# --- CSUF Round 1 1NC – 10/16/2021 ---

## Rate Hikes DA

Next/first off is the Rate Hikes DA

#### No unexpected rate hikes now - the Fed is tapering off support to avoid excess inflation with lackluster job growth

**Siegel 9-22** [Rachel Siegel, economics reporter covering the Federal Reserve with a BA from Yale, 9-22-2021, "Fed signals easing of market supports could start in November, despite ongoing threat of delta variant," https://www.washingtonpost.com/us-policy/2021/09/22/fed-powell-taper-rate-hike/]/Kankee

Reflecting growing optimism for the economic recovery, **the Fed**eral Reserve**’s** **top policymakers signaled** onWednesday that **they will ease supports for markets** in **November if the economy progresses as expected**, **while** also **moving up expectations for a rate hike in 2022**. Federal Reserve Chair Jerome H. Powell also raised concerns Wednesday about the ongoing coronavirus pandemic and its grip on the economy. At the end of their two-day policy meeting, Fed officials downgraded earlier, more-encouraging expectations for job and economic growth by the end of the year, amid the continued strain of the public health crisis. **The Fed’s assessment captures two simultaneous tales of the economy**. **By some measures, the economy has made a full recovery** **from the pandemic and is on track for even more growth**. **At the same time**, **jobs and people’s livelihoods are** still **being threatened by a** **surge in coronavirus cases and drop-off in government aid** in a pandemic that has killed 1 in 500 Americans. **Fed officials must** now find a way to **unwind** the central bank’s **financial supports** while acknowledging the economy’s lingering holes. Overall, **the country** **is** still **down more than 5 million jobs from before the pandemic**, and the unemployment rates for Black and Hispanic workers are well above that for White workers. **Fed officials** had **said** over the summer that **they hoped job growth would gain momentum** this fall, **with more people getting vaccinated, enhanced unemployment benefits phasing out and schools reopening, helping alleviate child-care responsibilities**. But then “**delta happened**,” as Powell put it in a Wednesday news conference. **The surge in cases is hurting some workers’ confidence about returning to jobs and weighing on consumer spending**. “**Hiring and spending in** these **face-to-face service industries** — **travel and leisure** — **it** just kind of **stopped** during those months,” Powell said, referring to the recent surge of the delta variant of the coronavirus. “The big shortage in jobs was really in travel and leisure, and that’s clearly because of delta.” **Policymakers** on Wednesday **signaled** **they** still **predict** that **inflation** — **which has risen faster and higher than the Fed expected this year** — **will simmer back down closer to the central bank’s goal of around 2 percent next year**. Stocks rallied off news that the Fed is not pulling back its financial supports just yet. The Dow Jones industrial average climbed more than 330 points, or 1 percent, and the S&P 500 index rose nearly 1 percent. **Fed officials have said there will be plenty of notice before the Fed starts to pull back its stimulus, to avert turmoil in the markets**. Fed leaders have been saying they needed to see “substantial further progress” on inflation and job growth before they start slowly pulling back on vast financial supports to the economy, namely $120 billion a month in asset purchases that have continued throughout most of the pandemic. Many **Fed officials, including Powell**, **say that bar has been met on inflation**. **As the global economy emerges from the pandemic’s depths, supply chains** — for used cars, food, construction materials and more — have **struggled to catch up with pent-up consumer demand, pushing prices up**. **The Fed’s preferred gauge of inflation showed prices rose 4.2 percent in July compared with the year before and 0.4 percent compared with June**. On employment, Powell said during the news conference that it was his opinion that “**the test is all but met**.” He said he would not necessarily need to see a gangbuster jobs growth for September to fill that gap and would be satisfied with “a decent employment report.” Still, **Powell** acknowledged differences of opinion among the Fed’s top ranks on when to begin pulling back on supports. He said that many officials “feel the test for employment has been met,” while “others feel that it’s close” but want to see a little more progress. Powell is known to value consensus at the Fed, especially on major policy decisions. Still, he **repeatedly pointed toward the Fed’s next meeting** in November **as a marker for when the Fed could start to “taper” its sprawling bond-buying program**. “**There’s very broad support on the committee** for this plan, quite broad support for this approach,” Powell said. **Depending on the pace and structure**, **the Fed could be in position to entirely wind down its asset purchases by the middle of next year**. **That could put the Fed in a position to raise rates sometime afterward**, though Powell has warned that **the Fed’s projections on interest rates can easily change with time.** Meanwhile, the country is facing an urgent financial crisis as lawmakers clash on whether to raise the U.S. government’s borrowing limit, known as the debt ceiling. There is growing alarm among economists and the business community about what would happen if there was an unprecedented default on the federal debt. Powell on Wednesday added his voice of concern, saying it was “very important that the debt ceiling be raised in a timely fashion, so that the United States can pay its bills when and as they come due. That’s a critically important thing.” “No one should assume that the Fed or anyone else can protect the markets or the economy in the event of a failure — fully protect — in the event of a failure,” Powell added. Fed leaders lowered their expectations for the unemployment rate later this year, projecting it could be 4.8 percent by the end of 2021, compared with a previously suggested 4.5 percent, according to the Fed’s newest crop of economic projections. They also lowered their estimates for the economy’s overall growth. The projections pointed to gross domestic product growing 5.9 percent by the end of the year. The projection from June was for 7 percent growth. Last month, **Powell teed up the possibility that asset purchases could start to be scaled back later this year, based on the pace of the economic recovery**. While the labor market showed clear progress picking up new jobs over the summer — with the **unemployment rate edging down to 5.2 percent in August** — **that jobs report also showed how vulnerable the recovery is amid the spread of the delta variant**. The economy added only 235,000 jobs last month — well short of expectations — with the restaurant and retail sectors shedding positions. The rise in coronavirus cases, especially among unvaccinated Americans, has also rattled consumer confidence. **Fed leaders have said they do not expect the delta variant to lead to shutdowns or significantly alter the economic recovery**. Many say **they are taking stock of many months of jobs data, rather than fixating on August’s disappointing numbers**. “**Some months come in stronger, some not so strong**. **It’s** really **about accumulation**,” John **Williams, president of the Federal Reserve Bank of New York**, **said** earlier this month. Still, Powell on Wednesday pointed to challenges for the labor market, including parents who must constantly weigh whether their children’s schools will stay open as they consider job options. Powell has long maintained that the surest way to stabilize the economic recovery is to vaccinate as many people as possible and end the public health crisis.

#### The aff sets a precedent to directly support drug development in lieu of patents support – that causes massive governmental spending to promote innovation

**Lindsey 21** [Brink Lindsey, vice president for research at the Cato Institute, 6-3-2021, "Why intellectual property and pandemics don’t mix," Brookings, https://www.brookings.edu/blog/up-front/2021/06/03/why-intellectual-property-and-pandemics-dont-mix/]/Kankee

THE NATURE OF THE PATENT BARGAIN When we take the longer view, we can see a fundamental mismatch between the policy design of intellectual property protection and the policy requirements of effective pandemic response. Although **patent law**, properly restrained, **constitutes** one **important** element of a well-designed national **innovation** system, the way **it goes about encouraging technological progress** is singularly ill-suited to the emergency conditions of a pandemic or other public health crisis. **Securing a TRIPS waiver for COVID-19 vaccines** and treatments **would** thus **establish a salutary precedent** **that**, **in emergencies** of this kind, **governments** **should employ other, more direct means to incentivize** the development of **new** drugs. **Here is the** basic **bargain offered by patent law**: **encourage** the creation of useful **new ideas for the long run by slowing the diffusion of useful new ideas in the short run**. The second half of the bargain, the half that imposes costs on society, comes from the temporary exclusive rights, or monopoly privileges, that a patent holder enjoys. Under U.S. patent law, for a period of 20 years nobody else can manufacture or sell the patented product without the permission of the patent holder. This allows the patent holder to block competitors from the market, or extract licensing fees before allowing them to enter, and consequently charge above-market prices to its customers. **Patent rights thus slow the diffusion of a new invention by restricting output and raising prices**. The imposition of these **short-run costs**, however, **can bring net long-term benefits by sharpening the incentives to invent new products**. In the absence of patent protection, the prospect of easy imitation by later market entrants can deter would-be innovators from incurring the up-front fixed costs of research and development. But with a guaranteed period of market exclusivity, inventors can proceed with greater confidence that they will be able to recoup their investment. For the tradeoff between costs and benefits to come out positive on net, patent law must strike the right balance. Exclusive rights should be valuable enough to encourage greater innovation, but not so easily granted or extensive in scope or term that this encouragement is outweighed by output restrictions on the patented product and discouragement of downstream innovations dependent on access to the patented technology. Unfortunately, the U.S. patent system at present is out of balance. Over the past few decades, the expansion of patentability to include software and business methods as well as a general relaxation of patenting requirements have led to wildly excessive growth in these temporary monopolies: the number of patents granted annually has skyrocketed roughly fivefold since the early 1980s. One unfortunate result has been the rise of “non-practicing entities,” better known as patent trolls: firms that make nothing themselves but buy up patent portfolios and monetize them through aggressive litigation. As a result, a law that is supposed to encourage innovation has turned into a legal minefield for many would-be innovators. In the pharmaceutical industry, firms have abused the law by piling up patents for trivial, therapeutically irrelevant “innovations” that allow them to extend their monopolies and keep raising prices long beyond the statutorily contemplated 20 years. Patent law is creating these unintended consequences because policymakers have been caught in an ideological fog that conflates “intellectual property” with actual property rights over physical objects. Enveloped in that fog, they regard any attempts to put limits on patent monopolies as attacks on private property and view ongoing expansions of patent privileges as necessary to keep innovation from grinding to a halt. In fact, patent law is a tool of regulatory policy with the usual tradeoffs between costs and benefits; like all tools, it can be misused, and as with all tools there are some jobs for which other tools are better suited. A well-designed patent system, in which benefits are maximized and costs kept to a minimum, is just one of various policy options that governments can employ to stimulate technological advance—including tax credits for R&D, prizes for targeted inventions, and direct government support. PUBLIC HEALTH EMERGENCIES AND DIRECT GOVERNMENT SUPPORT For pandemics and other public health emergencies, patents’ mix of costs and benefits is misaligned with what is needed for an effective policy response. **The** basic **patent bargain**, even when well struck, **is to pay for more innovation down the road with slower diffusion of innovation today**. **In the context of a pandemic**, **that bargain is a bad one and should be rejected entirely**. Here **the imperative is to accelerate** the **diffusion of vaccines** and other treatments, **not slow it down**. **Giving drug companies the power to hold things up by blocking competitors and raising prices pushes in the** completely **wrong direction**. What approach to encouraging innovation should we take instead? How do we incentivize drug makers to undertake the hefty R&D costs to develop new vaccines without giving them exclusive rights over their production and sale? **The most effective approach during a public health crisis is direct government support**: public funding of R&D, advance purchase commitments by the government to buy large numbers of doses at set prices, and other, related payouts. And when we pay drug makers, we should not hesitate to pay generously, even extravagantly: we want to offer drug companies big profits so that they prioritize this work above everything else, and so that they are ready and eager to come to the rescue again the next time there’s a crisis. **It was direct support via Operation Warp Speed that made possible the astonishingly rapid development of COVID-19 vaccines** and then facilitated a relatively rapid rollout of vaccine distribution (relative, that is, to most of the rest of the world). And it’s worth noting that a major reason for the faster rollout here and in the United Kingdom compared to the European Union was the latter’s misguided penny-pinching. The EU bargained hard with firms to keep vaccine prices low, and as a result their citizens ended up in the back of the queue as various supply line kinks were being ironed out. This is particularly ironic since the Pfizer-BioNTech vaccine was developed in Germany. As this fact underscores, the chief advantage of **direct support** isn’t to “get tough” with drug firms and keep a lid on their profits. Instead, it **is to accelerate the end of the public health emergency by making sure drug makers profit handsomely from doing the right thing**. Patent law and direct support should be seen not as either-or alternatives but as complements that apply different incentives to different circumstances and time horizons. Patent law provides a decentralized system for encouraging innovation. The government doesn’t presume to tell the industry which new drugs are needed; it simply incentivizes the development of whatever new drugs that pharmaceutical firms can come up with by offering them a temporary monopoly. It is important to note that patent law’s incentives offer no commercial guarantees. Yes, you can block other competitors for a number of years, but that still doesn’t ensure enough consumer demand for the new product to make it profitable. **DIRECT SUPPORT MAKES PATENTS REDUNDANT** The situation is different **in a pandemic**. Here **the government knows exactly what it wants** to incentivize: **the creation of vaccines to prevent the spread of a specific virus** and other drugs to treat that virus. Under these circumstances, the decentralized approach isn’t good enough. **There is no time to sit back and let drug makers take the initiative** on their own timeline. Instead, **the government needs to be more involved** to incentivize specific innovations now. **As recompense for letting it call the shots** (pardon the pun), **the government sweetens the deal for drug companies by insulating them from commercial risk**. If pharmaceutical firms develop effective vaccines and therapies, **the government will buy large**, predetermined **quantities at prices set high enough to guarantee a healthy return**. For the pharmaceutical industry, it is useful to conceive of patent law as the default regime for innovation promotion. It improves pharmaceutical companies’ incentives to develop new drugs while leaving them free to decide which new drugs to pursue – and also leaving them to bear all commercial risk. **In a pandemic or other emergency**, however, **it is appropriate to shift to the direct support regime**, in which **the government focuses efforts on one disease**. In this regime, it is important to note, **the government provides** qualitatively **superior incentives to** those offered under **patent law**. **Not only does it offer public funding to cover the up-front costs of drug development, but it also provides advance purchase commitments that guarantee a healthy return**. It should therefore be clear that **the pharmaceutical industry has no legitimate basis for objecting to a TRIPS waiver**. Since, **because of the public health crisis, drug makers** now **qualify for the superior benefits of direct government support, they no longer need the default benefits of patent support**. **Arguments** that **a** **TRIPS waiver would deprive** **drug** **makers of** the **incentives** they need **to** keep **develop**ing **new drugs, when they are** presently **receiving the most favorable incentives available**, **can be dismissed as the worst sort of special pleading**. That said, it is a serious mistake to try to cast the current crisis as a morality play in which drug makers wear the black hats and the choice at hand is between private profits and public health. We would have no chance of beating this virus without the formidable organizational capabilities of the pharmaceutical industry, and providing the appropriate incentives is essential to ensure that the industry plays its necessary and vital role. It is misguided to lament that private companies are profiting in the current crisis: those profits are a drop in the bucket compared to the staggering cost of this pandemic in lives and economic damage.

#### Monetary policy failures are the only cause of recessions – all economic shocks are barely noticeable unless the Fed overreacts

**Sumner 16** (Scott Sumner, Director of the Program on Monetary Policy at the Mercatus Center at George Mason University, a Research Fellow at the Independent Institute, and an economist who teaches at Bentley University in Waltham, Massachusetts, “The Fed and the Great Recession How Better Monetary Policy Can Avert the Next Crisis,” 95 Foreign Aff. 116 2016)

Today, **there is** essentially **one** accepted **narrative of the economic crisis** that began **in** late **2007**. Overly **optimistic homebuyers and reckless lenders** in the United States **created a housing price** **bubble**. Regulators were asleep at the switch. When the bubble inevitably popped, the government had to bail out the banks, and the United States suffered its deepest and longest slump since the 1930s. For anyone who has seen or read The Big Short, **this story will be familiar**. **Yet it is also wrong**. **The real cause of the Great Recession lay** **not in the housing market but** **in** **the** **misguided monetary policy** of the Federal Reserve. As the economy began to collapse in 2008, the Fed focused on solving the housing crisis. Yet **the housing crisis was a distraction. On its own, it might have caused a weak recession, but little more**. As the Fed bailed out the banks at risk from innumerable bad mortgages, **it ignored the root cause of serious recessions: a fall in nominal GDP,** or NGDP, which counts the total value of all goods and services produced in the United States, not adjusted for inflation. Such a fall began unimpeded in mid-2008, and once that happened, much of the damage had been done. **The Fed can control NGDP through its monetary policy**, and as NGDP fell in 2008, the Fed should have lowered interest rates rapidly. If that proved insufficient, it should have increased the money supply through quantitative easing. **Instead, the Fed, terrified of inflation, kept interest rates too high** **for too long-causing NGDP to fall** even further. To prevent such errors in the future, the Fed should switch from targeting inflation to targeting the level of NGDP. When a recession hits, NGDP tends to fall before inflation, which means that a central bank focused on targeting inflation will be too slow to respond. Throughout mid-2008, U.S. inflation remained positive, as NGDP began falling. Had the Fed targeted NGDP, it might have acted much sooner to boost growth-staving off the Great Recession and the suffering that came with it. SUBPRIME LOGIC Most **pundits blame the housing market for the Great Recession**. But their argument doesn't hold up to scrutiny. For one thing, **the United States was not the only country to experience a housing boom; Australia, Canada, New Zealand, and the United Kingdom also did**. In all four countries, **house prices rose sharply** in the first decade of this century, just **as they did in the United States**, **but** in all four, **they have yet to fall**. In fact, for a decade now, **real house prices in these countries have remained close to 2006 levels, or even moved higher**. For another thing, **theories connecting the Great Recession to the housing bust have a timing problem.** Between January 2006 and April 2008, housing construction in the United States plunged by more than 50 percent. Yet unemployment moved only from 4.7 percent to 5.0 percent. The big problem occurred later, as unemployment doubled, to ten percent, by October 2009. During the first 27 months of the housing slump, capital and labor were reallocated to other growing industries, such as commercial construction, exports, and services, mitigating the worst effects of the housing collapse. This makes sense: classical economic theory predicts that when one sector declines, capital and labor will shift to other sectors. **Contrary to popular belief, real shocks-such as the bursting of a housing bubble, a devastating natural disaster, a stock market crash, or a terrorist attack-do not cause deep recessions. The stock market crash of 1987,** comparable to the 1929 crash, **had no effect whatsoever on U.S. unemployment**. **The earthquake and tsunami that struck Japan in 2011, devastating part of the country and shutting down the entire nuclear industry for almost two years, caused a temporary dip in industrial output** **but were barely noticeable** in unemployment figures. **Instead,** major **recessions are caused by monetary policy failures**. **In order for capital and labor to shift easily from a declining sector to a growing sector, the total spending in an economy must continue to rise at a reasonable pace**. **The best measure** of total spending **is NGDP**, since it measures changes in the total amount of money spent on all goods and services. **Central banks can control this flow of money through monetary policy. They can expand the supply of money by purchasing small quantities of government bonds in order to lower short-term interest rates**, or, if rates fall to zero, by quantitative easing: the purchase of large quantities of government bonds. And they can contract the supply of money by selling bonds, which will raise short-term interest rates. **What triggers recessions are abrupt drops in NGDP**. If NGDP grows too quickly, monetary policy is too loose. With too much money chasing each transaction, prices rise, and the result is inflation. **If NGDP falls abruptly, on the other hand, monetary policy is too tight**-**there is no longer enough money to pay everyone who wants to work** or to fund all the transactions that would otherwise take place, and **the economy starts to contract**. **Drops in NGDP are particularly damaging for two reasons. First, wages are what economists describe as "sticky downward": when spending throughout the economy rises, employees are able to negotiate pay increases, but when spending falls, employers would rather fire a few people than negotiate pay cuts with all** Major **recessions are caused their employees**. Drops in NGDP kick off something akin to a game of musical by monetary policy failures. chairs. Just as removing several chairs will leave some players sitting on the floor when the music stops, removing several percentage points of expected NGDP growth will leave too little revenue to employ the existing work force at the wages they have negotiated. The result: rising unemployment. Consider what happened in the U.S. labor market in the 1970s. From 1971 to 1981, NGDP grew at an average of 11 percent per year, and workers negotiated large pay increases. But in 1982, after Paul Volcker, then chair of the Federal Reserve, had tightened the Fed's monetary policy to fight inflation, NGDP growth fell to less than five percent, and unemployment soared. Companies had committed to pay workers based on revenue forecasts that proved inaccurate. **A similar problem occurs in the credit market. Even sophisticated Wall Street firms issue long-term contracts in nominal terms, such as 30-year bonds with fixed nominal interest rates. Such contractual obligations are more difficult to meet when monetary policy allows NGDP growth to slow sharply. This leads to the second major problem associated with NGDP shocks: financial market instability**. When NGDP growth falls sharply relative to expectations, economies tend to suffer financial crises. A decrease in nominal income means there is less money to pay back loans, so **defaults become more common and banks come under increasing strain**. This is a familiar phenomenon. NGDP in the United States fell by half during the early 1930s, and there were debt crises all over the world. NGDP growth fell to roughly zero in Japan after 1993, triggering severe banking problems, and it plunged in the late 1990s in Argentina, leading to a serious financial crisis in 2001. And something similar happened in the United States and the eurozone during the Great Recession. THE ROAD TO RECESSION When the housing crisis hit at the end of 2007, **defaults on reckless subprime mortgages put the U.S. banking sector under stress.** **The Fed stepped in to rescue the financial system, bailing out the** investment bank Bear Stearns and lending money to **banks**. Such actions might have been sufficient if the problem had been contained to turmoil in the financial sector. But in mid-2008, two years after the housing market began to collapse, a much more serious problem emerged. The Fed did not cut interests rates quickly enough to offset the drag caused by the housing crisis, perhaps out of fear of high inflation resulting from rising oil prices. As a result, NGDP fell sharply. Until 2008, NGDP growth had averaged about five percent per year. Starting in June 2008, however, NGDP fell by roughly three percent in 12 months, to about eight percentage points below the pre-recession trend line. As NGDP fell, unemployment rose and spread from the housing sector to almost every part of the economy. **And the financial crisis, initially triggered by the housing slump, became much worse. As a result, what had initially been just a financial crisis turned into a fullblown macroeconomic crisis.** Yet policymakers initially ignored the fall in NGDP growth. Throughout 2008, they continued to assume that the problem was banking May/June 2016 119 Scott Sumner distress, rather than a contraction in nominal spending. Worse, they thought that the risk of inflation was just as great as the risk of a recession, even after Lehman Brothers failed in September. It is true that inflation had been quite high for the previous 12 months, thanks to high oil prices. But the markets thought inflation would fall sharply over the next few years. The Fed chose to ignore those market forecasts. Instead of expanding the supply of money to boost NGDP, it refused to touch interest rates between April and October 2008, keeping them at two percent. Even on September 16, 2008, the day after Lehman Brothers filed for bankruptcy, the Federal Reserve Board voted not to cut interest rates, a decision that Ben Bernanke, at the time the Fed's chair, now concedes was an error. Normally, the Fed's aggressive moves to inject money into the banking system would have immediately pushed interest rates to zero. But because the Fed did not want to boost nominal spending, in early October, it introduced a new policy: it started to pay interest on reserves that banks hold with the Fed. The move prevented interest rates from falling to zero and encouraged banks to keep their money at the Fed rather than move it out into the wider economy: a contractionary move at a time when monetary stimulus was essential. A cynic might say the Fed was trying to rescue Wall Street without rescuing Main Street: it was saving the banks but not allowing the interest rates that affect the wider economy to fall enough to boost NGDP. A more likely explanation, however, is that the Fed made a misdiagnosis. There were two distinct problems: banking distress caused by defaults on subprime mortgages and a much more serious macroeconomic crisis caused by the shortfall in spending. The Fed recognized the first but missed the second. Even worse, the problem that the Fed ignored exacerbated the banking crisis-as NGDP fell, people and businesses across the economy had less money than they had anticipated to pay back debts. The financial crisis worsened, the housing market collapsed further, and unemployment soared. Only in December 2008 did the Fed cut rates close to zero. But by then, the damage had been done: a mild downturn had turned into the Great Recession.

#### Nuclear war

Stein **Tønnesson 15**, Research Professor, Peace Research Institute Oslo; Leader of East Asia Peace program, Uppsala University, 2015, “Deterrence, interdependence and Sino–US peace,” International Area Studies Review, Vol. 18, No. 3, p. 297-311

Several **recent works** on China and Sino–US relations **have made** substantial **contributions to the current understanding of how and under what circumstances** a combination of **nuclear deterrence and economic interdependence may reduce the risk of war between major powers**. At least four conclusions can be drawn from the review above: first, those who say that **interdependence may both inhibit and drive conflict** are right. **Interdependence raises the cost of conflict** for all sides **but** **asymmetrical or unbalanced dependencies and negative trade expectations** may **generate tensions leading to trade wars among inter-dependent states that** in turn **increase the risk of military conflict** (Copeland, 2015: 1, 14, 437; Roach, 2014). The risk may increase if one of the interdependent countries is governed by an inward-looking socio-economic coalition (Solingen, 2015); second, the risk of war between China and the US should not just be analysed bilaterally but include their allies and partners. Third party countries could drag China or the US into confrontation; third, in this context it is of some comfort that the three main economic powers in Northeast Asia (China, Japan and South Korea) are all deeply integrated economically through production networks within a global system of trade and finance (Ravenhill, 2014; Yoshimatsu, 2014: 576); and fourth, **decisions for war** and peace **are taken by very few people, who act on the basis of their future expectations**. International relations theory must be supplemented by foreign policy analysis in order to assess the value attributed by national decision-makers to economic development and their assessments of risks and opportunities. **If leaders** on either side of the Atlantic **begin to seriously fear or anticipate their own nation’s decline** then **they may blame** this on **external dependence, appeal to anti-foreign sentiments, contemplate the use of force to gain** respect or **credibility, adopt protectionist policies, and** ultimately **refuse to be deterred by** either **nuclear arms or prospects of socioeconomic calamities. Such a dangerous shift could happen abruptly**, i.e. under the instigation of actions by a third party – or against a third party. Yet as long as there is both nuclear deterrence and interdependence, the tensions **in East Asia** are unlikely to escalate to war. As Chan (2013) says, all states in the region are aware that they cannot count on support from either China or the US if they make provocative moves. **The greatest risk is not** that **a territorial dispute** leads to war under present circumstances **but that changes in the world economy alter those circumstances in ways that render inter-state peace more precarious**. If China and the US fail to rebalance their financial and trading relations (Roach, 2014) then a trade war could result, interrupting transnational production networks, provoking social distress, and exacerbating nationalist emotions. **This could have unforeseen consequences in the field of security, with nuclear deterrence remaining the only factor to protect the world from Armageddon, and unreliably so**. **Deterrence could lose its credibility**: one of the two **great powers might gamble that the other yield in a cyber-war or conventional** limited **war**, or third party countries might engage in conflict with each other, with a view to obliging Washington or Beijing to intervene.

## Innovation DA

Next/first off is the Innovation DA

#### Patent driven innovation post-Covid-19 is flourishing and is key to prevent pandemics

**Macdole and Ezell 4-29** [Jaci Mcdole and Stephen Ezell {Jaci McDole is a senior policy analyst covering intellectual property (IP) and innovation policy at the Information Technology and Innovation Foundation (ITIF). She focuses on IP and its correlations to global innovation and trade. McDole holds a double BA in Music Business and Radio-Television with a minor in Marketing, an MS in Education, and a JD with a specialization in intellectual property (Southern Illinois University Carbondale). McDole comes to ITIF from the Institute for Intellectual Property Research, an organization she co-founded to study and further robust global IP policies. Stephen Ezell is vice president, global innovation policy, at the Information Technology and Innovation Foundation (ITIF). He comes to ITIF from Peer Insight, an innovation research and consulting firm he cofounded in 2003 to study the practice of innovation in service industries. At Peer Insight, Ezell led the Global Service Innovation Consortium, published multiple research papers on service innovation, and researched national service innovation policies being implemented by governments worldwide. Prior to forming Peer Insight, Ezell worked in the New Service Development group at the NASDAQ Stock Market, where he spearheaded the creation of the NASDAQ Market Intelligence Desk and the NASDAQ Corporate Services Network, services for NASDAQ-listed corporations. Previously, Ezell cofounded two successful innovation ventures, the high-tech services firm Brivo Systems and Lynx Capital, a boutique investment bank. Ezell holds a B.S. from the School of Foreign Service at Georgetown University, with an honors certificate from Georgetown’s Landegger International Business Diplomacy program.}, 21 - ("Ten Ways Ip Has Enabled Innovations That Have Helped Sustain The World Through The Pandemic," Information Technology & Innovation Foundation, 4-29-2021, https://itif.org/publications/2021/04/29/ten-ways-ip-has-enabled-innovations-have-helped-sustain-world-through)//marlborough-wr/

To better understand the role of IP in enabling solutions related to COVID-19 challenges, this report relies on 10 case studies drawn from a variety of nations, technical fields, and firm sizes. This is but a handful of the **thousands of IP-enabled innovations** that **have sprung forth over the past year in an effort to meet the tremendous challenges brought on by COVID-19 globally.** From a paramedic in Mexico to a veteran vaccine manufacturing company in India and a tech start-up in Estonia to a U.S.-based company offering workplace Internet of Things (IoT) services, small and large organizations alike are working to combat the pandemic. Some have adapted existing innovations, while others have developed novel solutions. All are working to take the world out of the pandemic and into the future. The case studies are: Bharat Biotech: **Covaxin** Gilead: **Remdesivir** LumiraDX: **SARS-COV-2 Antigen POC Test** Teal Bio: **Teal Bio Respirator XE** Ingeniería Médica: **CápsulaXE** Surgical Theater: **Precision VR** Tombot: Jennie Starship Technologies: **Autonomous Delivery Robots** Triax Technologies: **Proximity Trace** Zoom: **Video Conferencing** As the case studies **show**, **IP is critical to enabling innovation.** **Policymakers around the world need to ensure robust IP protections are—and remain—in place if they wish their citizens to have safe and innovative solutions to health care, workplace, and societal challenges in the future.** THE ROLE OF INTELLECTUAL PROPERTY IN R&D-INTENSIVE INDUSTRIES **Intangible assets, such as IP rights, comprised approximately 84 percent of the corporate value of S&P 500 companies** in 2018.4 **For start-ups,** this means much of **the capital needed to operate is directly related to IP** (see Teal Bio case study for more on this). **IP also plays an especially important role for R&D-intensive industries.**5 To take the example of **the biopharmaceutical industry**, it **is characterized by** **high-risk, time-consuming, and expensive processes** **including basic research, drug discovery, pre-clinical trials, three stages of human clinical trials, regulatory review, and post-approval research and safety monitoring.** The **drug development process spans an average of 11.5 to 15 years.**6 **For every 5,000 to 10,000 compounds screened** on average **during the basic research and drug discovery phases,** **approximately 250 molecular compounds**, or **2.5 to 5 percent, make it to preclinical testing.** **Out of those 250 molecular compounds, approximately 5 make it to clinical testing.** That is, **0.05 to 0.1 percent of drugs make it from basic research into clinical trials.** **Of those rare few** which make it to clinical testing, **less than 12 percent are ultimately approved for use by the** U.S. **F**ood and **D**rug **A**dministration (FDA).7 In addition to high risks, **drug development is costly**, **and** the **expenses** associated with it **are increasing.** A 2019 report by the Deloitte Center for Health Solutions concluded that **since 2010 the average cost of bringing a new drug to market increased by 67 percent**.8 Numerous studies have examined the substantial cost of biopharmaceutical R&D, and most confirm **investing in new drug development requires $1.7 billion to $3.2 billion up front on average.**9 A 2018 study by the Coalition for Epidemic Preparedness found similar risks and figures for vaccines, stating, “In general, **vaccine development from discovery to licensure can cost billions of dollars, can take over 10 years to complete, and has an average 94 percent chance of failure.”**10 Yet, a 2010 study found that **80 percent of new drugs—that is, the less than 12 percent ultimately approved by the FDA—made less than their capitalized R&D costs.**11 Another study found that only **1 percent (maybe three new drugs each year) of the most successful 10 percent of FDA approved drugs generate half of the profits of the entire drug industry.**12 To say the least, **biopharmaceutical R&D represents a high-stakes, long-term endeavor with precarious returns.** **Without IP protection, biopharmaceutical manufacturers have little incentive to take the risks necessary to engage in the R&D process because they would be unable to recoup even a fraction of the costs incurred. Diminished revenues also result in reduced investments in R&D which means less research into cancer drugs, Alzheimer cures, vaccines, and more. IP rights give life-sciences enterprises the confidence needed to undertake the difficult, risky, and expensive process of life-sciences innovation secure in the knowledge they can capture a share of the gains from their innovations, which is indispensable not only to recouping the up-front R&D costs of a given drug, but which can generate sufficient profits to enable investment in future generations of biomedical innovation and thus perpetuate the enterprises into the future.**13 THE IMPORTANCE OF INTELLECTUAL PROPERTY TO INNOVATION Although anti-IP proponents have attacked biopharmaceutical manufacturers particularly hard, the reality is **all IP-protected innovations are at risk if these rights are ignored, or vitiated.** **Certain arguments have shown a desire for the term “COVID-19 innovations” to include everything from vaccines, therapeutics, diagnostics, and PPE to biotechnology, AI-related data, and educational materials.14 This could potentially open the floodgates to invalidate IP protection on many** **of the** **innovations** highlighted in this report. However, much of the current discussion concerning IP focuses almost entirely on litigation fears or R&D incentives. Although R&D is an important aspect of IP, as previously mentioned, these discussions ignore the fact that **IP protection can be—and often is—used for other purposes, including generating initial capital to create a company and begin manufacturing and, more importantly, using licensing agreements and IP to track the supply chain and ensure quality control of products.** This report highlights but a handful of the thousands of IP-enabled innovations that have sprung forth over the past year in an effort to meet the tremendous challenges brought on by COVID-19 globally. In 2018, **Forbes identified counterfeiting as the largest criminal enterprise in the world.**15 **The global struggle against counterfeit and non-regulated products, which has hit Latin America particularly hard during the pandemic, proves the need for safety and quality assurance in supply chains.**16 Some **communities already ravaged by COVID-19 are seeing higher mortality rates related to counterfeit vaccines, therapeutics, PPE, and cleaning and sanitizing products.**17 **Polish authorities discovered vials of antiwrinkle treatment labeled as COVID-19 vaccines.** 18 **In Mexico, fake vaccines sold for approximately $1,000 per dose.**19 **Chinese and South African police seized thousands of counterfeit vaccine doses from warehouses and manufacturing plants.**20 Meanwhile, dozens of websites worldwide claiming to sell vaccines or be affiliated with vaccine manufacturers have been taken down.21 But the problem is not limited to biopharmaceuticals. The National Intellectual Property Rights Coordination Center has recovered $48 million worth of counterfeit PPE and other products.22 Collaborative efforts between law enforcement and manufacturers have kept numerous counterfeits from reaching the population. **In countries with strong IP protection, the chances of counterfeit products reaching the market are significantly lower**. This is largely **because counterfeiting tends to be an IP-related issue, and these countries generally provide superior means of tracking the supply chain through trademarks, trade secrets, and licensing agreements.** **This enables greater quality control and helps manufacturers maintain a level of public confidence in their products.** By controlling the flow of knowledge associated with IP, **voluntary licensing agreements provide innovators with opportunities to collaborate, while ensuring their partners are properly equipped and capable of producing quality products.** Throughout this difficult time, **the world has seen unexpected collaborations, especially between biopharmaceutical companies worldwide such as Gilead and Eva Pharma or Bharat Biotech and Ocugen**, Inc. Throughout history, and most significantly in the nineteenth century through the widespread development of patent systems and the ensuing Industrial Revolution, **IP has contributed toward greater economic growth.**23 **This is promising news as the world struggles for economic recovery.** A 2021 joint study by the EU Intellectual Property Office (EUIPO) and European Patent Office (EPO) shows a strong, positive correlation between IP rights and economic performance.24 It states that “**IP-owning firms represent a significantly larger proportion of economic activity and employment across Europe**,” **with IP-intensive industries contributing to 45 percent of** gross domestic product (**GDP**) (€6.6 trillion; US**$7.9 trillion**).25 The study also shows **38.9 percent of employment is directly or indirectly attributed to IP-intensive industries, and IP generates higher wages and greater revenue per employee**, especially for small-to-medium-sized enterprises.26 That concords **with the United States**, where the Department of Commerce estimated that **IP-intensive industries support at least 45 million jobs and contribute more than $6 trillion dollars to, or 38.2 percent of, GDP.**27 In 2020**, global patent filings** through the World Intellectual Property Organization’s (WIPO) Patent Cooperation Treaty (PCT) system **reached a record 275,900 filings amidst the pandemic, growing 4 percent** **from 2019.**28 The top-four nations, which accounted for 180,530 of the patent applications, were China, the United States, Japan, and Korea, respectively.29 While several countries saw an increase in patent filings, Saudi Arabia and Malaysia both saw significant increases in the number of annual applications, with the top two filing growths of 73 percent and 26 percent, respectively.30 **The COVID-19 pandemic** slowed a lot of things, but it **certainly couldn’t stop innovation.** **There are at least five principal benefits** strong IP rights can generate, for both developing and developed countries alike.31 First, **stronger IP protection spurs the virtuous cycle of innovation by increasing the appropriability of returns, enabling economic gain and catalyzing economic growth.** Second, **through patents—which require innovators to disclose certain knowledge as a condition of protection—knowledge spillovers build a platform of knowledge that enables other innovators.** For instance, studies have found that **the rate of return to society from corporate R&D and innovation activities is at least twice the estimated returns that each company itself receives.**32 Third, **countries with robust IP can operate more efficiently and productively by using IP to determine product quality and reduce transaction costs.** Fourth, **trade and foreign direct investment enabled and encouraged by strong IP protection offered to enterprises from foreign countries facilitates an accumulation of knowledge capital within the destination economy.** That matters when **foreign sources of technology account for over 90 percent of productivity growth in most countries**.33 There’s also evidence suggesting that **developing nations with stronger IP protections enjoy the earlier introduction of innovative new medicines.**34 And fifth, **strong IP boosts exports**, including in developing countries.35 **Research shows a positive correlation between stronger IP protection and exports from developing countries as well as faster growth rates of certain industries.**36 The following case studies illustrate these benefits of **IP** and how they’ve **enabled innovative solutions to help global society navigate the COVID-19 pandemic.**

#### Pharma innovation is key to prevent devastating pandemics, bioterror, and ABR

**Marjanovic and Fejiao 20** [Sonja Marjanovic, Ph.D., Judge Business School, University of Cambridge, and Carolina Feijao, Ph.D. in biochemistry, University of Cambridge; M.Sc. in quantitive biology, Imperial College London; B.Sc. in biology, University of Lisbon, 2020, "Pharmaceutical Innovation for Infectious Disease Management: From Troubleshooting to Sustainable Models of Engagement." RAND Corporation, https://www.rand.org/pubs/perspectives/PEA407-1.html]/Kankee

As **key actors** in the healthcare innovation landscape, pharmaceutical and life sci-ences companies have been called on to develop medicines, vaccines and diagnostics for pressing public health challenges. The COVID-19 crisis is one such challenge, but there are many others. For example, MERS, SARS, Ebola, Zika and avian and swine flu are also infectious diseases that represent public health threats. Infectious agents such as anthrax, smallpox and tularemia could present threats in a **bioterrorism con-text**.1 The general threat to public health that is posed by **antimicrobial resistance** is also **well-recognised** as an area **in need of pharmaceutical innovation**. Innovating in response to these challenges **does not** always align well with pharmaceutical industry commercial models, shareholder expectations and compe-tition within the industry. However, the **expertise**, **networks** and **infrastructure** that industry has within its reach, as well as public expectations and the moral imperative, make pharmaceutical companies and the wider life sciences sector an **indispensable** partner in the search for solutions that save lives. This perspective argues for the need to establish more **sustainable** and **scalable** ways of **incentivising pharmaceu-tical innovation** in response to infectious disease threats to public health. It considers both past and current examples of efforts to mobilise pharmaceutical innovation in high commercial risk areas, including in the context of current efforts to respond to the COVID-19 pandemic. In global pandemic crises like COVID-19, the urgency and scale of the crisis – as well as the spotlight placed on pharmaceutical companies – mean that contributing to the search for effective medicines, vaccines or diagnostics is **essential** for socially responsible companies in the sec-tor.2 It is therefore unsurprising that we are seeing indus-try-wide efforts unfold at unprecedented scale and pace. Whereas there is always scope for more activity, industry is currently contributing in a variety of ways. Examples include pharmaceutical companies donating existing com-pounds to assess their utility in the fight against COVID-19; screening existing compound libraries in-house or with partners to see if they can be repurposed; accelerating tri-als for potentially effective medicine or vaccine candidates; and in some cases rapidly accelerating in-house research and development to discover new treatments or vaccine agents and develop diagnostics tests.3,4 Pharmaceutical companies are collaborating with each other in some of these efforts and participating in global R&D partnerships (such as the Innovative Medicines Initiative effort to accel-erate the development of potential therapies for COVID-19) and supporting national efforts to expand diagnosis and testing capacity and ensure affordable and ready access to potential solutions.3,5,6 The primary purpose of such innovation is to **benefit patients** and wider **population health**. Although there are also reputational benefits from involvement that can be realised across the industry, there are likely to be rela-tively few companies that are ‘commercial’ winners. Those who might gain substantial revenues will be under pres-sure not to be seen as profiting from the pandemic. In the United Kingdom for example, GSK has stated that it does not expect to profit from its COVID-19 related activities and that any gains will be invested in supporting research and long-term pandemic preparedness, as well as in developing products that would be affordable in the world’s poorest countries.7 Similarly, in the United States AbbVie has waived intellectual property rights for an existing com-bination product that is being tested for therapeutic poten-tial against COVID-19, which would support affordability and allow for a supply of generics.8,9 Johnson & Johnson has stated that its potential vaccine – which is expected to begin trials – will be available on a not-for-profit basis during the pandemic.10 Pharma is mobilising substantial efforts to rise to the COVID-19 challenge at hand. However, we need to consider how pharmaceutical innovation for responding to emerging infectious diseases can best be enabled beyond the current crisis. Many public health threats (including those associated with other **infectious diseases**, **bioterror-ism** agents **and antimicrobial resistance**) are **urgently in need of pharmaceutical innovation**, **even if their impacts are not as visible** to society **as COVID**-19 is in the imme-diate term. The pharmaceutical industry has responded to previous public health emergencies associated with infec-tious disease in recent times – for example those associated with Ebola and Zika outbreaks.11 However, it has done so to a lesser scale than for COVID-19 and with contribu-tions from fewer companies. Similarly, levels of activity in response to the threat of antimicrobial resistance are still **low**.12 There are important policy questions as to whether – and how – industry could engage with such public health threats to an even greater extent under improved innova-tion conditions.

#### Bioweapons cause extinction

**Millett & Snyder-Beattie 17** [Piers Millett, Ph.D., Senior Research Fellow, Future of Humanity Institute, University of Oxford. Andrew Snyder-Beattie: M.S., Director of Research, Future of Humanity Institute, University of Oxford.) " Existential Risk and Cost-Effective Biosecurity," Health Security, 15(4), 08-01-2017, https://www.liebertpub.com/doi/full/10.1089/hs.2017.0028] TDI

In the decades to come, advanced bioweapons could **threaten human existence**. Although the **probability** of human extinction from bioweapons **may** be low, the **expected value** of **reducing** the risk could **still** be **large**, since such risks **jeopardize** the existence of **all future generations**. We provide an overview of biotechnological extinction risk, make some rough initial estimates for how severe the risks might be, and compare the cost-effectiveness of reducing these extinction-level risks with existing biosecurity work. We find that reducing human extinction risk can be more cost-effective than reducing smaller-scale risks, even when using conservative estimates. This suggests that the risks are not low enough to ignore and that more ought to be done to prevent the worst-case scenarios. How worthwhile is it spending resources to study and mitigate the chance of human extinction from biological risks? The risks of such a catastrophe are presumably low, so a skeptic might argue that addressing such risks would be a waste of scarce resources. In this article, we investigate this position using a cost-effectiveness approach and ultimately conclude that the expected value of reducing these risks is large, especially since such risks jeopardize the existence of all future human lives. **Historically, disease events have been responsible for the greatest death tolls** on humanity. The 1918 flu was responsible for more than 50 million deaths,1 while smallpox killed perhaps 10 times that many in the 20th century alone.2 The Black Death was responsible for killing over 25% of the European population,3 while other pandemics, such as the plague of Justinian, are thought to have killed 25 million in the 6th century—constituting over 10% of the world's population at the time.4 It is an open question whether a future pandemic could result in outright human extinction or the **irreversible collapse of civilization**. A skeptic would have many good reasons to think that existential risk from disease is unlikely. Such a disease would need to spread worldwide to **remote populations**, overcome **rare genetic resistances**, and **evade detection**, cures, and **countermeasures**. Even evolution itself may work in humanity's favor: **Virulence and transmission is often a trade-off**, and so **evolutionary pressures** could push against maximally lethal wild-type pathogens.5,6 While these arguments point to a very small risk of human extinction, they **do not rule** the possibility **out** entirely. Although rare, there are recorded instances of **species going extinct due to disease**—primarily in amphibians, but also in 1 mammalian species of rat on Christmas Island.7,8 There are also **historical examples of large human populations being almost entirely wiped out** by disease, especially when multiple diseases were simultaneously introduced into a population without immunity. The most striking examples of total population collapse include **native American tribes** exposed to European diseases, such as the Massachusett (86% loss of population), Quiripi-Unquachog (95% loss of population), and the Western Abenaki (which suffered a staggering 98% loss of population).9 In the modern context, no single disease currently exists that combines the worst-case levels of transmissibility, lethality, resistance to countermeasures, and global reach. But **many diseases are proof** of principle that **each worst-case attribute can be realized independently**. For example, some diseases exhibit nearly a **100% case fatality** ratio in the absence of treatment, such as rabies or septicemic plague. Other diseases have a **track record** of spreading to virtually every human community worldwide, such as the 1918 flu,10 and seroprevalence studies indicate that other pathogens, such as chickenpox and HSV-1, can successfully reach over 95% of a population.11,12 Under optimal virulence theory, **natural evolution** would be an **unlikely** source for pathogens with the **highest possible levels of transmissibility, virulence, and global reach**. But **advances in biotech**nology might allow the creation of diseases that **combine such traits**. Recent controversy has **already emerged** over a number of **scientific experiments** that resulted in viruses with enhanced **transmissibility**, **lethality**, and/or the ability to overcome **therapeutics**.13-17 Other experiments demonstrated that mousepox could be modified to have a 100% case fatality rate and render a vaccine ineffective.18 In addition to transmissibility and lethality, studies have shown that other disease traits, such as incubation time, environmental survival, and available vectors, could be modified as well.19-21 Although these experiments had scientific merit and were not conducted with malicious intent, their implications are still worrying. This is especially true given that there is also a **long historical track record** of**state-run bioweapon research** applying cutting-edge science and technology to design agents not previously seen in nature. The Soviet bioweapons program developed agents with traits such as enhanced virulence, resistance to therapies, greater environmental resilience, increased difficulty to diagnose or treat, and which caused unexpected disease presentations and outcomes.22 Delivery capabilities have also been subject to the cutting edge of technical development, with Canadian, US, and UK bioweapon efforts playing a critical role in developing the discipline of aerobiology.23,24 While there is no evidence of state-run bioweapons programs directly attempting to develop or deploy bioweapons that would pose an existential risk, the logic of deterrence and **m**utually **a**ssured **d**estruction could create such incentives in more unstable political environments or following a breakdown of the Biological Weapons Convention.25 The **possibility of a war** between **great powers** could also increase the pressure to use such weapons—during the World Wars, bioweapons were used across multiple continents, with Germany targeting animals in WWI,26 and Japan using plague to cause an epidemic in China during WWII.27 Non-state actors may also pose a risk, especially those with explicitly omnicidal aims. While rare, there are examples. The Aum Shinrikyo cult in Japan sought biological weapons for the express purpose of causing extinction.28 Environmental groups, such as the Gaia Liberation Front, have argued that “we can ensure Gaia's survival only through the extinction of the Humans as a species … we now have the specific technology for doing the job … several different [genetically engineered] viruses could be released”(quoted in ref. 29). Groups such as R.I.S.E. also sought to protect nature by destroying most of humanity with bioweapons.30 Fortunately, to date, non-state actors have lacked the capabilities needed to pose a catastrophic bioweapons threat, but this could change in future decades as biotechnology becomes more accessible and the pool of experienced users grows.31,32 What is the appropriate response to these speculative extinction threats? A balanced biosecurity portfolio might include investments that reduce a mix of proven and speculative risks, but striking this balance is still difficult given the massive uncertainties around the low-probability, high-consequence risks. In this article, we examine the traditional spectrum of biosecurity risks (ie, biocrimes, bioterrorism, and biowarfare) to categorize biothreats by likelihood and impact, expanding the historical analysis to consider even lower-probability, higher-consequence events (catastrophic risks and existential risks). In order to produce reasoned estimates of the likelihood of different categories of biothreats, we bring together relevant data and theory and produce some first-guess estimates of the likelihood of different categories of biothreat, and we use these initial estimates to compare the cost-effectiveness of reducing existential risks with more traditional biosecurity measures. We emphasize that these models are highly uncertain, and their utility lies more in enabling order-of-magnitude comparisons rather than as a precise measure of the true risk. However, **even with the most conservative models**, we find that reduction of **low-probability, high-consequence risks** can be more cost-effective, as measured by **quality-adjusted life year** per dollar, especially when we account for the lives of future generations. This suggests that **despite** the **low probability** of such events, society **still ought to invest more in preventing** the most extreme possible **biosecurity catastrophes**.

## ADV

#### Burnout checks disease

**York 14**—PhD in Immunology, T-Cell Immunobiologist [Ian, “Why don't diseases completely wipe out species?” 6/4/2014, https://www.quora.com/Why-dont-diseases-completely-wipe-out-species Accessed 7 July 2017]

But mostly **diseases don't drive species extinct**. There are several reasons for that. For one, **the most dangerous diseases are those that spread from one individual to another. If the disease is highly lethal, then the population drops, and it becomes less likely that individuals will contact each other during the infectious phase. Highly contagious diseases tend to burn themselves out** that way. Probably **the main reason is variation. Within the host and the pathogen population there will be a wide range of variants. Some hosts may be naturally resistant. Some pathogens will be less virulent**. **And either alone or in combination, you end up with infected individuals who survive. We see this in HIV**, for example. There is a small fraction of humans who are naturally resistant or altogether immune to HIV, either because of their CCR5 allele or their MHC Class I type. And there are a handful of people who were infected with defective versions of HIV that didn't progress to disease. We can see indications of this sort of thing happening in the past, because **our genomes contain many instances of pathogen resistance genes that have spread through the whole population**. **Those all started off as rare mutations that conferred a strong selection advantage to the carriers, meaning that the specific infectious diseases were serious threats to the species.**

#### WTO is resilient but irrelevant

**Drezner 13,** Daniel W. Drezner is professor of international politics at Tufts University's Fletcher School and a contributing editor to Foreign Policy, Foreign Policy, December 3, 2013, "The End of Multilateral Trade?", http://www.foreignpolicy.com/posts/2013/12/03/the\_end\_of\_multilateral\_trade

This kind of story is both overly optimistic and overly pessimistic about the state of the WTO. It's overly optimistic in assuming that, even if something is negotiated in Bali (and the odds aren't great of that happening), **it's unlikely** that **the WTO will ever be the focal point for comprehensive trade talks ever again**. Even getting agreement on the "easy" parts of Doha has been **super-hard**. There's very little upside to making the WTO the focal point of new talks, **especially given** that **most** of the regional and bilateral **trade talks have been of the "open regionalism" variety**. On the other hand, **the "slippery slope" argument of the WTO losing relevance is also way overplayed**. Such a statement omits two very important facts. First, even if there's no further WTO-guided liberalization, the rounds negotiated to date constitute **far more liberalization than what can be achieved in the future**. In other words, **the WTO rules still govern a lot of trade, and further liberalization won't erode the WTO's bailiwick that much.** Second, the WTO's Dispute Settlement Understanding remains the ne plus ultra of enforcement arrangements in global governance. Contrary to the WSJ story, **there is zero evidence** that **WTO enforcement has weakened as Doha bogged down** or as protectionism increased after 2008. That part of the trade system is still working pretty well. For decades, trade commentary has implicitly embraced the "bicycle theory" - the belief that unless multilateral trade liberalization moves ahead, the entire global trade regime will collapse because of a lack of forward momentum. **The last decade** -- and particularly the post-2008 period -- **suggests** that **there are limits to that rule of thumb**. It is possible for the WTO to matter less on jump-starting multilateral trade negotiations **while still mattering a great deal in enforcing the rules of the game**.

#### Squo solves – voluntary licensing and other initiatives

**Mercurio 2/12** (Bryan Mercurio, [Simon F.S. Li Professor of Law at the Chinese University of Hong Kong (CUHK), having served as Associate Dean (Research) from 2010-14 and again from 2017-19. Professor Mercurio specialises in international economic law (IEL), with particular expertise in the intersection between trade law and intellectual property rights, free trade agreements, trade in services, dispute settlement and increasingly international investment law.], 2-12-2021, “WTO Waiver from Intellectual Property Protection for COVID-19 Vaccines and Treatments: A Critical Review“, No Publication, accessed: 8-8-2021, https://papers.ssrn.com/sol3/papers.cfm?abstract\_id=3789820) ajs

3. **Voluntary licensing and other initiatives are supporting access to COVID-19 vaccines** Contrary to assertions the sponsors made at the TRIPS Council, pharmaceutical **companies have been actively signing voluntary licensing agreements with various generic drug manufacturers to scale up the production of COVID-19 medication**. For instance, Gilead’s antiviral drug named Remdesivir was approved for emergency use for COVID-19 treatment by the US Food and Drug Administration (FDA) and the European Medicines Agency in May 2020.35 As demand surged following the approvals for use in COVID-19, Gilead issued nonexclusive voluntary licences to generic producers based in India, Egypt and Pakistan in order to meet the growing demand for the product. Under the voluntary licensing agreements, these manufacturers receive the technology necessary to manufacture Remdesivir, as well as set their own prices for the generic drugs they produce. **The arrangement allows the distribution of the drug in 127 countries, covering nearly all low-income and lower-middle-income countries.**36 Another example of industry cooperation is the COVID-19 vaccine co-developed by AstraZeneca and University of Oxford. AstraZeneca has committed to granting voluntary licensing in developing countries and signed sublicence agreements with several generic drugs producers to increase the supply of future vaccine, including with the Serum Institute of India (one of the world’s largest vaccine producers),37 Fiocruz in Brazil,38 BioKangtai in China39 and R-Pharm in Russia,40 enabling the massive production of cheap generic vaccines and supply of over two billion doses to lower-middle-income countries once the vaccine is approved for sale in those countries.

Other initiatives set up in response to IP issues related to COVID-19 treatments and vaccines include **the World Health Organization’s (WHO) COVID-19 Technology Access Pool (CTAP),** launched to gather COVID-19 technology related patents and other kinds of intellectual properties, such as data, know-how and software.41 This Pool, similar to Medicines Patent Pool (MPP) – established to pool and distribute generic licences for HIV/AIDS-related treatments – aims to accelerate the scale-up of production of medical inventions to fight against COVID-19 and ensure they are available globally and equitably.42 **To date, 39 WHO member states and 4 intergovernmental bodies have indicated their support43 and a coalition of 18 generic drugs manufacturers located in India, China, Bangladesh and South Africa have pledged to work together to accelerate access to millions of doses of new interventions for COVID-19 for lowand middle-income countries.**

Another effort, **the Access to Covid-19 Tools (ACT) Accelerator, has raised $5.8 billion from nearly forty countries and over 40 private and non-governmental sources for the deployment tests, treatments and vaccines**. 44 COVAX, convened by Gavi, the Coalition for Epidemic Preparedness Innovations (CEPI) and the WHO, is the vaccine pillar of the ACT and acts as a global initiative to pool procurement of safe and effective COVID-19 vaccines. The objective of this accelerator collaboration is to guarantee rapid and fair access to COVID-19 vaccines for every country in the world. As of January 2021, COVAX has agreements in place to access 2 billion doses of promising COVID-19 vaccine candidates, implying that all 190 participating economies are eligible to access effective and approved vaccines in the first half of 2021.45 At least 1.3 billion donor-funded doses will be made available to 92 low- and middle-income economies.46

With the advance of reasonably priced patented treatments and vaccines, as well as the widespread and growing use of non-exclusive voluntary licence agreements and several newly established global initiatives, **it is not only unnecessary to waive IPRs to ensure access to affordable medicines for all populations around the world during the pandemic but also unwise as the waiver would stifle cooperative efforts and potentially lead to less availability of needed treatments and vaccines.**