unusual in that it faces **knowledge depreciation** arising from climate change and, in particular, the coevolution of pests and diseases. This gives rise to a demand for **maintenance R&D—simply to preserve past productivity gains**. Much of the past work on crop varietal innovations can be seen in this light. The demand for innovation on farms is also driven by changing factor supply conditions, evolving demand for farm products (now including feedstock for biofuels and other industrial raw materials as well as traditional feed, food and fiber), and the peculiar regulatory environment for agriculture related to issues including varietal technologies, animal welfare in livestock production, and landscape amenities (and dis-amenities) from agricultural production. Farmers also face a changing market environment with demands for food products and food production processes mediated through private standards and mass media messages.

Over the long history, a major element of change was labor-saving innovation induced by farm labor scarcity. Past labor savings notwithstanding, reliable and timely availability of suitably skilled labor is a major concern of farmers today—especially in California’s labor demanding specialty crops—and they are actively seeking technological alternatives for harvesting, weeding, irrigating, and a host of other farm operations as well as post-farm packing and handling. 24 Farmers are also increasingly concerned over the reliability of natural rainfall and irrigation water, with variability and uncertainty in these dimensions exacerbated by climate change. Drought- and heat-tolerant varieties are being developed to mitigate these consequences (see, e.g., Cooper et al. 2014 and McFadden et al. 2019 in the case of drought-tolerant corn). Information technologies combined with more precise and selective water delivery systems can reduce total water usage and vulnerability to drought.

Changing technological regulations generate a demand for replacement technologies. In recent years significant agricultural pesticides have been banned in some jurisdictions and are threatened in others owing to concern about their risks to the environment or human health.25 These include soil fumigants (e.g., methyl bromide), insecticides (e.g., neonicotinoids) and herbicides (e.g., glypohosate aka Roundup®). When significant pesticides are deregistered, farmers demand new solutions. In some cases, the alternative to a banned chemical is another chemical or new genetics, but sometimes it simply means technological regression. For example, Roundup-resistant® varieties of corn, soybeans, and canola, combined with the herbicide glyphosate, permitted the widespread adoption of lo-till or no-till production systems that resulted in significant improvements in soil structure and reduced greenhouse gas emissions. If glyphosate were to be banned in the United States and Canada—as it has been (either totally or for selected uses) in some other countries recently—we could expect to see a reversion to older production systems using mechanical tillage for weed control and environmentally less benign herbicides. The pressure will be on to come up with an alternative to glyphosate that will be as effective for farmers and more acceptable to the regulators. This is a serious challenge.

**Ag**riculture has generated various other environmental concerns related to air pollution (including **g**reen**h**ouse **g**ase**s**, particulate matter, and odors from livestock production) and **water pollution** (including nitrates in groundwater and surface water giving rise to human health and environmental issues). With increasing awareness of these issues, and the likelihood of government intervention in one form or another, **demand is growing** for alternative **tech**nologies that will enable **more precise use of inputs and better control of unwanted outputs**. Likewise, whether motivated by animal welfare concerns or other issues, new regulations over livestock production practices—such as castration; dehorning; pens for calves, sows, and egg-laying hens; use of antibiotics and other veterinary medicines—give rise to demand for new technologies.

In many instances, genetic innovations offer promising solutions to the problems created by the changing regulatory environment. However, genetic technologies also are subject to considerable regulatory weight. The science of genetic innovation has improved by leaps and bounds over recent decades, but society has placed arbitrary strictures (unsupported by scientific evidence) over some of the most powerful tools in the tool-kit available to the modern-day geneticist. In the United States, genetically engineered crop varieties are subject to much greater regulatory control than their conventionally bred counterparts, even though they pose no greater risk to human health or the environment (see, e.g., Qaim 2018). In many other countries, GE crops are effectively banned. More recent innovations, such as gene-editing techniques, promise much greater possibilities for targeted genetic changes in commercial species, but they too might face serious regulatory barriers that could stifle that potential.26 Some countries have already opted to treat gene-edited varieties as GMOs, subject to severe restrictions (see, e.g., Wight 2018, regarding the European Court of Justice ruling regarding the use of gene editing in the EU).

It is not easy to get a good handle on the innovations in the pipeline or on the drawing board, especially since so much of what is going on is being undertaken privately, and in private—in particular when we talk about digital agriculture but also for some aspects of genetic innovations.27 As we have discussed, genetic innovation in plants and animals includes the results from conventional breeding (albeit supported by the tools of modern biotechnology such as marker-assisted breeding), genetic engineering, and gene-editing. Much of the emphasis of this work tends to be focused on the main agricultural species and the main production systems, for sound economic reasons. Apart from yield potential, tolerance of abiotic stresses (drought, frost, and heat), and resistance to pests and diseases, crop geneticists are looking for various other agronomic advantages and product quality attributes. In the case of apples and table grapes, for example, fruit quality attributes are an important focus of private and public breeding efforts and varieties in use are changing rapidly.28

As noted, digital farming innovations (including precision technologies and variable rate technologies) have the potential to save (and also reduce dependence on uncertain supplies of) labor and irrigation water; they also have the potential to save on materials and **reduce environmental spillovers** associated with fertilizers and pesticides (see, e.g., Schimmelpfennig 2018). Some of these technologies also have the potential to reduce the requirement for farm labor to perform dangerous and arduous tasks that can be done better by machines. Some of these prospects will be enhanced by government policies and the political action of various interest groups, including the woke food policy movement, and others will be hampered. Issues have begun to arise over the IP rights to the data generated by farmers about their business, using machines embodying technology owned by others (AFBF 2018; Janzen 2019). A related issue is the changing scope for farmers as “tinkerers” to economically modify increasingly complex and sophisticated technologies. There can be no doubt farmers will be continue to be busy tinkering, modifying machines and using them in ways that were not imagined by the engineers that built them in the first instance, but it seems likely that an increasing share of the total innovation in American **ag**riculture will be based on **patented technologies developed in the per profit sector**, continuing recent trends—whether we are talking about mechanical, genetic, chemical or digital technologies.

**Large, consolidated agribusiness is key to yields and exports that support global food security---transition spikes prices and turns environment**

Ted **Nordhaus 21**, founder and executive director of the Breakthrough Institute; and Dan Blaustein-Rejto, director of food and agriculture at the Breakthrough Institute, has conducted research with the Environmental Defense Fund, International Center for Tropical Agriculture, and Farmers Market Coalition, 4/18/21, “Big Agriculture Is Best,” <https://foreignpolicy.com/2021/04/18/big-agriculture-is-best/>

In the popular bourgeois imagination, the idealized farm looks something like the ones that sell produce at local farmers markets. But according to our research, while small farms like these account for close to half of all U.S. farms, they produce **less than 10 percent of total output**. The largest farms, by contrast, account for about 50 percent of output, relying on simplified production systems and **economies of scale** to feed a nation of 330 million people, vanishingly few of whom live anywhere near a farm or want to work in agriculture. It is this central role of large, corporate, and industrial-style farms that critics point to as evidence that the food system needs to be transformed.

But U.S. dependence on large farms is not a conspiracy by big corporations. Without question, the U.S. food system has many problems. But persistent misperceptions about it, most especially among affluent consumers, are a function of its spectacular success, not its failure. Any effort to address social and environmental problems associated with food production in the United States will need to first accommodate itself to the reality that, in a modern and affluent economy, the food system **could not be anything other than large-scale, intensive, technological, and industrialized**.

An abandoned tenant house is seen across fields in Hall County, Texas, in June 1938. The Library of Congress caption notes: “Many tenants who have filled the land on the family-farm basis were made landless, forced by the machine into the towns, or reduced to day labor on the farms. Large numbers who have gone to the towns have fallen on relief, or even have sought refuge in distant parts. Not only is their security gone, but the opportunity even to rise to ownership is diminished, for profitable operation of mechanized farms requires more land and more capital equipment per farm.” Library of Congress

Not so long ago, farming was the principal occupation of most Americans. More than 70 percent labored in agriculture in 1800. As late as 1900, some 40 percent of the U.S. labor force still worked on farms. Today, that figure is less than 2 percent.

The consolidation of U.S. agriculture has been underway for more than 150 years. First came irrigation and ploughs, then better seeds and fertilizers, and then tractors and pesticides. With each innovation, farmers were able to produce larger harvests with fewer people and work larger plots of land. Better opportunities drew people to cities, where they could get jobs that provided higher wages and, thereby, produced greater economic surplus—that is, profits and ultimately societal wealth. The large-scale migration of labor from farms to cities pushed farmers to invest even more in labor-saving and productivity-enhancing practices and technologies in a virtuous cycle of urbanization, agricultural intensification, and economic growth that is the hallmark of all affluent societies.

It is not a stretch to say that the **U**nited **S**tates is wealthy today because most of its people work in manufacturing, services, technology, and other sectors of the economy. In this, the country is not alone. No nation has ever succeeded in moving most of its population out of poverty without **most of that population leaving agriculture work**.

That transition often isn’t easy. Millions of Black Americans made the difficult journey from tenant farming in the South to factory work in the North, where they faced new forms of racism even as they escaped the tyranny of sharecropping. More recently, small farmers have struggled to survive as increasingly high agricultural productivity and falling commodity prices tilted the playing field toward large farms. Rural communities have likewise suffered as dramatic improvements in labor productivity have shrunk employment in agriculture.

But over the long term, the living standards and life opportunities offered in the modern knowledge, service, and manufacturing economies have proved vastly greater than anything possible under the agrarian social and economic arrangements that most Americans over the last two centuries happily abandoned—and that too many Americans today romanticize.

Modern life required not only liberating most Americans from agrarian labor but also the development of a food system capable of getting food from farms to the cities where increasing numbers of Americans lived and worked. A food system that lost much of its harvest to pests and spoilage needed to dramatically cut losses even as its bounty needed to travel farther and farther. For this reason, the rise of modern agriculture is as much a story of railways and highways as combines and tractors, refrigeration and grain elevators as pesticides and fertilizer.

The development and growth of feedlots followed a similar path. As the historian Maureen Ogle recounts in her magnificent history of the beef industry, In Meat We Trust, the first feedlots grew out of the stockyards of Chicago and Kansas City in the late 19th century. The most efficient way to get beef to burgeoning markets in America’s cities was to drive cattle to these new rail centers, where they were finished, slaughtered, and then shipped throughout the country by rail. After World War II, beef production and feedlots expanded massively, driven not so much by corporate greed as by rising demand for beef from the United States’ newly prosperous middle class and by a scarcity of labor as ranch hands returning from the battlefields of Europe and the Pacific chose to pursue better economic opportunities in the postwar economy.

Debates about the social and environmental impacts of America’s food system cannot be disentangled from the basic reality that in a modern industrialized society, most people will live in cities and suburbs and will not work in agriculture. As a result, most food will need to be produced by large farms, with little labor, far away from the people who will consume it.

Many sustainable **ag**riculture advocates tout the recent growth of organic agriculture as proof that an alternative food system is possible. But growing market share **vastly overstate**s **how much food is actually produced organically**. In reality, organic production accounts for little more than 1 percent of total U.S. agricultural land use. Meanwhile, only a bit more than 5 percent of food sales come from organic producers, mostly because organic sales are overwhelmingly concentrated in high-value sectors of the market, namely produce and dairy, and fetch a premium from well-heeled consumers.

Moreover, organic farms, large and small, **don’t** actually **outperform large conventional farms** by many important environmental measures. Scale, **tech**nology, and productivity make **good environmental sense** and economic sense. Because organic farming requires more land for every calorie or pound produced, a large-scale shift to organic farming would entail **converting more forest and other land to farming**, resulting in greater habitat loss and more greenhouse gas emissions. And while organic farming doesn’t use synthetic pesticides or fertilizers, it often results in greater nitrogen pollution because manure is a highly inefficient way to deliver nutrients to crops.

Another benefit of large-scale U.S. farms is that **because they are so efficient**, economically and environmentally, they are also able to produce **vastly more food than Americans can consume**, making the country the world’s **largest agricultural exporter** as well.

That benefits the U.S. economy, of course, but it also comes with an **environmental benefit for the world**. In the contemporary environmental imagination, highly productive, globally traded agriculture is a bad thing—poisoning the land at home and undermining food sovereignty abroad. But in reality, a pound of grain or beef exported from the **U**nited **S**tates almost always **displaces a pound that would have been produced with more land and greenhouse gas emissions somewhere else**.

**Industrial ag is soil preserving---no chance of short-term disaster**

James **Wong 19**, Botanist and Science Writer, Trained at the Royal Botanic Gardens, “The Idea That There Are Only 100 Harvests Left Is Just A Fantasy”, The New Scientist, 5/8/2019, https://www.newscientist.com/article/mg24232291-100-the-idea-that-there-are-only-100-harvests-left-is-just-a-fantasy/

When it comes to science reporting, there are some headlines that are so frequently repeated, so intuitively plausible, so closely aligned to our cultural beliefs, that they can seem like incontrovertible truths.

The general public, and indeed many scientists, may fervently believe that these claims reflect the overwhelming scientific consensus. However, sometimes when you dig a little beyond the surface, the **evidence** underpinning even the most ubiquitous headlines can seem **surprisingly shaky**.

Perhaps the best example of such an assertion is that of an impending **agricultural Armageddon**, caused by decades of irresponsible farming practices that have **degraded soils** across the planet (or so the press narrative goes).

A quick scan of the headlines reveals that despite the confidence with which these forecasts are proclaimed, the **actual timescale** to D-Day **varies rather widely** from story to story. While some report that we have **100 years** until the end of our soil’s ability to support farming, citing a University of Sheffield study, others claim that this is a **mere 60** years away, referencing a speech at the UN’s Food and Agriculture Organization.

Recently, the UK government’s environment secretary even stated that the UK is as little as **30 years** away from an “eradication of soil fertility” because we “drench it in chemicals”. If this is indeed a likely end-game scenario, we should probably determine which of these estimates is most plausible as a matter of urgency: 30, 60 or 100 years. So let’s take a closer look at this claim.

Despite dozens of headlines quoting these predictions, surprisingly **only one** peer-reviewed paper from a scientific journal is **ever cited** as evidence to back them up. This 2014 study from the University of **Sheffield** compared the soil quality of a range of sites in the **English city**, including agricultural, garden and allotment soils.

Now, before we question whether the results of this single, small study can be extrapolated to represent all of England, let alone the whole UK or even the whole world, let us take a look at their findings: basically, some urban soils in Sheffield are higher in carbon and nitrogen than some nearby agricultural ones. **OK**, but where is the 100-year statistic? It turns out that **nowhere** in the study was there any calculation, prediction or even passing reference to the claim. None whatsoever. Perhaps not so much shaky evidence to support this assertion as much as non-existent.

“I asked leading soil scientists if they had ever come across such a prediction in published research. Not a single one had”

Maybe this is the result of a typo and the work is in another research paper? After an 8-hour trawl through the academic journals failed to pull up a single study that even attempted to make this calculation, I contacted six leading soil scientists across the world to ask if they had ever come across such a prediction in either the published literature or their work. Not a single one had.

In fact, the words they used to describe this claim were “bold”, **“too Malthusian”,** “hardly useful”, **“almost insulting”** and “I have used this in my soil science lectures to show the students to be wary of headlines!”. **Ouch**.

Does that mean there aren’t real threats to some agricultural soils around the world? Absolutely not. Indeed, all the scientists I spoke to went to great lengths to point these out, where they exist.

However, they also highlighted how incredibly complex the calculations needed to make such predictions would be, based on myriad factors, only some of which can be predicted with any reliability, with **generalisations** almost **impossible**. The boring reality is that while soils in **some parts** of the world **might** be in decline, **others are not**.

Furthermore, while agriculture may be **one** of the factors driving erosion and nutrient depletion, many **modern** farming practices such as **no-till** and **synthetic fertiliser applications** may **actually** be **helping alleviate (rather than drive) this**. In fact, according to many **objective measures**, **modern, evidence-based farming techniques** are **more sustainable** than those of an idealised past. Quite a different picture to that painted by the headlines.

Despite the thirst for simple truths in a complicated world, the researchers I contacted agreed that setting such a figure for an agricultural “end-point” would be **nigh on impossible**, which may explain why no published studies appear to have been able to do so. But this hasn’t stopped the newspapers. Welcome to 2019!

**Ag innovation’s necessary to prevent new crop diseases, especially Ug99**

Dr. David **Clark 10**, Professor of Microbiology at Southern Illinois University, David, Germs, Genes, and Civilization, p. 250-251

One way to **combat resistance** is to **replace old antibiotics with newly invented ones**. Soon after they were first discovered, there was a big rush to discover new antibiotics or modify old ones chemically, yielding new variants. When most known bacterial diseases had cures, complacency set in. Recently, drug resistance has hit the headlines and research has picked up again. Although some new antibiotics are now in the pipeline, it takes several years to get a new drug from laboratory to hospital. As new antibiotics are deployed, resistance will **inevitably** appear. We can look forward to a permanent cold war between bacteria and pharmaceutical companies.

Where do the resistance genes on plasmids come from? They are gifts from Mother Nature, like most antibiotics. Long before humans isolated penicillin from the mold Penicillium, or streptomycin from the bacterium Streptomyces, these antibiotics were deployed to wage biological warfare in the soil. Bacteria and molds have been slugging it out for eons before humans joined in the fray. Not only did microorganisms develop antibiotics to kill each other, but they developed resistance mechanisms to counter each other’s attacks. Some bacterial cultures stored before penicillin was discovered already had resistance genes. Thus, resistance to most antibiotics probably predates their use by humans. Increased use has led to the spread of these resistance genes.

Disease and the food supply

We have focused on human disease, but remember that livestock and crop plants suffer from infections, too. Modern farmers tend to rely heavily on a few main crops, with little crop rotation. Large areas of a single crop provide the same opportunities for **plant diseases** that overcrowded cities provide for human infections. The warmer, wetter weather that is becoming more prevalent favors fungal infections that attack plants. For example, wheat scab outbreaks in the United States and Canada caused massive losses in the 1990s.

Decreased surpluses in the major grain exporters undermine the **safety net** for overpopulated third world nations. If major drought in tropical areas such as Africa or India coincides with major crop losses in the grain exporters, the result could be **widespread famine**. In 2006-2007, world grain reserves fell to 57 days of consumption, the lowest since 1972.

Perhaps the most serious current threat to our food supply is the wheat rust fungus (Puccinia graminis). A new and highly virulent strain emerged from Uganda in 1999 and was, therefore, named **Ug99**. It is presently in Africa and parts of Asia. Because the spores are airborne, this **fungus will inevitably spread worldwide**. Breeding resistant wheat varieties is in progress but takes several years.

Overpopulation and microbial evolution

Overpopulation does not merely threaten starvation; it sets the scene for the evolution of new infectious diseases. The more people there are—and the more crowded, unhygienic, and malnourished they are—the greater the opportunity for some new and virulent plague to emerge. **So far, we have kept ahead**.