# NDT—R7—Kentucky DG v MSU GK

## 1AC

### 1AC---NEW

#### Contention 1 is INVESTORS.

#### The post-COVID moment provides a window of opportunity to resuscitate growth from its stagnation trap.

Bart van Ark et al. 21, Senior Advisor, Economy, Strategy & Finance Center, The Conference Board. Professor, Productivity Studies, Alliance Manchester Business School, University of Manchester; Klaas de Vries, Economist, The Conference Board; Abdul Erumban, Senior Research Fellow, The Conference Board. Assistant Professor, Economics, University of Groningen, "How to Not Miss A Productivity Revival Once Again," National Institute Economic Review, Vol. 255, 2021, pg. 9-23.

As the global economy has entered recession in 2020, triggered by the COVID-19 pandemic, the human casualties, and economic damage are perceived to be very large. Even as the health crisis will gradually become manageable, the impact on economic growth can be long-lasting and the recovery path can take several years. In particular, growth drivers such as the pace of job creation, income generation and investment may take several years to get back to pre-crisis trends. Iniitially the productivity of those growth drivers may be of less concern as the mantra of ‘we’ll do what it takes to avoid worse’ is predominant in this phase of the crisis.

However, once the recovery gets underway the productive use of resources is key to sustained growth. While we do not ignore the short-term challenges of the economic recovery, our primary focus in this paper is on the productivity puzzle from a long-term perspective. Productivity is driven by technological change and innovation which, in turn, depends on investment in human and physical capital as well as in other ‘missing capitals’ often referred to as intangible assets. Indeed, those investments create a positive feedback effect, as the productivity it generates also helps to make more efficient usage of scarce resources in the future. When properly measured and valued, productivity also provides a critical yardstick to realise a fairer distribution of the gains from economic growth to those who bring the resources to bear. It thereby creates the incentives for people to produce and business to invest helping to drive economic growth and raise living standards.

Unfortunately, in the aftermath of the global financial crisis of 2008/2009, many economies around the world, especially advanced economies, have failed to recharge the economy by powering productivity as the key source of growth in the long term. Indeed the latest update of The Conference Board Total Economy Database (July 2020) points at significant weakening in labor productivity growth in Europe up to 2019 (figure 1a–c). While the United States experienced somewhat faster productivity growth from 2017 to 2019 than the Euro Area and the United Kingdom, it still has not recovered to the rates of productivity growth from before the global financial crisis either.

The slowdown in productivity growth over the past 15 years has been well documented. There are multiple causes including an exhaustion of catch-up potential in emerging markets impacting economies along entire global value chains, and the drag from the global financial crisis because of low demand and weak investment, too low interest rates causing misallocations an overreliance on cheap labor, and failing fiscal policies (Baueret al., 2020; Cette et al., 2016; Crafts, 2018; Dieppe, 2020; Fernald et al., 2017; Syverson, 2016).1 Technical measurement issues regarding inputs and outputs may have played a role as well.

In our earlier work we have stressed the importance of time lags in the adoption of new technologies, and in particular the complexity in generating productivity growth from the latest round of new digital technologies since the early 2010s, including the move toward mobile, ubiquitous access to broadband, the rise of cloud storage and advances in artificial intelligence (AI) and robotics (van Ark, 2016a, 2016b; van Ark and O’Mahony, 2016; van Ark et al., 2016).

While the first priority for economic recovery from the COVID-19 crisis is to restore jobs, it is important that any employment-intensive growth path does go together with a productivity revival. In this paper, we argue that it is possible to avoid another productivity slowdown. Underneath the aggregate figures, there is evidence pointing toward a possible tipping point at which many advanced economies may expect to see more widespread impacts from the adoption and absorption of digital technology on productivity and GDP growth.

In Section 2 we review the latest literature on the productivity impacts of general purpose technologies (GPTs), including the notion of time lapses through which digital technologies result in faster productivity growth. We also look at patterns by which innovation and productivity effects GPTs emerge across industries and disperse across the economy. We explain why the New Digital Economy (NDE) is especially characterised by long lag effects.

In Section 3 we provide an empirical analysis of productivity growth by industry data to observe whether we can detect a distinct pattern across groups of industries pointing to a structural improvement in recent years. We use a taxonomy on digital intensity by industry which was recently developed by the Organisation for Economic Co-operation and Development (OECD) (Calvino et al., 2018), showing that the most digital-intensive industries have experienced a relatively strong performance in terms of labor productivity growth since 2007 and especially since 2013.

In Section 4 of the paper, we discuss the connection between labor and skills in the digital economy, which we believe provides the key to a productivity revival. We developed a new metric on innovation competencies by occupation on the basis of data from the O\*Net database on occupation-specific descriptors in the United States (Hao et al., 2018). When applied to the United Kingdom, we find that innovation competencies point at stronger productivity effects by industry.

In Section 5 we focus on how productivity has been behaving in the short-term during the COVID-19 recession. In particular, we address the potential trade-offs between traditional pro-cyclical recovery effects and scarring effects the recession leaves, especially on the labor market. We argue that increased adoption and usage of digital technologies during the COVID-19 crisis may create a positive productivity effect.

In the final section, Section 6, we will review our hypothesis that a productivity revival could be imminent in the light of the recovery from the COVID-19 crisis. In order not to miss this opportunity again, as happened a decade ago, we argue that a coordinated effort from business and policy is needed, and has to be delivered in such a way that the gains from productivity will be more widespread and such that those who provide the resources for growth are incentivised to deliver them in an efficient way.

[Figure omitted]

2. The productivity paradox of the New Digital Economy

It is well known that General Purpose Technologies (GPTs), defined as new methods of producing and inventing new goods and services which are important enough to have a long-term aggregate impact on the economy, can take a significant amount of time to translate to faster productivity growth at the aggregate level of the economy. This is inherent to the three critical characteristics of a GPT as identified by Bresnahan and Trajtenberg (1995).2

1. Pervasiveness – The GPT should spread to most sectors.
2. Improvement – The GPT should get better over time and, hence, should keep lowering the costs of its users.
3. Innovation spawning – The GPT should make it easier to invent and produce new products or processes.

Historical analysis has focussed on productivity trends in previous technology phases (Bakker et al., 2019; Crafts, 2004). Recent literature has shown that the information and communication technology (ICT) revolution of the past 50 years can be characterised as a GPT and doesn’t pale with previous GPTs such as steam technology, electricity and the combustion engine. For example, Hempell (2005) concludes that ‘investment in information and communication technologies (ICT) are closely linked to complementary innovations and are most productive in firms with experience from earlier innovations’. In a more recent analysis of the evolution of the Internet, Simcoe (2015) argues that the modularity of the internet has prevented a fall in return to investments in innovation by ‘facilitating low-cost adaptation of a shared general-purpose technology to the demands of heterogeneous applications’. In a review of the data, Liao et al. (2016) conclude that:

‘… ICT investment does contribute to productivity but not in the usual manner – we find a positive (but lagged) ICT effect on technological progress. We argue that for a positive ICT role on growth to actually take place, a period of negative relationship between productivity and ICT investment together with ICT-using sectors’ capacity to learn from the embodied new technology was crucial. In addition, it took a learning period with appropriate complementary co-inventions for the new ICT-capital to become effective and its gains to be realised. Our findings provide solid, further empirical evidence to support ICT as a general purpose technology’.

During the latest phase of ICT inventions and applications, which we dubbed the NDE,3 and which refers to the combination of mobile technology, ubiquitous access to the internet and the shift toward storage, analysis and development of new applications in the cloud, the question arises if the NDE is an extension of the previous phase of ICT technology, or whether we are starting a new GPT-phase altogether fueled by AI and robotics. The latter issue has been extensively discussed by Agrarwal et al. (2019) who argue that ‘(H)uman intelligence is a general purpose tool. AI, whether defined as prediction technology, general intelligence, or automation, similarly has potential to apply across a broad range of sectors’. (p. 4).

The shift in substitution of digital automation for horse power (such as in computer numerical control or CNC machinery), and routine administrative tasks (such as in office software) to substitute for human intelligence (such as with AI and robotics) represent the exponential growth in computing power. We therefore will treat the entire ICT era in this paper as one GPT. However, the periodisation, especially comparing the pre- and post-2007 period, allows us to tease out some of the productivity effects from the Old Digital Economy, driven by the introduction of the PC and the rise of the internet, vis-à-vis the NDE.

The time lag factor also plays an important role in the evolutionary school literature on technological change. For example, Perez (2002) distinguished an ‘installation phase’ and a ‘deployment phase’ for any new technological paradigm. During the installation phase, new business spending on machinery, innovation, organisational and management changes exceed the overall output recovery. During this phase, the famous Schumpeter credo of ‘creative destruction’ may put more emphasis on creation than on destruction. Low productivity firms can still survive which has been especially the case in the past decade’s environment of low interest rates, credit growth and weak wage growth where cheap workers could still be relied upon (Andrews et al., 2017). During the deployment phase, the fruits of the new technology become more widespread as less productive firms will lose out on the competition and make room for the reallocation of resources to more productive firms and industries.

Beyond the time lag in the diffusion of the technology, there can also be a time lag in the absorption of new technologies. Evidence from recent business studies suggests that the absorption of new digital technologies has been particularly slow in the NDE. Indeed ‘digitisation’, which is the increase use of digital technology creating new products, new processes, business models and organisational structures, needs to be distinguished from ‘digital transformation’. The latter aims at leveraging digital technologies and the data they produce to connect organisations, people, physical assets and processes, etc. which drives long-term value and productivity (Young, 2016). Digital transformation causes a wide range of complexities raising the cost of transition ‘that can include an initial duplication of structures and investment, cannibalisation of incumbent business and the diversion of management attention. Towards those new technologies’. (McKinsey, 2018). More specifically, related to the most recent wave of AI, Brynjolfsson et al. (2019) state that:

The most impressive capabilities of AI, particularly those based on machine learning, have not yet diffused widely. More importantly, like other general purpose technologies, their full effects won’t be realized until waves of complementary innovations are developed and implemented. The adjustment costs, organizational changes, and new skills needed for successful AI can be modeled as a kind of intangible capital.

It follows that while new digital technologies have rapidly diffused across the economy, the absorption and translation into better business performance has been quite slow and uneven. This is not an unusual phenomenon. For example, Harberger (1998) speaks of two types of growth. One is characterised as ‘mushroom’ growth in which a limited number of sectors, industries, or firms experience a much better productivity performance than others. In today’s world, it means that the exciting prospects of a productivity boost from driverless cars, robotics and AI may be mushroom-like with a limited effect on productivity growth at the macroeconomic level. The second type of growth is what Harberger calls ‘yeasty’ growth once the productivity improvements spread more widely across the economy. Even though we may not yet be fully harvesting the yeast effects of digital transformation, accelerated investment and business spending on ICT assets, cloud and digital services across many industries and rising wage premiums on skilled labor coupled with stronger demand bode well for a broader emergence of automation and digitisation.

Another important explanation for the wide dispersion of the productivity effects of new digital technology arises from the firm level. Studies at the OECD and the Massachusetts Institute of Technology (MIT) have pointed at the rising gap between the top echelon of high-performing firms and the rest (Andrews et al., 2017; Autor et al., 2017). In this study, we do not look at this important source of productivity divergence but focus one level higher by looking at performance across industries and its link to the aggregate economy.

3. An industry perspective on productivity growth in the digital economy

To detect structural trends in productivity improvements from a GPT perspective, a useful starting point is to apply a taxonomy of digital intensity by industry. For this, we follow the taxonomy recently developed by the OECD (Calvino et al., 2018). The study uses multiple dimensions relating to technology, market and human capital-related features:

1. Share of ICT tangible and intangible (i.e., software) investment;
2. Share of intermediate purchases of ICT goods and services;
3. Stock of robots per hundreds of employees;
4. Share of ICT specialists in total employment; and
5. Share of turnover from online sales.

While the taxonomy is available for two periods (2001–2003 and 2013–2015), we only use it for the 2013–2015 period. Using an overall summary indicator (the ‘global taxonomy’), we collapse industries at the ISIC Rev. 4 level into two groups: ‘most digital intensive-using’ industries and ‘least digital intensiveusing’ ones. Furthermore, we separate out a third group of industries that are defined as producing digital goods and services because of their very different productivity dynamics. Hence our most and least digital-intensive industries are identified as ‘using’ industries compared to producing industries (see Exhibit 1).4

Figure 2a compares the contribution of the three groups of industries to labor productivity growth for United States, the Euro Area (based on an average for 12 economies) and the United Kingdom for two subperiods: 1996–2006 represents the Old Digital Economy-era and 2007–2018 refers to the NDE era. This periodisation is supported by the shift from investment in ICT equipment (computers and telecommunications) and software to spending on ICT services referring to data storage and processing services (including cloud computing), computer systems design and other information services (including internet publishing) (van Ark et al., 2016).

Figure 2a shows that the dramatic decline in labor productivity between the pre and the post 2007 period, which has been described earlier, occurred across all three industry groups. In line with our earlier work (van Ark, 2016b; van Ark et al., 2016) we find that, paradoxically, the largest slowdown occurred in the most digital intensive-using group. We attribute this counterintuitive effect to the timelag in productivity effects from digital technology due to its general purpose-nature as well as to the delaying effects from the digital transformation process.

Figure 2b shows the same picture, but by removing the 2008–2009 recession and its immediate aftermath (2010–2012), provides a clearer comparison between the heydays of the Old Digital Economy and the NDE. In particular, the productivity advantage which the United Kingdom and the United States enjoyed over the Euro Area before 2007 has largely eroded since then because of a slowdown in productivity from intensive digital-using industries. Since 2013, when looking at the digital-producing and intensive digital-using industries combined, the contributions from the two industry groups to productivity growth are about the same in the Euro Area, the United Kingdom and the United States. The main differences are the larger contribution from digital-producing industries in the United States, and the negative contributions from the less digital-intensive industries in the United Kingdom, whereas the Euro Area primarily experienced a slowdown in productivity in ICT-producing industries.

The divergence in productivity contributions from digital-producing industries feeds directly into current debates about the predominance of digital production in the United States. The large volume of demand for US-based digital products and services may be one reason why the productivity contribution punches well above the weight of the sector: while the digital producing sector accounts for just over eight per cent of value added in the United States, it contributes for more than half of productivity growth since 2013.

Table 1 compares the productivity contributions from digital producing and most and least intensive using groups in six Euro Area economies, the United Kingdom and the United States. The country estimates suggest that the productivity contribution from the digital producing sector dropped significantly in all European countries whereas intensive digital-using industries have performed relatively well despite without a large digital-producing sector.

Chart, bar chart, waterfall chart

Description automatically generated

[Figures omitted]

Van Ark et al. (2019) exploit the full richness of the labor productivity data by industry to analyse how concentrated or widespread productivity growth is. They calculated the cumulative contribution of individual industries to aggregate productivity growth against the cumulative share of these industries in aggregate value added (Harberger, 1998; Timmeret al., 2010).Table 2 shows that, while all three regional entities saw a slowdown in labor productivity growth at the aggregate level, the share of value added in industries that contributed positively to labor productivity in each group was highest in the digital-producing sector, although in this regard the United Kingdom underperformed relative to the United States and the Euro Area. In the most intensive digital-using industries all three countries have held up well in terms of industries contributing positively to productivity growth. The share of value added in the less digital-intensive industries contributing positively to productivity growth was significantly lower than in the most-digital intensive industries. In fact, it even declines in the United Kingdom and the United States.

In sum, our analysis of the industry data suggests that while macro productivity growth has weakened over the past 15 years, the United States has performed relatively well in digital-producing industries. The Euro Area economies and the United Kingdom have been relatively strong performers in digitalusing industries. All three areas saw less productivity growth from less digital-intensive industries, and in the United Kingdom it even detracted from productivity growth because a large number of less digitalintensive industries showed productivity declines.

It has been widely hypothesised that the presence of a digital-producing sector might help productivity to grow in the rest economy (Brynjolffson and McAfee, 2014; Corrado and van Ark, 2016). However, the data presented here suggest that this doesn’t necessarily mean that the digital producers need to be domestically based. Despite a smaller digital-producing sector and a lower export base in Germany and the United Kingdom compared to the United States, all three countries have been large importers of ICT services and in fact Germany and the United Kingdom saw more of an improvement in productivity in intensive digital-using sectors than the United States. This analysis also confirms that specialisation patterns may be conducive to additional productivity gains of the three regional entities.

The potential for digital specialisation across countries also raises the question whether complementary investments, for example, in workforce skills and other intangibles assets, are not at least as important as understanding differences in productivity effects from digital usage than the presence of a domestic digital-producing sector. In Section 4 we explore the importance of skills for generating the productivity effects from digital transformation further in Section 4 by looking at the Innovation Competencies of the workforce by industry in the United Kingdom.

4. Innovation competencies of occupations and productivity

As productivity is likely to improve as the result from digital transformation, its disruptive impact on labor markets is also being felt more broadly. It has become an important concern from the perspective of job creation, the share of labor income in total GDP, and its distribution. The productivity effects that come with digitisation may, on balance, have limited net job creation so far (Autor and Salomons, 2018). While it is unavoidable that digitisation destroys jobs in old industries, it should also create new jobs in industries that can grow faster by using the new technology.

An important precondition for that is the formation of appropriate skills for the NDE. The transition of skills, therefore, needs to be accompanied with new competencies which enable workers to apply digital technologies in producing new products and services that fulfill the needs of consumers. This helps to create a virtuous cycle in which new jobs and raise living standards through higher wages and greater utility from the consumption of those products and services.

In this section, our focus is on how innovation competencies of the workforce align to the needs of the digital transformation process. Using the same OECD taxonomy as in our analysis above, Grundke et al. (2018) show that:

‘… digital intensive industries especially reward workers having relatively higher levels of selforganisation and advanced numeracy skills. Moreover, for workers in digital intensive industries, bundles of skills are particularly important: workers endowed with a high level of numeracy skills receive an additional wage premium, if they also show high levels of self-organisation or managing and communication skills’.

To measure the extent to which competencies relate to industry productivity growth, we apply a novel approach developed by The Conference Board to assess the innovation potential of occupations (IPO). Hao et al. (2018) assign an innovation potential score to each occupation on the basis of 65 innovationrelated job characteristics which are obtained from more than variables on job characteristics for more than 700 occupations from the O\*NET database, the primary US source of information on occupations (US Bureau of Labor Statistics). The authors then applied factor analysis to ultimately group those characteristics in 12 competencies:

1. STEM
2. Adaptability/flexibility
3. Autonomy
4. Empowerment
5. Decision making
6. Cooperative teams and group interaction
7. Creativity
8. Mistake handling
9. Learning culture
10. Conflict handling
11. Enterprising
12. Deal with external customers

One of the insights from quantifying competencies is that the IPO seems more widely dispersed than is mostly assumed. For example, while a sales manager may not atface value be assumed to contribute much to the innovative potential of an organisation, this occupation does get a relatively high IPO score – higher than for example a physicist. This is related to the sales manager’s crucial role in representing the customer’s voice in both the beginning and the end of an innovation cycle. Recent research shows that US firms which post job vacancies require AI skills have a large wage premium, also show a wage premium for non-AI vacancies with managerial occupations showing the highest wage premium for AI skills (Alekseeva et al., 2020).

[Figure omitted]

Using tabulations of occupations by industry for the United Kingdom, we have constructed weighted IPO averages by industry (van Ark et al., 2019).5 We generally find that services industries such as advertising and market research, legal, accounting and management consulting as well as research and development have a relatively high innovation potential. In contrast, at the lower end of the list are agricultural industries, as well as goods-producing industries such as clothing, food and drinks and basic metals manufacturing.

Figure 3 shows a comparison of UK industries which showed either an increase or a decline in the IPO score between 2007 and 2017 relative to whether labor productivity growth was positive or negative over the same period. Exhibit 2 shows the aggregate GDP share in each quadrant and the GDP share of the five most important industries in terms of their value-added share. The data show that most industries employed workers with increased innovative potential scores as the top two quadrants account for as much as 85 per cent of all GDP in the United Kingdom in 2017. A larger share of those industries (47 per cent of GDP) also showed positive productivity growth, dominated by industries such as construction, health care, retail trade, public administration and finance, while 38 per cent of GDP was in industries with increasing IPO scores but falling productivity, including large sectors such as real estate and education. Indeed, the majority of digital-intensive using industries were represented in the top right quadrant of the chart. Only 15 per cent of 2017 GDP in the United Kingdom is located in industries with falling IPO scores between 2007 and 2017, even though about 11 per cent represent industries which still exhibited positive productivity growth, including large sectors such as wholesale trade and trade in vehicles where other factors than innovation competencies of the workforce were driving productivity.

[Figure omitted]

The analysis shows that the relationship between IPO scores and productivity growth is not perfect. By no means would we suggest that workforce competencies are the only factor that drives differences in productivity growth between sectors. More research is needed on how innovation competencies and productivity influence on each other and which other factors might be at play. However, it is encouraging to see that almost half of GDP in the United Kingdom are in industries where workers have improved innovation competencies and show positive productivity growth.

5. The impact of the recession

Since the global economy has entered recession in 2020, triggered by the COVID-19 pandemic, productivity has behaved in an unusual manner. Normally, productivity drops substantially at the start of a recession, as employers are holding on to their resources including their employees for some time even as output slows in the hope that the downturn will be short-lived. However, when the pandemic hit in the first quarter of 2020, and GDP began to drop exceptionally rapidly, governments in many advanced economies put job retention schemes and short-time working arrangements in place to limit job losses while compensating firms for hours not worked. Even as output per worker declined rapidly, especially during the second quarter, the rate of reduction in hours worked has been larger than the loss of jobs, so that output per hour has not been as hard hit in the second quarter. While GDP per hour declined by almost one per cent in the United Kingdom, it increased in the Euro Area and even more so in the United States. During the third quarter, output per hour rebounded sharply in the UK while it turned negative in the Euro Area as the uptick in hours worked far exceeded the recovery in GDP (table 3).

In the coming quarters, various forces will influence productivity performance. First, the outlook depends to a large extent on whether, coming out of the recession, productivity will respond in a typical pro-cyclical manner. Second, there may be longer-lasting scarring effects, especially in labor markets. And, third, the adoption of digital technology during the COVID-19 recession may accelerate the process of digital transformation.

When coming out of the crisis, one may expect to see output recover faster than working hours causing a procyclical recovery of productivity. First, the recession will cause some companies to go bankrupt, which often are the least productive ones. Second, incumbent companies tend to be cautious in rehiring until the recovery has taken hold and will consider the need to restructure in the light of changes in the structure of demand. For example, in the post-COVID 19 world changed consumer behaviour may accelerate the delivery of goods and services to online or change the nature of demand for business or leisure travel. However, recent research for the United States shows that more than one third of US jobs may not be recovered in the medium-term (Barrero et al., 2020). It also remains to be seen how large permanent job losses resulting from the crisis will be for other countries once their employment protection programmes wind down.

Indeed, the tradeoff between procyclical recovery and scarring effects on the post-recession productivity performance recovery critically depends on the effects of digital production and usage. There is some evidence of greater digital usage due to increased virtual work, increased on-line shopping and the growth of digital purchases from hardware to software and games, which may support productivity more permanently especially if new conducive policies, such as tax incentives and grants (especially for small and medium-sized enterprises) are implemented (OECD, 2020; Riom and Valero, 2020).

[Figure omitted]

The official quarterly data show many shortcomings in determining the drivers of productivity in the short-term, especially when looking at data on the industry level (ONS, 2020). At the aggregate level, productivity changes may have been caused either by within-industry effects or by a shift from low to high-productivity industries. During the COVID-19 crisis, the latter might have been caused by the fact that some services industries with relatively low levels of output per hour have lost ground to sectors with higher productivity levels. A preliminary analysis of the data for the United Kingdom suggests there has been a large shift (or reallocation) effect. However, there is also some preliminary evidence that within-industry productivity has not been hit as badly in intensive digital-using industries compared to less intensive digital-using industries.6

The accelerated shift toward remote working, as a result of COVID-19, accentuates the importance of digital transformation as a driver of the productivity recovery. Pre-COVID research has shown that employees who work from home can be highly productive, provided the working conditions at home are right (Bloom et al., 2013). However, this productivity gain is not a given. For example, management research shows a weakening of innovation in remote work settings, especially in hybrid settings with some employees working in the office and others working at home. There seems to be a clear advantage to firms that had previously adopted digital technologies to be better at adopting new technologies, and create new products (Riom and Valero, 2020). The potential productivity benefit from virtual work should be an integrated part of a firm’s innovation and business strategy (Gratton, 2020).

6. Conclusion: How to not miss the productivity recovery once again?

How can another phase of sluggish productivity growth, as it occurred over the past 15 years, be avoided? The key to a successful medium-term recovery is to turn the post-recession procyclical productivity rebound into a new era of sustained productivity growth. Those effects in part arise from a ‘cleansing effect’ as the failing firms are often the less productive ones, new and more productive firms enter and incumbent companies absorb the resources (labor and capital) that have been freed up during the recession to drive technological change and innovation (Foster et al., 2016). However, such reallocation of resources requires a competitive business environment with low entry barriers that allows ‘zombie firms’ and other types of low productive companies to leave the market and new firms to start up. Some of the latest research shows that the business environment in the United States has not been very conducive to dynamic market competition in recent years, while European markets are in fact more competitive (Philippon, 2019).

Our research suggests that, once the recovery gets underway, digital transformation may have sufficiently matured to provide the key to a sustained recovery in productivity. Digital transformation goes beyond the invention of new digital technologies and needs to lead to diffusion and adoption across the economy. Firms must also create the capacity to absorb and apply technology by way of a skilled workforce, investments in organisational capabilities such as agility and resiliency and a strong innovation culture. New innovations (including those from digital technology or biosciences, as well as innovative solutions for services) may be developed by individual firms in their drive toward revenue and profits. These activities will benefit entire industries or sectors when adopted more broadly creating spillover effects in the form of total factor productivity growth.

#### Slow growth collapses the liberal order AND causes global hotspot escalation---it culminates in numerous existential risks.

Michael F. Oppenheimer 21, Clinical Professor, Center for Global Affairs, New York University. Senior Consulting Fellow, Scenario Planning at the International Institute for Strategic Studies. Former Executive Vice President, The Futures Group. Member, Council on Foreign Relations. Member, The Foreign Policy Roundtable at the Carnegie Council on Ethics and International Affairs. Member, The American Council on Germany, "The Turbulent Future of International Relations," in The Future of Global Affairs: Managing Discontinuity, Disruption and Destruction, Chapter 2, 2021, pg. 23-43.

Four structural forces will shape the future of International Relations: globalization (but without liberal rules, institutions, and leadership)1; multipolarity (the end of American hegemony and wider distribution of power among states and non-states2); the strengthening of distinctive, national and subnational identities, as persistent cultural differences are accentuated by the disruptive effects of Western style globalization (what Samuel Huntington called the “non-westernization of IR”3); and secular economic stagnation, a product of longer term global decline in birth rates combined with aging populations.4 These structural forces do not determine everything. Environmental events, global health challenges, internal political developments, policy mistakes, technology breakthroughs or failures, will intersect with structure to define our future. But these four structural forces will impact the way states behave, in the capacity of great powers to manage their differences, and to act collectively to settle, rather than exploit, the inevitable shocks of the next decade.

Some of these structural forces could be managed to promote prosperity and avoid war. Multipolarity (inherently more prone to conflict than other configurations of power, given coordination problems)5 plus globalization can work in a world of prosperity, convergent values, and effective conflict management. The Congress of Vienna system achieved relative peace in Europe over a hundred-year period through informal cooperation among multiple states sharing a fear of populist revolution. It ended decisively in 1914. Contemporary neoliberal institutionalists, such as John Ikenberry, accept multipolarity as our likely future, but are confident that globalization with liberal characteristics can be sustained without American hegemony, arguing that liberal values and practices have been fully accepted by states, global institutions, and private actors as imperative for growth and political legitimacy.6 Divergent values plus multipolarity can work, though at significantly lower levels of economic growth-in an autarchic world of isolated units, a world envisioned by the advocates of decoupling, including the current American president.7 Divergent values plus globalization can be managed by hegemonic power, exemplified by the decade of the 1990s, when the Washington Consensus, imposed by American leverage exerted through the IMF and other U.S. dominated institutions, overrode national differences, but with real costs to those states undergoing “structural adjustment programs,”8 and ultimately at the cost of global growth, as states—especially in Asia—increased their savings to self insure against future financial crises.9

But all four forces operating simultaneously will produce a future of increasing internal polarization and cross border conflict, diminished economic growth and poverty alleviation, weakened global institutions and norms of behavior, and reduced collective capacity to confront emerging challenges of global warming, accelerating technology change, nuclear weapons innovation and proliferation. As in any effective scenario, this future is clearly visible to any keen observer. We have only to abolish wishful thinking and believe our own eyes.10

Secular Stagnation

This unbrave new world has been emerging for some time, as US power has declined relative to other states, especially China, global liberalism has failed to deliver on its promises, and totalitarian capitalism has proven effective in leveraging globalization for economic growth and political legitimacy while exploiting technology and the state’s coercive powers to maintain internal political control. But this new era was jumpstarted by the world financial crisis of 2007, which revealed the bankruptcy of unregulated market capitalism, weakened faith in US leadership, exacerbated economic deprivation and inequality around the world, ignited growing populism, and undermined international liberal institutions. The skewed distribution of wealth experienced in most developed countries, politically tolerated in periods of growth, became intolerable as growth rates declined. A combination of aging populations, accelerating technology, and global populism/nationalism promises to make this growth decline very difficult to reverse. What Larry Summers and other international political economists have come to call “secular stagnation” increases the likelihood that illiberal globalization, multipolarity, and rising nationalism will define our future. Summers11 has argued that the world is entering a long period of diminishing economic growth. He suggests that secular stagnation “may be the defining macroeconomic challenge of our times.” Julius Probst, in his recent assessment of Summers’ ideas, explains:

…rich countries are ageing as birth rates decline and people live longer. This has pushed down real interest rates because investors think these trends will mean they will make lower returns from investing in future, making them more willing to accept a lower return on government debt as a result.

Other factors that make investors similarly pessimistic include rising global inequality and the slowdown in productivity growth…

This decline in real interest rates matters because economists believe that to overcome an economic downturn, a central bank must drive down the real interest rate to a certain level to encourage more spending and investment… Because real interest rates are so low, Summers and his supporters believe that the rate required to reach full employment is so far into negative territory that it is effectively impossible.

…in the long run, more immigration might be a vital part of curing secular stagnation. Summers also heavily prescribes increased government spending, arguing that it might actually be more prudent than cutting back – especially if the money is spent on infrastructure, education and research and development.

Of course, governments in Europe and the US are instead trying to shut their doors to migrants. And austerity policies have taken their toll on infrastructure and public research. This looks set to ensure that the next recession will be particularly nasty when it comes… Unless governments change course radically, we could be in for a sobering period ahead.12

The rise of nationalism/populism is both cause and effect of this economic outlook. Lower growth will make every aspect of the liberal order more difficult to resuscitate post-Trump. Domestic politics will become more polarized and dysfunctional, as competition for diminishing resources intensifies. International collaboration, ad hoc or through institutions, will become politically toxic. Protectionism, in its multiple forms, will make economic recovery from “secular stagnation” a heavy lift, and the liberal hegemonic leadership and strong institutions that limited the damage of previous downturns, will be unavailable. A clear demonstration of this negative feedback loop is the economic damage being inflicted on the world by Trump’s trade war with China, which— despite the so-called phase one agreement—has predictably escalated from negotiating tactic to imbedded reality, with no end in sight. In a world already suffering from inadequate investment, the uncertainties generated by this confrontation will further curb the investments essential for future growth. Another demonstration of the intersection of structural forces is how populist-motivated controls on immigration (always a weakness in the hyper-globalization narrative) deprives developed countries of Summers’ recommended policy response to secular stagnation, which in a more open world would be a win-win for rich and poor countries alike, increasing wage rates and remittance revenues for the developing countries, replenishing the labor supply for rich countries experiencing low birth rates.

Illiberal Globalization

Economic weakness and rising nationalism (along with multipolarity) will not end globalization, but will profoundly alter its character and greatly reduce its economic and political benefits. Liberal global institutions, under American hegemony, have served multiple purposes, enabling states to improve the quality of international relations and more fully satisfy the needs of their citizens, and provide companies with the legal and institutional stability necessary to manage the inherent risks of global investment. But under present and future conditions these institutions will become the battlegrounds—and the victims—of geopolitical competition. The Trump Administration’s frontal attack on multilateralism is but the final nail in the coffin of the Bretton Woods system in trade and finance, which has been in slow but accelerating decline since the end of the Cold War. Future American leadership may embrace renewed collaboration in global trade and finance, macroeconomic management, environmental sustainability and the like, but repairing the damage requires the heroic assumption that America’s own identity has not been fundamentally altered by the Trump era (four years or eight matters here), and by the internal and global forces that enabled his rise. The fact will remain that a sizeable portion of the American electorate, and a monolithically proTrump Republican Party, is committed to an illiberal future. And even if the effects are transitory, the causes of weakening global collaboration are structural, not subject to the efforts of some hypothetical future US liberal leadership. It is clear that the US has lost respect among its rivals, and trust among its allies. While its economic and military capacity is still greatly superior to all others, its political dysfunction has diminished its ability to convert this wealth into effective power.13 It will furthermore operate in a future system of diffusing material power, diverging economic and political governance approaches, and rising nationalism. Trump has promoted these forces, but did not invent them, and future US Administrations will struggle to cope with them.

What will illiberal globalization look like? Consider recent events. The instruments of globalization have been weaponized by strong states in pursuit of their geopolitical objectives. This has turned the liberal argument on behalf of globalization on its head. Instead of interdependence as an unstoppable force pushing states toward collaboration and convergence around market-friendly domestic policies, states are exploiting interdependence to inflict harm on their adversaries, and even on their allies. The increasing interaction across national boundaries that globalization entails, now produces not harmonization and cooperation, but friction and escalating trade and investment disputes.14 The Trump Administration is in the lead here, but it is not alone. Trade and investment friction with China is the most obvious and damaging example, precipitated by China’s long failure to conform to the World Trade Organization (WTO) principles, now escalated by President Trump into a trade and currency war disturbingly reminiscent of the 1930s that Bretton Woods was designed to prevent. Financial sanctions against Iran, in violation of US obligations in the Joint Comprehensive Plan Of Action (JCPOA), is another example of the rule of law succumbing to geopolitical competition. Though more mercantilist in intent than geopolitical, US tariffs on steel and aluminum, and their threatened use in automotives, aimed at the EU, Canada, and Japan,15 are equally destructive of the liberal system and of future economic growth, imposed as they are by the author of that system, and will spread to others. And indeed, Japan has used export controls in its escalating conflict with South Korea16 (as did China in imposing controls on rare earth,17 and as the US has done as part of its trade war with China). Inward foreign direct investment restrictions are spreading. The vitality of the WTO is being sapped by its inability to complete the Doha Round, by the proliferation of bilateral and regional agreements, and now by the Trump Administration’s hold on appointments to WTO judicial panels. It should not surprise anyone if, during a second term, Trump formally withdrew the US from the WTO. At a minimum it will become a “dead letter regime.”18

As such measures gain traction, it will become clear to states—and to companies—that a global trading system more responsive to raw power than to law entails escalating risk and diminishing benefits. This will be the end of economic globalization, and its many benefits, as we know it. It represents nothing less than the subordination of economic globalization, a system which many thought obeyed its own logic, to an international politics of zero-sum power competition among multiple actors with divergent interests and values. The costs will be significant: Bloomberg Economics estimates that the cost in lost US GDP in 2019- dollar terms from the trade war with China has reached $134 billion to date and will rise to a total of $316 billion by the end of 2020.19

Economically, the just-in-time, maximally efficient world of global supply chains, driving down costs, incentivizing innovation, spreading investment, integrating new countries and populations into the global system, is being Balkanized. Bilateral and regional deals are proliferating, while global, nondiscriminatory trade agreements are at an end. Economies of scale will shrink, incentivizing less investment, increasing costs and prices, compromising growth, marginalizing countries whose growth and poverty reduction depended on participation in global supply chains. A world already suffering from excess savings (in the corporate sector, among mostly Asian countries) will respond to heightened risk and uncertainty with further retrenchment. The problem is perfectly captured by Tim Boyle, CEO of Columbia Sportswear, whose supply chain runs through China, reacting to yet another ratcheting up of US tariffs on Chinese imports, most recently on consumer goods:

We move stuff around to take advantage of inexpensive labor. That’s why we’re in Bangladesh. That’s why we’re looking at Africa. We’re putting investment capital to work, to get a return for our shareholders. So, when we make a wager on investment, this is not Vegas. We have to have a reasonable expectation we can get a return. That’s predicated on the rule of law: where can we expect the laws to be enforced, and for the foreseeable future, the rules will be in place? That’s what America used to be.20

The international political effects will be equally damaging. The four structural forces act on each other to produce the more dangerous, less prosperous world projected here. Illiberal globalization represents geopolitical conflict by (at first) physically non-kinetic means. It arises from intensifying competition among powerful states with divergent interests and identities, but in its effects drives down growth and fuels increased nationalism/populism, which further contributes to conflict. Twenty-first-century protectionism represents bottom-up forces arising from economic disruption. But it is also a top-down phenomenon, representing a strategic effort by political leadership to reduce the constraints of interdependence on freedom of geopolitical action, in effect a precursor and enabler of war. This is the disturbing hypothesis of Daniel Drezner, argued in an important May 2019 piece in Reason, titled “Will Today’s Global Trade Wars Lead to World War Three,”21 which examines the preWorld War I period of heightened trade conflict, its contribution to the disaster that followed, and its parallels to the present:

Before the First World War started, powers great and small took a variety of steps to thwart the globalization of the 19th century. Each of these steps made it easier for the key combatants to conceive of a general war.

We are beginning to see a similar approach to the globalization of the 21st century. One by one, the economic constraints on military aggression are eroding. And too many have forgotten—or never knew—how this played out a century ago.

…In many ways, 19th century globalization was a victim of its own success. Reduced tariffs and transport costs flooded Europe with inexpensive grains from Russia and the United States. The incomes of landowners in these countries suffered a serious hit, and the Long Depression that ran from 1873 until 1896 generated pressure on European governments to protect against cheap imports.

…The primary lesson to draw from the years before 1914 is not that economic interdependence was a weak constraint on military conflict. It is that, even in a globalized economy, governments can take protectionist actions to reduce their interdependence in anticipation of future wars.

In retrospect, the 30 years of tariff hikes, trade wars, and currency conflicts that preceded 1914 were harbingers of the devastation to come. European governments did not necessarily want to ignite a war among the great powers. By reducing their interdependence, however, they made that option conceivable.

…the backlash to globalization that preceded the Great War seems to be reprised in the current moment. Indeed, there are ways in which the current moment is scarier than the pre-1914 era. Back then, the world’s hegemon, the United Kingdom, acted as a brake on economic closure. In 2019, the United States is the protectionist with its foot on the accelerator. The constraints of Sino-American interdependence—what economist Larry Summers once called “the financial balance of terror”—no longer look so binding. And there are far too many hot spots—the Korean peninsula, the South China Sea, Taiwan—where the kindling seems awfully dry.

Multipolarity

We can define multipolarity as a wide distribution of power among multiple independent states. Exact equivalence of material power is not implied. What is required is the possession by several states of the capacity to coerce others to act in ways they would otherwise not, through kinetic or other means (economic sanctions, political manipulation, denial of access to essential resources, etc.). Such a distribution of power presents inherently graver challenges to peace and stability than do unipolar or bipolar power configurations,22 though of course none are safe or permanent. In brief, the greater the number of consequential actors, the greater the challenge of coordinating actions to avoid, manage, or de-escalate conflicts. Multipolarity also entails a greater potential for sudden changes in the balance of power, as one state may defect to another coalition or opt out, and as a result, the greater the degree of uncertainty experienced by all states, and the greater the plausibility of downside assumptions about the intentions and capabilities of one’s adversaries. This psychology, always present in international politics but particularly powerful in multipolarity, heightens the potential for escalation of minor conflicts, and of states launching preventive or preemptive wars. In multipolarity, states are always on edge, entertaining worst-case scenarios about actual and potential enemies, and acting on these fears—expanding their armies, introducing new weapon systems, altering doctrine to relax constraints on the use of force—in ways that reinforce the worst fears of others.

The risks inherent in multipolarity are heightened by the attendant weakening of global institutions. Even in a state-centric system, such institutions can facilitate communication and transparency, helping states to manage conflicts by reducing the potential for misperception and escalation toward war. But, as Waheguru Pal Singh Sidhu argues in his chapter on the United Nations, the influence of multilateral institutions as agent and actor is clearly in decline, a result of bottom-up populist/nationalist pressures experienced in many countries, as well as the coordination problems that increase in a system of multiple great powers. As conflict resolution institutions atrophy, great powers will find themselves in “security dilemmas”23 in which verification of a rival’s intentions is unavailable, and worst-case assumptions fill the gap created by uncertainty. And the supply of conflicts will expand as a result of growing nationalism and populism, which are premised on hostility, paranoia, and isolation, with governments seeking political legitimacy through external conflict, producing a siege mentality that deliberately cuts off communication with other states.

Finally, the transition from unipolarity (roughly 1989–2007) to multipolarity is unregulated and hazardous, as the existing superpower fears and resists challenges to its primacy from a rising power or powers, while the rising power entertains new ambitions as entitlements now within its reach. Such a “power transition” and its dangers were identified by Thucydides in explaining the Peloponnesian Wars,24 by Organski (the “rear-end collision”)25 during the Cold War, and recently repopularized and brought up to date by Graham Allison in predicting conflict between the US and China.26

A useful, and consequential illustration of the inherent challenge of conflict management during a power transition toward multipolarity, is the weakening of the arms control regime negotiated by the US and the Soviet Union during the Cold War. Despite the existential, global conflict between two nuclear armed superpowers embracing diametrically opposed world views and operating in economic isolation from each other, the two managed to avoid worst-case outcomes. They accomplished this in part by institutionalizing verifiable limits on testing and deployment of both strategic and intermediate-range nuclear missiles. Yet as diplomatically and technically challenging as these achievements were, the introduction of a third great power, China, into this twocountry calculus has proven to be a deal breaker. Unconstrained by these bilateral agreements, China has been free to build up its capability, and has taken full advantage in ramping up production and deployment of intermediate-range ground-launched cruise missiles, thus challenging the US ability to credibly guarantee the security of its allies in Asia, and greatly increasing the costs of maintaining its Asian regional hegemony. As a result, the Intermediate Nuclear Force treaty is effectively dead, and the New Start Treaty, covering strategic missiles, is due to expire next year, with no indication of any US–Russian consensus to extend it. The US has with logic indicated its interest in making these agreements trilateral; but China, with its growing power and ambition, has also logically rejected these overtures. Thus, all three great powers are entering a period of nuclear weapons competition unconstrained by the major Cold War arms control regimes. In a period of rapid advances in technology and worsening great power relations, the nuclear competition will be a defining characteristic of the next decade and beyond. This dynamic will also complicate nuclear nonproliferation efforts, as both the demand for nuclear weapons (a consequence of rising regional and global insecurity), and supply of nuclear materials and technology (a result of the weakening of the nonproliferation regime and deteriorating great power relations) will increase.

Will deterrence prevent war in a world of several nuclear weapons states, (the current nuclear powers plus South Korea, Iran, Saudi Arabia, Japan, Turkey), as it helped to do during the bipolar Cold War? Some neorealist observers view nuclear weapons proliferation as stabilizing, extending the balance of terror, and the imperative of restraint, to new nuclear weapons states with much to fight over (Saudi Arabia and Iran, for example).27 Others,28 examining issues of command and control of nuclear weapons deployment and use by newly acquiring states, asymmetries in doctrines, force structures, and capabilities between rivals, the perils of variable rates in transition to weapons deployment, problems of communication between states with deep mutual grievances, the heightened risk of transfer of such weapons to non-state actors, have grave doubts about the safety of a multipolar, nuclear-armed world.29 We can at least conclude that prudence dictates heightened efforts to slow the pace of proliferation, while realism requires that we face a proliferated future with eyes wide open.

The current distribution of power is not perfectly multipolar. The US still commands the world’s largest economy, and its military power is unrivaled by any state or combination of states. Its population is still growing, despite a recent decline in birth rates. It enjoys extraordinary geographic advantages over its rivals, who are distant and live in far worse neighborhoods. Its economy is less dependent on foreign markets or resources. Its political system has proven—up to now—to be resilient and adaptable. Its global alliance system greatly extends its capacity to defend itself and shape the world to its liking and is still intact, despite growing doubts about America’s reliability as a security guarantor. Based on these mostly material and historical criteria, continued American primacy would seem to be a good bet, if it chooses to use its power in this way.30

So why multipolarity? The clearest and most frequently cited evidence for a widening distribution of global power away from American unipolarity is the narrowing gap in GDP between the US and China. The IMF’s World Economic Outlook forecasts a $0.9 trillion increase in US GDP for 2019–2020, and a $1.3 trillion increase for China in the same period.31 Many who support the American primacy case argue that GDP is an imperfect measure of power, that Chinese GDP data is inflated, that its growth rates are in decline while Chinese debt is rapidly increasing, and that China does poorly on other factors that contribute to power—its low per capita GDP, its political succession challenges, its environmental crisis, its absence of any external alliance system. Yet GDP is a good place to start, as the single most useful measure and long-term predictor of power. It is from the overall economy that states extract and apply material power to leverage desired behavior from other states. It is true that robust future Chinese growth is not guaranteed, nor is its capacity to convert its wealth to power, which is a function of how well its political system works over time. But this is equally the case for the US, and considering recent political developments is not a given for either country.

As an alternative to measuring inputs—economic size, political legitimacy, technological innovation, population growth—in assessing relative power and the nature of global power distribution, we should consider outputs: what are states doing with their power? The input measures are useful, possibly predictive, but are usually deployed in the course of making a foreign policy argument, sometimes on behalf of a reassertion of American primacy, sometimes on behalf of retrenchment. As such, their objectivity (despite their generous deployment of “data”) is open to question. What is undeniable, to any clear-eyed observer, is a real decline in American influence in the world, and a rise in the influence of other powers, which predates the Trump administration but has accelerated into America’s free fall over the last four years. This has produced a de facto multipolarity, whether explainable in the various measures of power—actual and latent—or not. This decline results in part from policy mistakes: a reckless squandering of material power and legitimacy in Iraq, an overabundance of caution in Syria, and now pure impulsivity. But more fundamentally, it is a product of relative decline in American capacity—political and economic—to which American leadership is adjusting haphazardly, but in the direction of retrenchment/restraint. It is highly revealing that the last two American presidents, polar opposites in intellect, temperament and values, agreed on one fundamental point: the US is overextended, and needs to retrench. The fact that neither Obama nor Trump (up to this point in his presidency) believed they had the power at their disposal to do anything else, tells us far more about the future of American power and policy—and about the emerging shape of international relations—than the power measures and comparisons made by foreign policy advocates.

Observation of recent trends in US versus Russian relative influence prompts another question: do we understand the emerging characteristics of power? Rigorously measuring and comparing the wrong parameters will get us nowhere at best and mislead us into misguided policies at worst. How often have we heard, with puzzlement, that Putin punches far above his weight? Could it be that we misunderstand what constitutes “weight” in the contemporary and emerging world? Putin may be on a high wire, and bound to come crashing down; but the fact is that Russian influence, leveraging sophisticated communications/social media/influence operations, a strong military, an agile (Putin-dominated) decision process, and taking advantage of the egregious mistakes by the West, has been advancing for over a decade, shows no sign of slowing down, and has created additional opportunities for itself in the Middle East, Europe, Asia, Latin America, the Arctic. It has done this with an economy roughly the size of Italy’s. There are few signs of a domestic political challenge to Putin. His external opponents are in disarray, and Russia’s main adversary is politically disabled from confronting the problem. He has established Russia as the Middle East power broker. He has reached into the internal politics of his Western adversaries and influenced their leadership choices. He has invaded and absorbed the territory of neighboring states. His actions have produced deep divisions within NATO. Again, simple observation suggests multipolarity in fact, and a full explanation for this power shift awaiting future historians able to look with more objectivity at twenty-first-century elements of power.

When that history is written, surely it will emphasize the extraordinary polarization in American politics. Was multipolarity a case of others finding leverage in new sources of power, or the US underutilizing its own? The material measures suggest sufficient capacity for sustained American primacy, but with this latent capacity unavailable (as perceived, I believe correctly, by political leadership) by virtue of weakening institutions: two major parties in separate universes; a winnertake-all political mentality; deep polarization between the parties’ popular bases of support; divided government, with the Presidency and the Congress often in separate and antagonistic hands; diminishing trust in the permanent government, and in the knowledge it brings to important decisions, and deepening distrust between the intelligence community and policymakers; and, in Trump’s case, a chaotic policy process that lacks any strategic reference points, mis-communicates the Administration’s intentions, and has proven incapable of sustained, coherent diplomacy on behalf of any explicit and consistent set of policy goals.

Rising Nationalism/Populism/Authoritarianism

The evidence for these trends is clear. Freedom House, the go-to authority on the state of global democracy, just published its annual assessment for 2020, and recorded the fourteenth consecutive year of global democratic decline and advancing authoritarianism. This dramatic deterioration includes both a weakening in democratic practice within states still deemed on balance democratic, and a shift from weak democracies to authoritarianism in others. Commitment to democratic norms and practices—freedom of speech and of the press, independent judiciaries, protection of minority rights—is in decline. The decline is evident across the global system and encompasses all major powers, from India and China, to Europe, to the US. Right-wing populist parties have assumed power, or constitute a politically significant minority, in a lengthening list of democratic states, including both new (Hungary, Poland) and established (India, the US, the UK) democracies. Nationalism, frequently dismissed by liberal globalization advocates as a weak force when confronted by market democracies’ presumed inherent superiority, has experienced a resurgence in Russia, China, the Middle East, and at home. Given the breadth and depth of right-wing populism, the raw power that promotes it—mainly Russian and American—and the disarray of its liberal opponents, this factor will weigh heavily on the future.

The major factors contributing to right-wing populism and its global spread is the subject of much discussion.32 The most straightforward explanation is rising inequality and diminished intergenerational mobility, particularly in developed countries whose labor-intensive manufacturing has been hit hardest by the globalization of capital combined with the immobility of labor. Jobs, wages, economic security, a reasonable hope that one’s offspring has a shot at a better life than one’s own, the erosion of social capital within economically marginalized communities, government failure to provide a decent safety net and job retraining for those battered by globalization: all have contributed to a sense of desperation and raw anger in the hollowed-out communities of formerly prosperous industrial areas. The declining life expectancy numbers33 tell a story of immiseration: drug addition, suicide, poor health care, and gun violence. The political expression of such conditions of life should not be surprising. Simple, extremist “solutions” become irresistible. Sectarian, racial, regional divides are strengthened, and exclusive identities are sharpened. Political entrepreneurs offering to blow up the system blamed for such conditions become credible. Those who are perceived as having benefited from the corrupt system—long-standing institutions of government, foreign countries and populations, immigrants, minorities getting a “free ride,” elites—become targets of recrimination and violence. The simple solutions of course, don’t work, deepening the underlying crisis, but in the process politics is poisoned. If this sounds like the US, it should, but it also describes major European countries (the UK, France, Italy, Germany, Poland, Hungary, the Czech Republic), and could be an indication of things to come for non-Western democracies like India.

We have emphasized throughout this chapter the interaction of four structural forces in shaping the future, and this interaction is evident here as well. Is it merely coincidence that the period of democratic decline documented by Freedom House, coincides precisely with the global financial and economic crisis? Lower growth, increasing joblessness, wage stagnation, superimposed on longer-term widening of inequality and declining mobility, constitute a forbidding stress test for democratic systems, and many continue to fail. And if we are correct about secular stagnation, the stress will continue, and authoritarianism’s fourteen-year run will not be over for some time. The antidemocratic trend will gain additional impetus from the illiberal direction of globalization, with its growth suppressing protectionism, weaponization of global economic exchange, and weakening global economic institutions. Multipolarity also contributes, in several ways. The former hegemon and author of globalization’s liberal structure has lost its appetite, and arguably its capacity, for leadership, and indeed has become part of the problem, succumbing to and promoting the global right-wing populist surge. It is suffering an unprecedented decline in life expectancy, and recently a decline in the birth rate, signaling a degree of rot commonly associated with a collapsing Soviet Union. While American politics may once again cohere around its liberal values and interests, the time when American leadership had the self-confidence to shape the global system in its liberal image is gone. It may build coalitions of the like-minded to launch liberal projects, but there will be too much power outside these coalitions to permit liberal globalization of the sort imagined at the end of the Cold War. In multipolarity, the values around which global politics revolve will reflect the diversity of major powers, their interests, and the norms they embrace. Convergence of norms, practices, policies is out of the question. Global collective action, even in the face of global crises, will be a long shot. To expect anything else is fantasy

Unbrave New World and Future Challenges

At the outset of this chapter we described these structural forces as interacting to produce more conflict and diminished prosperity. We also predicted a world with shrinking collective capacity to address new challenges as they arise. What specifically will such a world look like? We address below three principal challenges to global problem solving over the next decade.

Interstate Conflict

In the world experienced by most readers of this volume, conflict is observed within weak states, sometimes promoted by regional competitors, by terrorist groups, or by great powers, acting through surrogates or by indirect means. Sometimes, as in Syria, this conflict spills over to contiguous states and contributes to regional instability, and challenges other regions to respond effectively, a challenge that Europe has not met. Much of this will continue, but the global significance of such local conflicts will be greatly magnified by increasing great power conflict, which will feed—rather than manage or resolve—local instabilities and will in turn be exacerbated by them. Great powers will jockey for advantage, support their local partners, escalate preemptively. Conflicts initially confined to failing states or unstable regions will be redefined by great powers as global in scope and significance.

This tendency of states to view local conflicts in the context of a zero-sum, global struggle for power is familiar to students of the Cold War, but now with the additional challenges to collective action, expanded uncertainty and worst-case thinking associated with the power transition to multipolarity. We can easily observe increased conflict in US–China relations, as we will in US–Russia relations as future US administrations try to make up for ground lost during the Trump presidency, especially in the Middle East. We can observe it among powerful states with mutual historical grievances, now with a weakening presence of the hegemonic security guarantor and having to consider the renationalization of their defense: Japan-South Korea, Germany-France. We can observe it among historical rivals operating in rapidly changing security landscapes: India-China. We can observe it within the Middle East, as internal rivalries are appropriated by regional powers in a contest for regional dominance. We can observe it clearly in Syria, where the regime’s violent suppression of Arab Spring resistance led to all-out civil war, attracted outside support to proxy forces by aspiring regional hegemons Saudi Arabia and Iran, enabled the rise of ISIS, and eventually to great power intervention, principally by Russia. In a world of effective great power collaboration or American primacy, the Syrian civil war might have been settled through power sharing or partition, or if not, contained within Syria. The collapse of Yugoslavia, occurring during a period of US “unipolarity” and managed effectively, demonstrates the possibilities. Instead, with the US retrenching, Middle East rivals unconstrained by great powers, and great power competition rising, the Syria civil war was fed by outside powers, then metastasized into the region, and—in the form of refugee flows—into Europe, fundamentally altering European politics. Libya may be at the early stages of this scenario.

This is not the end of the Syria story. Russia has established itself as a major player in Syria and the Middle East’s power broker, the indispensable country with leverage throughout the region. China is poised to reap the financial and power benefits of Syrian reconstruction. The US has just demonstrated, in its act of war against the Iranian regime, its willingness, without consultation, to put its allies’ security in further jeopardy, accentuating the risks of security ties with Washington and generating added opportunities for Russia and China. The purpose here is not to critique US policy, but to point out the dramatically shifting power balance in a critical region, toward multipolarity. The dangers of such a shift will become apparent as some future US president attempts to reassert US influence in the region and finds a crowded playing field.

Can a multipolar distribution of power among several states whose interests, values, and political practices are divergent, all experiencing bottom-up nationalist pressures, all seeking advantages in the oversupply of regional instability, be made to work? I think not. Will this more dangerous world descend into direct military confrontation between great powers, and could such confrontation lead to use of nuclear weapons? Here the question becomes, what will this more dangerous world actually look like; what instruments of coercion will be available to states as technology change accelerates; how will states employ these instruments; how will deterrence work (if at all) among several states with large but unequal levels of destructive capacity, weak command, and control, disparate— or opaque—strategies and simmering rivalries; can conflict management work in a world of weak institutions? The collapse of the Cold War era nuclear arms control regime, the threat to the Non-Proliferation Treaty represented by the demise of the JCPOA, and multiple indications of an accelerating nuclear arms race among the three principle powers, augurs badly. Given the structural forces at play, and without predicting the worst, we are indeed entering perilous times.

Global Poverty and Inequality

Despite the challenges of volatility and disruptive change inherent in globalization, the world under American liberal leadership has managed a dramatic reduction of extreme poverty. According to World Bank estimates, in 2015, 10 percent of the world’s population lived on less than $1.90 a day, down from nearly 36 percent in 1990.34 In fact, as of September 2018, half the world is now middle class or wealthier.35 The uneven success of the UN Millennium Development Goals (MDGs) exemplifies this achievement, and demonstrates what is possible when open markets are managed through strong global institutions, effective leadership and interstate collaboration. What this liberal hegemonic system did not achieve, however, was a fair distribution of the gains from globalization within states, and among those states that for various reasons were not full participants in this system.

This record of partial achievement leaves us with a full agenda for the next fifteen years, but without the hegemonic leadership, strong institutions, ascendant liberalism or robust global growth that enabled previous gains. There are powerful reasons to question the sustainability of these poverty reduction gains, leading to doubts about the realization of the Sustainable Development Goals, which have replaced the MDGs as global development targets.36 (See Jens Rudbeck’s chapter and Sidhu’s UN chapter for SDGs). Skeptics have pointed to slowing global growth, specifically in China, whose demand for imported commodities was a major factor in developing country growth and job creation; growing protectionism in developed country markets, fueled by bottom-up forces of nationalism, and from top-down by a weakened global trading regime and increased geopolitical rivalry; the effects of accelerating climate change on agriculture, migration and communal conflict in poor countries; and the growth burst among poor countries from the rapid transition to more efficient use of resources, a transition that is now slowing down.37

Perhaps the greatest concern in this scenario is a general deterioration in the developing country foreign investment climate. Foreign direct investment (FDI) has been a major contributor to growth, job creation, and poverty alleviation among poor countries. It has incentivized growthfriendly policies, reduced corruption, introduced technology and effective management practices, and linked poor countries to foreign markets through global supply chains.38 It has stimulated growth of indigenous manufacturing and service companies to supply new foreign investments.

It has been the major cause of economic convergence between rich and poor countries. From 2000 to 2009, developing economies’ growth rates were more than four percentage points higher than those of rich countries, pushing their share of global output from just over a third to nearly half.39 However, FDI flows into poor countries are imperiled by the structural forces discussed here. Political instability arising from slower growth and environmental stress will increase investors’ perception of higher risk, reinforcing their developed country bias. Protectionism among developed countries will threaten the global market access upon which manufacturing investment in developing countries is premised, causing firms to pare back their global supply chains. As companies retrench from direct investment in poor countries, the appeal to those countries of Chinese debt financed infrastructure projects, under the Belt-Road Initiative with little or no conditionality, but at the risk of “debt traps,” will increase.

Global Warming

The question posed at the beginning of this section is whether the international system, evolving toward multipolarity and rising nationalism, will find the collective political capital to confront challenges as they arise. Global warming is the mother of all challenges, and the weakness in the system’s capacity to respond is clear. With the two major political/economic powers and greenhouse gas emitters locked in deepening geopolitical conflict (and with one of them locked in climate change denial, possibly through 2024), the chances of significantly slowing global warming or even ameliorating its effects are very slim. We are reduced to the default option, nation-specific adaptation to climate change, which will impose rising human, political and economic costs on all, and will widen the gap between rich countries with adaptive capacity (of varying degrees), and the poor, who will suffer deteriorating economic, political, and social conditions. (For a contrary, optimistic view see Michael Shank’s chapter, which credits new actors—like cities—as playing a more constructive role in climate mitigation.) This would bring to a close liberal globalization’s greatest achievement; the raising of 1.1 billion people out of extreme poverty since 1990,40 with all its associated gains in quality of life (in the WHO Africa region, for example, life expectancy rose by 10.3 years between 2000 and 2016, driven mainly by improvements in child survival and expanded access to antiretrovirals for treatment of HIV).41

Several forces are at work here. The problem itself is graver—in magnitude and in rate of worsening—than predicted by climate scientists. The UN Intergovernmental Panel on Climate Change (IPCC), the major source of information on global warming, has consistently underpredicted the rate of climate deterioration. This holds true even for its “worst-case scenarios,” meaning that what was meant as a wake-up call has in fact reinforced complacency.42 (see Michael Shank’s chapter for further discussion of climate change). The IPCC, in its 2019 report, has tried to undo the damage by emphasizing the acceleration in the rate of warming and its effects, the only partially understood dynamic of climate change, and—given wide uncertainty—the possibility of unpleasant surprises yet to come. This strengthens the scientific case for urgency—to both severely limit greenhouse gas emissions, and to increase investment in ameliorating the effects.

Unfortunately, the crisis comes at a moment when the climate for collective action is ice cold. Geopolitical competition incentivizes states to out produce each other, regardless of the environmental effects. Multipolarity complicates collective action. Economic stagnation mandates job creation, making regulation politically toxic. Bottom-up nationalism/populism causes states to pursue “relative gains,” meaning that if the nation is seen as gaining in a no-holds-barred economic competition with others, the negative environmental effects can be tolerated. A post-Trump presidency would help, with the US rejoining the Paris Agreement, and lending its weight to tighter regulation, increased R and D, and stronger economic incentives to reduce carbon emissions. Keep in mind, however, that President Obama was fully behind such efforts, but in a deeply polarized America was unable to implement measures needed to fulfill the Paris obligations through legislation, and his executive orders to do this were swiftly overturned by Trump.

Conclusion

It may be tempting to hope that post-Trump, the US can regain its global leadership and exert its considerable power in a liberal direction, but with enough self-awareness of its relative decline to share responsibility with others. This was, I believe, the broad direction of the Obama strategy, evidenced by the JCPOA and the Trans-Pacific Partnership: liberal, collective solutions to global problems, as US dominance receded.

This would constitute an optimistic scenario, and it confronts two major problems: can US internal politics support it (can, for example, the country legislate controls on carbon, essential for the global credibility and durability of such commitments); and is the world ready to reengage with American leadership, given the damage to its reputation and the structural forces discussed in this chapter?

My educated guess is no, on both counts. The rot within is extensive, the concrete evidence clear in the economic inequality/immobility numbers, the life expectancy numbers, the deep political polarization, between the two major parties, between regions, between cities and rural areas. We are in fact a long way from fitness for global leadership, and the recognition of this by others will accelerate the decline of American influence. The rest of the world is well on its way toward adjusting to post-American hegemony, some by renationalizing their defense, or by cutting deals with adversaries, by building new alliances or by seizing new opportunities for influence in the vacuum left by American retrenchment. The evidence for this will accumulate. Observe the current and emerging Middle East, where all these post-hegemonic strategies are visible.

#### Recovery results in a shift to resilient innovation---that constrains inevitable risks to the global food system.

Charis M. Galanakisab et al. 22, Galanakis Laboratories, Taif University; Gianluca Brunori, Professor, Food Policy, University of Pisa; David Chiaramonti, Professor, Systems for Energy & Environment, Polytechnic of Turin; Robert Matthews, Science Group Leader, Forest Research; Calliope Panoutsou, Senior Research Fellow & Member, Bioenergy Group, Centre for Environmental Policy; Uwe R. Fritsche, Scientific Director, International Institute for Sustainability Analysis and Strategy, "Bioeconomy and Green Recovery In A Post-Covid-19 Era," Science of The Total Environment, 02/20/2022, ScienceDirect.

The pandemic also had direct and indirect effects on bio-based products and the bioenergy sector, clearly linked to the fossil sector and the market disruption generated by COVID-19. For instance, the demand for alcohols and textiles increased rapidly due to the urgent need for disinfectants, facemasks, and sterile medical clothing manufacturing (Fritsche et al., 2021). A significant disruption in forest management and forestry sector activities has also been observed in some areas (Fritsche et al., 2020). Besides, the need for single-use packaging materials, wrappings, and plastics, which have already started to increase before the pandemic, shows a steady demand highlighting the dynamic for bio-based plastic alternatives in the future (Fritsche et al., 2021). Due to the restricted mobility and transport, the respective demand for fuels decreased and, in civil aviation, almost collapsed, though air freight increased. The pandemic's first wave reduced oil price even to negative values, triggered by projections that oil demand would fall by 8.4 mb/d up to the end of 2020 compared to 2019. This trend led to a lack of inland storage availability and led to almost 50 billion € write-downs during the second trimester of 2020 (IEA, 2020). US and EU oil majors have so far adopted different strategies. US companies sustain the conventional business (under Trump's Administration), while the European are more active in reducing fossil fuel consumption. Moreover, investments in innovative technologies for the bioenergy sector declined within 2020 due to the lower fossil fuel prices and the challenging economic environment (e.g., lower cash flows, reduced demand, higher debts, and decreased profits) (Fritsche et al., 2021).

Up to January 2021, the economies' transition in the post-COVID-19 era remains uncertain as the pandemic has not been controlled yet. By the end of the autumn of 2020, the so-called 2nd pandemic wave has reached most countries, causing a new cycle of horizontal lockdowns. Given the present uncertainties in distribution, acceptance, and efficiency of COVID-19 vaccination programs, the pandemic might continue up to the end of 2021, and a 3rd wave cannot be ruled out. Subsequently, the resilience of our food, energy, and material supply systems is at stake, and mitigation measures are widely debated. The experiences obtained from the previous “Black Swan” events of the last two centuries (e.g., the Spanish Flu of 1918–1920, and World War II) indicate that the societies resolve respective consequences with enormous creativity, adaptation to innovative pathways, and massive changes to tackle austerity (Rowan and Galanakis, 2020). The crisis had occurred when the flaws of the current systems of production, transformation, and consumption were already evident (Gerten et al., 2020). The exceptional measures taken to recover our economies from the crisis can be turned into opportunities for ‘building back better’ and fostering the transition to a new economic system (OECD, 2021). The pandemic has revealed the need to redesign the global systems to minimize their vulnerability and build on local self-sufficiency. This is vital to prepare for future crises in flows of food, energy, and other goods, and above all, place citizens' wellbeing and the planet at its heart (EC, 2020a).

We believe that the ‘circular bioeconomy’ concept can be a crucial component of this transition, based on a mix of disruptive social and technological and social innovations. The current article discusses how the bioeconomy can provide an outlet to the global economies to recover from the pandemic, increase resilience, and prepare for new “Black Swan” events in the future.

2. The role of bioeconomy for green recovery and resilience in the post-pandemic era

As nations organize vaccination plans to tackle the pandemic and apply recovery measures to foster their economies, society should focus on building resilience and maintaining ambitions for zero‑carbon futures. This direction reinstates the circular bioeconomy and biobased products and services on the cornerstone of strategic decision making. This trend has been long pursued by the US Biopreferred program to spur economic development, create new jobs and provide new markets for farm commodities. The Program was designed by the 2002 Farm Bill and reauthorized and expanded as part of the Agriculture Improvement Act of 2018 (USDA, 2021). Just a couple of months before the COVID 19 outbreak, the European Union announced the European Green Deal's for a climate-neutral economy by 2050 (EC, 2019), which also acknowledges the shift from a linear bioeconomy to a circular bioeconomy and promotes changes in policy frames. China, Japan, and the Republic of Korea also announced similar climate-neutral economy plans within 2020 (Schiermacher, 2020). The US's new administration has also declared its intention to rejoin the Paris climate agreement immediately after the 2020 presidential election (Newburger, 2020).

A transition towards a circular bioeconomy could enhance resilience by valorizing domestic biomass resources and waste. However, although many researchers claim that the bioeconomy is circular by nature (Stegmann et al., 2020), it is of high importance to underline the “circularity” principles if we want to avoid business-as-usual. A circular economy requires minimizing waste, maintaining the value of products, materials, and resources for as long as possible (EC, 2015). Stegmann et al. defined circular bioeconomy as giving emphasis “on the sustainable, resource-efficient valorization of biomass in integrated, multi-output production chains (e.g., biorefineries) while also making use of residues and wastes and optimizing the value of biomass overtime via cascading.” (Stegmann et al., 2020). To ensure a rapid and simultaneously efficient transition, a combination of actions, multi-stakeholder collaboration, and increased financial resources must complement the already provided significant amounts of public and private funds worldwide mobilized through stimulus packages, promoting the sustainable circular bioeconomy (Fritsche et al., 2020). Moreover, supporting the small-scale local biorefineries should be a priority as they comply with rural development, and exploit opportunities for resource-efficient repayment chains and leverage, specific strengths within their respective, and settings (Panoutsou and Singh, 2020).

To facilitate the efficient green economic recovery, these should be sustained and further enriched with other nature-based solutions such as reforestation, agroecology, and interventions for low-carbon development, as recommended in most of the studies among the 130 ones revised by Burger et al. (2020). The additional stimulus can facilitate improvements in agricultural value chains that promote biodiversity and sustainable food systems. These include incorporation of artificial intelligence (AI) and Internet and Communication Technologies (ICT) in production, construction of low-energy buildings and protection of natural assets, and off-grid rural electrification, among others. New business models, new production and consumption patterns, new social norms, and new governance schemes could emerge. Emerging innovations could also support manufacturing and food industries in production (e.g., carbon farming, climate-smart forestry) and processing (e.g., automation of food production with robotics) systems (Fritsche et al., 2020). Besides, the decentralization of food systems and biorefineries (e.g., by utilizing smart specialization funding schemes that promote the model of “biocities”) could secure smallholders, enterprises, farmers, and customers (Fritsche et al., 2020). Fig. 1 illustrates opportunities for the transformation of the bioeconomy in the post-COVID-19 era.

[Table omitted]

2.1. Agriculture, food & fishery

After controlling the pandemic waves, matching local demand and consumers' requirements with shorter food supply chains and active food assistance policies will be a fundamental challenge to eliminate uncertainties obtained by the exposure to systemic risks and the growth of the urban population (Pulighe and Lupia, 2020). Strengthening farmers' position in the value chain should become a priority, and policies that emphasize their inclusiveness must be implemented (EC, 2020b; U.S.Farm Bill, 2018; Agriculture and Agri-food Canada, 2019).

Agroecological practices should become usual practices among farmers and a key for transition to sustainable food systems. From rooftop agriculture to community gardening and vertical farming, urban agriculture could improve lives and contribute to green recovery by reducing urban areas' dependency on long-distance supply chains and enhancing consumers' education (Fritsche et al., 2020). The diversification of distribution systems and support of logistic infrastructures to keep added value on-farm will lead to a partial re-territorialization of food systems, providing local communities with a higher governance degree of the distribution system (Maréchal et al., 2020). Education, nutritional guidelines, and public procurement could also be mobilized to support the consumption of locally produced food and ensure sustainable and healthy diets.

Livestock farming systems use approximately 40% of the agricultural land (Mottet et al., 2017). Their transformation into integrated crop-livestock systems can play an essential role in the farming system's circularity since animals are fed with grass (biomass), which cannot be utilized in alternative ways, and improve soil fertility via manure (Van Zanten et al., 2019). The reform of the agricultural supply chains should promote “One Health” principles to eliminate the risks related to antibiotic resistance, control diseases that spread between animals and humans like (COVID-19 or flu), secure food safety, and reduce greenhouse gas (GHG) emissions (WHO, 2017). Besides, start-ups and existing businesses developing innovative products that redefine our consumption norms (e.g., plant-based proteins and other meat alternatives) are expected to grow their market shares over the next years (Galanakis et al., 2021). The fortification of foods with bioactive ingredients to consumers' immune system could also be a great opportunity (Galanakis, 2020), and the recovery of these compounds is nowadays conducted in the context of bioeconomy, valorizing sources like food processing by-products, fungi, and yeasts1. The “blue bioeconomy” could comprise a vital alternative to land-based animal feed and food. As the possibility of expanding the current fish supply remains limited, a sustainable “intensification” could come from aquaculture, e.g., microalgae cultivation and the development of multitrophic systems (Rowan and Galanakis, 2020; Fritsche et al., 2020).

2.2. Bioenergy

The current energy system mostly depends on fossil fuels, having an enormous impact on the environment and global economies. European countries are significantly dependent on energy imports (mainly oil, natural gas, and coal) as 58% of EU-28 energy was imported in 2018 compared to 47% imported in 2000 (Fritsche et al., 2021). Subsequently, the need for energy security and local resilience through low carbon solutions is prominent. Renewable energy from solar power and wind are intrinsically variable in time and available. Although it cannot replace thoroughly conventional fuels, bioenergy can provide stand-alone energy generation that will smooth the peaks related to the other forms of variable renewable energies. Through bioliquids and biofuels, it is nowadays strongly regarded as an ideal alternative for aviation, marine, and heavy-duty transports, sectors with fewer decarbonization options (Panoutsou et al., 2021) and offers system energy balancing services, as in district heating and electricity systems (Arasto et al., 2017). Moreover, facilitating energy security within the framework of the circular bioeconomy can be achieved through investments that prioritize local bio-based value chains (e.g., biofuel production processes) and promote supply from domestic regions (Lange et al., 2020).

The circular bioeconomy offers excellent possibilities to integrate biochemical and thermo-chemical processes in local biorefineries that can valorize residues and co-products of upstream routes, produce multiple biobased products, energy, and fuels; thus improving circularity6. This strategy would mitigate climate change and contribute to local resilience and rural socio-economic development (Panoutsou and Chiaramonti, 2020) by delivering higher biomass shares within target sectors, creating new permanent jobs, and mitigating raw material competition (Burger et al., 2020). Besides, biofuel's role in the markets can be even more critical if a higher penetration of electricity in transportation is achieved in the future. The EU Renewable Energy Directive II (REDII) addresses several of these issues but do not fully encompass the relevance of strategic storage and EU-based supply chains as probably needed to push the most-needed EU economic recovery (Chiaramonti and Goumas, 2019; Chiaramonti and Maniatis, 2020).

2.3. Bio-based materials

Despite the promotion of circular economy over the last years, industrial production remains too linear and mostly based on non-renewable resources. On a global scale, only a small percentage (12%) of the materials is derived from recycling. In contrast, non-metallic minerals such as sand or gravel account for around half of the extracted resources (IRP, 2019). Scalable innovations and viable technologies could be deployed to produce resource-efficient, circular, and low carbon solutions based on renewable energy and sustainability sourced bio-based materials. A good example is a first-ever car made of nanocellulose, a biomaterial five times lighter and stronger than steel, produced in Japan in 2019. New biomaterials, including bioplastics, hold tremendous promise due to their lower carbon footprint and biodegradability than petrochemical products (Panoutsou and Singh, 2020).

Wood-based products (e.g., wood-based textiles, nanocellulose, and bioplastics) represent a reservoir of sequestered carbon that could be used for textiles, furniture, fiber, and construction. An approach towards green recovery, climate change mitigation, and resilience in the post-pandemic world is valorizing woody biomass to produce a wide range of bio-based materials (Fritsche et al., 2020). New wood-based textiles have been reported to have a climate mitigation effect of 5 kg CO2 per kg of product used compared to polyester (IPCC, 2019). Moreover, a shift to biomaterials (based on engineering wood or bamboo) could substantially reduce the number of materials used and our cities' carbon footprint while creating durable carbon pools (EC, 2015; Churkina et al., 2020). Using wood in construction has a climate mitigation effect of 2.4–2.9 kg CO2 per kg of wood contained in products used compared to concrete (EFI, 2017) while also storing 1 ton of CO2 in each m3 of products. Building with wood is also more resource-efficient: It can reduce the total amount of materials used in construction by 50% (IPCC, 2019) and be a key priority in green recovery. However, the growth of biomaterial demand should not create additional pressure on natural resources. Cascading the use of biomass – which is a fundamental part of a circular bioeconomy – will contribute to reducing additional pressure on land for biomass (Fritsche et al., 2020).

The COVID-19 pandemic presented an opportunity to accelerate innovations for 3D-printed foods and relevant disposable objects, bio-based packaging, and composite wood materials (Rowan and Galanakis, 2020). Bio-based materials can also be generated by valorizing the organic fractions of waste and leftovers with different biorefinery approaches. These include biomass refining into bio-crude and ethanol through chemical or hydrothermal fragments rich in lignocellulosic components (Miliotti et al., 2019) and integrating pyrolysis and anaerobic digestion in cascading facilities to generate biochar and biomethane, respectively (Casini et al., 2019). Biomass cascading includes also preferring the utilization of wood to manufacture durable products that live longer, prioritizing the utilization of sawdust and chops (leftovers from the wood industry) for useful recycling purposes, such as the production of innovative products, and energy generation with combustion. This approach requires optimal forest management for wood processing, the utilization of wood products in service, and leftovers' valorization (Fritsche et al., 2021).

2.4. Forests and forestry

Terrestrial vegetation systems, particularly forests, stand at the crossroads between the three critical bioeconomy pathways of utilizing more biomaterials, better use of bioenergy, and securing ecosystem services, notably including terrestrial carbon sequestration. This presents risks and opportunities. Necessarily, harvesting in forests to meet demands for biomass must not be a driver for deforestation and must not exceed those forests' capacity to grow more biomass and so renew the losses. Sustainable forest management (SFM) also recognizes requirements to maintain soil and water quality, conserve biodiversity, protect habitats, and respect for local/indigenous communities. However, even meeting the highest SFM standards cannot necessarily address all the goals of bioeconomy development. An increased intensity of harvesting in forests can negatively impact forest carbon stocks and sequestration, effects which may be temporary or may last for centuries, depending on the specific circumstances (Camia et al., 2021). As part of optimizing forest management, such negative impacts need to be avoided or their consequences minimized or rapidly ameliorated. Climate Smart Forestry (CSF) (Verkerk et al., 2020) places the aim of increasing wood supply alongside adapting forest ecosystems to reduce their vulnerability to climate change risks and the overall aim of reducing GHG emissions. The potential of CSF has been demonstrated in a few case study areas in Europe. Still, much more work would be needed to embed CSF into everyday forestry planning and practice across a wide range of forest ecosystems and national or regional circumstances.

Calls for Nature-Based Solutions (NBS) go further than CSF, applying to all land uses and stressing the importance of all the services provided by ecosystems besides biomass supply. Concerning forests, NBS emphasizes protecting, restoring, and extending forests and wooded landscapes, alongside management for adaptation and wood production. As with CSF, practical approaches and frameworks need to be further developed to enable their general adoption.

Restoring and creating forests and increasing trees' presence in the landscape will be particularly relevant as part of the post-COVID-19 recovery. In rural areas, this could create locally accessible sources of biomass (Fritsche et al., 2020) and could contribute to the diversification of agricultural systems and rural regeneration. In urban and peri-urban areas, trees and forests could contribute similar benefits and also provide more opportunities for recreation, retreat, and engagement with nature. This is in addition to other recognized services of trees in urban areas, notably for moderating climate extremes. More generally, bio-based materials production could be coupled with “nature-based solutions” in the forest sector, contributing to urban greening and rural areas' revitalization (Hirst and Lazarus, 2020) as well as the deployment of cascading facilities to utilize locally produced biomass resources (Fritsche et al., 2020).

The emerging picture suggests that forests and forestry could make a significant contribution towards bioeconomy development, with potentially cross-cutting benefits for climate change and ecosystem services and even greater relevance as part of the recovery from the post-COVID-19 pandemic. However, there are evident constraints on forests' capacity to supply more biomass without compromising the delivery of the broader benefits of forests. Hence, a sophisticated policy response is required to support forest protection, restoration, and extension in conjunction with the mobilization of woody biomass resources.

2.5. Ecosystem services

Ecosystem services can offer significant prospects for agriculture, forestry, tourism, culture, health, and wellbeing. ‘An ecosystem services perspective provides a useful framework to consider the use of biomass resources for various goals, provided that utilization is realized within the boundaries of sustainability’ (Pfau et al., 2014). A sustainable, circular bioeconomy recognizes the added value of ecosystem services for the environment, the economy, and society. Thus, it ensures they are safeguarded and improved through local co-creative decision planning and implementation. The circular bioeconomy offers a unique opportunity for building decentralized energy production and water and landscape management. It supports the natural capital and improves biodiversity by promoting agroecological farming (Tamburini et al., 2020), re-establishing organic carbon and microbiota in the soil and land, recycling nutrients, and contributing to climate mitigation. For example, the deployment of biochar should be promoted as it can permanently remove carbon dioxide from the atmosphere and fight land abandonment due to desertification: more than 8.5 Mha in the Mediterranean region under risk of marginalization (IPCC, 2019; Chiaramonti and Panoutsou, 2019). Promoting paludiculture could also be another suitable option for other areas, as peatlands play a significant role in offsetting CO2 emissions through sequestration. They account for ca. 3% of the earth's surface, storing 1.4 trillion tonnes of carbon, which is equivalent to 75% of all atmospheres' carbon (Rowan and Galanakis, 2020).

2.6. “Bio-cities,” rural bioeconomies, and tourism

Cities have a critical role in developing and implementing the circular bioeconomy due to the large population, high intensity of economic activities, and increased consumption of goods. Urban livelihoods are affected by different choices concerning infrastructures, education, commerce, and healthy mobility. The pandemic has dramatically affected mobility in urban settlements, and recovery plans could restructure urban environments through smart mobility instead of unsustainable, horizontal lockdown (Acuto et al., 2020). Lockdown vehicle restrictions could be relevant interventions in the post-pandemic era leading to cleaner air and healthier cities (Li et al., 2019). Urban living has entered a new generation where cars' mobility and subsequent carbon emissions could be minimized. For instance, at the beginning of 2021, Saudi Arabia announced “The Line,” a revolutionary city of 170 km in length to be built around nature with zero cars, zero streets, and zero carbon emissions (Arab News, 2021). However, current and modern cities' active mobility networks and public transportation infrastructures must be expanded to ensure all citizens' affordability and accessibility (including those living in suburban neighborhoods) (Daniels et al., 2020). Rebound effects in urban/peri-urban and non-urban mobility can also be reasonably expected due to consumers' reduced confidence in public transportations' health and safety. This trend could change consumers' behavior even well beyond the pandemic and should be very carefully monitored.

The tourism industry should also transform by changing the current practices that promote the continuous consumption of resources to a model that favors the decarbonization of transport systems and eco-tourism. Revealing green spaces and promoting healthy activities such as cycling and walking instead of just encouraging them as climate mitigation measures may increase public support of the transition (Acuto et al., 2020).

Finally, it is essential to develop urban agriculture and forestry to provide local feedstock and fresh vegetables, biodiversity gains, green infrastructure, and nature-based solutions to rebuild cities and retrofit biomass supply chains (Rousseau and Deschacht, 2020). Fostering regional development in rural areas requires citizens' training on business models and technical aspects (Chateau and Mavroeidi, 2020). This process will lead to green employment opportunities that will boost post-COVID-19 recovery and facilitate a green transformation to a low carbon economy.

2.7. Culture, arts and fashion

The transformation of the circular bioeconomy towards sustainability requires expanding its social dimension by linking mobility, sustainable food, and materials consumption with culture, arts, and fashion (Hanspach et al., 2020). During the political discussions about the financial packages to recover pandemic-related economic losses, there is a sense that the cultural dimensions have not been taken into account or left behind. The acute reaction to operate remotely and “go virtual” the pandemic by promoting take away, distance learning, and digital environments led to the shutdown of arts performing and closing museums and restaurants. This transformation also concerns leisure time and entertainment (social media, gaming, etc.). The practice of spending more time online has, on the one hand, reduced the spread of the COVID-19, but on the other, has created a significant gap in real-world social interaction and allowed manipulation of public opinions via populism, “bubbles,” and fake news. These risks to social cohesion should be seriously considered and included in the overall planning to transition to a sustainable bioeconomy. People will have more green public spaces and increased opportunities to get involved with and inspired by nature. Culture, arts, and relevant social practices (e.g., rental, resale) could also support this transition by replacing material consumption, reducing exposure to fake news, and creatively promoting the bioeconomy wellbeing. Fashion brands have already set the pace by emphasizing sustainability and circularity (McKinsey and Company, 2020) e.g., using recycled (e.g., organic instead of regular cotton) and bio-based textiles that could lower and bio-based textiles that could lower GHG emissions.

3. Conclusions

Table 2 presents a collection of bioeconomy solutions to support green recovery and enhance system resilience in the post-COVID-19 world derived from Fritsche et al. and the authors' further work (Fritsche et al., 2021). Food systems' resilience and mitigation strategies that allow adapting rapidly to inevitable crises should become a priority, ensuring that future shocks and extreme events will minimally affect food chains and vulnerable people. It is also vital to increase circularity and integration of biochemical and thermochemical processes for waste's valorization targeting, the production of bio-based products and biofuels. The integration can be achieved using biorefinery processes to extract critical raw materials, e.g., as identified and listed by the EC. In a more general view, it is time and an excellent opportunity to develop a transformative, circular, inclusive, and sustainable bioeconomy that includes all citizens, fosters innovation and provides at least partial economic recovery solutions post-COVID-19 world. It is vital to swift the well-known slogan of “no one left behind” to “leaving no one out.” This change could be achieved in practice by promoting short- and long-term strategies and actual measures supporting communities, stakeholders, and operators to preserve and diversify economic activities, keep jobs, and ultimately build the required resilience to overcome the crisis. These actions should be combined with sustainable production and decarbonization and stimulate private investments in this direction and monitor the resulting impact of mitigation measures.

#### Food insecurity sparks conflict in numerous hotspots---goes nuclear.

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

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

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

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

Chart

Description automatically generated

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

United States

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

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

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

[Figure omitted]

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

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

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

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

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

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

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

Central and South America

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

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

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

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

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

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

Central Asia

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

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

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

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

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

The Middle East

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

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

[Figure omitted]

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

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

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

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

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

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

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

China

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Africa

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

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

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

[Figure omitted]

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

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

the agency said in its Global Report on Food Crises 2018.71

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

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

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

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

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

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

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

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

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

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

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

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

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

South Asia

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

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

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

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

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

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

[Figure omitted]

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

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

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

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

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

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

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

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

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

Diagram, engineering drawing

Description automatically generated

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

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

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

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

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

The Human Tide

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

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

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

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

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

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

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

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

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

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

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

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

#### Only by reining in contemporary horizontal shareholding can resolve it:

#### 1. INVESTMENT.

#### It eviscerates the incentive to invest in productive innovation.

Dr. Heng Geng et al. 21, Lecturer, Economics & Finance, Victoria University of Wellington; Harald Hau, Professor, Finance, University of Geneva; Roni Michaely, SFI Professor, Finance, Geneva Finance Research Institute, University of Geneva; Binh Nguyen, Senior Lecturer, Data Science, School of Mathematics & Statistics, Victoria University of Wellington, "The Effect of Board Overlap on Firm Behavior," Swiss Finance Institute, Research Paper Series, 07/15/2021, pg. 1-7.

Board overlap is a readily observable feature of modern corporate governance with a long legacy of conflicting interpretations. For critics of corporate market power, board overlap creates a presumption that firms can coordinate in restraint of competition (Buch-Hansen, 2014). In its defense, others advance the advisory benefits that highly experienced directors can bring to multiple firms (Field, Lowry, and Mkrtchyan, 2013) and inter-firm information coordination that facilitates better identification of startup synergies (Eldar, Grennan, and Waldock, 2020). While the Clayton Act of 1914 outlawed board overlap between direct competitors, empirical evidence on the role of board overlap for corporate outcomes, and even more so on the mechanism behind its impact on firms’ performance has remained elusive.1 In this study, we develop a framework that allows us to systematically investigate how, and why, board overlap changes firm behavior.

A key obstacle to understanding the causal effects of board overlap on corporate outcomes relates to its endogenous nature and the difficulty of isolating exogenous influences. This paper overcomes this roadblock by studying a major change in U.S. corporate law, namely the introduction of so-called corporate opportunity waivers (COWs). Their staggered introduction over the period 2000-2016 in nine U.S. states enhanced the legal protection of directors serving on multiple boards (also known as interlocked directors). COWs exempted directors from fiduciary restrictions of using board information in pursuit of outside corporate opportunities. The directors’ duty of loyalty is enshrined in corporate law, and poses a particular legal liability for overlapping directors as they could be accused of carrying confidential board information to a rival corporate board. COW legislation intended to remove the legal liability associated with the directors’ fiduciary duty, but also led to the more widespread adoption of board overlap. The waiver was originally designed to facilitate startup financing, but was largely embraced by publicly listed firms.2 We use this staggered adoption of COW statutes as a unique quasinatural experiment, which allows us to explore the causal effects of board interlock in a setting similar to Eldar, Grennan, and Waldock (2020).

Our conceptual framework follows the previous literature (Bloom, Schankerman, and van Reenen, 2013; Antón, Ederer, Giné, and Schmalz, 2021), which distinguishes between two countervailing corporate spillovers: (i) positive externalities, in the form of synergetic corporate opportunities (either technological or commercial); and (ii) negative market externalities, referred to as product market rivalry. Board overlap can both reinforce the former and/or attenuate the latter. As a consequence, the benefits of board overlap are likely to be strongest for similar firms in the same industry. Moreover, both types of corporate spillover operate most forcefully in firms characterized by strong information asymmetries, high investment rates, and strong growth opportunities. For these reasons, our empirical focus is on similar firms (proxied by their industry affiliation) and R&D intensive firms for which information flows at the board level are most critical.

The empirical significance of this perspective is illustrated in Figure 1, Panel A: R&D intensity correlates strongly with the observed unconditional frequency of intra-industry board overlap. The 25% of firms facing the lowest level of R&D intensity feature only a 2% average board overlap for their directors, whereas this increases to 20% for the 25% of firm in the top quartile of R&D intensity. In contrast, the inter-industry board overlap depicted in Panel B does not share this pattern and thus appears different in its nature. Only intra-industry board overlap reveals strong economic complementarity with a firm’s R&D intensity.

We refer to the positive interaction between board overlap and positive spillovers as the opportunity hypothesis: Board overlap can facilitate information sharing about corporate opportunities of either a technological or commercial nature. It promotes their efficient allocation, fast adoption, and frictionless financing. As Rauterberg and Talley (2017) suggest, this hypothesis was promoted by critics of the existing fiduciary law, who argue that newly emerging capital sources, like venture capital and private equity, had their rationale in the capture of new corporate opportunities through unbridled information exchange.3 As such, board overlap helps certain shareholder types to better identify opportunities across firms, as well as to allocate, structure, and finance corporate opportunities with a positive effect on firm investment, innovation, and patent success. The opportunity hypothesis captures the idea that board overlap can strengthen positive externalities of R&D emphasized in the literature on corporate innovation.

Yet, a high level of R&D expenditure also accentuates product market rivalry if firms target similar markets, as highlighted by Bloom et al. (2013). Board overlap can potentially regulate and attenuate such rivalry. We label this negative interaction between board overlap and firm rivalry the coordination hypothesis: Board overlap can foster research collaboration and specialization, avoid costly duplication of R&D activity, and seek accommodation through market segmentation. On the downside, coordination can extend to tacit market carve-outs and anti-competitive behavior. The industrial organization literature has highlighted that stable inter-firm coordination requires firms not to undertake hidden action that contravenes the tacit collaboration (Harrington and Skrzypacz, 2011). Board overlap can increase the mutual observability of strategic decision-making and thus stabilize cooperative behavior.

While the two hypotheses interpret intra-industry board overlap in their relationship to R&D externalities, one may also focus on the more intrinsic effect of board overlap, which we refer to as the human resource hypothesis. Board composition is driven by quality considerations with respect to the board’s monitoring and advisory function. Firms compete for the most qualified board members. Board overlap emerges as a consequence of a limited talent pool. By allowing more firms to share the expertise of high-quality directors, board overlap can contribute to better governance and improve the firm’s strategic decision-making with potentially large benefits.

Methodologically, we treat COW legislation as a natural experiment: It was initially adopted by the state of Delaware in response to a court decision that highlighted the non-contractability of fiduciary duties under prior state law. Thus, the timing of COW legislation is tied to Delaware’s legal history and unrelated to particular economic events.4 Eight other states then followed Delaware’s example, and introduced very similar legislation, as shown in Table 1. We apply a standard 2SLS estimation framework: In a first-stage regression, we estimate the predicted change in board overlap, where the staggered implementation of COW legislation functions as the instrument. In the second stage, we use this law-induced (predicted) change in intra-industry board overlap to explore its causal influence on various firm outcomes, and discuss their consistency with our three hypotheses.

We highlight five main findings. First, corporate liability reform triggered an economically significant increase in intra-industry board overlap by 3 percentage points among firms with high R&D intensity, but not for firms with low R&D intensity. Given a median corporate board size of eight members, this corresponds to roughly one new intra-industry board overlap for every fourth firm (0:03 × 8 = 24%). Moreover, this board overlap increase for firms with high R&D intensity does not extend to inter-industry board overlap. We find that inter-industry board overlap for firms with high R&D intensity decreased by 2 percentage points. The concentration of intra-industry board overlap increases among firms with high R&D intensity after COW legislation accords with the above-mentioned unconditional observations that intra-industry board overlap strongly correlates with R&D intensity. It suggests that the benefits of board overlap relate to R&D activity and its specific cross-firm spillovers.

Second, firms experiencing an increase in intra-industry board overlap show systematically higher firm profitability as measured by a higher return on assets (ROA), a higher gross profit margin, a bigger operating margin, increased sales revenue, reduced costs, and a lower cost share relative to sales. The measured causal effects suggest a 12:3% average increase in sales revenue and a simultaneous reduction in costs of goods sold (COGS) by 15:7% following COW legislation. This evidence is consistent with all three hypotheses. More efficient exploitation of corporate opportunities as well as firm coordination can increase firm profitability. Similarly, a more competent board can oversee better managerial decisions in marketing, procurement, etc., which improves the market power of the firm. As the three hypotheses are not mutually exclusive, they could jointly contribute to increased firm profitability.

Next, we report on outcome variables that disentangle the three hypotheses. We scrutinize the human resource hypothesis by examining more precisely the origin of the board overlap. A firm can co-opt a new board member already serving on another board, and we refer to this as inbound board overlap. In contrast, if a firm allows one of its existing board members to serve on another firm’s board, we label this outbound board overlap. We expect very asymmetric consequences under the human resource hypothesis: Inbound overlap changes the board composition and can hereby alter the quality of board governance, whereas outbound board overlap has no consequences for board composition and its intrinsic quality. Unlike the human resource hypothesis, neither the opportunity nor the coordination hypothesis depends on any change in board composition but both predict, on average, similar real effects exerted by inbound and outbound board overlap. A distinction with respect to the genesis of board overlap helps us to probe the empirical significance of the human resource hypothesis for explaining the observed profit surge.

Our third result shows that outbound and inbound board interlock have qualitatively and quantitatively similar positive effects on various measures of firm profitability. This finding is consistent with the opportunity and coordination hypotheses, but is difficult to reconcile with the human resource hypothesis: If firm performance improves due to the integration of a knowledgeable and talented new board member, the benefit should accrue to the firms co-opting the new director, but not to the firms where the director has served all along. Economically strong profitability effects under more outbound overlap clearly favor the opportunity and coordination hypotheses of board overlap.

Next, we seek to disentangle if board overlap in R&D intensive firms reinforces positive (commercial or technological) spillovers or attenuates negative (competitive) market spillovers between firms (Bloom, Schankerman, and van Reenen, 2013). If board overlap strengthens positive externalities between firms, according to the opportunity hypothesis, we expect to see accelerated technological progress, as proxied by patent frequency and patent citations, as well as an increased level of R&D investment. Alternatively, if board overlap can reduce product market rivalry through firm coordination, it should result in reduced R&D investments and less innovation as a high degree of product innovation tends to accentuate firm rivalry through shorter product cycles, product obsolescence, increased fixed costs, and the risk of financial distress in a winner-takes-all market (Aoki, 1991).

As our fourth result, we find economically and statistically strong negative effects of increased board overlap on general investment expenditure, R&D expenditure, and the measures of innovation output. Our findings are consistent with the coordination hypothesis that board interlock reduces dynamic (Schumpeterian) competition in new products and product innovation. The evidence of reduced investment is difficult to reconcile with the opportunity hypothesis that board overlap promotes positive commercial or technological spillovers.

#### Particularly, it depresses wage growth by limiting incentives for direct AND indirect investment in workers.

Zohar Goshen & Doron Levit 21, Jerome L. Green Professor, Transactional Law, Columbia University, Columbia Law School; Associate Professor, Finance & Business Economics, University of Washington, Foster School of Business, "Common Ownership and The Decline of the American Worker," European Corporate Governance Institute, May 2021, pg. 3-11.

American workers are more productive than ever, but they take home the same pay they did forty years ago. 1 While firms have enjoyed blockbuster profits2—and the gross domestic product (GDP) has tripled3— most American households have not shared in this increasing prosperity. As wages have stagnated, income inequality has skyrocketed. 4 Causes like deunionization,5 globalization,6 immigration,7 labor market concentration,8 and technology9 have been blamed for these trends. But so far, an additional culprit has escaped detection: common ownership—a few powerful institutional investors controlling large stakes in most U.S. corporations.10 As this Article explains, the shift to common ownership has been a significant cause of wage stagnation and income inequality.11

Since the 1980s, control of the American stock markets has shifted from individual retail investors to an interlocking set of powerful financial institutions who own shares in practically all public corporations. Scholars have dubbed these institutions common owners. 12 Today, these highly diversified institutional investors own more than 70% of American publicly traded equity, up from less than 25% in the 1980s.13 The three largest asset managers—BlackRock, Vanguard, and State Street—collectively constitute the largest shareholder in nine out of ten S&P500 firms.14 The once-prevalent dispersed ownership structure15 has now been replaced by common ownership.16

Effectively, common owners have hung an “Under New Management” sign over publicly traded corporations. While these corporations employed 40% of the American workforce in 1980, after a steady decline, they only employed 29% in 2019. 17 It would be an astounding coincidence that, at the same time American workers got a new set of bosses, the percentage of employees shrank, and their wages stopped growing. On the contrary, this Article argues that common owners are a driving force behind stalled wages and increasing income inequality.

Common owners move publicly traded firms en masse toward strong governance, which provides shareholders with greater control over managers. Managers who are more exposed to shareholder intervention are less likely to pursue bold, long-term, or transformative investments. Such investments are hard to evaluate and might be misperceived by shareholders as inefficient investments, thereby increasing managers’ risk of being mistakenly fired. As investment falls, so too will hiring: Companies no longer require the labor force to operate new factories, staff new divisions, or open new offices and locations.18 This hiring shortfall will artificially depress wages, allowing firms to enjoy a wage discount and moving wealth from workers to shareholders. Because shareholders tend to be wealthier than wage-earners, this process not only causes wages to stagnate but also exacerbates income inequality.

This view runs counter to conventional wisdom in corporate law. Common owners are thought to bring savvy to the boardroom and draw praise for strengthening corporate governance in publicly traded corporations.19 Strong governance supposedly improves corporate efficiency by deterring disloyal managers from overinvesting and wasting resources on pet projects. In other words, overinvestment is a type of management agency cost that strong governance is believed to reduce.20 More broadly, scholars have heralded institutional investors as guardians of shareholder rights whose ability to monitor corporations and hold disloyal managers accountable creates a net social benefit, a portion of which accrues to employees through their retirement plans. 21

However, this Article shows that in exchange for this marginal increase in the value of their pension’s stock portfolio, employees of public corporations are resigning themselves to depressed hiring and stagnant wages, even as their productivity—and consequently their value to the corporations—surges to record levels.

Although strong governance improves corporate efficiency by deterring disloyal managers from overinvesting, it also deters loyal managers from investing in value-increasing projects.22 A loyal manager risks discipline and dismissal by investing in innovative, complex, or long-term investments that shareholders might misevaluate or misunderstand.23 Therefore, both loyal and disloyal managers are likely to refrain from investing under a strong-governance regime. Underinvestment by loyal managers is an inefficient effect of strong governance. It is debatable whether, between these two opposing effects—decreasing management agency costs while discouraging value-creating investments—strong governance is, on average, socially beneficial.24 But even assuming that strong governance decreases inefficient investments more than it discourages efficient investments, both effects decrease corporate investment—and thus, hiring.

Take, for example, institutional investors’ campaign against antitakeover protections such as staggered boards and poison pills.25 The conventional wisdom is that removing antitakeover protections deters inefficient investments by exposing underperforming managers to a hostile takeover threat. 26 But this conventional wisdom is only one side of the story. The fear of a takeover also deters loyal managers from making efficient investments.27 Some visionary, hard-to-understand, or long-term investments are underpriced by the market, exposing talented, loyal managers to unjustified hostile takeovers. 28 Without antitakeover protections, loyal managers will likely distribute any free cash flow instead of making these beneficial investments. 29 Antitakeover protections are a double-edged sword: They provide cover for disloyal managers and loyal managers alike, encouraging both efficient and inefficient investments. 30

Common owners have more or less eliminated the use of antitakeover protections—including at most of the 500 largest American corporations— creating a chilling effect on investment levels.31 And removing antitakeover protections is only one of the strong-governance measures that common owners favor.32 Applying the whole arsenal of strong-governance measures across corporate America has generated a significant and systematic decrease in corporate investment. 33

Cutting investment is not harmless; rather, it causes corporations to cut back on hiring, depressing the demand for employees and keeping wages below their competitive rate. In other words, it creates a monopsony—a firm (or set of firms) with sufficient market power that it can and does cut back on its purchases of an input (here, labor) to reduce its price and enjoy a discount.34 By switching firms en masse to strong governance, common owners create a labor market monopsony without resorting to collusion,35 and indeed, likely without intending to create one. 36

Notably, and contrary to standard economic usage, this monopsony is based on concentration of shareholder ownership of many firms rather than concentration of firm control over supply or demand. Generally, monopoly denotes a single supplier, or a few suppliers in collusion, setting prices they will accept for a given output; while monopsony denotes a single buyer, or a few buyers in collusion, setting prices they will pay for a given input. Thus, in standard labor economics, a labor monopsony is driven by firms’ market power, through concentration or collusion, over employees, enabling the firms to set the price for labor rather than taking the market equilibrium price. This Article suggests that this labor monopsony, by contrast, is driven by concentration of shareholders’ market power over management of numerous entities, each separately pursuing its own economic interest. This concentration of ownership results in lower demand, and consequently a lower equilibrium price, for labor, causing wages to stagnate rather than rise with productivity increases. 37

While it has been empirically proven that two-thirds of the decrease in investment and hiring is attributable to common ownership and governance, this Article presents a novel economic model that exposes the mechanism by which common ownership and governance structure leads to stagnant wages.38 In a competitive market, shareholders will respond to abnormally low wages by switching to weak governance so that managers will be free to invest and take advantage of discounted labor prices. 39As more firms switch to weak governance and increase their investments, increased hiring will push wages up, making investments less profitable. A symmetric process of firms switching to strong governance kicks in to discourage investments when wages are abnormally high. Wages and governance structure thus form a feedback loop, resulting in a competitive equilibrium where a certain number of strong- and weak-governance corporations coexist and are equally profitable—and, importantly, where wages are determined competitively.40

Common ownership breaks this feedback loop. Unlike in the competitive equilibrium, common owners push firms toward strong governance regardless of prevailing labor prices. Fewer firms with weak governance leads to lower investment, reduced demand for labor, and decreased wages. 41 Those firms that continue to invest (the remaining weak-governance firms) see increased profits due to the labor discount. And because common owners hold the entire portfolio of strong- and weakgovernance firms, their portfolio values go up. By preventing firms from switching to weak governance, common owners disable the market mechanism—choice of governance structure—that normally drives wages back up when they are below their competitive rate. As a result, under common ownership, the model predicts wages will be persistently low without the need for collusion among firms.42 And because the labor monopsony means greater profits for (typically wealthier) shareholders and lower wages for (typically less wealthy) employees, it exacerbates income inequality.43

Importantly, this Article shows that common owners exert labormonopsony power not by exercising control in a certain way (as existing literature argues44) but rather by allocating control to shareholders (pushing toward strong governance45), which can then be exercised by other shareholders such as activist hedge funds46 or hostile acquirers.47 That is, institutional investors do not need to engage in any illegal anticompetitive conspiracy—such as coordinating production cutbacks across firms48—to enjoy a labor discount. Rather, they only need to strive to maximize the value of their shares in each corporation. Thus, the common ownership monopsony theory does not share the same drawbacks as other theories alleging anticompetitive effects of common ownership. 49

Acknowledging the inherent tradeoff of strong governance—reducing management agency costs while creating a labor monopsony—presents a difficult dilemma for policymakers. Should they side with employees or shareholders? If shareholders’ interests are the sole concern, nothing should be done. The power of common owners will continue to grow, and with it, the effects of strong governance.50 If the interests of employees are the concern, however, then policymakers should act. To return markets to their previous competitive equilibrium, where labor and capital efficiently and equitably shared corporate value, they must eliminate common owners’ monopsony effect.

To achieve this goal in the absence of collusive activity that can be directly policed, this Article suggests breaking up the large institutional investors by limiting their size, thus removing their structural impacts on governance. Several institutional investors have assets under management (AUM) in the trillions of dollars. Limiting institutional investors to holding no more than a half-trillion dollars in AUM would increase the number of institutional investors, encourage competition in the market, and readjust the balance of power between managers and shareholders. These shifts would reignite corporate managers’ incentives to increase corporate investment and labor demand, restoring the labor markets’ competitive equilibrium and leading to higher wages and greater income equality.

#### A confluence of empirical studies substantiates its impact.

Einer Elhauge 21, Petrie Professor of Law, Harvard Law School, "The Causal Mechanisms of Horizontal Shareholding," Ohio State Law Journal, Vol. 82, Issue 1, 2021, Lexis.

Common shareholding exists when the leading shareholders of different corporations overlap. The precise effects of such common shareholding will [\*3] vary depending on just how much influence the common shareholders have over the corporations. But debate about that issue often obscures a basic economic reality: to whatever extent these common shareholders have influence over corporate conduct, it must cause the corporations to take into account the interests of the other commonly-held corporations more than they would if their ownership was totally separate. With separate ownership, each corporation's only goal would be (as economic models traditionally assume) to maximize its individual profits. With common ownership, single-firm profit-maximization is compromised by the fact that the corporation is, to some extent, influenced by common shareholders who are also interested in the profits of other corporations. When the commonly-held corporations are horizontal competitors in the same product market, this increased interest in the profits of competitors will naturally lessen their incentives to compete with each other. Such common shareholding between horizontal competitors is known as horizontal shareholding.

Dozens of empirical studies have now confirmed this economic reality that common shareholding alters corporate behavior. At least fifteen of those empirical studies have confirmed that horizontal ownership often has anticompetitive effects in concentrated markets. These include: nine market-level studies; a massive cross-market study of hundreds of consumer goods; two national studies across all industries; a new study of horizontal ownership by venture capitalists; a new study showing that when a firm's addition to the S&P 500 creates an exogenous increase in horizontal shareholding, it raises the stock price of its product market rivals; and a new study showing that a financial institution merger that exogenously increased horizontal shareholding across competing beverage manufacturers increased their profits and revenue. 1Only [\*4] two of these empirical studies have been disputed, and the critiques of those two empirical studies have been rebutted at length. 2Moreover, many other empirical studies have shown that common shareholdings alter corporate behavior in a host of ways that are not necessarily anticompetitive, especially when the common shareholdings are not horizontal. For example, empirical studies have shown that common shareholding affects corporations' mergers, contracting, advertising, alliances, innovation, holdup, cash retention, product positioning, knowledge diffusion, environmental positions, takeover bids, merger profitability, information exchanges, choice of bankruptcy regimes, and the rates and risks of their loans. 3While the latter set of studies does not directly show anticompetitive effects, it does further confirm what we shall see is often denied when discussing horizontal shareholding: namely that common shareholders can and do alter the behavior of corporations in a way that reflects their interests in the commonly-held firms. Given the strong theoretical and empirical reasons to think that horizontal shareholding often has anticompetitive effects, scholars have, in recent years, advocated antitrust enforcement to police the problem. 4

#### 2. COLLUSION.

#### It facilitates both direct AND indirect methods of collusive behavior.

Anik Bhaduri 21, NALSAR University of Law, "Common Ownership as a Plus Factor," International Company and Commercial Law Review, Vol. 32, No. 3, pg. 7-9, 10/27/2021, SSRN.

Incentive of the institutional investors, however, does not *per se* explain the high prices – it has to be shown how this incentive influences the pricing decisions of firms. The owners are usually minority shareholders and do not exercise control over the firms. Collusion between the firms through the exchange of sensitive information by the common owners could definitely be an explanation, but economic literature indicates a number of ways through which common owners can influence the business conduct of firms both directly as well as indirectly.

Direct Influence

The easiest and the simplest way through which common owners can influence the behavior of portfolio companies is through a careful use of their voting power. Although the institutional investors hold small stakes in a firm and should therefore be unable to influence the business strategy of the firm, practical experience indicates otherwise. Low levels of shareholder meeting attendance and vote engagement among non-institutional minority shareholders can amplify the influence of motivated institutional investors.35 Moreover, studies indicate that even passive investors can exercise substantial influence on a firm if they vote as a bloc.36

Besides voting, common owners can influence the management of a firm by direct interactions with the directors and by issuing public statements regarding their preferred course of action.37 Empirical studies show that institutional investors often engage with the management of portfolio companies in informal settings with a view to influencing the directors – for instance, representatives of large US mutual funds recently met representatives of a number of pharmaceutical firms, encouraging them to maintain pricing lines and present a united front to consumers and policymakers.38 Moreover, it has been observed that a large number of institutional investors believe that the threat of selling shares was an effective discipline for management, without needing to resort to voting for management change.39

Indirect Influence

Although common owners are likely to influence the firms through voting or direct interaction, it has been shown that institutional investors can affect the decisions of corporations they have a stake in through a variety of indirect means. A number of recent papers show that basing executive compensation on industry-wide performance can align management incentives with those of institutional investors - this alignment would inevitably be at the cost of undiversified investors who prefer aggressive competition and are likely to prefer executive compensation based on the performance of the firm. Anton et al observe that higher degrees of common ownership lead to unconditional management pay, and noted that institutional investors have consistently supported executive compensation schemes based on industry-performance rather than on firm-performance, indicating that they are in favour of the status quo.40

Institutional investors may encourage coordination between the firms simply by passive inactivity – by failing to play a role an active role in pushing for aggressive competition, institutional investors may contribute to slackening of competition between firms and potential tacit collusion. According to Elhauge, “it suffices that institutional investors have incentives to fail to exercise their corporate governance rights in a way that demands maximizing individual corporate performance over industry performance”.41

#### That inhibits competitive pressures necessary for recurrent growth

Diego Martinez & Pramuan Bunkanwanicha 21, MA, Finance, Universidad Complutense de Madrid. EPhD, ESCP Business School; Professor, Finance, ESCP Europe. PhD, Economics, University of Paris, "Good Faith Competition as a Natural Mechanism for Sustainable Economic Growth," ESCP Research Institute of Management, 08/17/2021, https://academ.escpeurope.eu/pub/IP%202021-31-EN.pdf

I. Introduction

Microeconomic theory defines the market as perfect competition when firms provide goods at a price that equals their marginal cost. Some common characteristics of a perfectly competitive market include homogenous products, all buyers and sellers as price takers, there is complete information, and no entry and exit barriers. Under the assumption of prices equal marginal costs, firms would have no or little incentive to innovate.

It is reasonable to expect that most industries are characterized by some degree of heterogeneity and product differentiation. In this situation, the competition encourages profit-maximizing firms to innovate to achieve abnormal returns.

Rooted in management literature known as the resource-based view of the firm, Barney (1991) argues that sustainable competitive advantage derives from the resources and capabilities a firm controls that are valuable, rare, imperfectly imitable, and not substitutable. It is arguable that the firm's sustainable competitive advantage should be connected with the environment where the firm operates. Good faith competition incentivizes firms to build sustainable competitive advantages through R&D investments, product differentiation, advertising, and capital-and cost-efficiencies. Firms need to invest in tangible and intangible resources to create competitive advantages and generate abnormal returns (returns on equity higher than the cost of equity). Firms also need to continue investing in maintaining those advantages over time to create long-term value.

Kline and Rosenberg (2010) define the process of innovation as a series of changes that affect not only hardware but also production, markets, and organizations. In fair competition markets, a firm's search for creating competitive advantages provides a continuous investment process and stimulates innovation, providing economic growth, employment, and welfare enhancement (Baumol and Strom 2007, OECD 2007, Daniels 1996).

Sustainable economic growth has important implications for society. In the long run, economic growth is mainly explained by technological progress. Sustained economic growth has an amplified effect on per capita income, and it is an effective mechanism to reduce poverty rates (Barro and Sala-i-Martin 2004, Sala-i-Martin 2006, Dollar et al. 2013). United Nations' 2030 Agenda for Sustainable Development1 includes eradicating poverty as an indispensable requirement for sustainable development. In fair markets, firms competing for competitive advantages take a crucial role, bringing the power of innovation that generates economic growth, resulting in an improved standard of living for the wider society. However, some firms may have incentives to collude to obtain extra-profits, harming consumers and, at the same time, negatively affecting the power of innovation. Regulators have to ensure the fair functioning of markets.

II. Advantages of good faith competition

The positive effect on society of firms' rivalry is based on three central ideas. The first one is that firms pursue a profit maximization strategy and expect to achieve abnormal returns. The second one is that industries have some degree of heterogeneity and product differentiation. Lastly, firms compete in fair markets. In this scenario, firms pursuing abnormal returns will make investments in order to develop competitive advantages. Investment in R&D is one of the most important activities driving competitive advantage, and firms in competitive industries enter into innovation races to differentiate their products. Innovation affects long-term economic growth through technological progress. The European Central Bank supports innovation as an essential driver of economic progress that benefits consumers, businesses, and the economy as a whole.

Fair market competition is one of the pillars for obtaining positive effects from rivalry. National and supranational organizations acknowledge the benefits of good faith competition. The Autorité de la concurrence, the competition regulator in France, argues that competition forces companies to be innovative and to stimulate growth and jobs. The European Union states that having firms competing fairly in the market benefits society. Consumers receive higher quality products at better prices, and competition incentivizes firms to innovate to differentiate their products and make firms more competitive in global markets.

In fair markets, the search for competitive advantages stimulates innovation and strengthens long-term economic growth. The Presidency Report to the Council of the EU (September 20th, 2019) on developing long-term strategies of sustainable growth identifies Research and Innovation (R&I) as a critical driver in response to the main challenges of the European economic growth model. Economic growth does not need to be explosive but recurrent over the long term. An example of the positive effects of long-term economic growth on income per capita is the U.S. economy. The US GPD per capita grew at a yearly rate of 1.8% between 1870 and 2000, resulting in an increase of 10 times, from $3,340 to $33,330 measured in 1996 dollars. However, reducing the yearly growth rate to 0.8%, the per capita rent in 2000 would have been $9,450, only 2.8 times the value of 1870, and the U.S. would be ranked in 45th position instead of 2nd out of 150 countries (Barro and Sala i Martin 2004).

Arguably, designing good faith competition markets is a natural mechanism to promote sustainable economic growth. Fair competition stimulates innovation, which is the main contributor to sustainable economic well-being.

#### 3. TAXES.

#### It fuels corporate tax avoidance (CTA)---results in reduced public goods, exponential inequality, AND fractured social financing.

Danielle A. Chaim 21, JSD, Columbia Law School, "Corporate “Flooding”: A New Theory of Tax Avoidance in An Era of Common Ownership," SSRN, September 2021, pg. 1-6. language edited.

In fact, one of the most significant enforcement challenges that the agency has failed to adequately address is tax avoidance by big corporations.3 Loosely defined, corporate tax avoidance is behavior that causes an explicit reduction in a firm’s tax burden4 by exploiting unintended weaknesses in the tax code.5 In recent years, the magnitude of corporate tax avoidance has reached an unprecedented level.6 Many of the largest companies in the country now take full advantage of dubious tax planning opportunities, reducing U.S. government tax revenues by more than an estimated $100 billion each year.7 In 2018, sixty companies on the S&P 500 stock index, including profitable giants such as Amazon, Delta Airlines, and General Motors, paid no federal taxes at all on an aggregate of $79 billion in corporate income.8 Indeed, the number of publicly held firms that zeroed out their federal income taxes has roughly doubled in the last few years.9

The documented surge in corporate tax avoidance has coincided with an increase in “common ownership”—the overlapping ownership of public corporations by powerful institutional investors—that has resulted from a shift in corporate ownership.10 In recent years, investors in capital markets have flocked to investment funds, particularly index funds, allowing institutional investors to grow large and become exceptionally concentrated. Institutional investors now own approximately 75% of the entire U.S. capital market,11 representing shares worth over $27 trillion.12 Many of these institutions own significant equity stakes in a large number of companies. In 2018, for example, the three largest asset management institutions—BlackRock, Inc., State Street Global Advisors, and the Vanguard Group (the “Big Three”)—had at least a 5% equity stake in 2,367, 2,051, and 183 public companies, respectively.13 Moreover, the Big Three are collectively the “single” largest shareholder in nearly 90% of the firms on the S&P 500 stock index.14

The growth in common institutional ownership is specifically linked to corporate tax avoidance. Indeed, recent empirical data reveal that increases in institutional ownership, particularly quasi-indexer ownership, which is a proxy for common ownership,15 lead to higher levels of corporate tax avoidance.16 These findings suggest that as common institutional owners accumulate shares in the public market, companies more aggressively reduce their tax liability through tax planning.

Against this background, this Article introduces the “flooding” phenomenon and identifies the essential role that common institutional owners play in facilitating flooding. I argue that increases in tax avoidance levels under common ownership both trigger and result from flooding, a practice whereby public corporations overwhelm the tax agency with tax returns that are controversial in terms of the number of tax positions being adopted and the aggressiveness of the tax planning strategies.

Given the IRS’s organizational structure—the filings of all public corporations are reviewed by a single division—the agency is soon swamped with an ever-rising number of noncompliant or overly aggressive returns. 17 And this situation is exacerbated by years of IRS budget cuts and ever-declining enforcement resources.18 Under these circumstances, the effectiveness of at least one of the audit stages (i.e., audit commencement, case development, or deficiency collection) is likely to be compromised. This, in turn, reduces the probability of future enforcement.19 The “flooding effect” is activated.

The flooding effect has significant adverse consequences. As this Article demonstrates, flooding reverses the traditional correlation between compliance and enforcement that is necessary for the tax system’s proper functioning.20 Moreover, because flooding reduces enforcement probability, it increases public companies’ target level of tax avoidance, which is the level that maximizes the expected utility of a company. 21 In other words, because a company knows that it is unlikely to be penalized, it is more likely to seek higher tax avoidance levels. This outcome creates an independent incentive for public corporations to increase their levels of avoidance, which results in an escalating cycle of corporate tax avoidance.

This Article argues that common institutional owners are the driving force behind the flooding phenomenon. Because powerful institutional investors now hold substantial stakes in many companies, they can wield their influence to affect the tax behavior of myriad companies. Thus, these broadly diversified shareholders have the capacity to induce a sufficiently large number of companies to pursue greater tax avoidance.22 This observation is important because it is only when enough companies participate in flooding that adopting higher tax avoidance levels becomes a profitable choice. In other words, aggressive tax behavior may not pay unless the IRS is overwhelmed and less likely to successfully contest aggressive tax avoidance behavior.

As this Article shows, several causal mechanisms can connect common ownership to higher tax avoidance levels, some of which do not entail direct communication between institutional investors and their portfolio firms.23 The ability to link tax savings to financial profitability, for example, demonstrates how flooding can be triggered at a relatively low cost. Simply increasing pressure on top management to deliver high earnings can lead to more aggressive tax behavior. Indeed, because there is ample empirical evidence that institutional shareholding is positively associated with a firm’s performance and rate of return,24 such a scenario seems highly plausible. Other causal mechanisms that potentially link common ownership and corporate tax avoidance, such as direct engagement with management and the creation of a tax transparent environment, are also explored. The various mechanisms illustrate how even characteristically passive institutional investors who have a relatively weak incentive to invest in stewardship can lead to an across-the-board increase in tax avoidance without investing many resources or acquiring firm-specific knowledge.

In introducing the flooding phenomenon and describing how common ownership distorts corporate compliance incentives, this Article makes four novel contributions. First, it demonstrates that when institutional investors are “owning it all,” they can mitigate idiosyncratic (firm-specific) risks, such as tax risks, that public companies face. Modern portfolio theory contends that since diversification reduces risk at every level of expected return, fully diversified investors in capital markets can smooth out idiosyncratic fluctuations in their portfolios. 25 The flooding phenomenon, however, illustrates that diversification reduces not only the idiosyncratic risk at the portfolio level but also at the individual company level. This is an important observation with far-reaching implications for twenty-first century corporate conduct.

Second, this Article reveals an overlooked pathway through which concentration in the U.S. capital market harms the economy. Flooding exacerbates the tax agency’s difficulties in regulating tax avoidance, allowing public companies to improperly avoid paying their fair share of taxes. And this, in turn, imposes negative externalities on communities. For example, governments are deprived of tax revenues that should have been used for the common good (e.g., education, social programs, and infrastructure repairs). In addition, when governments must cope with lower tax revenues, levels of inequality surge.26 A growing literature identifies the link between tax avoidance and inequality, acknowledging that tax revenues, necessary to address inequality, shift the tax burden to other taxpayers. 27 Moreover, since the asset management industry represents relatively high-income investors,28 wealthy individuals benefit most from public companies’ amplified earnings. The costs of tax avoidance, on the other hand, are borne disproportionately by lower-income individuals in their role as citizens consuming public services. The potential distributional implications of common ownership are therefore profound.

Third, in analyzing flooding and the role of institutional investors in facilitating flooding, this Article introduces a new type of agency capitalism problem. I suggest that the actions of the agents—the institutional investors— might be inconsistent with the political preferences of the beneficial owners of the shares. Specifically, although the beneficiaries may benefit from a company’s lower tax payments through higher portfolio returns, those same beneficiaries might hold social or political preferences besides maximization of profits.29 \*\*\*FOOTNOTE BEGINS\*\*\* In recent years, there has been a remarkable rise in Environmental, Social, and Governance (ESG) investing, a form of sustainable investing that considers not only an investment’s financial returns but also its overall impact. This trend proves that many investors in capital markets care about things other than portfolio value maximization. \*\*\*FOOTNOTE ENDS\*\*\* Such beneficiaries may prefer, for example, that companies pay their fair share of taxes.30 \*\*\*FOOTNOTE BEGINS\*\*\* See, e.g., Iftekhar Hasan, Chun-Keung Hoi. Qiang Wu & Hao Zhang, Does Social Capital Matter in Corporate Decisions? Evidence from Corporate Tax Avoidance, 55 J. ACCT. RES. 629, 630 n.1 (2017) (arguing that there is a widely shared societal belief that all citizens and corporations hold a civic duty to pay taxes, referring to an annual Taxpayer Attitude Survey which indicates that more than 90% of the taxpayers surveyed either completely or mostly agree that “it is every American’s civic duty to pay [their] ~~his or her~~ fair share of taxes.”). \*\*\*FOOTNOTE ENDS\*\*\* The welfare of the beneficiaries can only be maximized if those preferences are also considered, a result that is unlikely in the current intermediated economy, where the political preferences of beneficial owners are often muted.31 \*\*\*FOOTNOTE BEGINS\*\*\* Compare Oliver Hart & Luigi Zingales, Companies Should Maximize Shareholder Welfare Not Market Value, 2 J. L. FIN. & ACCT. 247, 251 (2017); Einer Elhauge, Sacrificing Corporate Profits in the Public Interest, 80 N.Y.U L. REV. 733, 740 (2005). A somewhat similar concern was also voiced in the context of tax avoidance by Professor Ilan Benshalom (Ilan Benshalom, Who Should Decide Whether the Apple is Rotten? Tax Disclosure and Corporate Political Agency, 6 COL.J. TAX L. 86 (2017)). In his article, Benshalom claims that the ownership structure of publicly held firms might give rise to what he calls a “political agency problem” as managers, maximizing value for their shareholders, tend to overlook the political preferences of their shareholders. \*\*\*FOOTNOTE ENDS\*\*\*

#### Pervasive income inequality reduces both institutional AND societal governance capacity---extinction.

Andreas T. Schmidt & Daan Juijn 21, Faculty of Philosophy, Centre for PPE, University of Groningen; CE Delft, Delft, "Economic Inequality and the Long-Term Future," Global Priorities Institute, Working Paper, No. 4, May 2021, pg. 13-16.

It is often argued that a country’s long-term performance depends to a significant extent on the quality of its institutions, including its political and legal institutions (Acemoglu, Johnson, and Robinson 2005). Economic research mostly focuses on explaining long-term differences in growth rates. As seen above, some researchers argue that high inequality will reduce growth rates, among other things, because it can worsen institutional quality. However, besides facilitating economic growth, public institutions have other functions that matter from a long-term perspective. For example, disaster preparedness, education, public health, foreign policy, science policy, and many other areas could influence long-term trajectories. If such things go badly, they could increase existential risk. Conversely, good institutions will help reduce existential risk. For many existential risk reduction strategies likely require public goods and collective action, which in turn require good public institutions (among other reasons, because some such public goods are unlikely to be provided by markets). So, it seems reasonable to assume that, with most other societal goals, good institutions can help deliver existential risk reduction. Here is a cheesy analogy: targeted actions like washing your hands regularly or getting a flu shot can reduce your risk of dying from an infection. But you will also do well investing in a strong immune system, as that is an ‘all-purpose goods’ in lowering your risk of dying from any bacterium or virus. Investing in good institutions might similarly be an all-purpose-good: rather than tackling individual sources of existential risk directly, we improve conditions for tackling whatever existential risks may come our way.

There are at least two reasons why higher inequality could decrease institutional capacities for long-termist public goods.

First, there is some direct evidence that, whatever the causal pathway, inequality reduces institutional quality (which in turn typically leads to more inequality) (Chong and Gradstein 2007; Savoia, Easaw, and McKay 2010).

Second, high inequality can lead to elite capture. Empirical work on studying political and de facto legal power is difficult, yet there is a growing consensus that high levels of inequality can lead to elite capture and thereby reduce the long-term quality of legal and political institutions (Acemoglu and Robinson 2008; 2013; Bartels 2018; Bavel 2016; Chong and Gradstein 2007; Cummins and Rodriguez 2010; Savoia, Easaw, and McKay 2010). Further, if institutions are disproportionately geared towards elite interests, then they might be less likely to be geared towards positive longterm trajectories. We might see more rent-seeking and less investment in public goods. Moreover, if elite capture is strong enough, such capture, and the potential inequality that comes with it, can intensify going forward (Chong and Gradstein 2007).

Now, one might object and wonder whether elite interests and longtermist interests will necessarily be misaligned. Could an enlightened elite not even be more longtermist than a more democratic system? Here are two potential arguments. First, wealthy donors fund a significant part of research and direct action on existential risk and longtermism (the Open Philanthropy Project, for example). Indirectly, inequality might thus reduce existential risk through such funding. Second, rich people might have a lower rate of pure time preference than less well-off people, which would make them more naturally aligned with investing in long-term causes.

In response to the first argument, remember we here focus on income inequality reductions. Private funding only requires ‘enough’ wealth inequality going forward, it need not require elite capture. And reducing income inequality is unlikely to eradicate the required wealth inequality and the existence of big donors. In response to the second argument, we are somewhat sceptical that elite capture would translate a lower impatience rate into longtermist strategies in policy. A successful transmission would require influence to be systematic and well-coordinated across time and, probably, across different elite actors. Yet lobbying and elite influence must often capitalise on shorter windows of opportunities, which makes well-coordinated intertemporal, and positive longtermist, policy capture less likely.

Of course, such considerations are speculative. But, in any case, we think that, on balance, there are stronger reasons to believe elite capture would increase – rather than decrease – existential risk. First, elite capture often comes with rent seeking, which lowers institutional quality (Chong and Gradstein 2007). Second, industries like oil, gas, weapons and others are often concentrated and well organised in exerting influence in law and legislation. Their interests and influence overall are likely to be more short-term than longtermist. Third, recent decades have seen a shift towards a stronger shareholder value orientation in corporate governance. A common criticism of this shift is that it incentivises more short-term decisions. Accordingly, corporate influence into public institutions will likely display short-termist bias too. Finally, we can of course imagine that ‘prolongtermist elite capture’ could happen and gamble on that possibility. However, if strong democratic and legal oversight and the power to check elite influence is lost, we might struggle to reverse our gamble.

Second, high inequality is likely to reduce social capital and trust (Alesina and La Ferrara 2002; Knack and Keefer 1997; Rothstein and Uslaner 2005). Social capital and trust in public institutions in turn are important for effective public goods provision (Knack and Keefer 1997; Beugelsdijk, Groot, and Schaik 2004). Effective public goods provision, in turn, is important for (some) effective measures to reduce existential risk (and, more generally, to coordinate towards more valuable long-term trajectories). Therefore, high inequality could reduce societies’ capacities to effectively respond to large-scale challenges like existential risk.

Finally, some limited direct evidence suggests societies with higher social capital and lower inequality exhibit better preventive and adaptive outcomes for environmental risks and can show greater resilience to external shocks (Bavel and Curtis 2019; Kahn 2005). For example, Matthew Kahn provides some evidence that more equal countries, when controlled for GDP, have significantly lower death rates in natural catastrophes (Kahn 2005). While smaller natural catastrophes are different from global catastrophic risk scenarios, resilience in such events might be somewhat indicative of societies’ resilience to catastrophic risks.

So, good social and institutional conditions could help reduce existential risk. Consider next how, conversely, bad conditions might increase existential risk. A key driver of existential risk is conflict, both between and within nation-states (or what (Ord 2020, 175–79) calls a ‘risk factor’). Conflicts and arms races raise human-induced existential risks such as nuclear war, the outbreak of a bioengineered virus or the launch of misaligned artificial intelligence. Note that an existential catastrophe could be set in motion either purposefully or accidentally. Both are more likely during conflict. Nuclear warheads, cyberweapons, and bioweapons could all be used purposefully to attack enemy states, leading to potential global escalation. But as past nuclear incidents and close calls during the Cold War show, arms races also increase the probability of accidental catastrophes (Schlosser 2013).

Esteban and Schneider find that formal and empirical evidence suggests that political and social polarization increases the risk of violent conflict, both intra-nationally and internationally (Esteban and Schneider 2008). If income inequality increases polarization, inequality may indirectly drive existential risk. Indeed, recent evidence suggests that income inequality can increase the degree of polarization between groups of citizens. Bonica et al. find that the degree of polarization within the US House of Representatives, for example, is accurately tracked by domestic income inequality, with correlation coefficients rising up to 0.95 depending on the chosen time-period (Bonica et al. 2013, 105–8). Of course, correlation does not imply causation and the correlation is likely at least partially the result of reverse causation or a confounding variable. That said, we should assign a non-negligible credence to inequality partially causing polarization. Moreover, inequality and polarisation might also play some role in getting polarising and populist candidates elected (Piketty 2018). In a preliminary analysis of US election data, Darvas and Efstathiou find that more unequal states were more likely to vote for Donald Trump, after controlling for variables such as income, race and education (Darvas and Efstathiou 2016). Populist politicians – like Trump, Bolsonaro and others – are likely bad news for existential risk reduction. They are less cooperative in delivering regional and global public goods and typically prefer riskier, and more conflictual and nationalistic policy styles.

(iii) Differential progress

We have surveyed some reasons why inequality might translate into worse institutional conditions for longtermism. Beyond more formal institutions and avenues for collective action, we might also consider the cultural, moral and informal social norms that could potentially impact existential risk.

The simple idea is that countries that sustain low levels of inequality will foster – and require for their support – a public moral culture that values solidarity and cooperation. More egalitarian policies might in turn move citizens and leaders towards more altruism and stronger regard to moral and social considerations in decision processes. Societies that actively work against income inequality may thereby reinforce broadly ‘pro-social’ social norms. Arguably, more egalitarian attitudes and norms might support public goods provision and favour expanding one’s moral circle to other countries and future generations. Countries with high levels of inequality, in contrast, might reinforce norms of competition, individualism, and personal responsibility. Policies that encourage competition and smaller moral circles also seem more likely to attract leaders that value individualism and competition. Indeed, as Wilkinson and Pickett note, more equal societies give more in development aid and score better on the Global Peace Index (Wilkinson and Pickett 2010, 227). Again, we may wonder whether these relationships are not partially explained by confounding variables or reverse causality. That said, the causal link through social norms and public morality has some intuitive force. If true – and drawing on what we said above – a public commitment to equality might support a public moral culture that values solidarity and cooperation, which could help reduce existential risk.17

A related idea is that egalitarian societies might provide better conditions for differential progress (Tomasik 2015). The thought is that new technologies often pose a risk when they become available before society has developed the collective ‘wisdom’ to use them well. Technology should not develop too fast relative to progress in wisdom. Consider artificial intelligence for example. Bostrom argues that once artificial intelligences (AI’s) outsmart humans in AI-creation, systems might iteratively improve themselves and potentially set in motion an intelligence explosion (Bostrom 2014). Quite quickly, it might become difficult to control AI and align it with our interest. Such a scenario, if it happens, is still some time away. However, if we do not develop collective wisdom first, it might be too late by the time superintelligent AI arrives on the scene. Similarly, we are probably still many scientific breakthroughs away from bio-printing engineered viruses or creating nanotechnology with catastrophic potential. Still, differential progress mandates that we set up institutions that ensure terrorists cannot bio-print the next Spanish flu before breakthroughs in genetics and engineering technically enable them to do so.

But what goes into the wisdom side of differential progress? Minimally, it requires effective institutions, values, and empirical insight and understanding. We have argued that equality might help strengthen the public institutions required for effective collective action to reduce existential risks. But society and the institutions governing it might also require public commitment to values conducive to longtermism. A commitment to equality and cooperation, and the norms required to sustain such a commitment, might help. Together then, equality could improve differential progress.18

### 1AC---NEW

#### Contention 2 is the EU.

#### Horizontal shareholding causes a crowd-out of innovative generic development in the French pharma sector.

Antonio Estache & Christophe Kieffer 21, Professor, Economics, Université libre de Bruxelles; Economist, Luxembourg Chamber of Commerce, "Does Common Ownership Influence the Financial Strategy of the French Pharmaceutical Firms?" ECARES, Working Paper, No. 9, April 2021, pg. 3-4.

We investigate market structures and levels of CO in the main high-turnover product markets of the sector. We focus specifically on the markets for: (i) pain treatment, (ii) blood glucose monitoring, (iii) digestive health, and (iv) respiratory tract infection treatment. Considering only a global view of the sector would not do justice to the extraordinary diversity and complexity reflected in its myriad of niche markets. For each of these niche markets, we document the financial performance effects of CO. More specifically, we look at the correlation between on the one hand CO and on the other hand, return on assets (ROA), return on equity (ROE) and debt to asset ratio (D/A). We rely on a basic statistical correlation analysis, refined with a simple econometric treatment of the data panel allowed by the information collected on the 4 markets for the 2013-1019 period. Considered jointly, the results of these tests provide a first order indication of the impact of CO on the degree of concentration in each business line as a driver of the level of returns and of changes in the financing strategy of the firms.

These results suggest that CO appears to be correlated with the degree of concentration in some pharmaceutical product markets in France but not all of them. They also show that increases in the degree of concentration associated with CO can be correlated with the evolution of some of the financing decisions of “Big Pharma” firms in that country but not all of them. While these are preliminary insights limited by data availability, they are statistically robust enough to raise concerns that should be of interest to regulators and competition agencies in France, confirming those raised by similar experiences in other countries for this sector. The main related policy concern is the possibility that the financial indicators could be associated with a reallocation of resources towards activities favouring less the health concerns of the sector than short term financial returns concerns of key owners.

Section 2 provides a brief survey of the global evidence available on some of the main effects of the growth of CO in the pharmaceutical sector. Section 3 describes the French pharmaceutical sector and discusses the characteristics necessary to assess the risks of CO. Section 4 summarizes the main methods available to assess concentration in a market, distinguishing the tools available accounting to whether CO is accounted for or not and showing how the complex approaches relied upon to account for CO can be simplified without much loss of information. Section 5 reports the various measures of concentration for four key pharmaceutical products in France. Section 6 analyses the correlation of these measures with various financial performance indicators. Section 7 concludes.

2. Evidence on the effects of CO in “pharmxa” markets and its limitations

The academic evidence on the effects of growth of CO in the pharmaceutical industry has so far had a relatively specific focus.3 The impact on market entry of generic drugs and on the incentive to innovate have concentrated most of the attention as they are both crucial to push healthcare costs down while the demand for healthcare is expected to follow an upward trend for the foreseeable future. The analysis of this evidence has also proven to be useful to show that regulation can influence the margin firms have to restrict entry otherwise enjoyed by incumbents.

For instance, Branstetter et al. (2016) find that limiting this margin can reduce the market revenue of brand firms of up to 90% and drastically curtail overall profits. JacoboRubio et al. (2020) add that the extent to which regulation controls the importance of vested interest in incumbent firms by shareholders of generic manufacturers can impact entry decisions. Newham et al. (2018) find that a regulation allowing a greater degree of ownership overlap, at the firm as well as market level, leads to a decline in the probability of generic entry by as much as 13%. Xie and Gerakos (2020) argue that generic firms in the US are more likely to conclude a settlement agreement with the brand-name companies in which they postpone their market entry, if horizontal shareholdings (i.e. CO) among them are significant.

Some of the empirical evidence has also focused on the effects of CO on prices and it is generally quite coherent across papers. For instance, Dave et al. (2017) find a strong linkage between levels of market concentration and hikes in generic drug prices. Much less research has been conducted on its impact on the financial performance of any of the firms of the sector. A recent exception is Fernandez and Klinge (2020) who find that many firms are able to obtain aggregate returns on equity of 20 to 50%. Profit margins hovering between 10 and 20% are commonplace but a large part of these profits flows to the shareholders rather than being reinvested in the development of new drugs.

#### That effect is significant.

Antonio Estache & Christophe Kieffer 21, Professor, Economics, Université libre de Bruxelles; Economist, Luxembourg Chamber of Commerce, "Does Common Ownership Influence the Financial Strategy of the French Pharmaceutical Firms?" ECARES, Working Paper, No. 9, April 2021, pg. 21.

At a more technical level, we show that the failure to account for CO leads to an underestimation of market concentration by the time-honoured HHI. This is seen in the comparison with both the MHHI and the AHHI. The two measures converge when market concentration increases but the ∆HHI is less prone to volatilities in the assessment of the impact of CO on concentration than the MHHI.

At the policy level, the positive and statistically significant relationship between market concentration and ROE and D/A suggests that leading pharmaceutical manufacturers (in particular those operating in highly concentrated markets) have been shifting overtime towards a more leveraged business model aimed at creating shareholder value. But more importantly, the results also suggest that CO has been a factor to account for in this process.

#### An innovative ecosystem secures French health leadership.

David Meek 18, CEO, Ipsen, "How France Can Leverage Its Attributes and Deliver on Its Full Potential," Ipsen, 10/23/2018, https://www.ipsen.com/how-france-can-leverage-its-attributes-and-deliver-on-its-full-potential-david-meeks-address-7th-series-of-g5-sante/.

It’s clear to me that to best leverage France’s existing pharmaceutical ecosystem and deliver the most value to patients we need faster access for patients to innovative products, and additional regulations and financial support to a more and more challenging clinical development process.

As I’m constantly reminding my teams at Ipsen, patients don’t have time to wait. While there’s no doubt France excels in the area of fast access to innovation for patients, there’s so much more we can do. For example, measures such as the Temporary Authorization for Use strongly benefit select patients by authorizing the exceptional use of a drug that has not yet been approved. Established measures like these should be well reinforced and expanded especially when submitting a new indication for a drug.

The current timing to market access for innovative products is just too long in France, compared to the United States and other European countries. Here, it’s an average of 530 days, which is well above the 180 days in the European Directive and far longer than the 66 days in the UK and 45 days in Germany. We can and must do better than this for patients!

Another area for improvement is the need to significantly boost the innovation pipeline by fostering a holistic ecosystem for start-ups and biotechs. While start-ups in the biotech space benefit from robust early-stage funding, additional investment is clearly lacking from VCs.

In fact, France ranks third in Europe for venture capital funding. As a result of this, many companies leave France for the US to secure additional funding. This is a big problem and one that threatens our place on the world stage as a global pharmaceutical player.

Like other innovation-driven companies, Ipsen provides capital for start-ups and biotechs. For example, we recently invested in InnoBio 2, following our investment in the InnoBio 1 venture capital fund in 2009.

That said, this is not enough. The industry needs a better partner in the government. The French government should be more-forward looking to drive an innovation agenda to create a sustainable ecosystem and to improve healthcare. The governments around the world play an important role in the ecosystem.

Governments should be asking stakeholders what other countries are doing to accelerate the process of becoming an innovation hub. What more can this country do to help us bring new innovative therapies to patients?

In the US for instance, it’s becoming standard practice to create industry panels that have a cross-section of industry, FDA, payers, academia and advocacy. And I’ll give you a very concrete example of this. On October 11th, we had the pleasure of opening the doors to our expanded US headquarters in the heart of the Massachusetts biotech cluster, Kendall Square and welcome over 120 members of the local life sciences community to the Ipsen Partnering Day. Our goal was to share our vision, strategy and focus on external innovation with potential future partners. The event was co-hosted by the Massachusetts life science trade association, MassBio and attendees included biotech leaders, venture capitalists, academia, university technology transfer offices and other members of the biotech community.

The infrastructure in France differs from the one in the US. Although one could argue that it’s the ambition of Paris-Saclay to be a world-class biopharma hub combining academia, biotech and VCs. This is a right first step but beyond infrastructure, we need to adopt an ecosystem mindset. A healthy ecosystem requires us all to share common goals and partner to feed the innovation agenda.

I think there’s an outdated cultural mindset that doesn’t see the value of a healthy ecosystem. Rather, it claims that research is produced using public funding, then privatized and sold back to the public making massive profits for private companies.

I also want to highlight the outrageous amount of red tape related to clinical development in this country. One of the objectives of the Strategic Council for Healthcare Industries (CSIS) is to accelerate the clinical trial authorization timelines and reduce the lead time to market.

On the positive side, there are many things we can do to improve and build a strong cross-functional ecosystem similar to what we see in markets like Boston, San Francisco, and Shanghai.

As an American in Paris and the leader of Ipsen, I’ve made it both a personal and professional commitment to work with the French and Boston biopharma communities. I was a speaker at the first two Paris Boston Biotechnology Summits, the first at the Pasteur Institute and the second in Boston last June.

I believe we can all learn from one another and that this kind of exchange with world-class biotech communities can fuel France’s leadership to deliver innovative therapies and improve patients’ lives.

Our remit is to make patients our priority. This is where our government needs to step in as a trusted partner to help achieve this on our own ground first. If we can deliver on this, my outlook for France on the global stage is optimistic.

And it would appear the stars are aligning…

This July, the CSIS highlighted the strategic importance of the healthcare industry for the French government. I followed this with great interest. For me, this meeting stood apart from the rest as its vision is clear: to regain France’s global healthcare leadership position. However, the recent announcement regarding new savings of about 2 billion euros on healthcare products is not the way forward. This is detrimental to the innovation industry and its capacity to maintain a fertile environment.

The G5 wants to play a key role in monitoring the CSIS measures and to measure its effectiveness. We’ll provide continued support to Jean-Luc Bélingard, Chairman of the Healthcare Industry Strategic Committee (CSF Santé) and Head of the CSIS Monitoring Committee.

In the current Brexit environment, we’re well placed to reposition the role and remit of the French National Agency for Medicines and Health Products Safety (ANSM). Brexit has sidelined the United Kingdom. Its leading role in new drug evaluation in Europe has collapsed.

Consider this: in 2016 the UK evaluated 22 European applications, positioning it top of the European ranking. In 2017, that number shrank to a mere 6. So, there’s a clear opportunity to position ANSM in Europe.

France’s leading scientific expertise means it has the potential to fill the global leadership spot in Health Tech. But, we all must adapt beginning now.

#### French health leadership is necessary to increase global access to novel treatments.

Tara Ornstein 18, Multilateral Advisor, Public Health Institute, U.S. Agency for International Development, "Soft Power and Global Health Diplomacy: The Rise of France," USC Center on Public Diplomacy, 09/04/2018, https://uscpublicdiplomacy.org/blog/soft-power-and-global-health-diplomacy-rise-france.

France has experienced a meteoric rise to become a world leader in soft power—topping the 2017 Soft Power 30 ranking. As defined by Joseph Nye, soft power is the ability of a country to influence the actions of others without force or coercion. France’s influence is perhaps most prominent in global health, which overlaps with international security, economics, politics and human rights. Since 2000, France has played an active role in the development of key global health initiatives and led multilateral efforts to provide health-related assistance. France’s funding for health-focused development assistance increased threefold between 2002 and 2013. In particular, France assumed a leadership role in global health governance, worked to safeguard global health security through effective responses to epidemics and elevated the threat posed by climate change to a global health priority.

Multilateral Leadership and Global Health Governance

France channels most of its funding for global health through multilateral organizations, including the GAVI Alliance, World Health Organization (WHO), Unitaid and the Global Fund. In May 2018, France announced that it would host the sixth replenishment conference for the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund) in 2019. The replenishment conference aims to raise new funds and mobilize partners to eradicate the three diseases by 2030. Held once every three years, the conference convenes leaders from governments, civil society, the private sector and communities affected by the three most devastating infectious diseases. According to the Global Fund, France is its second-largest donor, having provided the organization with more than €4.2 billion since 2002.

As one of the founding members of the organization, France has contributed substantially to the design of the Global Fund in many ways. Today, France continues to guide the work of the Global Fund through its participation in the organization’s board as well as its strategy and audit and finance committees. Using its broad diplomatic network, France helps more than 35 countries achieve the goals set out in their Global Fund grants by serving as an active member of these countries’ Country Coordination Mechanism, a national committee that oversees the submission of funding requests to the Global Fund as well as the implementation of grants. Since 2011, France has allocated approximately €18 million per year to the Global Fund to provide countries with technical assistance through the “5% Initiative” for IDS, TB and Malaria. In 2017, France increased the proportion of funds set aside for technical assistance from five to seven percent.

In 2006, France introduced a tax on all flights departing from French airports and, since then, this tax has collected more than $2.5 billion to finance innovations in the fight against HIV/ AIDS, tuberculosis and malaria. The French government successfully designed the tax to limit its impact on the competitiveness of the airline industry and on France as a destination. In the years following the launch of the tax, France has remained the world’s top tourist destination—welcoming more international visitors than any other country. More importantly, Unitaid—the organization that receives the funds from this tax—has made it possible for eight out of ten children with AIDS worldwide to receive treatment, 345 million anti-malaria treatments to be distributed globally and two million tuberculosis patients to obtain treatment. Unitaid has also been able to reduce the price of HIV/AIDS drugs for children by 80 percent and for adults by 60 percent, the price of a new drug against malaria by 85 percent and the price of tuberculosis tests by 40 percent.

Global Health Security and Epidemic Response

After the H1N1 outbreak in 2009, France took stock of all of the challenges that hindered its response and launched the REACTing initiative (REsearch and ACTion targeting emerging infectious diseases) to improve research preparedness in the absence of a crisis and optimize research capacity during a crisis. REACTing is a national collaborative network of organizations and research groups that cover public health-related fields. REACTing strengthens its collaboration with low—and middle—income countries and serves as a single point of contact for international organizations. At the height of the 2014 Ebola epidemic in West Africa, REACTing mobilized a multidisciplinary team of experts that assessed the epidemic, addressed key research issues and defined the research priorities. The team launched several projects in less than two months, which provided important information on diagnosis and treatment among other topics.

A year later, REACTing convened experts and local stakeholders in Martinique, Guadeloupe and French Guiana to address key research issues surrounding the Zika outbreak, including the association between Zika virus infection and microcephaly. A profile of the French government’s response to the 2016 Zika outbreak described how the country was able to rapidly mobilize all required expertise and strengthen specific aspects of its healthcare system.

In May 2017, France expressed serious concern about the spread of cholera in Yemen, which suffered the world’s worst outbreak in modern history. In addition to calling for a political solution to the conflict, France donated €2 million to provide emergency assistance to the people of Yemen. Five months later, France hosted an international meeting in which governments, WHO, aid agencies and donors pledged for the first time in history to prevent 90 percent of cholera deaths by 2030.

Climate Change and Health

France has also used its diplomatic strength to bring controversial issues to the forefront of global health. For example, France has led the international community in defining climate change as a serious threat to health. According to WHO, climate change affects the social and environmental determinants of health—clean air, safe drinking water, sufficient food and secure shelter. WHO projects that climate change will cause approximately 250,000 additional deaths per year, from malnutrition, malaria, diarrhea and heat stress between 2030 and 2050. In addition to the loss of life, climate change will also have severe financial consequences. Recognizing the magnitude of the threat posed by climate change, France has made combating climate change one of its top diplomatic priorities.

Prior to the establishment of the Paris Agreement, the French government laid the groundwork by organizing meetings with various governments and collaborating with think tanks and international organizations to generate ideas for combating climate change and preventing the worst consequences. In December 2015, France led the negotiations that resulted in the Paris Agreement, an international binding treaty that 196 representatives signed during the 21st Conference of the Parties of the United Nations Framework Convention on Climate Change (UNFCCC) in Paris. In July 2017, one month after U.S. President Donald Trump announced his intention to withdraw from the agreement, France’s environment minister, Nicolas Hulot, announced France’s five-year plan to ban all petrol and diesel vehicles by 2040. Hulot also stated that France would no longer use coal to produce electricity after 2022 and that up to €4 billion will be invested in boosting energy efficiency. In partnership with the United Nations and World Bank, France hosted the One Planet Summit in Paris in December 2017.

Because no one country can protect the health of its people on its own, the ability to bring various stakeholders together and come to a consensus is a prerequisite for mitigating health-related challenges and saving lives. France’s example shows that soft power can be the key to improving global health outcomes.

#### Results in widespread distribution---solves numerous existential risks.

Barbara Teixeira et al. 21, PhD, Political Science, Lund University; David Alexanderson, BA, Political Science, Lund University; Mimmi Shen, BA, Political Science, Lund University, "In Peripheral Sickness and in Core-like Health: An Explorative Case Study Analysis of the COVID-19 Pandemic using World-Systems Theory," Lund University, Spring 2021, pg. 3-23.

Generics, drugs equivalent to originally patented pharmaceuticals, are produced at substantially lower prices than those made by originator companies thus allowing treatment of those otherwise unable to pay, and the importance of generic drugs, especially from India, in combating HIV cannot be understated. India’s sizeable generics industry produced over 80% of antiretroviral purchased (Waning et al. 2010), over 80% of HIV medicines used by Médecins Sans Frontières (MSF) and has helped reduce the cost of such medicines by 99% since 2000 (MSF 2015); thus, being dubbed “the pharmacy of the developing world”.

1.2. Purpose and research question

Unequal distribution of medical goods is a recurring problem during global health crises. Initiatives for global cooperation are argued by many to be the most efficient way to end a global pandemic, quickly. However, the tendency of HICs to hoard medical resources during times of crisis makes global health inequity and its associated, far-reaching consequences inevitable. The purpose of this paper is thus to understand and problematize the unequal distribution of medical resources during a global health crisis by analyzing the Covid-19 pandemic. To understand this problem, we have chosen to use the theoretical framework of World-Systems Theory (WST), which will give us a perspective of how the world is systematically structured and its effects on how countries and international actors act on the global arena. The findings from our study could in a broader spectrum contribute to the body of research in IR pertaining to global health, particularly political patterns during global health crises. The analysis in this paper could also complement existing research in this field, by the contribution of a new angle of approach through WST.

The research question for this paper is thus:

In a global context, how can inequitable access to medical resources be understood and problematized through World-Systems Theory?

1.3. Previous studies

Previous research in this field of International Relations (IR) has mostly involved studies about the phenomena of vaccine nationalism.

Bollyky and Brown (2020) have done a thorough explanation and problematization of vaccine nationalism, where they shine light on the phenomena as a hindering factor for an effective distribution of vaccines. The “my country first” approach these richer states have had during past and current global health crises have been problematized with the reasoning that it disfavors all countries (Bollyky–Brown 2020). States who acquire vaccines in excess gain diminishing utility since increased immunization lessens the need for additional vaccines; every vaccine decreases the rate of total infection until the population reaches “herd immunity” which is generally thought to be an immunization rate around 70%. These explanations in their article can also be supported by statistics from other studies that show that the remaining states are subsequently not able to immunize their own population – which make up most of the global population – and thus the world suffers a death toll up to twice as high and potentially a loss of trillions of dollars in economic activity due to inequitable vaccine distribution (Chinazzi et al. 2020; Çakmaklı et al. 2021). Moreover, in their article, Bollyky and Brown (2020) further problematizes the phenomena of vaccine nationalism by drawing parables to the H1N1 virus (more commonly known as Swine flu) pandemic. As this article was published at the beginning of the Covid-19 pandemic, the main emphasis was put on the importance of states to not act accordingly to the phenomena of vaccine nationalism for this pandemic, as they had during previous ones.

Another study on the inequitable access of vaccines during the H1N1 pandemic is the one done by Fidler (2010). Emphasis is placed on the difficulties of negotiating equitable access of influenza vaccines, due to HICs prioritizing their national self-interests. The emergence of a more severe influenza strain, like the H1N1 virus in 2009, evidently did not lead to collaboration being favored over nationalism. The article concluded that nationalistic behavior will continue to make the diplomatic endeavor of vaccine equity difficult in future crises.

This paper will be one of the first attempts using WST to propose possible causes and driving factors of vaccine nationalism, and in turn the inequitable distribution of medical goods during a global health crisis. Previous research and studies in IR pertaining to global health, as well as the thorough explorations of the phenomena vaccine nationalism, aids this paper by establishing a theoretical foundation from which further research can be done. The fact that this area of study about global health equity, despite some previous research, still contains significant knowledge gaps provides legitimacy for the interdisciplinary aim of this study.

2. Theoretical framework

2.1. World-Systems Theory

Immanuel Wallerstein’s theoretical approach diverges from traditional IR-theories in several aspects. Primarily by analyzing the world-system – instead of states – which is understood through structural time or longue durée with inspiration from the Annales School (Wallerstein 2004, 18- 19). Additionally, the international system is not interpreted through the traditional lens of anarchy, instead the world-system in the form of a capitalist world-economy, which divides the world’s states into core and periphery, gains explanatory primacy for patterns and processes of the international system.

The world-system and world-economy is not understood as a system or economy of the world, but as worlds in and of themselves whose extent are limited within a spatial and temporal zone within which activities and institutions are subject to systemic rules (Wallerstein 2004, 16- 17). Indeed, there have been previous world-economies, but this modern one has survived the longest (since the 16th century) and thrived. Exactly because it has become fully capitalist (Wallerstein 2004, 17). This modern world-economy is understood to be a large geographic zone (which expands and contracts) containing a division of labor and thus exchanges of goods as well as flows of labor and capital. No unitary political structure exists within the world-economy, instead this zone cuts through several political and cultural units (e.g., states and nations) and while common patterns can be observed (geoculture), the structure is mainly unified by the division of labor which is constituted within it (Wallerstein 2004, 23).

Capitalism in WST is understood as neither the mere existence of production for the purpose of profits nor the existence of wage-labor. Instead, it is when the system gives priority to the endless accumulation of capital that it is deemed capitalistic, and the system “gives priority” through structural mechanisms that penalize actors motivated by other goals than profit, eventually leading to elimination (Wallerstein 2004, 24). The opposite is also true as profit-seeking actors are rewarded for this behavior and enriched if successful.

In principle this capitalist system operates upon a virtual free market, yet in practice this “free market” does not exist due to capitalistic profit-seeking and desire for accumulation. High competition, unrestricted flows and perfect information would in fact run counter to the incentives of accumulation since consumers would negotiate to the point that any profit made would be miniscule (since the cost of production is known and the producer can be replaced if needed) which would remove “the basic social underpinnings of such a system” (Wallerstein 2004, 25-26). For the purposes of accumulation monopolies are preferred over competition since a wide profit-margin is thus made possible. However, perfect monopolies are highly difficult to create and maintain; thus, quasi-monopolies are pursued as the preferred method for accumulation of capital.

State interference is essential for the creation of quasi-monopolies, of which several mechanisms exist, the main one being the system of patents which leads to oligopolies of patented but similar leading (new and constitutes an important share of the market) products. Perfect monopolies would be preferable for the purposes of accumulation, but oligopolies still suffice for the realization of high rates of profits since there is a shared desire to minimize price competition, even to the point of collusion. Other state interferences are protectionist policies, subsidies, tax benefits and large-scale public purchasing (often over market prices). These quasi-monopolies are unstable as products become more competitive (i.e., less profitable) and then replaced by new leading products and/or industries, but during their life-cycle considerable capital is accumulated and moved to new quasi-monopolies in a perpetual cycle (Wallerstein 2004, 24-26). State interference also accounts for significant costs not internalized by private firms such as costs of toxicity (e.g., industrial waste, ecological damage), costs of material exhaustion (e.g., deforestation, overfishing) and costs of transport (e.g., infrastructure, roads, bridges).

he unifying division of labor in the world-economy thus creates core-like and peripheral products that differ in degree of monopolization (Wallerstein 2004, 28). Core-like products are controlled by quasi-monopolies and can generate large profits while peripheral products are highly competitive and surplus-value flows from producers of peripheral products to the producers of core-like products. Thus, it also flows from weak states (periphery) to strong states (core) that can facilitate and enforce quasi-monopolies and benefit from unequal exchanges (Wallerstein 2004). Furthermore, this flow includes the transfer of products and processes as quasi-monopolies are self-exhausting (become increasingly competitive) at which point new leading products or industries replaces it; core-like processes become peripheral, and the geographical shift reflects this as products and industries downgrade from core states to the periphery (Wallerstein 2004, 29).

This is the natural pattern in the world-system, but not a passive process. While capitalism as defined above leads to the creation of quasi-monopolies there are two main anti-monopolistic mechanisms. Since one producer’s monopolistic advantage is another’s loss there will always exist opposition that eventually dissolves the monopolistic advantage by either (i) engaging domestically by appealing to free market doctrines and supporting anti-monopoly actors or (ii) engaging internationally by persuading foreign states to defy world-market monopolies (Wallerstein 2004, 26-27).

Core and peripheral processes occur in all manner of countries, but accumulation also leads to these processes being concentrated in various states. As quasi-monopolies are dependent on the power of the state, and there is an incentive to keep such monopolies within one’s state, the result becomes stronger states being able to promote their own interests and thus retain core processes within themselves while giving weaker states peripheral processes. Such a configuration leads to the perpetuation of the system: enriching the core and depriving the periphery of both wealth and ability to change the system. Thus, the system and status-quo are highly stable, explaining its achievement of surviving for centuries (Wallerstein 2004, 28).

WST regards these processes, core and peripheral, as the fundamental explanatory factors regarding the hierarchy and configuration of the world order and its states. Within this framework, states are perceived as basic units differing significantly only in the proportion of core and peripheral processes that they contain and maintain within themselves. The Global North is understood to have been the historical recipient of global surplus-value flows not due to any internal factors such as cultures or economic/political structures that are ‘superior’, but due to its initial establishment and subsequent maintenance of core processes in the North and peripheral processes in the South. Thus, the Global North and South is understood as having a core-periphery relationship. All states contain both processes to varying degrees, but core states contain a disproportionate share of core-like processes and vice versa while states with a relatively even mix are regarded as semi-peripheries (Wallerstein 2004, 29).

The role and ability of a state within the modern world-system depends on the proportion of processes it contains within itself: whether it is a core, periphery, or semi-periphery state. Core states prioritize the protection of their profitable quasi-monopolies, periphery states more or less have to accept their position and the resulting outflow of surplus-value created in the worldeconomy. Semi-peripheries have a more complex role of resisting the pressures and demands of the core while applying them to the periphery in the struggle to become core states (Wallerstein 2004, 29). This is done through extensive state interference in the form of protectionist policies that shield domestic firms from international competition, support the improvement of these firms and promote the relocation of former leading products into the country from core states (Wallerstein 2004, 29-30). This is done despite the interest of the core due to semi-peripheries being ‘strong’ enough to resist core pressures, which periphery states are incapable of doing.

The strength of states is an important factor for interpreting and explaining state behavior. It seems obvious that states vary in strength on the international arena: The US is stronger than Uganda; Nepal weaker than the Netherlands. Yet the exact meaning of such strength must be expanded upon, which Wallerstein does by describing it as “the ability to get legal decisions actually carried out” (Wallerstein 2004, 52-53). The decisions made by a state would thus result in compliance proportionate to its strength. An example would be the percentage of taxes levied that are collected which would be low in a weak state due to a weak bureaucracy whose inability to gather funds consequently leaves it less capable to strengthen itself or perform other tasks both domestically and internationally (Wallerstein 2004, 53). State strength is also indicative of the state’s ability to establish and enforce its sovereignty, the modern state’s essential trait, and monopoly of legitimate violence (Wallerstein 2004, 42). Effective control of the country by a strong state means the inability (and unwillingness) of local actors or military forces to challenge state authority. Such control is not dependent on one having the ‘right’ policies, instead effective control is dependent on core processes that can constitute a tax base to fund the strengthening of the state structure; peripheral states that lack such processes are disadvantaged and find themselves in precarious situations where corruption is incentivized, and coups are significant threats (Wallerstein 2004, 53).

In addition to these material prerequisites, Wallerstein describes nationalism as “perhaps the most crucial” status-group identity for the maintenance of the modern world-system (Wallerstein 2004, 54). Nation-states are perceived as an ideal towards which all states aspire, even those who have highly diverse populations and claim to be “multi-national” such as the US (Americans), Canada (Canadians), Switzerland (Swiss) and the Soviet Union (Soviets). By turning “citizens'' into “nations”, states improve the effective control of their territories and production processes within: nations are socially constructed with states playing a central role in their creation (Wallerstein 2004. 54). One might then describe the modern state as nation-states and the primary identity of these as their respective state-nations.

States exist within an interstate framework meaning that strength is not only measured as the ability to exercise authority internally such as described above (internal strength), but also as the ability to affect, resist and coerce other states in the competitive environment of the worldsystem. External state strength is thus relative and – even though all states are supposedly sovereign – allows stronger states to more easily intervene in the affairs of weaker states to reinforce core-periphery linkages and promote their own interests. Such linkage reinforcement is done in multiple ways such as: imposition of uneven trade flows, promotion of certain cultural practices, pressure to install amenable individuals into power and pressure for weak states to follow the lead of strong states in international affairs (Wallerstein 2004, 55).

All states wish to become stronger for greater autonomy and ability to improve one’s own condition, yet some states have at different times reached such high levels so as to be described as dominant and having obtained hegemony in the world-system; the latest one being the US since the mid-twentieth century (Wallerstein 2004, 57). Hegemonic powers have extraordinary capabilities to affect international politics by establishing the rules of the interstate system, allowing them to dominate the world-economy, achieve political goals with minimal force and affect the language used to discuss the world (Wallerstein 2004, 58). Hegemony is however a quasi-absolute power and – just like quasi-monopolies – is self-exhausting as surrounding states become increasingly ‘competitive’, the power difference diminishes to the point of insignificance and rivals start challenging the hegemonic power in the hopes of replacing it and thereafter reaping the rewards (Wallerstein 2004, 58). All the while capitalist enterprises benefit and thrive under the rule of changing hegemonic powers (Wallerstein 2004, 58-59).

This world-system has existed for centuries, the longest of any world-system, yet it also has a finite lifespan. World-systems eventually encounter problems that are impossible to solve within its own framework, thus constituting a systemic crisis which can only be resolved by and result in the establishment of a new world-system formed by the collective actions of all involved parties (Wallerstein 2004, 77-78). Wallerstein argues that the modern world-system is undergoing such a crisis due to the increase of production costs (i.e., remuneration, inputs, taxation) and the disillusionment with old antisystemic forces (Wallerstein 2004, 83-84). Exactly when this crisis truly started will be hotly debated, but Wallerstein proposes the world protests of 1968 as an important point in history, due to their failure. These explosive protests lead to little change despite antisystemic movements (e.g., workers rights, gender equality, anticolonialism) finally having come to power: the optimism of the oppressed – a crucial stabilizer of the world-system – is now gone (Wallerstein 2004, 84-85). Creeping improvements no longer suffice; the capitalist world-economy can be relied upon no longer by the exploited and neglected to truly improve their lives.

In response to 1968 there was an Establishment attempt to address the problem of production costs by reversing the trend in all three components of cost: remuneration would be lowered, costs of inputs re-externalized and taxation for the welfare state (which funded education, healthcare and income guarantees) reduced. Globalization replaced developmentalism with the International Monetary Fund (IMF; alongside the World Bank) and WTO enforcing the “Washington consensus” through structural adjustment programs; reducing global production costs (with significant social impacts) but not enough to end the profit squeeze threatening the world-economy (Wallerstein 2004, 86). These trends in production costs (i.e., decreased profitability in production) have also led to increased activity in financial speculation as capitalists seek new ways to profit and accumulate capital, which has worked for a limited set of actors but has rendered the world-economy increasingly volatile and chaotic (Wallerstein 2004, 86).

3. Method and material

3.1. Case Study method

This paper will utilize a qualitative case study research method as defined by Yin (2014, 16). The chosen method is motivated by Yin (2014) as a case study method is described to be the most preferred method for research questions beginning with “how” and consequently have the characteristics of being explanatory. A case study method is also motivated to be more beneficial than other research methods when the focus of the study is to analyze a contemporary phenomenon (Yin 2014). As the purpose of this paper is to shed light on as well as problematize the unequal distribution of medical goods during global crises, by specifically looking at the Covid19 pandemic as a case, utilizing a case study method is therefore suitable. The choice of conducting a single-case study is further motivated when the purpose of a study is to be theory consuming (Esiasson et al. 2017, 42). Due to the lack of previous studies in the discipline of IR in the context of global health, an exploratory approach is justified and will contribute to the discipline’s recent entry into a new field of research.

Moreover, utilizing WST would also be an academic contribution as this is a scarcely used framework. This paper will have the approach of being theory consuming and aim to utilize this theoretical framework to find explanatory factors, as well as deepening our understanding of the problem of inequitable access to medical resources during crises in a global context. Operalisations and definitions of key concepts within WST will be applied to our chosen case. This analysis will rely on these concepts to assess the unequal distribution of vaccines during the Covid-19 pandemic. Although results from a case study are commonly said to be harder to generalize, we see potential for our study’s results to be reproduced under similar conditions.

3.2. Case selection

To adequately answer our research question this paper will use the Covid-19 pandemic as a case of inequitable access of medical resources during a global health crisis. This choice of case is done mainly due to the fact that the Covid-19 pandemic is the most recent global health crisis we can observe, where unequal distribution of vaccines is an evident problem. The Covid-19 pandemic is prevalent in our daily lives as of now, and thus it is a very socially relevant topic of discussion. It is also highly relevant from an analytical perspective as one could possibly generalize the conclusions to fit previous pandemics, as well as future ones. Even though this pandemic has its own unique qualities, in a broader spectrum, it can be a representative case of the political patterns for how global actors and states react during times of a global health crisis. Since these political patterns can be observed from previous pandemics, a focus on the Covid-19 pandemic will allow this paper to better understand the underlying mechanisms specific to the case at hand.

3.3. Definitions and operalisations

3.3.1. Categorization of Countries into World-Systems Theory

Based on Wallerstein’s WST, we primarily seek to find structural explanations for the difficulties of accomplishing a globally equal distribution of Covid-19 vaccines. In order to do this, we have categorized different countries as either core or periphery using Wallerstein's (2004) classification of countries. Accordingly, we have used statistics from the World Bank classification of countries for the fiscal year of 2021, as well as already existing classifications by the Duke Global Health Innovation Centre (World Bank 2021; Duke Global Health Innovation Centre 2021a). For the purpose of this paper, we have based our categorization on the premise that countries in the core are equivalent to HICs on the World Bank’s list. In order to get a general picture of the situation, we have thus chosen to categorize HICs as the core and both middle- and low-income countries in the periphery.

It is worth noting that we have chosen not to include the WST category semi-periphery. The reasoning behind this is based on the different WST categories' relationship to vaccines and if it can be identified as a core or peripheral process. States that would qualify to be in the semiperiphery have a similar relationship to vaccines as states in the periphery. In the context of Covid-19 vaccines, the only positive pattern of distribution can be located within the coreprocesses, which is applicable to core nations. Countries categorized as in the semi-periphery and periphery are both at a disadvantage, regarding the distribution of vaccines. Thus, an addition of a third category, semi-periphery, would not impact these processes nor would it change the results and analysis of this paper.

[Table omitted]

In Table 1 we have given some examples of countries that are categorized into the two classifications. In our analysis we will primarily use these classifications as a guideline and general picture of how WST can be used to explain nations actions in regards to the distribution and production of Covid-19 vaccines.

3.3.2. Hoarding of vaccines as accumulation of capital

The hoarding of vaccines by high-income countries has been widely criticized as a harmful and self-defeating strategy, but one might struggle to explain this phenomenon through the lens of WST. This difficulty can be circumvented by understanding the capitalistic tendency towards accumulation as a utility-maximizing practice. Accumulation is done for the purpose of continued accumulation, yet it does not make sense to accumulate capital for the sake of itself. If one understands the accumulation of capital as a practice done to increase one’s own utility, then the act of vaccine hoarding is simply another form of accumulation done by core states.

3.3.3. Patented vaccines as core-like products

Utilizing Wallerstein’s interpretation of products in their degrees of monopolization, vaccines can be understood as core-like products, i.e., with a high degree of monopolization and thus profitability. This implies that vaccines when protected by patents are non-competitive with a limited number of actors – an oligopoly – in control of these leading products, able to widen profit-margins due to a lack of competition.

The state’s role in creating and maintaining these core processes cannot be overstated as state interference is essential in the creation and enforcement of quasi-monopolies in the form of IP (i.e., patents). This is not a one-sided deal as core processes are, from a capitalistic logic, inherently in the interest of core states. Core manufacturers are on the receiving end of surplus-value flows in the world-economy, meaning that ‘strong’ states acquire a bigger tax base to finance their operations. The ‘core’ – governments and companies – thus contains an internal symbiosis where interests for accumulation are in alignment, enabling cooperation that perpetuates unequal exchanges at the cost of peripheral actors.

3.3.4. Generic vaccines as peripheral products

Wallerstein defines products in degrees of monopolization, and if patented vaccines are found on one end of the profitability spectrum, then generic vaccines can be found on the other end. Generic vaccines (as any other medicine) are by definition not protected by a patent and are often manufactured (i) when patents held by originators expire or (ii) during the period of protection due to either voluntary or compulsory licensing which entitles the patent holder to “adequate remuneration”. Since generics are unprotected, they are by definition non-monopolies thereby being highly competitive since no legal barrier prevents other actors from entering the market and lowering prices for consumers.

This is however a more correct description for example (i) than for (ii) since the latter only grants permission to sole and separate manufacturers, limiting the amounts of actors involved in production and the possible competition involved. States can of course grant licenses to several manufacturers but the transaction costs of doing so would increase for every manufacturer, which would presumably stop states from exploring all possible options.

3.3.5. Pharmaceutical patents as anti-commons

While most production is often subject to “the tragedy of the commons” where resources held in common are over-exploited, pharmaceutical patents arguably lead to the opposite “tragedy of the anti-commons” where resources held in private are under-exploited leading to less treatment of patients and increased sickness of the public.

3.3.6. Pharmaceutical industry as leading industry

Core products are defined by their profitability made possible by state sponsored quasimonopolies. If profitable enough such products can create and sustain entire industries through which substantial capital accumulation can occur during the period that such products and industries benefit from and retain their leading status. Pharmaceuticals and their developers have not always been granted such quasi-monopolies since products such as food and medicine were not perceived to benefit from IP laws. This changed with the establishment of TRIPS which effectively turned pharmaceuticals into core products on the global arena by requiring that WTO members grant 20-year patents in all technological fields, and core processes are observable in various trends of the industry. The pharmaceutical industry has grown remarkably in the past two decades – from 390$ billion in 2001 to 1.27$ trillion in 2020 (Mikulic 2021) – while becoming increasingly financialized: shareholder payouts have increased significantly both nominally (near 400% from 2000 to 2018) and in relation to R&D investments (88% to 123%), fixed capital investments have decreased in relation to net sales (6% to 5%) while debt and consolidation are increasingly used to minimize competition and maintain high market prices (Fernandez–Klinge 2020).

3.4. Material

In order to analyze the chosen case, different texts will be used to establish an empirical base upon which the theoretical framework can be used for interpretation and analysis. These texts will be research papers, reports, and news articles and will generally be secondary sources due to constraints in time and resources. Since the chosen case is currently ongoing, an important factor for these sources is the degree to which they are up to date, which is prioritized during the collection of material and data. New developments are inevitable which might weaken the analysis of this paper. However, more general trends or structural processes are less affected by such contemporary changes.

Due to this research paper being exploratory and qualitative in nature at least some or most of the material collected and used will originate from other disciplines (mainly medical studies), seeing as there is a relatively small body of knowledge produced by IR pertaining to global health.

Empirical data on vaccine production, procurement and distribution can be found in several of the sources this text uses of which the primary source is the Launch & Scale Speedometer which is an initiative led by the Duke Global Health Innovation Center (2021a). We primarily rely on this source due to its high-quality and relevant data which is arguably the most up to date among the different sources found during the material collection process.

3.5. Delimitation

For the purposes of clarity and analytical depth a level of analysis must be chosen. In this case where WST is utilized as this research paper’s theoretical framework, the level of analysis will be the international system. This system is understood to have fundamental characteristics that affect and shape states, the system’s basic political unit, with preferences created from system pressures; thus, creating predictability in state behavior. This prioritization of the system-level is best suited when making use of Wallerstein’s theory which itself is delimited to analyzing the international system. Shortcomings are inevitable with such a narrowing of analysis such as not considering the potential differences between states, but the advantages of analytical depth and novel contributions are of academic value and arguably outweigh any disadvantage.

WST describes global linkages that involve all manner of economic activity, but for the purpose of researching a single case, the Covid-19 pandemic, the analysis will limit itself to processes and structures related to the production, acquisition, and distribution of vaccines against SARS-CoV-2. At the level of the system, this implies the exclusion of processes at the individual and national level such as the actions of officials and corporate executives, or constitutional limitations in states and tendencies in institutions due to organizational structures. This however is weighed against the advantage of reaching conclusions and findings that are more well suited regarding general application for understanding international processes.

4. Analysis and results

We now turn to discuss four different aspects that hinder an equitable distribution of Covid-19 vaccines.

4.1. Geography of vaccines

4.1.1. Vaccine production

The production of vaccines against Covid-19 has seen a rapid development process, which have resulted in optimistic projections of how many doses of vaccines can be produced during 2021. There is a plethora of different vaccine manufacturers that are under clinical and preclinical development as this paper is being written, however only a handful have been authorized by WHO or other regulatory authorities (Wouters et al. 2021). The current estimate on the number of Covid-19 vaccines that will have been produced at the end of 2021 is currently 12 billion doses (Duke Global Health Innovation Centre 2021b). Note that is a very optimistic estimation, and due to uneven spread of manufacturers around the globe, this goal might be hard to meet. According to data collected and presented by the Launch & Scale Speedometer, the production and supply for Covid-19 vaccines during 2021 will be mainly dominated by five manufacturers, namely: Oxford-AstraZeneca, Pfizer-BioNTech, Moderna, Novavax and Janssen (J&J).

To ensure global access to vaccines against Covid-19, production and manufacturing play a very important part. However, since the production right now is understood to be limited only to the lead developers of the vaccines, equitable access proves to be a difficult task. Through WST, the relationship between which countries are able to produce vaccines and which are not, can be explained by the dimensions of a core-periphery relationship. In Table 2, the geography of the vaccine production for the five leading manufacturers in 2021 mentioned above is presented. Evidently, nations categorized into the core are dominating the landscape of production and development of Covid-19 vaccines.

[Table omitted]

Furthermore, this data supports Wallerstein’s categorizations, as this can be seen as a result of the capitalist modern world-economy that enables the continuation of a world-system divided between a core and periphery. The historically built-up dominance and advantage core states have, ultimately allows them to have better resources to develop and manufacture Covid19 vaccines. The common denominator for a country to be able to combat a health crisis is to have resources, power, and money, something states categorized in the core have been able to accumulate and control over time. This sheds light on vaccine production as a core process. Further, as the world capacity for vaccine production already is concentrated in a few geographical areas, other factors also have to be considered when analyzing the difficulties for equitable vaccine distribution and production, such as nationalism and patents, which will be further discussed later in the paper.

4.1.2. Vaccine acquirement

The current demand for Covid-19 vaccines exceeds manufacturing capacity to produce enough doses for the whole world. Every country must rely on the production estimates and delivery schedules, to roughly know when they will receive vaccine supplies (Duke Global Health Innovation Centre 2021b). Since the estimated year for a world-wide coverage of Covid-19 vaccine is not until 2023 or 2024, the importance of equitable distribution is of high concern (Duke Global Health Innovation Centre 2021b). Figure 1 shows aggregated data from the Launch & Scale Speedometer, where the geography of vaccine acquisition is divided between purchases by countries in the core and periphery, as well as purchases by global entities (mostly constituted by COVAX).

[Figure omitted]

As illustrated above, most of the vaccine purchases fall on the high-income countries in the core. Naturally, the world-system economy allows these states to have strong purchasing power, which thus enables core states to utilize their strength and protect their quasi-monopoly and position in the world-system.

4.2. Interpreting vaccine nationalism

The nationalistic pattern of vaccine acquisition through bilateral agreements can be regarded as ‘irrational’ in several regards: higher vaccine prices, increased mortality, depressed global economy, viral mutations et cetera. Still, despite the negative net utility of health inequity, nationalistic tendencies seem inevitable in not only this but previous global health crises.

WST can explain this by first recognizing the importance of nationalism for the modern state: the nation-state is described as an ideal asymptote since a unifying, homogeneous identity enables effective control over territories and production processes. Maintaining and promoting the state-nation identity is thus a prioritized task, leading to the promotion of state-nation interests and utility, such as protection against viral threats through inoculation. Consequently, other interests are marginalized; domestic vaccination takes priority over international and global vaccination. An extreme example of state-nation prioritization might be Israel whose acclaimed program has given a first vaccine dose to around 50% of its own population in contrast to 0.8% of Palestinian territory populations, despite international law confirming Israel’s responsibilities (Kennes 2021; Lynk–Mofokeng 2021). The United States and EU also display nationalistic tendencies: only after American and European needs are met will international and global interests be pursued (Stolberg–Crowley 2021; Wheaton–Deutsch 2021).

Interstate strength may also prove informative as the strongest states are able to promote self-interests without retaliation, in this case through vaccine hoarding. Weaker states instead wish to improve their international standing, in this case through vaccine diplomacy. Peripheral states with production capacity (China, Russia, India) have done exactly this: donating, exchanging, or selling medical supplies to countries in need to strengthen political ties and gain soft power (Jennings 2021).

Vaccine hoarding may also be interpreted as core state attempts to hastily resume economic activity and return to “business as usual” since decreased internal consumption in growth dependent economies can lead to disproportionate downturns through negative feedback loops and start economic recessions or depressions (e.g., firms with depressed revenues are unable to service debts or must fire employees). This resumption would extend to core processes, though these would grant limited surplus inflows when peripheral states cannot fully restart their own economies due to vaccine inequity.

4.3. The role of intellectual property

4.3.1. Patents or Generics; Profit or Access

WST differentiates between products by their profitability, created by state sponsored quasimonopolies. Capital accumulation through core products thus occurs only by limiting competition and the amounts of actors involved in the manufacturing of products. In some instances, this might be desirable to limit consumption of certain products or to protect certain industries or firms from being pushed out of the market, but in the case of the health market the opposite is almost always true. Often the “tragedy of the commons” is invoked in discussions of patterns of production: profit-seeking leads to unsustainable extraction and exploitation of common resources: overproduction and excessive consumption leads to socially undesirable outcomes. Pharmaceuticals however suffer from the “tragedy of the anti-commons” where resources held privately causes underproduction and insufficient consumption, leading to worsened health and increased mortality of the public. Core processes in pharmaceutical production are thus inherently incompatible with the collective social interests of states through the lens of WST, since artificial scarcity and low competition caused by state sponsorship is an essential part of the monopolization of production.

One ought to also consider that health markets have some important, distinguishing characteristics. Certain diseases or illnesses often require specific medications or treatments that have no suitable replacement, and consumers lack the choice to simply forego consumption of pharmaceuticals when faced with debilitating or fatal health issues; thus, pharmaceutical firms find themselves in extraordinary positions to create wide profit margins when able to do so.

4.3.2. IP rights, uncertainty and obstruction

The tendencies described and defined in WST can be observed in the Covid-19 pandemic as firms have repeatedly shown an unwillingness to promote greater access and increase total production when it deprives them of anti-competitive advantages.

Patents have prevented development of cheap and accessible vaccine alternatives before. In 2017 Pfizer was granted a patent in both South Korea and India for a pneumonia vaccine (which was rejected in Europe and China), preventing competition from reversing a negative accessibility trend which made child vaccination 68 times more expensive since 2001 (MSF 2020; MSF 2018; MSF 2017). Vaccine patenting has also been found to increase uncertainty among manufacturers concerning what might constitute a patent infringement, meaning that even unprotected innovations might not be pursued by non-patent holders for fear of legal repercussions (Chandrasekharan et al. 2015). Moderna declared their patents would not be reinforced “while the pandemic continues” (Moderna 2020), but such statements are effectively meaningless since (i) they are insufficient to eliminate legal uncertainty and (ii) do nothing to assist the difficult reverse-engineering of complex and novel technologies such as mRNA. Thus, the absence of disputes, though they have occurred (Hammond 2020a-c), need not imply the incapacity or unwillingness of non-patent holders to enter the Covid-19 vaccine market. In fact, this is an expected outcome of IP rights since legal concerns will stop manufacturers from making any attempts to begin with.

Still, several manufacturers have expressed interest in producing potentially hundreds of millions of vaccines for patent holders, but this interest has been left unreciprocated (Lerner–Fang 2021; Gordon 2021; Rowland et al. 2021).

4.3.3. Innovation and the TRIPS waiver

IP rights are frequently touted as necessities for innovation and effectivization of production, not least by WTO or representatives of the pharmaceutical industry (WTO n.d.; IFPMA 2020). WST argues instead that IP is primarily and essentially a mechanism for the promotion of quasimonopolies, creation of oligopolies and accumulation of capital. In this respect the effect of IP confirms the assertions of WST since pharmaceutical patents repeatedly increase market prices and hinders entry and participation of possible market competitors; thus, worsening access to treatment and limiting production capacity.

Innovation is thus not necessarily acknowledged by WST as described, but the neoliberal assertions are contradicted by the Covid-19 pandemic since several manufacturers rely heavily on technologies developed by public entities. AstraZeneca signed an exclusive license with Oxford University, initially supposed to be non-exclusive and available to any manufacturer willing to make low-cost vaccines (Hancock 2020). Moderna and the National Institute of Health (NIH) have collaborated in creating the mRNA-1273 vaccine, Pfizer and J&J have used protein spike designs made by NIH researchers, mRNA technology was first developed in the University of Pennsylvania and the essential lipid nanoparticle used in mRNA vaccines originated in the Massachusetts Institute of Technology (Allen 2020). In addition to the huge amounts of public investments made through APAs and non-profit funding these are all examples of production costs not internalized by private firms, delegitimizing claims that private firms require profits for risk-taking and IP rights for innovation.

The TRIPS waiver proposed by South Africa and India to WTO has been criticized with such arguments in addition to assertions that supply-chain bottlenecks and production ‘knowhow’ are more important for global production capacity than patents (IFPMA 2021). Yet, bottlenecks are often caused by quasi-monopolies such as those on lipid nanoparticles, the most expensive and scarce ingredients for mRNA vaccines, which are protected by patents held by a small number of companies (Irwin 2021a). ‘Know-how’ is also important since in addition to necessary equipment, facilities require personnel capable of using this equipment correctly and effectively. WHO understood this and thus established Covid Technology Access Pool (C-TAP) for firms to share such helpful data and knowledge, nevertheless it has received zero contributions since no firm wishes to cede market advantages voluntarily, even to increase global production capacity (Safi 2021), implying that compulsion is required for knowledge sharing.

4.4. Current and future global health governance

4.4.1. COVAX: progress, familiar flaws, and fundamental issues

Vaccine development is a costly, complex, and risky venture as most attempts fail at some stage: by February 2021 there were 289 vaccines in development, 66 were in clinical trials and only 5 were approved by stringent authorities (Wouters et al. 2021). An example of investment risks is the Sanofi/GSK vaccine which has received the most public funding of any candidate (2.1$ billion) but has yet to complete development (Sagonowsky 2021). Any actor wishing to fund vaccine development would thus want a diversified vaccine portfolio to increase rates of successful investments in addition to diversifying vaccine properties which vary in demographic suitability (Jackson 2020). States investing bilaterally in individual candidates thus expose themselves to higher risks in comparison to the alternative of collective schemes which can acquire a more diversified portfolio and where risks are shared amongst participants.

COVAX makes such derisking possible for participating countries and lowers prices substantially through collective purchasing power, an important aspect due to the vast volumes required but also serves as a vital lifeline for lower income states unable to procure their own vaccines (Berkley 2020). The initiative, with 190 state members and having raised 14.6$ billion, is an unprecedented achievement in global health governance (Nature Editorial 2021; WHO 2021). Nevertheless, COVAX still remains underfunded with an 18.5$ billion gap at the time of writing (WHO 2021), faces direct competition for doses from mostly HICs adhering to nationalistic strategies, and will only vaccinate 20% of peripheral states’ populations, a goal unlikely to be reached and still insufficient to solve vaccination inequity (Wouters et al. 2021). Furthermore, COVAX gets criticized for not addressing a more fundamental issue: empowering states to produce their own supply (Ravelo 2021).

WST addresses the cause of peripheral impoverishment: surplus-value flows out of peripheral states through unequal exchanges. This has historically led to peripheral states being unable to accumulate capital, create sufficient tax bases and strengthen the state structure. Thus, the periphery has historically been rendered unable to establish and improve their productive processes, meaning that certain industries are effectively absent in the periphery, e.g., there are only 10 African vaccine manufacturers and 99% of vaccines used on the continent have been imported for decades (WHO Africa 2021; Irwin 2021b).

One such production process has been production of knowledge through research. Public research has played a vital role for the development of current Covid-19 vaccines, and due to unequal exchanges peripheral states have been unable to fund public institutions able to produce knowledge. The Establishment response to 1968 has certainly played a part in this, forcing peripheral states to accept structural adjustment which cut public spending otherwise used for funding public research, and education which would have produced skilled workers (e.g., doctors, nurses) needed during health crises. Peripheral states have also been unable to invest in infrastructure improvements, creating logistical and administrative obstacles in vaccine deployment such as identifying eligible individuals, contacting and recalling patients, transportation, cold-chain storage et cetera (Wouters et al. 2021). Long-term solutions would thus require addressing peripheral capacity, not just solving symptoms such as supply scarcity caused by the stifling of peripheral and in turn global production.

4.4.2. A world-system in crisis: opportunities for global health

Wallerstein argues the capitalist world-economy is undergoing a systemic crisis due to rising costs of production and the disillusionment with antisystemic forces following the cultural shock of 1968. Recent trends and events appear to support this assertion.

This pandemic is no anomaly, instead it is expected and inherent to the pursuit of endless profits which requires extractive and cost-minimizing practices that cause anthropogenic changes and ecological disruption, thereby increasing the risk of pandemics (IPBES 2020). The Establishment attempt to restore systemic order with the Washington consensus and neoliberalism has continuously failed to address such existential threats (e.g., global warming, ecological breakdown, pandemics), in fact these threats have been worsened due to capital accumulation being insensitive to social and ecological changes. Since the current world-system is not only unable to solve these existential issues but is arguable both cause and catalyst, a new world-system characterized by new values and forces inevitably must replace it.

Today the capitalist world-economy prioritizes profit, promoting and rewarding profitseeking behavior and actors engaging in such conduct. However, while perpetual capital accumulation has persisted for centuries, other more socially conscious values have risen to prominence through antisystemic movements. Universal human rights are recognized today as a fundamental principle; the Doha Declaration (WTO 2001), WHO Constitution (WHO 2020) and Universal Declaration of Human Rights (UN 1948) serve as examples and confirmations of this. Disillusionment with anti-systemic forces does not imply abandonment of such values, instead the pursuit of them is no longer perceived to be feasible within a world-system inherently in conflict with such values.

A new world-system that abandons the endless pursuit of profit might then retain the acknowledgment of universal human rights and establish a new pharmaceutical regime which disavows profits of firms, core industry monopolies or inequitable promotion of state-nation interests; instead promoting access to medicines for all.

#### AND horizontal shareholding systematically lowers interest rates in the Netherlands.

Dr. Falk H. Laser 21, Research & Teaching Assistant, Chair of International Economics, TU Darmstadt, "Common Ownership in the Dutch Banking Market," SSRN, 03/08/2021, pg. 1-3.

Institutional investors (e.g. mutual funds, hedge funds, insurance companies and pension funds) increasingly own larger fractions of publicly-traded stock in the U.S. and Europe (see Azar et al. (2018) for the U.S. and Seldeslachts et al. (2017) for Germany). Backus et al. (2018) report combined holdings of 10.2 trillion dollars by the two largest asset managers Blackrock and Vanguard as of September 2017. For comparison, the total market capitalization of the S&P 500 at the end of 2017 was 23.9 trillion dollars. Decreasing costs for retail investors to invest in index funds and thereby diversifying their portfolio have contributed to an increase in the volume of funds manged by large institutional investors.

Common ownership (CO) refers to investors owning shares in more than one company in the same industry. Recently, the academic community has been discussing extensively the potential anti-competitive effects of common ownership. The potential link is that investors with stakes in several companies in the industry have incentives to maximize industry profits rather than individual firm profits. As a result they might influence managers to price less competitively and thus more harmfully to consumers.

The academic community is divided about the effects of rising common ownership on competitive outcomes and implications for regulatory responses. For instance, the authors in Azar et al. (2018) and Azar et al. (2019) find negative effects of common ownership on retail prices in the U.S. airline and the U.S. banking industry respectively. Furthermore, they calculate that levels of market concentration, when taking into account common ownership, would substantially exceed the threshold above which antitrust concerns arise according to the merger guidelines of the antitrust authorities in the U.S. (Azar et al., 2018). As a consequence, they propose to take into account common ownership when assessing concentration levels in markets and to scrutinize prospective mergers between institutional investors from a competition perspective to mitigate anti-competitive effects. Elhauge (2016) suggests interventions from antitrust authorities when common ownership can be shown to have anti-competitive effects.

On the contrary, other researchers are more skeptical about policy implications derived from the existing body of literature. For instance, O’Brien and Waehrer (2016) caution against drawing any premature conclusions. Their main arguments are that existing research either lacks scope for causal inference or is not robust in the sense that findings cannot be replicated. Further, the applied assumptions on how financial cashflow rights by investors translate into control rights over companies and make managers deviate from firm-level profit maximization are neither theoretically founded nor empirically observed they claim. Ginsburg and Klovers (2018) complement existing concerns from a legal perspective. Section 2 provides an overview of the corresponding literature.

Obviously such scholarly dissent does not diminish the relevance of the topic, especially in light of such substantial shifts in ownership in the recent decade. The trend of increasing common ownership links to the topical debate about increasing concentration and market power and its macroeconomic implications (see Van Reenen (2018), De Loecker et al. (2020) and Philippon (2019)) and potentially serves as an explanation for documented decreases in competition across markets and industries.

In this paper, I want to contribute to the current debate about common ownership and its potential anti-competitive effects. I use ownership data for Dutch banks and pricing data for savings accounts in the Dutch retail banking market (see section 3). I demonstrate increasing common ownership for the banking sector in the Netherlands, both induced by increasing private investment through large investment funds and substantial involvement in the market by the Dutch state due to bailout policies to counter the adverse effects of the financial crisis.

I run simulations based on a structural model to demonstrate how pricing decisions of banks change when a common ownership mechanism enters the model. The theoretical framework is provided in section 4. My structural approach relies on estimating demand elasticities with product-level data for savings accounts for 2014 using data from the calibration period from 2007 to 2014 (see section 5). I back out marginal cost equivalents and predict product-level retail prices for different levels of common ownership.

I present simulation results in section 6. Conditional on an effective common ownership channel, I provide a set of results making different assumptions about the levels of common ownership. I choose interest rates in 2014 as a baseline to compare simulated counterfactual interest rates to. I use three different scenarios varying in the magnitudes of common ownership assumed. In the first scenario, I allow observed levels of common ownership in 2014 to enter the structural model and find mostly negative effects for the interest rates. Some banks decrease interest rates by up to almost 30 basis points. In the second scenario, I assume larger observed levels of common ownership in 2017 to govern price setting behavior in 2014. This causes decreases in interest rates of up to 40 basis points compared to realized levels of interest rates in 2014. In the last scenario, I manipulate the ownership structure to reflect hypothetical, albeit not unrealistic levels of common ownership when extrapolating the trend of increasing common ownership in the Dutch banking market. The negative effects on interest rates are large with some large banks pricing up to 50 basis points lower compared to observed interest rates in 2014. These changes are substantial given average interest rates of 1.26% and a standard deviation of 0.36% in the market in 2014. Related changes in annual interest payments to consumers are heterogeneous across banks and scenarios and vary between small increases and reductions in interest of more than 100 euros. The average effect for consumers is an annual decrease in interest payments between 12 and 33 euros depending on the scenario.

My analysis shows that common ownership can have large detrimental effects on retail prices. The results are based on a structural model assuming a direct link between portfolios of investors in the same industry and individual pricing decisions at the company level. In theory such common ownership links tie firms together with regards to pricing decisions with similar effects as collusion between firms or outright mergers. The stipulated interdependence can be large even in light of small investment shares. Whether financial cashflow rights by investors translate into decisive control rights on the corporate level remains an empirical question and more research is needed. My work contributes to the current discussions of increasing market power by quantifying the potential effects of common ownership on pricing behavior.

#### Low Dutch rates undermine recovery.

EUR 21, "How the Dutch economy is struggling with structural problems," Erasmus University Rotterdam, 09/22/2021, <https://www.eur.nl/en/news/how-dutch-economy-struggling-structural-problems>. [Bas Jacobs – Professor, Public Economics, Erasmus School of Economics]

The economy has recovered unexpectedly well this year with a growth of 3.9%. After two years, the economy is back to its income level of 2019 and has only lost 1.5% structurally due to the crisis. Unemployment is also at an all-time low and the labour market continues to be tight. Public finances have also weathered the crisis well, even though the emergency packages were generous. The budget deficit is decreasing rapidly and the national debt remained below 60% of GDP. According to Jacobs, these figures show that austerity is unwise in a crisis.

Structural problems

However, all the good news cannot mask the structural problems in the Dutch economy, Jacobs writes. ‘After 2022, economic growth will drop to around 1.5% per year due to long-term stagnation and historically low productivity growth. Interest rates on virtually all government bonds are still below zero. The most important macro-economic adjustment mechanism is therefore broken,' says Jacobs.

‘Because of the extremely low interest rates, investors and the wealthy are chasing returns in the financial and housing markets. Share prices and house prices are being pushed up sharply. First-time buyers no longer have a chance in the housing market,' Jacobs writes. Moreover, income growth is lagging behind due to growing market power, a two-tier labour market and inadequate government investment. The market power of companies is increasing. A small group of large companies is becoming increasingly dominant. This monopoly formation would be harmful to the economy, according to Jacobs. Investments in education are also insufficient and there is no clear plan yet to solve the nitrogen problem.

#### That fuels Dutch neo-nationalism---restrains its international engagement.

Zhongyuan Wang 21, Assistant Professor & Research Fellow, Social Sciences, Fudan Institute for Advanced Study, "From Crisis to Nationalism?: The Conditioned Effects of the COVID-19 Crisis on Neo-nationalism in Europe," Chinese Political Science Review, 01/04/2021, NCBI.

Will nationalism thrive in times of crisis? Over the past years, many European countries have witnessed rising nationalism, which was largely driven by the Euro-zone economic crisis and the refugee crisis. Far-right political parties and nationalist candidates have gained significant influence in subnational elections, national-level elections, and EU parliamentary elections. It is visible from France, where Marine LePen of the National Front won 33.9% votes in the second round of presidential elections in 2017, to the Netherlands, where the Freedom Party has become the biggest opposition party in the parliament, and to Italy, where the far-right League Party gained a foothold in a populist ruling coalition in the government. These nationalist forces have been able to shape and reshape state policies as well as the European agenda by either taking positions in the parliament and coalition government. More importantly, these developments have triggered what Sartori earlier labeled as “polarized pluralism”—a process where mainstream moderate views are gradually radicalized and replaced by polarized views (Sartori 1966). Moreover, at the European level, ten far-right parties in the European Parliament have launched a new political bloc, called Identity and Democracy (ID), with the mission to resist immigration, increase security, and fight EU bureaucracy. In recent years, nationalist parties and politicians across Europe have found a common voice and have learned to strategically capitalize on every single possible crisis to tap into voters’ frustration with the political establishment, concerns about immigration and security, and skepticism about globalization and Europeanization. The outbreak and spread of the COVID-19 pandemic, a novel global public health crisis in 2020, seem to have added new fuel to exacerbate nationalism in Europe. Will there then be a new wave of nationalism? And why or why not? If so, what makes the coronavirus crisis unique in elevating various forms of neo-nationalism? Overall, this article looks at a popular and politicized topic (nationalism) through the lens of a topical issue (pandemic) to tease out the interactions and causations.

#### Retrenchment wrecks global HR governance AND effective counterinsurgency operations.

Luke B. Wood 19, Visiting Assistant Professor, Political Science, Bucknell University College of Arts & Sciences. Research Associate, Indiana University Hamilton-Lugar School of Global & International Studies, "The Netherlands as A Specialized Foreign Policy Actor in European Regional and International Affairs," Europe Now Journal, 04/04/2019, https://www.europenowjournal.org/2019/04/04/the-netherlands-as-a-specialized-foreign-policy-actor-in-european-regional-and-international-affairs-2/.

More often, however, we find that smaller states often pursue a program of specialization in trade, diplomatic, or security practices. Given that small European states are most often highly dependent upon access to the global economy and international markets for national economic survival, much of the specialization of smaller polities takes shape in the context of economic management. For instance, social science research suggests that small states in Europe attempt to capitalize on the production of labor intensive industrial, manufacturing or transportation machinery in order to maximize national employment levels as well as to ensure the exporting of highly valued commodities.[21] On this note, we have seen a variety of European nations specialize in the exporting of automobiles, farming machinery, chemicals, and pharmaceuticals; these nations often pursue market dominance in these production areas. Economic specialization and dependence upon global trade have created incentives for many European nations to develop highly specialized political and welfare systems as political elites employ expansive governmental protections to shield individuals and families from downturns in the global economy, which often impact small states more severely and in more acutely negative ways.[22] Very rarely have we seen smaller states take on more expansive security or diplomatic roles in international affairs. On this point, the Netherlands consistently proves to be an exception.

The Netherlands and European Integration

The Netherlands’ postwar posture toward regional affairs is consistently one of regional economic, political, and monetary integration. This strategy has guaranteed the Netherlands a place at the negotiating table vis-à-vis its larger and more powerful neighbors. The Netherlands, Belgium, and Luxembourg were among the leaders of those institutions of regional integration that would become today’s European Union, beginning with the Benelux Customs Union. The Netherlands spearheaded an economic integration template that Benelux would then promote as a broader framework for postwar European unity.[23] As a regional industrial and financial power, the Netherlands’ most pressing economic needs have consistently been met within the framework of broader regional integration and the Hague has consistently supported the widening and deepening of integrative processes including support for and adoption of a common regional currency and the promotion of a Common Foreign and Security Policy at the EU-level. The continued support of the Netherlands for integration has allowed for a Dutch presence in all regional negotiations and representative institutions.

More recently, this influence has been expanded by those very regional developments often understood as undermining European solidarity, namely the financial and political instability caused by the debt crisis in Europe. For much of its post-Maastricht history, European supranational politics has been marked by the presence of smaller, regional blocs which formulate policy and voting strategies together in light of shared, common interests. Generally speaking, this has often taken the form of a “southern” bloc, led by France and Italy, which places pressure on European governance institutions for greater agricultural subsidies and greater economic protectionism and a “northern” bloc, led by Germany, which seeks to promote financial harmonization and more free-market-oriented policy prescriptions. The European Sovereign Debt crisis in Europe caused sharp divisions among these competing blocs with the “southern” group calling for a rethinking of European regional economic and monetary governance and a supranationalization of European national debt.[24] Conversely, the “northern” grouping called for less of a role for European institutions in solving the debt crisis and a more national approach to debt management, that is, a greater adherence to the EU’s Stability and Growth Pact.[25] Although Germany and its Northern European allies—Finland, the Baltic States, Slovenia, Slovakia, and the Netherlands—ultimately made concessions to its European counterparts, this voting bloc emerged as the dominant force driving economic and financial reform in the European Union. Victory in these policy areas have accorded a new and expanded role to the members of this bloc who continue to work closely with each other in the building of new frameworks for European regional governance. As a part of this bloc, the Netherlands has been afforded a wide range of new opportunities to shape and reshape European Union policy with the possibility of pushing Dutch national interests in exports and currency regulation to the forefront of European policy-making.

The Netherlands and the United Nations

Looking to other international organizations, the Netherlands has long pursued a policy of promoting and expanding rules-based regimes for regional and international governance as a means through which its own territorial and economic security might best be realized. The preservation of state sovereignty and national self-determination in international law in addition to the regulation of interstate warfare by the United Nations Security Council provides for the foundations of Dutch political and economic stability and welfare. As a small nation surrounded by big neighbors, pushing states to adhere more closely to international law preserves the Netherlands’ policy maneuverability both at home and abroad. The Dutch experience with German occupation and subjugation during the 1940s has become a potent rationale for the enforcing of international norms and the human rights violations experienced by the Dutch population—including genocide, sexual assault, deportation, forced labor, and deprivation of food, water, and fuel—provide for a moral impetus to Dutch policymakers to seek institutions and alliances to protect others from that same abuse and maltreatment.[26]

Being at the forefront of international institutions for the promotion of human rights and international law has allowed the Netherlands to exercise a tremendous amount of influence within those institutions and over the policies they adopt. Perhaps the most emblematic example of this is the locating of the International Court of Justice in the Hague, that is, the cultural, spiritual, and administrative capital of the modern Netherlands. Speaking of the Netherlands’ role in the promotion of rules-based governance, United Nations Secretary General Ban Ki-Moon noted that “I deeply value the close partnership between the Netherlands and the United Nations. This country plays an important and constructive role around the world. It is a leading progressive force in promoting the rule of law, disarmament, the peaceful settlements of disputes and sustainable development. The Netherlands is also a champion of human rights and gender equality and it is engaged on climate change and the post-2015 development agenda process.”[27] Ki-Moon also went on to laud the Netherlands financial commitments to global governance as only one of five nations in the world, which has met its promised financial obligations to the United Nations. In regard to recent developments, the Dutch government is at the forefront of stunting the flow of European Islamic State recruits to Syria and Iraq.

The Netherlands remains unique in that its constitution mandates action from the Hague for the promotion of international law (Article 90) including military action for the protection of the international legal order (Article 97).[28] Two areas in particular are marked by extensive Dutch initiatives in international institutions, namely, nuclear weapons disarmament and non-proliferation and the expansion of human rights protections including recent legislation governing the international community’s Responsibility to Protect. Since the 1960s, the Netherlands has been at the forefront of international initiatives to regulate nuclear weapons technologies, including the promotion of test-ban treaties, the monitoring of the sales of nuclear weapons hardware in addition to a wide range of initiatives to create an international surveillance regime for conventional forces.[29] Despite that nation’s firm position in the North Atlantic alliance system, the Hague has been willing to deviate from the preferences of its larger security partners, namely the United Kingdom, France, and the US, in the development of programs aimed at the denuclearization of Western Europe including a push for the removal of allied nuclear weapons systems on Dutch territory.[30] In 2013, the Netherlands issued an official statement to the United Nations, expressing its support for a reconceptualization of the Responsibility to Protect to include a more programmatic framework to be built for mass atrocity and genocide prevention.[31] Thus, the Netherlands aligned itself with ongoing international efforts to establish a core set of international protocols for political, economic, and military intervention in the prevention of gross human rights violations.

The Netherlands and Innovations in Counterinsurgency

The Netherlands has been among a small handful of transatlantic nations to reconfigure its overall military strategy in the post-Cold War international environment, allowing that nation to provide for an expansive military role in a wide range of conflict theaters including peacekeeping operations in Southern Europe, Africa, and Central Asia and coalition efforts in Iraq, Afghanistan, and, currently, in Syria to combat the Islamic State. Although recent publications from the Defense Ministries of European states outline a marked overall shift in the strategic priorities of North Atlantic states, the Netherlands has been, for some time, well ahead of larger, wealthier states, such as Germany, in investments made in new military technologies, notably those for high intensity military engagement including aircraft to ensure theater command and force dominance.[32] This is in large part due to the Dutch experience during peacekeeping operations in the former Yugoslavia in which Dutch peacekeepers were unable to withstand a major assault by Serbian forces. As a result, according to Rem Korteweg, “On the military front, the Netherlands concluded that during crisis management operations it could not rely on other powers for protection. As a result, the Hague approved continued investment in high-spectrum capabilities such as next-generation fighter aircraft, heavy artillery, and attack helicopters. From then on, Dutch troops would only be deployed with robust military capabilities to provide escalation dominance.”[33] The Netherlands is now one of five NATO partners which now holds significant expeditionary capacities, that is, the ability to rapidly deploy troops overseas and support a foreign intervention with overwhelming land, air, and naval force.

The Dutch government has been at the forefront of reconfiguring counterinsurgency strategies, partly in response to the perceived failure of American efforts in the Middle East but also in light of the Netherlands’ long record of humanitarian aid provision and the defense of human rights, especially for civilians in war zones. In its deployment to Uruzgan Province under the International Security Assistance Force (ISAF) banner, the Hague was willing to break with the programmatic approaches of its NATO allies to pursue a qualitatively different program of occupation and local engagement. Although it may be problematic to talk of a specific “Dutch approach” to counterinsurgency given that a similar set of strategies was employed widely during Europe’s colonial history,[34] the insistence of the Dutch government to pursue programs of cultural awareness, local economic development, and civilian security in Uruzgan nonetheless serves as an example of an important policy evolution relative to the strategic engagement of the Netherlands’ key allies in adjacent Afghan provinces.[35]

Conclusion

Successive Dutch governments have developed a wide range of enduring strategies to cope with new economic, ecological, and humanitarian crises. For much of its modern history, the Netherlands has conducted foreign policy in tandem with a variety of state and non-state actors. We can consider this, perhaps, to be the most fundamental element of Dutch geopolitical strategy. More recently, as outlined above, the Netherlands has evolved even more robust responses to emergent challenges than most its larger counterparts, especially in regard to humanitarian aid and international law as well as military and counterinsurgency strategies. The challenges confronting the Netherlands needn’t obscure what can be understood as the core features of a strategic orientation toward world affairs: embeddedness in multilateral organizations (especially those in Europe and the North Atlantic region), the promotion and expansion of the rules-based international order, and new forms of counterinsurgency and expeditionary tactics which allow for the rapid participation of Dutch military forces to aid allies.

#### HR failure causes nuclear war.

Gregory Treverton 17, Chair of the National Intelligence Council, Office of the Director of National Intelligence, National Intelligence Council Unclassified Strategic Assessment Of Global Trends, Authored by ODNI Personnel Including the Chairman of the NIC, “The Near Future: Tensions Are Rising”, 2017, <https://www.dni.gov/index.php/global-trends/near-future>

These global trends, challenging governance and changing the nature of power, will drive major consequences over the next five years. They will raise tensions across all regions and types of governments, both within and between countries. These near-term conditions will contribute to the expanding threat from terrorism and leave the future of international order in the balance.

Within countries, tensions are rising because citizens are raising basic questions about what they can expect from their governments in a constantly changing world. Publics are pushing governments to provide peace and prosperity more broadly and reliably at home when what happens abroad is increasingly shaping those conditions.

In turn, these dynamics are increasing tensions between countries—heightening the risk of interstate conflict during the next five years. A hobbled Europe, uncertainty about America’s role in the world, and weakened norms for conflict-prevention and human rights create openings for China and Russia. The combination will also embolden regional and nonstate aggressors—breathing new life into regional rivalries, such as between Riyadh and Tehran, Islamabad and New Delhi, and on the Korean Peninsula. Governance shortfalls also will drive threat perceptions and insecurity in countries such as Pakistan and North Korea.

* Economic interdependence among major powers remains a check on aggressive behavior but might be insufficient in itself to prevent a future conflict. Major and middle powers alike will search for ways to reduce the types of interdependence that leaves them vulnerable to economic coercion and financial sanctions, potentially providing them more freedom of action to aggressively pursue their interests.

Meanwhile, the threat from terrorism is likely to expand as the ability of states, groups, and individuals to impose harm diversifies. The net effect of rising tensions within and between countries—and the growing threat from terrorism—will be greater global disorder and considerable questions about the rules, institutions, and distribution of power in the international system.

Europe. Europe’s sharpening tensions and doubts about its future cohesion stem from institutions mismatched to its economic and security challenges. EU institutions set monetary policy for Eurozone states, but state capitals retain fiscal and security responsibilities—leaving poorer members saddled with debt and diminished growth prospects and each state determining its own approach to security. Public frustration with immigration, slow growth, and unemployment will fuel nativism and a preference for national solutions to continental problems.

* Outlook: Europe is likely to face additional shocks—banks remain unevenly capitalized and regulated, migration within and into Europe will continue, and Brexit will encourage regional and separatist movements in other European countries. Europe’s aging population will undermine economic output, shift consumption toward services—like health care—and away from goods and investment. A shortage of younger workers will reduce tax revenues, fueling debates over immigration to bolster the workforce. The EU’s future will hinge on its ability to reform its institutions, create jobs and growth, restore trust in elites, and address public concerns that immigration will radically alter national cultures.

United States. The next five years will test US resilience. As in Europe, tough economic times have brought out societal and class divisions. Stagnant wages and rising income inequality are fueling doubts about global economic integration and the “American Dream” of upward mobility. The share of American men age 25- 54 not seeking work is at the highest level since the Great Depression. Median incomes rose by 5 percent in 2015, however, and there are signs of renewal in some communities where real estate is affordable, returns on foreign and domestic investment are high, leveraging of immigrant talent is the norm, and expectations of federal assistance are low, according to contemporary observers.

* Outlook: Despite signs of economic improvement, challenges will be significant, with public trust in leaders and institutions sagging, politics highly polarized, and government revenue constrained by modest growth and rising entitlement outlays. Moreover, advances in robotics and artificial intelligence are likely to further disrupt labor markets. Meanwhile, uncertainty is high around the world regarding Washington’s global leadership role. The United States has rebounded from troubled times before, however, such as when the period of angst in the 1970s was followed by a stronger economic recovery and global role in the world. Innovation at the state and local level, flexible financial markets, tolerance for risk-taking, and a demographic profile more balanced than most large countries offer upside potential. Finally, America is distinct because it was founded on an inclusive ideal—the pursuit of life, liberty, and happiness for all, however imperfectly realized—rather than a race or ethnicity. This legacy remains a critical advantage for managing divisions.

Central and South America. Although state weakness and drug trafficking have and will continue to beset Central America, South America has been more stable than most regions of the world and has had many democratic advances—including recovery from populist waves from the right and the left. However, government efforts to provide greater economic and social stability are running up against budget and debt constraints. Weakened international demand for commodities has slowed growth. The expectations associated with new entrants to the middle class will strain public coffers, fuel political discontent, and possibly jeopardize the region’s significant progress against poverty and inequality Activist civil society organizations are likely to fuel social tensions by increasing awareness of elite corruption, inadequate infrastructure, and mismanagement. Some incumbents facing possible rejection by their publics are seeking to protect their power, which could lead to a period of intense political competition and democratic backsliding in some countries. Violence is particularly rampant in northern Central America, as gangs and organized criminal groups have undermined basic governance by regimes that lack capacity to provide many basic public goods and services.

* Outlook: Central and South America are likely to see more frequent changes in governments that are mismanaging the economy and beleaguered by widespread corruption. Leftist administrations already have lost power in places like Argentina, Guatemala, and Peru and are on the defensive in Venezuela, although new leaders will not have much time to show they can improve conditions. The success or failure of Mexico’s high-profile reforms might affect the willingness of other countries in the region to take similar political risks. The OECD accession process may be an opportunity—and incentive— for some countries to improve economic policies in a region with fairly balanced age demographics, significant energy resources, and well-established economic links to Asia, Europe, and the United States.

An Inward West? Among the industrial democracies of North America, Europe, Japan, South Korea, and Australia, leaders will search for ways to restore a sense of middle class wellbeing while some attempt to temper populist and nativist impulses. The result could be a more inwardly focused West than we have experienced in decades, which will seek to avoid costly foreign adventures while experimenting with domestic schemes to address fiscal limits, demographic problems, and wealth concentrations. This inward view will be far more pronounced in the European Union, which is absorbed by questions of EU governance and domestic challenges, than elsewhere.

* The European Union’s internal divisions, demographic woes, and moribund economic performance threaten its own status as a global player. For the coming five years at least, the need to restructure European relations in light of the UK’s decision to leave the EU will undermine the region’s international clout and could weaken transatlantic cooperation, while anti-immigration sentiments among the region’s populations will undermine domestic political support for Europe’s political leaders.
* Questions about the United States’ role in the world center on what the country can afford and what its public will support in backing allies, managing conflict, and overcoming its own divisions. Foreign publics and governments will be watching Washington for signs of compromise and cooperation, focusing especially on global trade, tax reform, workforce preparedness for advanced technologies, race relations, and its openness to experimentation at the state and local levels. Lack of domestic progress would signal a shift toward retrenchment, a weaker middle class, and potentially further global drift into disorder and regional spheres of influence. Yet, America’s capital, both human and security, is immense. Much of the world’s best talent seeks to live and work in the United States, and domestic and global hope for a competent and constructive foreign policy remain high.

China. China faces a daunting test—with its political stability in the balance. After three decades of historic economic growth and social change, Beijing, amid slower growth and the aftereffects of a debt binge, is transitioning from an investment-driven, export-based economy to one fueled by domestic consumption. Satisfying the demands of its new middle classes for clean air, affordable houses, improved services, and continued opportunities will be essential for the government to maintain legitimacy and political order. President Xi’s consolidation of power could threaten an established system of stable succession, while Chinese nationalism—a force Beijing occasionally encourages for support when facing foreign friction—may prove hard to control.

* Outlook: Beijing probably has ample resources to prop up growth while efforts to spur private consumption take hold. Nonetheless, the more it “doubles down” on state owned enterprises (SOEs) in the economy, the more it will be at greater risk of financial shocks that cast doubt on its ability to manage the economy. Automation and competition from lowcost producers elsewhere in Asia and even Africa will put pressure on wages for unskilled workers. The country’s rapidly shrinking working-age population will act as a strong headwind to growth.

Russia. Russia’s aspires to restore its great power status through nationalism, military modernization, nuclear saber rattling, and foreign engagements abroad. Yet, at home, it faces increasing constraints as its stagnant economy heads into a third consecutive year of recession. Moscow prizes stability and order, offering Russians security at the expense of personal freedoms and pluralism. Moscow’s ability to retain a role on the global stage—even through disruption—has also become a source of regime power and popularity at home. Russian nationalism features strongly in this story, with A Chinese man rides a bike among luxurious cars. China’s dramatic economic growth has highlighted greater gaps between rich and poor.

President Putin praising Russian culture as the last bulwark of conservative Christian values against the decadence of Europe and the tide of multiculturalism. Putin is personally popular, but approval ratings of 35 percent for the ruling party reflect public impatience with deteriorating quality of life conditions and abuse of power.

* Outlook: If the Kremlin’s tactics falter, Russia will become vulnerable to domestic instability driven by dissatisfied elites— even as a decline in status suggests more aggressive international action. Russia’s demographic picture has improved somewhat since the 1990s but remains bleak. Life expectancy among males is the lowest of the industrial world, and its population will continue to decline. The longer Moscow delays diversifying its economy, the more the government will stoke nationalism and sacrifice personal freedoms and pluralism to maintain control.

An Increasingly Assertive China and Russia. Beijing and Moscow will seek to lock in temporary competitive advantages and to right what they charge are historical wrongs before economic and demographic headwinds further slow their material progress and the West regains its footing. Both China and Russia maintain worldviews in which they are rightfully dominant in their regions and able to shape regional politics and economics to suit their security and material interests. Both have moved aggressively in recent years to exert greater influence in their regions, to contest the US geopolitically, and to force Washington to accept exclusionary regional spheres of influence—a situation that the United States has historically opposed. For example, China views the continuing presence of the US Navy in the Western Pacific, the centrality of US alliances in the region, and US protection of Taiwan as outdated and representative of the continuation of China’s “100 years of humiliation.”

* Recent Sino-Russian cooperation has been tactical, however, and is likely to return to competition if Beijing jeopardizes Russian interests in Central Asia and as Beijing enjoys more options for cheap energy supply beyond Russia. Moreover, it is not clear whether there is a mutually acceptable border between what China and Russia consider their natural spheres of influence. Meanwhile, India’s growing economic power and profile in the region will further complicate these calculations, as New Delhi navigates relations with Beijing, Moscow, and Washington to protect its own expanding interests. A Chinese development firm—with links to the Chinese Government and People’s Liberation Army— today announced that it recently purchased the uninhabited Cobia Island from the Government of Fiji for $850 million. Western security analysts assess that China plans to use the island to build a permanent military base in the South Pacific, 3,150 miles southwest of Hawaii.

Russian assertiveness will harden anti-Russian views in the Baltics and other parts of Europe, escalating the risk of conflict. Russia will seek, and sometimes feign, international cooperation, while openly challenging norms and rules it perceives as counter to its interests and providing support for leaders of fellow “managed democracies” that encourage resistance to American policies and preferences. Moscow has little stake in the rules of the global economy and can be counted on to take actions that weaken US and European institutional advantages. Moscow will test NATO and European resolve, seeking to undermine Western credibility; it will try to exploit splits between Europe’s north and south and east and west, and to drive a wedge between the United States and the EU.

* Similarly, Moscow will become more active in the Middle East and those parts of the world in which it believes it can check US influence. Finally, Russia will remain committed to nuclear weapons as a deterrent and as a counter to stronger conventional military forces, as well as its ticket to superpower status. Russian military doctrine purportedly includes the limited use of nuclear weapons in a situation where Russia’s vital interests are at stake to “deescalate” a conflict by demonstrating that continued conventional conflict risks escalating the crisis to a large scale nuclear exchange.

In Northeast Asia, growing tensions around the Korean Peninsula are likely, with the possibility of serious confrontation in the coming years. Kim Jong Un is consolidating his grip on power through a combination of patronage and terror and is doubling down on his nuclear and missile programs, developing long-range missiles that may soon threaten the continental United States. Beijing, Seoul, Tokyo, and Washington have a common incentive to manage security risks in Northeast Asia, but a history of warfare and occupation along with current mutual distrust makes cooperation difficult. Continued North Korean provocations, including additional nuclear and missile tests, might worsen stability in the region and prompt neighboring countries to take actions, sometimes unilaterally, to protect their security interests.

Competing Views on Instability

China and Russia portray global disorder as resulting from a Western plot to push what they see as self-serving American concepts and values of freedom to every corner of the planet. Western governments see instability as an underlying condition worsened by the end of the Cold War and incomplete political and economic development. Concerns over weak and fragile states rose more than a generation ago because of beliefs about the externalities they produce— whether disease, refugees, or terrorists in some instances. The growing interconnectedness of the planet, however, makes isolation from the global periphery an illusion, and the rise of human rights norms makes state violence against a governed population an unacceptable option.

#### Terrorism causes extinction.

Phil Torres 21, Visiting Researcher at the Centre for the Study of Existential Risk, M.Sc. Doctoral Candidate at Leibniz Universität Hannover, Affiliate Scholar at the Institute for Ethics and Emerging Technologies, Master's Degree in Neuroscience from Brandeis University, “Can We Clean Up The Mess We've Created? We Have To Do It Now, or Face Extinction”, Salon, 9/5/2021, https://www.salon.com/2021/09/05/can-we-clean-up-the-mess-weve-created-we-have-to-do-it-now-or-face-extinction/

So, what do the trend lines show? The rapid takeover of Afghanistan from the Taliban is fueling worries that al-Qaida could make a comeback, which once again raises the prospect of terrorist attacks against the U.S. Although al-Qaida is weaker than before, it is worth recalling that the core membership of the group in 2002 was only around 170 people. But this time around the inventory of political grievances that drive Islamist terrorism has grown, thanks to the U.S.-led pre-emptive invasion of Iraq, the indefinite detention of "detainees" in Guantánamo Bay, the use of torture as "enhanced interrogation" and so on.

One heard the slogan "never forget" from Americans ad nauseam after 9/11, but the cultural memory of peoples in the Middle East is far more robust than ours. Consider "The Management of Savagery," an influential jihadist manual published in 2004, which foregrounds a number of past foreign policy missteps by the West, including the Sykes-Picot Agreement that carved up the Middle East after the Ottoman Empire collapsed in the aftermath of World War I. As the now-deceased "caliph" of ISIS, Abu Bakr al-Baghdadi, declared in 2014, "this blessed advance will not stop until we hit the last nail in the coffin of the Sykes-Picot conspiracy." If events from the World War I era have prominently driven extremism over the years, imagine how long the atrocities committed by Western forces since 2001 will continue to motivate actions and recruitment in the future. To borrow an insight from Robert Pape at the University of Chicago, terrorism is a demand-driven rather than supply-limited phenomenon.

Add to this the fact that emerging technologies, most notably synthetic biology, cyber-technologies and artificial intelligence, will place unprecedented destructive power in the hands of non-state actors — e.g., terrorists — meaning that the next 9/11 could claim far more victims. In fact, ISIS — which grew out of al-Qaida in Iraq and espoused an even more violently apocalyptic ideology — explicitly fantasized about weaponizing the bubonic plague. As an ISIS member who was educated in physics and chemistry wrote in a document obtained by the U.S., "the advantages of biological weapons is the low cost and high rate of casualties."

The growing power and accessibility of so-called "dual-use" technologies (those that can be used to benefit humanity or inflict terrible harms) is one of the main reasons global catastrophic risk scholars believe the threat of civilizational collapse and even human extinction is higher today than ever before. As Lord Martin Rees famously speculated in his 2003 book "Our Final Hour," civilization has no better than a 50/50 chance of surviving this century. Three years earlier, the co-founder of Sun Microsystems, Bill Joy, compellingly argued in a much-discussed Wired article that, because of technology,

it is no exaggeration to say we are on the cusp of the further perfection of extreme evil, an evil whose possibility spreads well beyond that which weapons of mass destruction bequeathed to the nation-states, on to a surprising and terrible empowerment of extreme individuals.

The intersection of these historical and technological trend lines — of religio-political terrorism and the democratization of science and technology — do not bode well for the future. Add to this the fact that climate change may have played an integral role in the creation of ISIS (by causing record-breaking droughts in Syria that fueled the Syrian civil war, which spawned the organization), and one wonders whether the mayhem since late 2001 might be a mere preview of what's to come.

#### The US is a template for EU antitrust---only domestic policy binds the US to endorse international coordination.

Adán N. Martín 22, Professor, Criminal Law, Castilla la Mancha University. Vice Director, European & International Criminal Law Institute, "On the Way to Stateless Criminal Law," in Global Criminal Law: Post-National Criminal Justice in the Twenty-First Century, Chapter 1, 2022, pg. 3-7. edited for OCR errors.

Note that this new global *ius puniendi* coexists and sometimes interacts with more conventional or treaty-based dimensions of international criminal law or even quasi-federal criminal frameworks, such as that in place among European Union (EU) member states. The situation of transnational and supranational criminal law can be pictured as a set of three legal frameworks, each of them with distinct features and elements and yet with large overlaps: (i) classic international criminal law; (ii) European criminal law, and (iii) global criminal law. It makes no sense to argue about whether a given framework falls within the scope of another. Alongside these legal frameworks, criminal justice systems of the strongest countries, namely that of the United States, can also play a key role. US criminal law has a clear extraterritorial vocation, and it exerts a strong influence on other criminal law frameworks, hence the so-called Americanization process.7 \*\*\*FOOTNOTE BEGINS\*\*\* Within the context of economic criminal law, I dealt with this issue in Nieto Martín (2007). On this topic, see the remarkable works by Raustiala (2002) and Slaughter A. M. (2014a, b). These works provide an overview of the Securities and Exchange Commission’s strategy regarding stock market law, Environmental Protection Agency’s approach in environmental matters, or the Department of Justice’s stance on antitrust law to expand US law worldwide. Another interesting work is Nye (1990). This work elaborates on the concept of soft power as one of the main instruments implemented by the United States to expand its regulatory models. Soft power means, inter alia (i) taking advantage of training officials from other countries; (ii) providing technical assistance; (iii) establishing coordinating bodies, and (iv) exchanging best practices. \*\*\*FOOTNOTE ENDS\*\*\* This work focuses on global criminal law. There will not be a detailed analysis of the other two frameworks or the most influential national legal orders; occasionally, we will discuss them for comparative purposes only.

2 The Forces of Change

The emergence of post-state criminal law, whose patterns differ from those of classic international law, results from two main transformative elements that can be found in the various dimensions discussed below. First, there is relational sovereignty, a new concept of sovereignty downplaying the importance of the state-territory binomial and bringing new actors on the international relations stage. Second, there is a renewed concept of security; it legitimizes the appearance of new actors on stage while providing grounds to justify further control and prohibitions.

2.1 Relational Sovereignty

The first driver of transformation is the metamorphosis of the ever elusive concept of sovereignty. The prevailing conception of sovereignty stems from the Peace of Westphalia. Westphalian sovereignty departs from feudalism and from the frst state-building approaches. From then onward, power and authority became tied to a “spatial extension”: the territory (Badie 1995, Ruggie 1993). Within their borders, sovereign rulers exercise their power without any external meddling or interference from other rulers or from papal or imperial power (potestas legibus solutus). Westphalian sovereignty is the right to be left alone, to exclude, to be free from any external meddling or interference within each sovereign ruler’s spatial extension (Slaughter 2004).

According to this classic conception of sovereignty, when a sovereign state engages in relations with other states it does so on an equal footing with any others (sovereign equality), being an autonomous agent in the international community (Kelsen 1944). International treaties and conventions, the paramount source of international law, comply with this paradigm. International conventions become legitimate, come into force, and thus are incorporated into domestic law, upon ratifcation by national parliaments, who are entitled to make reservations or to withdraw from treaties (treaty denunciation) if they see ft. This model of international law barely interferes with state sovereignty. Under this paradigm, international law theory shares some aspects with contract law (pacta sunt servanda, the principle of good faith…), and international law standards are based on a principle that resembles free will: “The rules of law binding upon States therefore emanate from their own free will” (Lotus, PCIJ, Ser. A, no. 10, 18; Caeiro 2010).

International organizations also rely on the principle of sovereign equality, and their activity is based on fully respecting states and their territory. An expression of this respectful relationship is that international organizations address their decisions to member states, yet these decisions do not directly affect individuals. There is no doubt that states “own” international organizations. Traditional international institutions do not get involved in state-citizen relations; these are handled exclusively by sovereign authorities.

This approach to international relations implies that states interact with each other and with international organizations through a very specific branch: diplomatic missions. The remaining state bodies and offcials are not empowered to engage in interstate relations or, let alone, to enter into agreements or strategic alliances. In the international arena, countries act as unitary states, meaning that their bodies, authorities, or internal departments have no international presence. As discussed in detail below, this remains the prevailing conception regarding international cooperation. When asked for assistance, judges, public prosecutors, and law enforcement authorities help each other, but they do not cooperate directly. In its most traditional version, judicial cooperation or assistance must be implemented by diplomatic offcials. The same applies to legislatures: they are not involved in any treaty negotiations. National legislatures simply ratify conventions or, at best, they give advice to diplomatic authorities, but they do not negotiate.

After World War II, following a steady process beginning with the Treaty of Versailles and the creation of the League of Nations, there was a paradigm shift in international law. A new version of classic international law appears, the so-called progressive Grotian tradition, which is now the prevailing paradigm. State sovereignty, that is, sovereignty of authorities over their citizens within their borders, will no longer be absolute. PostWorld War II human rights conventions entail that human rights limit sovereign authorities’ scope of action within the territory (Ferrajoli 1998). Now, public international law is mostly concerned about individuals. The Nuremberg trials embody this new paradigm leading to countries’ loss of power. States, and thus individuals acting on their behalf, are no longer invisible for international law, and they can now be held liable subject to international law provisions.8 International law currently assumes the ability to intervene and to set aside the right to be left alone where states (i) violate human rights on their territory or (ii) are unable either to prevent human rights abuses or to ensure compliance with human rights inside their borders (Slaughter 2004 p. 284; Ferrajoli 1998 p. 177). Alongside this frst paradigm shift in international law, there is a second transformation accounting for the rise of global law. As shown below, states no longer have a major role in rulemaking or regarding coercive enforcement. This transformation led to a new concept of sovereignty. There has been a transition from Westphalian sovereignty to a post-Westphalian or relational sovereignty (Chayes and Chayes 1995).

Some problems are no longer solved by the states’ ability to exercise their authority freely and in isolation within their borders. Exercising the ius puniendi based on their exclusive jurisdiction over their territory does not guarantee that states will be able to effectively tackle transnational crime, environmental protection issues, or fnancial market stability. In a globalized world, citizens face problems that are cross-border in nature. In order to solve these problems, states must be able (i) to enter into relations with other states, organizations, and companies as well as to (ii) create areas of joint government. The greater a state’s ability to set up networks with public or private actors, to cooperate with other states, or to impose its views in international institutions, the greater the state’s sovereignty or power. Within this new context, political scientists refer to soft power as the means to achieve certain objectives. Soft power prioritizes dialogue over coercion, by exchanging ideas in international networks, training foreign public offcials, and giving advice (Nye 1990).

In contrast with traditional sovereignty, relational sovereignty entails sharing sovereignty and power with other states, with international organizations, and even with private stakeholders. The most remarkable players are the so-called government networks, which focus on very specific and highly specialized global matters such as banking supervision and regulation, the environment, as well as antitrust and securities law. These networks are the main rulemakers in global governance. As discussed below, there is a myriad of these informal organizations. Nation-based hierarchies and diplomatic missions do no longer meet. Depending on the network, the meeting participants are, inter alia, senior offcials from stock market supervisory bodies, from antitrust authorities, banking supervisors, judges, or law enforcement authorities. Traditionally, states used to act en bloc, as a unit. However, under the new paradigm of international law, states are extremely disaggregated, fragmented, and represented by bodies and offcials that freely and directly enter into relations with their foreign counterparts (Slaughter 2004; De Bellis 2020).

Relational sovereignty has also given rise to cooperation jargon terms like “public-private partnership” (Donahue and Zeckhauser 2006; regarding corruption Klitgaard 2012). In these partnerships, public and private actors engage in primarily horizontal relations and work together to tackle certain issues such as corruption. NGOs and multinational corporations are the leading actors in global governance. They participate both in rulemaking and in enforcement. Due to their fexible nature, the aforesaid government networks encourage the presence of these players. Therefore, NGOs and multinational corporations sometimes operate in these networks, but they also get involved in rulemaking procedures within the most traditional international institutions for the sake of deliberative democracy. On top of this, in rulemaking there is a trend toward self-regulation in all states, encouraged as a form of global governance. This trend has not yet been connected with a metamorphosis of the concept of sovereignty. However, self-regulation is clearly a national strategy to seek or require cooperation in rulemaking and enforcement. In other words, self-regulation shows states’ will to call upon other actors and to enter into relations therewith to devolve or delegate powers that used to be exclusively held by state authorities (Bamberger 2006).

Ultimately, relational sovereignty has brought along a more sociological and less formal explanation of the validity and effectiveness of international law (Raustiala 2002; Slaughter 2014a, b). Compliance in international law is based on the ability to establish support networks for pieces of legislation ensuring the provision’s (i) technical legitimacy, along with (ii) a strong support in terms of shared values or opinions, as well as (iii) reputational and economic costs in case of infringement. Thus construed, the success of legal provisions shows the importance of soft law, guidelines, private standards, or self-regulation, which is intertwined with the previous aspects (see Chap. 2, section “Effectiveness Strategy”).

#### Its antitrust law has direct and indirect causal mechanisms that encourage conformity.

David Gerber 12, Distinguished Professor, Law, Chicago-Kent College of Law, Illinois Institute of Technology. President, American Society of Comparative Law, "US Antitrust Law: Models and Lens," in Global Competition: Law, Markets, and Globalization, Chapter 5, 2012, pg. 151-158. edited for OCR errors.

US law and US antitrust experience have played central roles in the development of competition law virtually everywhere, and they are central to global competition law development. The US system is often referred to as a ‘model,’ and this model role has shaped the dynamics of global competition law development. Many foreign officials and commentators assume that they should or must follow it.50 Others have been skeptical that it is appropriate for their own circumstances.

I hear use the term ‘model’ in a broad sense to refer to an identifiable set of legal principles and institutions to which others commonly refer. In this sense, US antitrust law is a model, because it is commonly referred to as such. As we shall see, a model can have many functions, and can be used in a variety of ways. As we investigate the role played by US antitrust, it is important to emphasize that its roles are typically based on perceptions and images rather than extensive knowledge of the US system. The term does not necessarily imply a positive assessment of the identified characteristics.

1. Distinguishing among roles

The US model plays several roles and performs several functions. Distinctions among them are seldom clearly drawn, but failure to make them can distort analysis of the dynamics of global competition law today as well as assessment of future policies. At a basic level, the US model is important because it is a common point of reference for virtually all who participate in the global competition law arena. Some have studied US antitrust formally, but most have merely picked up pieces of information about it. All have at least some idea of some of its features. This dimension of the US role often goes unnoticed, but it frames assessments of the US system and anchors assumptions about the directions of global competition law. It is important to identify such cognitive factors, because many are unaware of them, and thus their influence can easily be underestimated.

The US model’s role as a common reference point is associated with its role as a heuristic—a cognitive device for thinking about complicated issues. Basic images of US antitrust law often orient discussions of competition law issues and supply a language for those discussions. Discussions of global competition law often contain comments such as ‘we’re moving toward a US system’ or ‘this is like the US model.’ In this way, the US model simplifies and structures complex information and facilitates discussion of competition law issues among participants who may share few other points of reference.

Use of US antitrust as a shared point of reference easily blends into a related use in which it serves as a standard of comparison and a criterion for evaluating competition law systems. Comments such as ‘country X’s system is still immature or undeveloped in comparison to the US antitrust system’ are common. The assumption here is that the US system is not only a point of reference, but it also represents a better or more mature system that others should emulate.

The US model also plays more specifically normative roles. It is often used as a source of authority for claims about what competition law should be. In this use, a proponent of a particular viewpoint or decision in a foreign system seeks to strengthen [their] ~~her~~ argument by showing that [they are] ~~she is~~ advocating a position from US law. US antitrust law here represents a form of normative ‘authority’ that can be used to support claims in other antitrust systems. Similarity to the US system in and of itself supports such claims. No further argument is required. The low cost of arguments based on this type of authority makes them particularly attractive for use by those with limited resources and those for whom lack of experience or other constraints make more sophisticated analysis difficult.

Finally, US experience also serves as a source of data. Here the focus is on the evolution of the US model rather than on the model itself. The long history of US antitrust law makes it a valuable source of antitrust experience. Th ere is an unparalleled depth of judicial opinions spanning more than a century, and many contain far more material about the practices involved than is available in other systems. In addition, there is a rich body of scholarly writing about antitrust law, and it includes a wide variety of theoretical perspectives. Importantly, the material is available in English, and it is thus far more accessible than are other rich sources of competition law experience such as German experience in the twentieth century.

2. Evolution of the model’s functions

These functions are intertwined, and their relative importance has changed over time, generally paralleling the changing role of the US in global economic and political affairs in the twentieth century. As noted in chapter two, reviews of the US antitrust system prior to the Second World War tended to be negative, and they appear to have often been based on very little actual knowledge of the system. Comments often focused on the then ‘radical’ practice of prohibiting certain conduct that was deemed anticompetitive. European economic thinking and political realities made such a prohibition seem unwarranted and unrealistic. Moreover, the US prohibition system was portrayed as harmful, because it forced fi rms to merge rather than cooperate, thus intensifying the concentration of industry, a spectre that haunted Europe during the early decades of the twentieth century.

In the aftermath of the Second World War, European views changed dramatically. The US was now in a dominant position in the market-oriented part of the world, and it promoted antitrust as a tool for fostering democracy and peace and for generating wealth. Many forgot that there had been a different model of competition law in Europe in the 1920s, and they came to identify competition law with its US variant. Over the next forty years, the US model was effectively imposed on transnational markets, because its courts and institutions applied or threatened to apply US antitrust law anywhere, and US hegemony generally blunted resistance to its imposition. This meant that scholars, lawyers and officials involved with competition law throughout the world had little choice but to learn at least something about US antitrust law and to respect its potential impact.

The fall of the Soviet Union and the successes of the US economy in the 1990s opened another chapter in the evolution of this model role. The return of global markets and their new prominence brought renewed attention to competition law, and much of the attention underscored the model role of US antitrust law. US officials, lawyers and economists have taken leading roles in the internationalizing networks that have formed during this period. They have promulgated US antitrust thinking, touting it as an important factor in building economic progress and political stability in countries previously operating on non-market principles. Officials in the many new competition law systems have needed technical assistance, and the US has been willing and able to provide it. All of this reinforces the image of US antitrust as the ‘leader’ in the field.

3. Influences and incentives

Why have others sought to know, use and follow the US antitrust model? Isolating these factors allows us to assess their impact on current dynamics as well as on future strategies. One factor is the status of US antitrust as the oldest and best-established antitrust system in the world. This ‘father’ image itself tends to confer status and authority on it. A decision maker outside the US, particularly one with a little developed competition law, can often support a position or claim by identifying it as a borrowing from the world’s oldest and most ‘mature’ system. The claim is thereby sanctioned by time and experience. A more refined version of this claim is that the long history of US antitrust does not by itself justify its authority, but that US antitrust has undergone a long process of trial-and-error learning that has revealed mistakes and produced a better system. US writers are fond of using this latter version of the claim, and often fervently believe that US experiences in the 1950s and 1960s show the follies of older and less economically based versions of competition law.

US economic successes, particularly in the 1990s and early 2000s, created another set of incentives to follow the US model. For many, the soaring US economy of the period appeared to confirm the superiority of US economic policy. Antitrust is part of that economic policy package and thus derives status and authority from its success. Ideological factors have sometimes enhanced this attractiveness and augmented the authority it provides. US antitrust is a symbol of ‘US-style capitalism’ with its resistance to government interference with business, and thus those who support this view of the relationship between government and markets have tended to welcome and support the introduction of US antitrust principles and practices into their own systems. For almost two decades prior to the financial crisis that began in 2008, governments virtually everywhere sought to emulate at least portions of this policy package.

US antitrust law is often also seen as a surrogate for an international standard. Discussions of economic globalization often seek international standards, and this has been particularly prominent in discussions of competition law. A competition law decision maker can expect support for a claim to the extent that it represents ‘what the others are doing,’ i.e. an international standard. Although there is no international standard, many assume that US power will require that US antitrust law serve that function.

US economic and political power sometimes also directly supports the influence of US antitrust law. These issues are seldom discussed, but their influence can be extensive. One form of power is governmental. The US government has actively sought to influence the development of foreign systems. Sometimes this is overt and well-publicized, as, for example, during the early 1990s when the US government pressured the government of Japan to increase enforcement of its antitrust laws, thereby hoping to increase the access of US fi rms to the Japanese market. More commonly, pressure is exerted in the context of aid and technical assistance programs, where a country can expect to gain US support and/or assistance by conforming its conduct to the wishes of the US authorities.

Private power and influence play somewhat similar, less obvious, but potentially more pervasive roles. Here there is no direct use of governmental power. Instead, the power is ‘soft’—i.e., the capacity to induce others without coercion to make decisions that correspond to the interests of the private parties involved.51 One forum for this exercise of soft power is the international competition law conferences that have become increasingly common since the mid-1990s. These conferences provide fora where lawyers, economists and public officials present their views and experiences make contacts and often seek to influence each other. In these contexts, US officials and lawyers have played leading roles. They often host the most prestigious of these conferences, and they are often featured speakers.52 As a group, their prominence is based on many factors, including their experience in international competition law matters, the richness of US scholarship, and the practical importance of US antitrust enforcement throughout the world. US lawyers and economists also benefit from the weight and influence of the institutions with which they are associated. Especially since the 1990s, very large international law firms have formed, primarily to provide services to large, internationally-structured business firms. These firms often commit significant resources to influencing foreign decision makers to favor the interests of their clients. This creates incentives for lawyers, officials and economists from other countries to seek contacts with them for their own benefit, e.g., through the potential for client referrals and so on. Large multinational corporations represent a potentially significant source of income for lawyers and consultants in the competition law fi eld. Th ese factors can also influence the literature of antitrust.

E. US Antitrust Experience as a Lens: A Leader’s Perspective

US antitrust experience is also the lens through which members of the US antitrust community and many of those associated with it view transnational competition law issues and assess foreign antitrust laws. It is common for members of this community to assume that the US antitrust system is generally superior to others and that others should follow it, perhaps shorn of some of its inconsistencies and weaknesses (such as vestiges of classical-era case law thinking). The unique evolution of the US system and its relations with other competition law systems combine to shape these US attitudes. The lens they have shaped is the source of US confidence in competition law convergence as a strategy and the generally negative US views on multilateral commitment. We look briefly at the characteristics of this lens and the images it has shaped.

A key feature of the lens is its narrow focus. There have been few incentives in US antitrust experience to look at competition law broadly, i.e., to view US antitrust as just one competition law among many. US antitrust law officials, scholars and lawyers have seldom had occasion to look carefully at foreign competition law experiences or to learn from them. There is, for example, very little in-depth comparative law writing in the antitrust field and what there is typically suggests that US antitrust law should instruct others. The general tenor of US writing that deals with foreign systems is to point out their inadequacies in relation to US antitrust learning.

Related to this is a general tendency of the lens to exclude or marginalize political and social factors in considering antitrust law and its influence. US antitrust law is made by courts. In contrast to virtually all other competition law regimes, legislative influences have been minimal in its history, and thus there has been no vehicle for direct political influence. As a result, the US antitrust community pays primary attention to court decisions, which are generally less concerned with issues of political support.

Using this lens, members of the US antitrust community generally view the basic principles and approaches of US antitrust law with satisfaction, or at least as preferable to its alternatives. Few would consider it unblemished, but most consider it to be basically ‘right.’ The rapid victory of this economics-based conception of antitrust has imbued members of the US antitrust community with confidence that current US antitrust thinking provides the ‘right answers’ to basic antitrust questions. There is little in US experience that generates questions as to whether what is ‘right’ in the US is also ‘right for the rest of the world. It is a universalizing view of US antitrust law. When it is combined with the power and influence of the US it can easily appear to others as arrogance, whereas from within the US antitrust community it is just a ‘better way’ developed through hard won experience.

Confidence in the ‘superiority’ of US antitrust law is not new. It has long been common within the US antitrust community. US antitrust law was the first prominent antitrust system, and this long-ago accustomed member of the US antitrust community to seeing their system as the ‘father’ of modern competition law and to having it seen as such by others. This father image has tended to generate and support the impression that others do and should look to the US system for leadership.

Th is self-image was strengthened in the aftermath of the Second World War. Th e US promoted antitrust as part of its ‘mission’ to help democratize countries such as Germany and Japan and to spread market principles and democracy. Th is led many to forget that there had been a different model of competition law in Europe prior to the war. US antitrust law became the model for antitrust law. The missionary tenor of this message has had a lasting, if altered and reduced impact.

Th e reformulation of US antitrust philosophy that began in the 1970s strengthened the perception in the US antitrust community that US antitrust thinking had found the right answers to basic antitrust questions. It urged that an economics-based antitrust law was superior to earlier conceptions of antitrust law in which issues such as fairness and bigness had influenced decisions. In this image, US antitrust law has learned from its mistakes and now provides a convincing and analytically consistent basis for antitrust. This understanding of US antitrust experience leads many in US antitrust law to scorn forms of competition law in other countries that resemble those earlier US ‘mistakes.’ A common refrain is that ‘we did that, and we know that it doesn’t work.’ When this lens is applied internationally, it readily leads to the conclusion that foreign systems that are concerned with issues such as fairness that have been discredited in the US domestic context deserve limited respect.

The 1990s again spotlighted the leadership role of US antitrust. The US was prominent in providing technical assistance based on US experience, and since then US officials and lawyers have generally been in the forefront of discussions of transnational competition law in many areas of the world. All this reinforces the image of the US as the most prominent antitrust system, i.e., the ‘leader’ in the field.

Finally, the image that US law is ‘the right way’ to do antitrust gives members of the US antitrust community something to ‘sell.’ US lawyers, economists and officials (many of whom expect to return soon to private practice) have incentives to promote the superiority of the US approach.53 Where others adapt the US system, they will undoubtedly turn to the US for guidance and advice.

US antitrust law and experience have long been at the center of discussions about competition law. For those outside, US antitrust law has often been a point of reference for thinking about their own decisions. For those within US antitrust, US experience has been a lens for viewing and evaluating the decisions of others and thinking about the future of competition law on both national and transnational levels. The centrality of these roles makes US antitrust experience unique and exceptionally important. It can be of great value to others and to global competition law development, but it can also obstruct and distort that development.

There are two basic ways of looking at the relevance of US experience for other countries and for global competition law development. One is to see US experience as an evolutionary process that has produced a universally valid ‘best’ approach. Here the claim is that the US has experimented with competition law longer than have other systems; that ‘trial and error’ experience has led to the rejection of approaches that have been shown to be ineffective; and that this has led to a superior system that should be copied by others. In this view, US experience is relevant to all countries and should be the model for global competition law development. A second view asks whether US experience is specifically relevant to the development of competition law in other countries and for global development. Does US experience in setting goals and creating and maintaining institutions relate specifically to the problems and issues faced in developing competition law on a global level? Here the answer is that US experience can be of great value, but that it must be used with careful attention to its uniqueness.

#### That is particularly true of the precise details of US guidelines regarding the financial sector.

Rachel Brandenburger & Joseph Matelis 14, Recognized International Antitrust & Competition Law Policy Advisor. Senior Advisor, Hogan Lovells US. Non-governmental Advisor, International Competition Network. Member, ABA, Antitrust Law, International Task Force. Former Special Advisor, International to the Antitrust Division, US Department of Justice; Special Counsel, Sullivan & Cromwell. Former Chief Counsel, Innovation, US Department of Justice. Former Counsel, Assistant Attorney General, Antitrust Division, US Department of Justice, "From *Philadelphia National Bank* to Global Guidelines," Competition Law International, Vol. 10, No. 2, October 2014, Lexis.

Fifty years ago, the Supreme Court handed down its opinion in *Philadelphia National Bank*. The enduring effect of the opinion on US merger policy is well recognised. Less well recognised is the considerable, if indirect, influence that Philadelphia National Bank has also had on merger policy outside the United States. That international influence would have been inconceivable when the Supreme Court gave its opinion. Fifty years ago, barely a handful of jurisdictions aside from the United States had an antitrust or merger regime; today, there are over 100 such regimes around the world. This article briefly traces that important if indirect influence.

In 1963, when the Supreme Court decided *Philadelphia National Bank*, it announced what is now known as 'the structural presumption' under which courts generally presume that a merger significantly increasing a market's concentration is illegal:

'Specifically, we think that a merger which produces a firm controlling an undue percentage share of the relevant market, and results in a significant increase in the concentration of firms in that market, is so inherently likely to lessen competition substantially that it must be enjoined in the absence of evidence clearly showing that the merger is not likely to have such anticompetitive effects.' 1

Citing several leading authorities of the day, the Court explained that the presumption was 'fully consonant with economic theory'. 2 With regard to the application of the presumption to the specific facts at issue, the Court stated that the merger 'will result in a single bank's controlling at least 30 per cent of the commercial banking business in the four-county Philadelphia metropolitan area' and that '[w]ithout attempting to specify the smallest market share which would still be considered to threaten undue concentration, we are clear that 30 per cent presents that threat.' 3 The Court went on to state that 'whereas presently the two largest banks in the area (First Pennsylvania and PNB) control between them approximately 44 per cent of the area's commercial banking business, the two largest after the merger (PNB-Girard and First Pennsylvania) will control 59 per cent. Plainly, we think, this increase of more than 33 per cent in concentration must be regarded as significant.' 4

The US Department of Justice issued its first merger guidelines five years later. 5 Consistent with the focus on market shares and the presumption of illegality set forth in Philadelphia National Bank, the 1968 Merger Guidelines delineated market-share thresholds that, if exceeded, would prompt the Department to 'ordinarily challenge' a merger. 6 The specific shares that would likely prompt a Department challenge under the 1968 Merger Guidelines were low; for instance, the Department stated in those guidelines that it would ordinarily challenge any merger whereby a firm with more than a 25 per cent share of a market merged with a firm with more than a one per cent share. 7

Fourteen years later, in 1982, the Department issued substantially revised merger guidelines. Critically, the 1982 Merger Guidelines retained the presumption construct adopted in Philadelphia National Bank, albeit reworked around HHI (Herfindahl-Hirschman Index) calculations as opposed to market shares. In particular, the Department stated that it was 'likely to challenge mergers' that resulted in post-merger HHI levels above 1,800 points and an increase of 100 points or more. Those HHI thresholds roughly approximated those triggering the presumption of illegality in Philadelphia National Bank, which involved a post-merger HHI of about 2,000 points. The structural presumption was similarly retained in the revisions to the US merger guidelines issued in 1984, 1992, 1997 and 2010, the last of which increased the HHI threshold triggering a presumption to 2,500 points to better reflect actual agency practice.

Many non-US jurisdictions have issued merger guidelines since the United States first adopted them. As we have discussed elsewhere, 8 those non-US merger guidelines share many significant similarities with the US merger guidelines, including a focus on market shares and inferences to be drawn from them. The international community, however, generally uses market shares to establish safe harbours or to determine whether the parties can make an abridged or simplified filing, as opposed to presumptions of illegality as in Philadelphia National Bank and the US merger guidelines. Mergers that fall below certain market-share thresholds are functionally presumed to be permissible absent special consideration under the merger guidelines of many non-US jurisdictions. For example, the EU Guidelines state that the Commission is 'unlikely to identify horizontal competition concerns' with transactions that result in an HHI below 1,000, an HHI between 1,000 and 2,000 where the change in HHI is less than 250, or an HHI greater than 2,000 where the change in HHI is less than 150. 9 The Australian Guidelines rely on a single HHI threshold, stating that the agency will be 'less likely to identify horizontal competition concerns' where the post-merger HHI is less than 2,000, or greater than 2,000 where the change in the HHI is less than 100. 10 Similarly, the UK Guidelines state that competitive concerns are 'less likely' when either: (i) the merger increases the HHI by less than 250 when the post-merger HHI is between 1,000 and 2,000; or (ii) the merger increases the HHI by less than 150 when the post-merger HHI exceeds 2000. 11 The Canadian Guidelines employ the four-firm concentration ratio as their relevant measure of market concentration in coordinated effects cases, indicating that competitive concerns are 'generally' absent when the post-merger share of the four largest firms is less than 65 per cent. 12 In unilateral effects cases, the Canadian Guidelines provide that the Bureau will generally not challenge a merger where the post-merger market share of the merged entity is less than 35 per cent. 13

In December 2013, the Irish Competition Authority issued revised Guidelines for Merger Analysis 14 explaining that '(t)hese Guidelines are thoroughly updated based on the Authority's experience and in line with best practices internationally.' 15 Among the changes made were increases to the post-merger HHIs and the change (or 'delta') pre-and post-merger 16 bringing the thresholds in line with those in the EU Guidelines. The revised Irish Guidelines note that '(m)arket concentration… is not determinative in itself. A high level of market concentration post-merger is not sufficient, in and of itself, to conclude that a merger is likely to lead to an SLC [substantial lessening of competition].' 17 The Guidelines also state '… the HHI is a screening device for deciding whether the Authority should intensify its analysis of the competitive impact of a merger.' 18

Of particular interest is the Guidance on Substantive Merger Control issued by the German Federal Cartel Office (Bundeskartellamt) in March 2012. German merger control law contains a rebuttable presumption of dominance if certain market share thresholds are met. 19 The Guidance explains that '… the fact that these thresholds have been reached or exceeded is not in itself sufficient proof of high market power or even dominance. The presumption only applies if, after a thorough investigation, neither the existence nor the absence of dominance can be proved (non liquet). The provision is without prejudice to the BKartA's obligation to investigate fully the competitive situation on the relevant market and to prove that all the requirements of dominance have been fulfilled.' 20

The role of the presumption in German merger law has been explained as resulting from and reflecting certain characteristics of German merger law. 21 First, the presumption does not mean that the Bundeskartellamt is not obliged, like other agencies, fully to investigate all the facts that are relevant to the substantive investigation of the merger. Rather, it determines the legal burden of proof, namely that it is the merging parties that bear the burden of rebutting the presumption if it applies following the Bundeskartellamt's investigation of an individual case. Second, because of the lighter information burden that a German as opposed to, for example, an EU merger filing imposes on the parties, and also the tighter review timetable, the parties are in a better position than the Bundeskartellamt to know what information is relevant for the investigation of a particular merger. Third, under German merger law, the courts have full jurisdiction to review the findings of the Bundeskartellamt, whereas the EU courts have less extensive powers of review. The rebuttable presumption enables the German courts to focus their review and assessment. In sum:

'… the rebuttable presumptions are not really tools for the substantive assessment of mergers, but primarily procedural rules that are necessary to obtain the relevant information from the merging parties in order to ensure effective merger control. They do not reflect a bias against the legality of mergers, but should be understood as an instrument to ensure that errors are avoided and mergers can be decided on the basis of all relevant facts (and not on the basis of the burden of proof). They are a functional equivalent to the information requirements under Form CO, mandatory pre-notification, and the standard of review in EU competition law....' 22

Market shares and HHIs are also playing a role in newly amended or introduced rules by some agencies for 'simplified' or 'simple' procedures for mergers that are generally unlikely to raise competition concerns. For example, under EU rules, companies have been able since 2004 to use a shorter notification form for such mergers, and the Commission is permitted to approve such mergers without a market investigation. At the end of 2013, 23 the scope of the EU's simplified procedure was expanded to include more mergers by increasing the relevant market share thresholds as follows:

* For markets in which two merging companies compete, mergers below a 20 per cent combined market share now qualify for the simplified procedure (previously, the threshold was 15 per cent).
* For mergers where one of the companies sells an input to a market where the other company is active, mergers below a 30 per cent combined market share now qualify for the simplified procedure ( previously, the threshold was 25 per cent).
* A new criterion was also introduced for mergers where the combined market shares of the two merging companies is between 20 per cent and 50 per cent. If the increment in the HHI resulting from the merger is below 150, the merger may, at the Commission's discretion, also be assessed under the simplified procedure.

In February 2014, China's Ministry of Commerce (MOFCOM), the anti-monopoly authority responsible for merger control, published Interim Provisions on Thresholds for Simple Cases in Concentrations of Undertakings. 24 These Provisions specify circumstances in which a merger may be regarded as a 'simple' case subject to reduced filing requirements. MOFCOM issued implementing rules in April 2014. 25 For the purposes of this article, it is interesting to observe that MOFCOM has identified three circumstances where, on the basis of market share criteria, the merger will be regarded as 'simple':

* In the case of a horizontal merger, if the merging parties have a combined market share of less than 15 per cent of the relevant market.
* In the case of a vertical merger, if the parties' market share is less than 25 per cent in the relevant upstream or downstream market.
* Absent any horizontal or vertical relationship, the market share of the parties in their respective relevant market is less than 25 per cent.

In January 2014, MOFCOM included an analysis of HHIs in its conditional clearance decision in the Thermo Fisher and Life Technologies merger. 26 This is the first time there has been such an analysis in a decision published by MOFCOM. MOFCOM's analysis focused on market concentration levels and post-merger estimates of potential price increases. MOFCOM identified 13 product markets for in-depth review based on HHI and estimated post-merger price increases. The combined HHI for the identified products exceeded 1,500 with a post-merger HHI increment of at least 100. The merger was also reviewed by the European Commission, the US Federal Trade Commission, and several other antitrust agencies around the world.

A second recent MOFCOM decision is also noteworthy for its use of market shares and HHIs. On 17 June 2014, MOFCOM blocked the proposed P3 Network shipping alliance among AP Moeller-MAERSK A/S of Denmark, Mediterranean Shipping Company of Switzerland, and CMA CGM of France, three of the world's largest container-shipping lines. 27 The MOFCOM decision focused on the Asia-Europe container liner shipping market. MOFCOM concluded that the three proposed alliance members' combined market share had reached as high as 46.7 per cent and went on to note, apparently attributing each alliance member's share to the proposed alliance itself, that the alliance would result in a post-transaction HHI of 2,240 with an increase of 1,350 from the pre-transaction level. 28

Whether expressed as a safe harbour, a condition for use of an abridged or simplified filing, or a presumption of illegality, what is clear is that market shares and concentration thresholds now permeate the international community's discourse about merger policy. That common theme flows from *Philadelphia National Bank*, which has thereby played an important part in forming merger policy around the world.

#### An array of converging interests ensures cooperation across jurisdictions.

Adán N. Martín 22, Professor, Criminal Law, Castilla la Mancha University. Vice Director, European & International Criminal Law Institute, "Territories, Sovereigns, and *Ius Puniendi*," in Global Criminal Law: Post-National Criminal Justice in the Twenty-First Century, Chapter 4, 2022, pg. 72-75. edited for OCR errors.

The departure from this approach is actually allowing for a steady establishment of a new post-Westphalian paradigm in terms of (i) judicial cooperation or mutual legal assistance and (ii) standards and criteria for the spatial application of criminal law. A new generation of international conventions on various forms of transnational crime has provided for different forms of judicial cooperation or mutual legal assistance, assuming that there is a shared interest in prosecuting cross-border crime. Under the mantra of common security, threatened by corruption, terrorism, serious economic offences, and, above all, organized crime, the long-standing distinction between original and derived jurisdiction has vanished in various areas of judicial cooperation.

First, in all of these areas there has been a transformation regarding the spatial application criteria of criminal law. In order to fll punishment gaps, international treaties try their best to create a network of national jurisdictions. The idea of a network, being the basis of any provisions governing the spatial applicability of criminal law, moves away from the traditional model based on the territory and on the exceptional application of the extraterritoriality principle (Böse and Meyer 2011). The aim is not to delineate the areas of sovereignty or power over criminal justice, but to share them. In fact, territoriality is such a dysfunctional and defective standard that it is being superseded by tremendously broad interpretations thereof, under which extremely weak territorial connections are allowed. Recent international agreements extensively embrace legal standing criteria based on the “defendant’s domicile” or “permanent residence” and, regarding legal entities, based on their activity (Böse et al. 2013). States thus assume that they must extend the applicability of criminal law in a context full of jurisdictional intersections. Judicial cooperation was formerly illustrated by tangent circles that incidentally and occasionally intersected. Now, we can picture the allocation of powers and jurisdictions as overlapping circles with purposefully drawn intersection areas.

Extending universal justice or the principle aut dedere aut judicare is only a step away from the jurisdiction network, and this step is quantitative rather than qualitative. At this point, the distinction between transnational offences (such as drug traffcking) and international crimes (genocide, for instance) plays a role. Within the frst category, extraterritoriality is sought through the network. However, regarding the latter, universal justice is more clearly legitimized. However, the line between the two is blurry, and the network approach is also implemented for international crimes (Fouchard I. 2013, p. 71 et seq). In fact, the different names and scopes of application of international and transnational crimes can be due to the fact that they stem from two different moments in history. International crimes arise from the aforesaid progressive Grotian tradition, which begins after World War II with the Nuremberg trials and the creation of the United Nations. Transnational crimes, however, are a genuine expression of globalization, its problems, and the current concept of security. In any event, the point is that certain offences are no longer “internal affairs” of a given country; now, there is a common interest in prosecuting them. The differences between original and derived jurisdiction become somewhat meaningless in this context, where there is an actual shared or common interest and not legal assistance (Böse 2019).

The regulation of judicial cooperation is an inherent part of international conventions, such as the United Nations Convention against Transnational Organized Crime (UNDOC 2004). Indeed, this UN Convention slowly loosens and causes to vanish key aspects of the traditional cooperation approach, such as the ne bis in idem principle or double criminality,1 the principles of specialization and specifcity, or the nonextradition of nationals (art. 16 (2) and 16 (11) UN Convention Transnational Organized Crimen). There are some other forms of international cooperation where the involvement of ministries has slowly loosened, either because (i) states have designated central authorities, generally reporting to the ministry of justice and thereby keeping the executive branch involved, or (ii) mostly in urgent circumstances, because there is court-to-court communication, as provided in Article 18(13) of the UN Convention against Transnational Organized Crime, which allows to address requests for mutual legal assistance through the International Criminal Police Organization (Joutsen M. 2005, p. 267).

A new principle is also gaining ground: positive comity (Slaughter 2014, p. 315 et seq). The purpose of positive comity is that states do not wait for a request for assistance. Instead, they should actively cooperate. To that end, under the aforesaid UN Convention, states must (i) spontaneously supply information relating to criminal matters to a competent authority in another State Party (art. 18 (4) UN Convention against Transnational Organized Crime); (ii) consider the possibility of transferring criminal proceedings to another State Party (art. 21 UN Convention against Transnational Organized Crime); or (iii) establish joint investigation teams (JITs). Indeed, JITs are a paradigmatic example of this novel judicial cooperation model (vid. Zurkinden 2013). The shared interest or common goals pursued by judicial cooperation or mutual legal assistance is evidenced by the requirement that states initiate, develop, or improve training programs for “law enforcement personnel” (including judges, prosecutors, police, etc., art. 29 et sep. UN Convention against Organized Crimen), which is a way of exercising soft power, as discussed before. The European Union approach entails the most radical transformation. The EU model relies on the mutual recognition principle, which is in stark contrast to each and every guiding principle of traditional cooperation. Although with different names and at a slower path, international cooperation regarding common security is moving toward a similar model (Nieto Martin 2018).

The appearance of new actors on the cooperation stage also characterizes this new model, which is perfectly in line with the notions of “relational sovereignty” and “disaggregated state.” On top of the forms of assistance directly connecting judicial authorities, police, and prosecutors, cooperation between administrative agencies has intensifed. As examined below, this is the case for market supervisory bodies. This form of cooperation is certainly significant concerning market abuse and anticompetitive practices. This work also deals with the appearance of transgovernmental networks (also designated as inter-governmental networks), where the parties involved are national enforcement authorities (police and prosecutors, inter alia) and private organizations actively engaged in asset recovery. In this feld, the Basel Institute of Governance and its International Center for Asset Recovery is very remarkable. It is a publicly funded, not-for-proft Swiss foundation that provides a decisive technical assistance to judges and prosecutors worldwide to assist them in recovering assets from tax havens (offshore fnancial centers) or in banks located in countries such as Switzerland or Luxembourg.

### 1AC---NEW

#### Contention 3 is SOLVENCY.

#### Plan: The United States federal government should prohibit anticompetitive horizontal shareholding by private institutional investors.

#### The plan prohibits horizontal shareholding under revised metrics threads the needle to resolve AND deter large shareholders.

Einer Elhauge 16, Petrie Professor, Law, Harvard Law School, "Horizontal Shareholding," Harvard Law Review, Vol. 129, No. 5, pg. 1302-1304, 2016, HeinOnline.

The view that direct discussions of price or output would be necessary to bring an antitrust action seems to rest on the premise that the relevant cause of action would allege a horizontal conspiracy on prices or output. But a cause of action could be brought against stock acquisitions that create horizontal shareholdings if their structural effect is anticompetitive. Such a cause of action can readily be brought under Clayton Act § 7,174 which was created precisely to address stock acquisitions that create anticompetitive market structures. Usually Clayton Act § 7 is applied to mergers, prohibiting any merger that creates an anticompetitive market structure, without requiring any evidence of postmerger conspiracy or anticompetitive conduct.175 For example, Clayton Act § 7 bans mergers that make oligopolistic coordination with other firms easier or that give the merged firm greater unilateral incentives to raise prices. 176

But Clayton Act § 7 extends far beyond mergers. Its sweeping language provides:

No person shall acquire, directly or indirectly, the whole or any part of the stock ... of one or more persons engaged in commerce or in any activity affecting commerce, where in any line of commerce or in any activity affecting commerce in any section of the country, the effect of such acquisition, of such stocks or assets, or of the use of such stock by the voting or granting of proxies or otherwise, may be substantially to lessen competition .... 177

The statute thus bans any stock acquisition that may lead to anticompetitive effects.

The application to horizontal shareholdings is quite straightforward. As Part I showed, economic models and econometric studies indicate that institutional investors' acquisition of stock in horizontal competitors is likely to substantially lessen competition whenever those stock acquisitions produce a substantial increase in MHHI in a concentrated market. Such stock acquisitions can thus be challenged under Clayton Act § 7. Indeed, legal actions against horizontal shareholdings are quite parallel to the accepted point that one firm's acquisition of a noncontrolling interest in a rival can be illegal (even when passive) if it lessens the incentives of the firms to compete with each other in a sufficiently concentrated market.178 Horizontal shareholdings also raise problems that are very similar to those created by interlocking directorates and officers, which are illegal under antitrust law whenever the firms are large horizontal competitors.179

Accordingly, the federal agencies can and should challenge any stock acquisitions that have produced, or are likely to produce, anticompetitive horizontal shareholdings. Given their own guidelines and the empirical results summarized in Part I, they should investigate any horizontal stock acquisitions that have created, or would create, a ∆MHHI of over 200 in a market with an MHHI over 2500, in order to determine whether those horizontal stock acquisitions raised prices or are likely to do so.

When the agencies are reviewing horizontal mergers, they should also take into account that horizontal shareholdings worsen the anticompetitive effects that the agencies might otherwise predict. And when the agencies review horizontal mergers between institutional investors themselves, the agencies should take into account that such mergers can anticompetitively exacerbate horizontal shareholdings across the product markets in which the institutional investors invest.

The grounds for challenging horizontal shareholdings are in one important sense stronger than the grounds for challenging mergers. A true merger creates integrative efficiencies that might offset any anticompetitive effect from increasing concentration. In contrast, stock acquisitions that create horizontal shareholdings generate no such offsetting integrative efficiencies. 180 There is thus little reason to allow horizontal shareholdings if they have any significant anticompetitive potential. True, acquiring stock in horizontal competitors might create some portfolio diversification benefits for shareholders. But those benefits are small because virtually all diversification benefits could be achieved by investing in one corporation in each market. Such marginal diversification benefits thus cannot offset significant anticompetitive effects. Moreover, even if a marginal diversification improvement benefits shareholders in the stock market, it is unlikely to lower product prices in a way that benefits consumers in the relevant product market. Under the Clayton Act, stock acquisitions are illegal if they may lessen competition "in any line of commerce,"S1 and thus efficiency benefits in one market cannot offset anticompetitive effects in another market.182 \*\*\*FOOTNOTE BEGINS\*\*\* See United States v. Phila. Nat'l Bank, 374 U.S. 321, 370-71 (1963); U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, supra note 27 § io & n.14 ("To make the requisite determination, the Agencies consider whether cognizable efficiencies likely would be sufficient to reverse the merger's potential to harm customers in the relevant market, e.g., by preventing price increases in that market. . . . The Agencies normally assess competition in each relevant market affected by a merger independently and normally will challenge the merger if it is likely to be anticompetitive in any relevant market." (emphasis added)). When a transaction produces large benefits in one market that are inextricably intertwined with small harms to another market, the agencies might exercise prosecutorial discretion not to challenge the transaction. Id. § 1o n.14. But the agencies do not claim that such a transaction would be legal, and this ground for exercising prosecutorial discretion would not apply here because any marginal diversification benefits are small. \*\*\*FOOTNOTE ENDS\*\*\* Accordingly, even if an agency has approved mergers that led to concentrated product markets because those mergers had integrative efficiencies that were likely to benefit consumers in those product markets, such prior merger approvals provide no reason to tolerate horizontal shareholdings that can have no such efficiencies.

#### There is sufficent theoretical and empirical evidence that only antitrust positively alters investor incentives.

Einer Elhauge 21, Petrie Professor of Law, Harvard Law School, "The Causal Mechanisms of Horizontal Shareholding," Ohio State Law Journal, Vol. 82, Issue 1, 2021, Lexis.

The claim that we should delay antitrust enforcement against anticompetitive horizontal shareholding until we have clearer proof on causal mechanisms is misguided. We have ample proof on causal mechanisms, and anyway the empirical evidence on anticompetitive effects justifies enforcement without requiring definitive proof on causal mechanisms. Nor should antitrust law focus on policing particular causal mechanisms, rather than on breaking up anticompetitive market structures.

Some have claimed that every type of causal mechanism that might produce anticompetitive effects is either empirically untested or implausible. Others have claimed that horizontal shareholders lack sufficient incentives to influence corporations to increase portfolio value by lessening competition or otherwise. As this article shows, such claims are analytically unsound and conflict with the empirical evidence.

Finally, those who favor delaying antitrust enforcement stress a fear that it will discourage desirable institutional investor influence on corporate conduct and greatly restrict diversification. I show that neither is true. Lowering horizontal shareholding would in fact increase desirable institutional investor influence on the efficiency of corporate conduct and need not reduce diversification.

## 2AC

### Adv 1

#### Courts will get it right AND appeals solve

Edward D. Cavanagh 20, Professor of Law at St. John's University School of Law, “A 2020 Agenda For Re-Invigorated Antitrust Enforcement: Four Big Ideas”, Cornell Law Review Online, 105 Cornell L. Rev. Online 31, Lexis

Second, while it is true that single firm conduct may give rise to difficult questions of legality under Section 2 of the Sherman Act, that fact alone is not persuasive argument for nonintervention by federal courts. Many areas of law in addition to antitrust present complicated issues, e.g., patents, securities, RICO, bankruptcy, and international trade. Nevertheless, courts hear and determine cases in these areas all the time. Antitrust is no different. Courts are in the business of dispute resolution. Courts may indeed err from time to time, but appellate courts exist, in part, to correct error. More importantly, in enacting the Sherman Act, Congress decided that the courts will be the ultimate arbiters concerning what conduct is or is not lawful. Section 2 is at the core of antitrust law. Judicial withdrawal from cases because they are difficult would seriously undermine the deterrent value of the Sherman Act.

#### Unrestrained investors trigger asset bubbles---collapses the economy AND makes any crash worse.

Ryan Clements 20, Assistant Professor & Chair, Business Regulation Law, University of Calgary, "New Funds, Familiar Fears: Are Exchange Traded Funds Making Markets Less Stable? Part II – Interaction Risks," Houston Business and Tax Law Journal, Vol. 21, Issue 1, 2020, Lexis.

The ETF ecosystem provides a powerful case study of the financial market's evolution in technology and speed. Not only are these products commonly promoted by algorithmic wealth management platforms (robo-advisors), 11ETFs are embraced by high-frequency traders (HF traders) who profit by providing daily liquidity and market-making activity. 12However, an in-depth investigation of the complex ETF operating ecosystem reveals layers of inter-connected relationships amongst product creators, intermediating participants, and retail and institutional investors. 13

Market risks driven by these products emanate from how ETF intermediaries interact in the ETF ecosystem. 14 [\*5] Unfortunately, due to operational complexity, the risks ETFs generate are not well understood. This study's first article described how intermediary interactions with ETFs have the potential to create the illusion of liquidity, an illusion that could prove fragile in a crisis if ETF participants pursue incentives that are discretionary and self-interested. 15It used examples from 1987's "Black Monday" crash and the GFC to highlight the idea that relying on certain actions by financial intermediaries in the middle of a crisis is tenuous. 16In such a situation, it is questionable whether these financial intermediaries will act to provide discretionary liquidity to investors or stabilize prices through touted arbitrage intervention methods. 17

This article complements its predecessor and argues that two significant interaction risks originate from the ETF ecosystem. First, ETFs have the potential to create information cascades, facilitate investor herding, and induce contagion. 18Second, ETFs may distort the prices of underlying assets, thus disincentivizing price discovery and making markets less informationally efficient. 19

Given these risks and the substantial participation in ETF markets by retail investors, pensions, and large institutions, heightened attention in regulatory, investor, and academic areas should be directed to these instruments in order to gain a better understanding of the consequences of ETF's post-GFC growth and to ensure that mitigating safeguards are established against emerging instabilities. 20

The first section of this article outlines how ETFs could contribute to information cascades, investor herds, and contagion. It defines the concept of concentration risk as applied to the ETF ecosystem intermediaries such as authorized participants (APs), 21market makers, 22and fund sponsors. 23It [\*6] continues to show how the failure of a prominent intermediary could trigger an investor run. 24Finally, it discusses how cascade selling could arise from either independent profit-seeking actions of APs or interactions between ETF secondary market trading and sales of underlying assets. 25This section also notes the impact robo-advisors and HF traders have on information cascades and investor herding in ETFs. 26

The article's second section argues that complex interactions in the ETF ecosystem could be both making financial markets less informationally efficient and disincentivizing active price discovery. 27This section outlines how prices of underlying ETF assets and securities might be artificially inflated by demand from index investors who are not engaging in active price discovery - a contention supported by several prominent investors. This artificial inflation can distort the true value of index securities via noise transmission coming from intermediating participants. 28To support this contention, this article presents empirical evidence from several recent studies that show how price and liquidity co-movement in securities can comprise ETF indices and contribute to more volatile markets. 29

This article seeks to provide a unique contribution to the literature on systemic risk and financial crises by illustrating how information cascades, investor herds, and price and informational inefficiencies were present leading up to the GFC, [\*7] during the GFC, and in post-GFC flash crashes. 30Specifically, information cascades and investor herds were evidenced by the demand for mortgage-backed securities and the subsequent run on Lehman Brothers in the wholesale funding market. 31Herding behavior was also prominent in the auction rate securities (ARS) market failure during the GFC. 32

The GFC provides a tragic lesson on how complexity in financial product innovation and intermediary interconnectedness can decrease the efficiency of information in financial markets. When this happens, catastrophic risks build up and go unnoticed until the market crashes. During the GFC, this was evidenced not only by the market's inability to respond to new information leading up to Lehman's failure, 33but also by the risks that were overlooked in the market for mortgage-backed securities during the subprime lending boom. 34This article presents a growing body of empirical evidence to support the proposition that ETFs are also contributing to a less efficient market, a development that should be seriously considered by regulators, academics, and investors of all stripes. The concluding section will identify specific areas where heightened research attention is warranted.

II. Could ETFs Facilitate Investor Herding?

A. Herding, Information Cascades, and Crowd-Panic in Financial Markets

As documented by Michael Lewis, a best-selling author and former bond trader, instances of investor herding and crowd mania were prevalent in the "Black Monday" stock market crash of 1987, 35the East-Asian financial crisis in the 1990s, 36the dot- [\*8] com boom, 37and the GFC. 38Researchers have suggested that investor herding increases systemic risk and negatively impacts the production of information. 39Additionally, during a financial panic, mimicry in the marketplace creates information cascades that disable portions of the market altogether. 40Information cascades have been described as situations "when a market participant can easily observe the behavior of those around him and follows the behavior of the other market participants without regard to his or her information, beliefs, or views of the market." 41In other words, information cascades are a form of market group think "where even rational individuals will choose to abandon their private information (or not make efforts to gather information in the first place) and instead to follow the crowd." 42Thus, these information cascades cause investors to follow the behavior of other investors instead of relying on the "subjective probability regarding the payoff of a particular action, transaction, or contractual term" even though the latter is generally a more effective signal of market trends and information. 43

Professor Steven Schwarcz has captured how such events create sequential ordering and how some investor actions, such as selling a particular asset class, are seen by other investors as decisions supported by better information. 44This response can [\*9] set off a chain reaction of group behavior, also known as "the fragility of mass behaviors," which can produce a procyclical effect. 45Professor Robert Hockett calls this a recursive collective action problem and notes that many "familiar regulatory and policy challenges [in financial markets] ... constitute instances of this general phenomenon." 46

B. Herding and Information Cascades During and After the Global Financial Crisis

Early in the GFC, Professor Cass Sunstein warned about mass herding and information cascades problems, ones he called "lemmings" problems, and suggested that psychology was just as important as economics in determining the necessary regulatory response. 47Sunstein identified numerous cascades where an individual's actions seemed to be influenced by the judgments of others, not by that individual's private decision making process. 48The net result was a "social contagion" of bad decisions involving stereotypical assumptions, including both the pre-GFC axiom that real estate prices always increased over time and the pessimism that stocks were inherently risky, which lead to widespread selling and price destabilization. 49

The frenzied worldwide demand for mortgage-backed securities leading up to the GFC, which was driven by "a misleading information cascade about the value of such MBS," 50is another example of herding behavior and information cascades. Commercial and investment banks were not immune; there is also documented evidence from the GFC of herding behavior by these sophisticated institutions as well. 51Ultimately, the GFC showed how the onset of information cascades leads to [\*10] panicked selling and creates a financial contagion across global markets. 52Further, investor runs on liquidity create self-fulfilling panics and cause a nearly simultaneous intermediary coordination failure in the ARS market. 53A Federal Reserve Board working study on the ARS market noted that "coordination failure among dealers triggered by ... an unexpected first-mover" caused all major broker-dealers to simultaneously withdraw their liquidity support. 54

World Bank researchers note that wholesale funding markets were also affected by this cascade. 55Wholesale funding markets - including commercial paper, repos, and interbank loans - provide banks with a non-depositary source of short-term financing. 56In September 2008, banks, such as Lehman Brothers, were exposed to substantial liquidity crunches, which froze wholesale funding markets. 57Observers reported that "access to wholesale funding evaporated in a matter of days, if not hours," 58and caused a sharp, widespread collapse. Thus, one important lesson learned from the GFC that can be used to evaluate ETF-related risks is that interactions between financial intermediaries can exacerbate a financial crisis. 59

Before the GFC, financial institutions acted as both lenders and borrowers, driving amplification mechanisms and causing other network effects. The securitization practices of these institutions "led to an opaque web of interconnected obligations" and the result was catastrophic. 60Although ETF intermediaries [\*11] do not act as both lenders and borrowers, similar results are possible when these intermediaries act as both ETF arbitrageurs and the underlying asset managers or dealers. 61

Herding did not end with the GFC; recent empirical evidence has also identified herding in the flash crash of May 2010. 62Intraday S&P 500 price data was used to show that market herding behavior started right before the crash and continued through the aftermath. 63The price data also demonstrates a correlation between herding, flash events, and sudden price fluctuations. 64

C. How Could ETFs Create Investor Herds?

An ETF is a collective investment vehicle that provides "market exposure at lower fees." 65ETFs, like index mutual funds, are based on a momentum strategy; underlying assets are purchased when ETF investor money flows in and are sold when investor money flows out. 66Thus, investor demand for ETFs creates artificial popularity for the underlying assets comprising an index - or representative basket - during in-flow periods, while simultaneously having the potential to unleash a bottleneck of future risk during a market sell-off. 67Given the nascent surge in passive investing, a bear market sell-off in ETFs could facilitate an investor stampede on the underlying asset market if active arbitrageurs are unable to stabilize the market by purchasing the underlying assets. 68However, as noted in Part I of this study, ETF arbitrageurs are notoriously unreliable during a liquidity crisis, which can further intensify herding behavior and investor stampedes. 69As John Bogle, the late founder of Vanguard, ominously stated: "If everybody indexed, [\*12] the only word you could use is chaos, catastrophe ... . The markets would fail." 70Regulators and lawmakers would do well to take heed of Bogle's warning and institute safeguards where necessary.

Because the ETF-issuing market is highly concentrated, 71ETFs generate a second possible information cascade with regards to financial intermediaries (like APs and market makers) and swap counterparties (for synthetic ETFs). 72In a report from June 2019 (the ESRB Report), the European Systemic Risk Board (ESRB) concluded that if a large ETF fund issuer had an operational disruption or a serious case of fraud or financial misconduct, then trust in the market could quickly evaporate and lead to an ETF contagion sell-off. 73Additionally, as noted recently by Ireland's Central Bank, a stress event affecting a large AP could cause a significant ripple effect throughout the ETF market. 74If consolidation occurs between market maker or AP firms, 75it could further intensify the potential for herding and first-mover influence while concurrently reducing the number of available APs who could step in to correct mispricing and liquidity shortages. 76This situation itself could cause a crisis due to inherent dangers and market fragility associated with liquidity issues. 77

[\*13] If dealers and market makers start incurring losses, or if their balance sheets are negatively impacted by other exposures and can no longer bear additional risk, they will stop providing liquidity to the secondary ETF market. 78Administratively speaking, ETFs are cheap and, generally, there is a low tolerance for liquidity risk. 79Therefore, active funds holding ETFs in their portfolio will likely sell alongside the herd because the risk of being wrong is too high - they cannot afford to contest the crowd. 80

Professors Ayan Bhattacharya and Maureen O'Hara have theorized about the potential for herding-induced fragility in ETFs using a tractable model of ETF trading. 81Specifically, Bhattacharya and O'Hara identify a potential "tail wagging the dog" phenomenon that occurs when ETF market volatility impacts the price volatility of the underlying assets "even [though] such information is irrelevant for a particular underlying asset." 82In other words, market makers who interpret price data in ETFs by using pricing information from the underlying assets "cannot perfectly distinguish between price changes caused by factors pertinent to their asset, and other factors irrelevant to them." 83This creates market instability. 84

The potential for herding emerges when market makers cannot synchronize the ETF and underlying asset prices (via the ETF arbitrage mechanism) and spectators start trading in unison based on the systematic factor signal - a signal that is unhinged from asset price information. 85For example, the ETF arbitrage mechanism temporarily failed in February 2018 when Inverse VIX products traded at 18 times its net asset value, resulting in coordinated market maker movements, decreased liquidity, and deviations between ETF prices and their net asset values. 86 [\*14] During the May 2010 flash crash, and again in August 2015, ETFs that held long exposure to U.S. domestic equities suffered an arbitrage breakdown with similar mischief. 87The ETF market is only expected to grow, and the regulatory regime must be updated accordingly to protect the market from these inherent dangers. The unified regime was recently proposed by Professors Henry Hu and John Morley; it requires enhanced qualitative and quantitative disclosures for the ETF arbitrage mechanism. 88Another proposed reform would open primary market access to holders of ETF shares that were obtained in the secondary market. 89However, this second proposed reform is beset with practical complexities.

The ESRB Report is another important resource for regulators that identifies the possibility for procyclical market movements influenced by complex ETFs, such as those utilizing leverage and rule-based trading strategies. 90A decoupling of the ETF arbitrage mechanism could lead to a coordinated fire sale as investors lose faith in the ETF operational ecosystem and look to liquidate positions en masse. 91The ESRB Report also notes that ETFs increase market risk by "inducing investors to take corelated [risk] exposures that may trigger a chain reaction with systemic ... implications." 92Regulators and lawmakers should take these findings into account when instituting a regulatory regime for ETFs.

D. The Rise of the Passive Investor

Since 2009, passive equity investments have increased by more than $ 2.5 trillion while over $ 2.0 trillion has been withdrawn from actively managed funds. 93This trend has become so pervasive that one reporter recently referred to it as [\*15] the "Passive Singularity." 94However, the growth of passive investments has been met with mixed reactions. For example, in 2017, the managers at FPA Capital Fund referred to ETFs as "weapons of mass destruction" because investors can purchase ETFs without regard for valuation. 95

There are numerous reasons why passive investing has risen in popularity. Economists and Nobel Prize Laureates George Akerloff and Robert Shiller have detailed the variability and arbitrariness of individual investment decisions based on what they call "animal spirits," a human tendency towards irrationality. 96Even though cultivating savings is a necessary condition for long-term individual welfare and national prosperity, 97Akerloff and Shiller contend that "people have a hard time knowing what to save," which often results in a "deer-in-the-headlights" phenomenon when making investment decisions. 98An ETF appears to relieve this perplexity by reducing decision-making friction that many individuals experience and facilitating a simple "buy-the-market" dynamic. However, the rise of passive investing has also been attributed to a post-GFC period of liquidity and loose monetary policy that has driven asset value inflation. 99There has also been a contentious and unsettled debate regarding common ownership by index-based funds (like ETFs) and the additional social utility and deleterious impact on consumer prices, competition, shareholder engagement, and executive compensation. 100

[\*16] Some industry participants believe that passive investing isn't benign at all, but is instead a form of inefficient, centrally-planned Marxist economics. 101These industry participants also believe that active investment performs an important social function in terms of asset allocation, environmental governance, and social governance. Accordingly, because the number of indexes and passive products has grown so large, determining what products to invest in now requires an active decision - one that can be provided by model portfolios and robo-advisors. 102

E. Collective Ownership, Firm Incentives, and Herd Formation

One concerning by-product of passive investing is the effect that it may have on firm incentives. 103Ironically, recent economic research suggests that firms with overlapping sets of investors have a perverse incentive to "distort competitive behavior, [\*17] affecting pricing, entry, contracting, and virtually all strategic interactions among firms." 104In other words, firms with the same owners may have less incentive to compete, and while they may not be engaging directly in legally-defined "anti-competitive behavior," the internal reward systems are primed for collusion. 105This could influence herd formation as "investors in firms become more similar to each other over time." 106Surprisingly, the referenced study also notes that this trend pre-dates the success of BlackRock and Vanguard. 107The result has been described as transforming the entire S&P 500 into "one gigantic company." 108

Other passive investment critics have noted how these investments can impede good corporate governance and market efficiency. 109As suggested by one financial markets commentator, ETFs lead to "large blocks of stock held by disinterested holders" such as index funds; "index funds are disincentivized from expending resources on improving the performance and corporate governance of the companies in which they invest since this would increase fund management costs." 110One potential solution suggested by this commentator would be a system of pro ratavoting. 111

In response to the growing problem of block shares held by passive index funds that are disincentivized from expending resources to enhance corporate governance, 112the SEC recently announced an initiative to study the proxy process, including the role that fund ownership plays in shareholder voting and corporate governance. 113In his remarks to the SEC Advisory [\*18] Committee,SEC Chairman Jay Clayton noted the particular importance of reviewing passive investment growth and the resulting effects, including concentration risk, proxy considerations, and "questions [about] how passive funds should approach engagement with companies on the one hand and engagement with their investors on the other hand." 114

An interaction risk may also be facilitated with respect to market intermediaries and the expanding investor base for ETFs, including institutional, retail, algorithmic, and HF traders, all of whom have diverse investment goals and preferences, which can undermine market efficiency and information synthesis. 115Professor Benoit Mandelbrot and Richard L. Hudson have argued against the orthodox view of efficient markets, noting evidence of historical investor irrationality and non-continuous price changes. 116Mandelbrot and Hudson note that non-homogenous investor interactions yield unexpected price movements, price bubbles, and crashes. 117Additionally, citing research from economists Paul De Grauwe and Marianna Grimaldi, 118Mandelbrot and Hudson suggest that with multiple investor class interactions "the market switches from a well-behaved "linear' system in which one factor adds predictably to the next, to a chaotic "non-linear' system in which factors interact and yield the unanticipated." 119

#### Recession’s guaranteed.

Paul Hodges 3-27, Chairman of New Normal Consulting, Global Expert for the World Economic Forum, “Prepare for a K-Shaped Recession With Winners & Losers”, Independent Commodity Intelligence Services, https://www.icis.com/chemicals-and-the-economy/2022/03/prepare-for-a-k-shaped-recession-with-winners-losers/

Yet as the chart confirms, oil prices are currently well above the 3% of global GDP that normally leads to recession. And as I noted here a month ago, when the Ukraine invasion began:

“Wars launched by paranoid autocracies aren’t usually like video games with a defined (and quick) beginning and end. And Putin’s war has already led to unprecedented financial sanctions on Russia and its ruling oligarchs.”

Consumption is 70% of the US economy. And the latest data from the Univesity of Michigan’s Consumer Sentiment survey confirms the risk, as the chart shows. It is already at the 1990 level – which led to recession – and is likely headed lower.

The big difference from 1990, 2020 and today is that inflation is soaring around the world – due to supply chain chaos, and rising energy prices. So central banks are finally being forced to refocus on inflation, and raise interest rates into a recession.

This hasn’t happened since the early 1980s, and won’t be good news for financial assets.

Stocks and house prices are selling at record valuations. People were able to borrow seemingly unlimited amounts of cash, at near-zero rates. But already, the US 30-year mortgage rate has risen by 2/3rds to 4.42%, from 2.65% in January last year.

‘THE JOKERS’ MEAN WE NEED TO EXPECT A K-SHAPED RECESSION

The SuperCycle was unique in history. It was the NICE period, with Non-Inflationary Constant Expansion. Geopolitics became less important, as everyone was able to get their share of the “bigger economic pie”. But now it is going into reverse:

* China’s real estate bubble was key to the post-2008 recovery. But now it is bursting with average high-yield debt yields at a record 32.9%. The Ukraine invasion is causing further, major disruption, with widespread sanctions on Russia
* And as discussed here last week, it is leading to major changes in global energy markets. Germany is moving completely away from its dependence on Russian supplies of gas and oil
* Growth will also be much slower in the New Normal due to today’s ageing populations. The central banks’ stimulus programmes were effectively an attempt to support consumption by “printing babies” as discussed here many times. But that folly is now over.

#### Fundamentals outweigh short bursts.

Gene Balas 12, MBA, Columbia. Chartered Financial Analyst. Writer, Economics, Seeking Alpha, "Why Productivity Growth Matters So Much," Real Money, 12/28/2012, https://realmoney.thestreet.com/articles/12/28/2012/why-productivity-growth-matters-so-much.

One economic theory is that business cycles are caused, at least in part, by technology introductions and their resultant impact on productivity -- this is termed the real business cycle theory. While economists don't all agree on this theory (or others as well), one can conceptually understand how productivity growth has been correlated with episodic bouts of economic growth, or lack thereof. After all, productivity gains are what allow the economy to produce more with given inputs of labor (and capital, in some measures) and are essential to increasing living standards.

Researchers at the Chicago Fed recently documented this relationship. Beginning in 1973, low rates of productivity gains were associated with a moribund economy in the 1970s. Then, beginning in the early 1980s, productivity began to grow, modestly at first, and economic growth responded upward in turn. In the mid-1990s, productivity growth took off in tandem with the tech and Internet boom, and we had a booming economy.

After 2004, however, productivity growth diminished remarkably, as did our economic growth, absent debt-fueled consumer spending just prior to the recession. This slowdown in productivity gains predated the recession, and while the recession was caused by other factors, our slow recovery may relate to lessened productivity gains.

Most estimates of productivity gains focus on output per unit of labor. However, since output is based on not just labor but capital as well, researchers use a broader, more comprehensive measure of productivity known as multifactor productivity. This measure has dropped from about 1.7% on an annualized basis from 1996 to 2004 to just 0.5% since 2004. Researchers postulate that it might be caused by society having already adopted information and communication technology that has been introduced to this point. However, the cause for the slowdown in productivity growth isn't entirely known.

Regardless of why they ebb and flow, productivity gains help to determine the "speed limit" of the economy. Basically, potential economic growth can be thought of as productivity gains plus growth of the labor force and capital introductions. If the economy grows faster than this rate, inflation can result as bottlenecks emerge from more demand for labor and capital than the economy can provide.

#### Litigation is inevitable---the plan saves the industry.

Fiona S. Morton & Herbert Hovenkamp 18, Theodore Nierenberg Professor, Economics, Yale School of Management; James G. Dinan University Professor, University of Pennsylvania Law School & Wharton School, University of Pennsylvania, "Horizontal Shareholding and Antitrust Policy," Yale Law Journal, Vol. 127, No. 2026, May 2018, Lexis.

Section 4 of the Clayton Act 64 permits private persons to bring treble damages actions for injuries caused by antitrust violations, including unlawful mergers. 65 Private lawsuits and class actions are very likely to begin to accumulate in this area. Settlements that create rules about which funds may hold which assets may begin to proliferate. This has the potential to cause huge inefficiencies in the mutual fund industry. Different funds will reach different settlements with different courts, which is likely to create a playing field that is not level across funds. Moreover, one court's settlement may be inconsistent with another's and hamper a fund's operations. An additional risk is that a settlement is based on a benchmark that can change over time. For example, a fund may be found liable for lessening competition because it is the largest shareholder in two competitors. If the fund is then enjoined from being the largest shareholder, it must determine its asset acquisitions by monitoring what all other owners buy and reacting accordingly. Legal holdings may become illegal if the previously largest shareholder sells some of its stake. The process of choosing assets to hold in a mutual fund will become much more complicated and costly. Citizens who use mutual funds to save will be negatively impacted by uncoordinated private competition law enforcement.

A motivation for our enforcement recommendation is to generate some urgency around creating a policy that prevents these harms. Here, the challenge is to devise a remedy that eliminates or significantly reduces the anticompetitive [\*2042] effects of horizontal shareholding, while also preserving many efficiencies that ordinarily accrue to mutual fund portfolio selection and management. Such a balance could result in a set of enforcement actions and policies that achieve broad social objectives: competitive markets, low-cost savings vehicles such as mutual funds, and well-functioning capital markets. 66 Whatever safe harbor or enforcement policy is chosen will certainly be challenged in court and must be carefully designed to fit within current law.

#### Unrestrained HS wrecks the antitrust regime.

Einer Elhauge 20, Petrie Professor, Law, Harvard Law School, "How Horizontal Shareholding Harms Our Economy--And Why Antitrust Law Can Fix It," Harvard Business Law Review, Vol. 10, No. 207, Summer 2020, Lexis.

Suppose one concluded (incorrectly, given my analysis above) that anticompetitive levels of horizontal shareholding either are not illegal, have no administrable legal remedy, or should be permitted because any harms are the unavoidable byproduct of large diversified institutional investors whose benefits outweigh those anticompetitive harms. Even then, the anticompetitive effects of horizontal shareholding in concentrated markets have important implications for traditional analysis of ordinary mergers or cross-shareholdings between corporations. Namely, those implications reduce the market concentration levels that we can tolerate under traditional merger analysis, as discussed in section A, and mean that what now look like non-horizontal mergers should often be treated as horizontal, as explained in section B. Indeed, those implications for traditional analysis become more important the more that antitrust law fails to directly tackle horizontal shareholding.

#### Rates will be low until a full recovery, COVID thumps inflation, and the Fed won’t raise rates because of it

Christopher Rugaber 21, AP Economics Reporter, “Federal Reserve keeps key interest rate near zero, signals COVID-19 economic risks receding,” chicagotribune, 4-28-2021, https://www.chicagotribune.com/business/ct-biz-fed-interest-rates-economy-20210428-bumyc3ynpza6ri4ygsntmdsmya-story.html

WASHINGTON — The Federal Reserve is keeping its ultra-low interest rate policies in place, a sign that it wants to see more evidence of a strengthening economic recovery before it would consider easing its support.

In a statement Wednesday, the Fed expressed a brighter outlook, saying the economy has improved along with the job market. And while the policymakers noted that inflation has risen, they ascribed the increase to temporary factors.

The Fed also signaled its belief that the pandemic’s threat to the economy has diminished, a significant point given Chair Jerome Powell’s long-stated view that the recovery depends on the virus being brought under control. Last month, the Fed had cautioned that the virus posed “considerable risks to the economic outlook.” On Wednesday, it said only that “risks to the economic outlook remain” because of the pandemic.

The central bank left its benchmark short-term rate near zero, where it’s been since the pandemic erupted nearly a year ago, to help keep loan rates down to encourage borrowing and spending. It also said in a statement after its latest policy meeting that it would keep buying $120 billion in bonds each month to try to keep longer-term borrowing rates low.

The U.S. economy has been posting unexpectedly strong gains in recent weeks, with barometers of hiring, spending and manufacturing all surging. Most economists say they detect the early stages of what could be a robust and sustained recovery, with coronavirus case counts declining, vaccinations rising and Americans spending their stimulus-boosted savings.

In March, employers added nearly 1 million jobs — an unheard-of figure before the pandemic. And in April, consumer confidence jumped to its highest level since the pandemic flattened the economy in March of last year.

The quickening pace of growth, on top of additional large spending packages proposed by President Joe Biden, have raised fears among some analysts that inflation, long quiescent, could rise uncomfortably fast. Raw materials and parts, from lumber to copper to semiconductors, have spiked in price as demand has outstripped the ability of suppliers and shippers to keep up.

Federal Reserve Chair Jerome Powell speaks Dec. 1, 2020, at a Senate Banking Committee hearing in Washington. The U.S. economy has been showing strength in recent weeks, with barometers of hiring, spending and manufacturing all surging. (Susan Walsh/AP)

Some companies have recently said they plan to raise prices to offset the cost of more expensive supplies. They include the consumer products giants Procter & Gamble and 3M as well as Honeywell, which makes industrial and consumer goods. Powell has said he expects supply bottlenecks to lead to temporary price increases, rather than to a prolonged bout of accelerating inflation.

Under a new framework the Fed adopted last summer, it will no longer raise rates in anticipation of high inflation, which had been its policy for decades. Powell and other Fed officials have made clear they want to see inflation actually exceed their 2% annual inflation target — and not just briefly — before they’d consider raising rates.

They’ve set that goal so that inflation would average 2% over time, to offset the fact that it has been stuck below 2% for nearly the entire past decade. Fed policymakers favor price gains at that level as a cushion against deflation — a prolonged drop in prices and wages that typically makes people and companies reluctant to spend.

One reason Powell has said he thinks the inflation pressures building in the U.S. economy will prove temporary is that, for now, most Americans don’t expect prices to rise much in the long run.

Once expectations for inflation do rise, they can be self-fulfilling: Workers start demanding higher pay to offset expected price gains, and retailers begin raising prices to offset increased wages and supply costs. This can set off a wage-price spiral, something the United States last experienced in the late 1960s and 1970s.

Apart from inflation, the Fed’s new framework includes a sweeping definition of maximum employment that includes fully recovering the jobs lost to the pandemic, including among many people of color and low-income workers, before it even considers a rate hike. Powell has also indicated that the Fed would like the roughly 4 million Americans who stopped looking for work after being laid off in the past year to be hired before it considers tightening rates.

The Fed’s policymakers themselves have turned more optimistic about the recovery. Last month, they significantly upgraded their forecasts for growth and inflation. They estimated that the economy will expand 6.5% this year, up sharply from their previous projection in December of 4.2%. And they raised their forecast for inflation by the end of this year from 1.8% to 2.4%.

### Adv 2

#### Courts will enforce the plan faithfully

Charles S. Dameron 16, Yale Law School, J.D. 2015. "Present at Antitrust’s Creation: Consumer Welfare in the Sherman Act’s State Statutory Forerunners." https://www.yalelawjournal.org/note/present-at-antitrusts-creation-consumer-welfare-in-the-sherman-acts-state-statutory-forerunners

Notwithstanding occasional invocations of the judiciary’s “common law” authority over the Sherman Act, federal courts have, since the Act’s earliest days, expended great energy attempting to divine the legislative purpose behind it.5If the Sherman Act were truly a blanket grant of common law-making authority to federal courts, they would hardly need to undertake such searching inquiries. The Supreme Court’s and lower courts’ close attention to the Sherman Act’s language and legislative history indicates that they have sought to abide by their constitutional role as interpreters of federal statutes.6

It is therefore more precise to say that the judiciary enjoys an especially wide authority to fill statutory gaps when interpreting the Sherman Act due to the Act’s ambiguous language, its constancy over time, and the fact—peculiar in light of many modern regulatory regimes—that Congress did not assign rulemaking authority to an administrative agency. These traits do not imply that federal courts may pursue whatever antitrust policy they find most desirable or wise; courts are obliged to follow the statute’s contours to the extent that they can perceive those contours.7

#### Finishing Martin.

A new principle is also gaining ground: positive comity (Slaughter 2014, p. 315 et seq). The purpose of positive comity is that states do not wait for a request for assistance. Instead, they should actively cooperate. To that end, under the aforesaid UN Convention, states must (i) spontaneously supply information relating to criminal matters to a competent authority in another State Party (art. 18 (4) UN Convention against Transnational Organized Crime); (ii) consider the possibility of transferring criminal proceedings to another State Party (art. 21 UN Convention against Transnational Organized Crime); or (iii) establish joint investigation teams (JITs). Indeed, JITs are a paradigmatic example of this novel judicial cooperation model (vid. Zurkinden 2013). The shared interest or common goals pursued by judicial cooperation or mutual legal assistance is evidenced by the requirement that states initiate, develop, or improve training programs for “law enforcement personnel” (including judges, prosecutors, police, etc., art. 29 et sep. UN Convention against Organized Crimen), which is a way of exercising soft power, as discussed before. The European Union approach entails the most radical transformation. The EU model relies on the mutual recognition principle, which is in stark contrast to each and every guiding principle of traditional cooperation. Although with different names and at a slower path, international cooperation regarding common security is moving toward a similar model (Nieto Martin 2018).

The appearance of new actors on the cooperation stage also characterizes this new model, which is perfectly in line with the notions of “relational sovereignty” and “disaggregated state.” On top of the forms of assistance directly connecting judicial authorities, police, and prosecutors, cooperation between administrative agencies has intensifed. As examined below, this is the case for market supervisory bodies. This form of cooperation is certainly significant concerning market abuse and anticompetitive practices. This work also deals with the appearance of transgovernmental networks (also designated as inter-governmental networks), where the parties involved are national enforcement authorities (police and prosecutors, inter alia) and private organizations actively engaged in asset recovery. In this feld, the Basel Institute of Governance and its International Center for Asset Recovery is very remarkable. It is a publicly funded, not-for-proft Swiss foundation that provides a decisive technical assistance to judges and prosecutors worldwide to assist them in recovering assets from tax havens (offshore fnancial centers) or in banks located in countries such as Switzerland or Luxembourg.

### New affs bad

### T subs

#### ‘Antitrust law’ can be sector specific.

Dr. Fiona Scott Morton 19, Theodore Nierenberg Professor of Economics at the Yale School of Management, BA from Yale and PhD from MIT, et al., “Committee for the Study of Digital Platforms Market Structure and Antitrust Subcommittee Report”, George J. Stigler Center for the Study of the Economy and the State The University of Chicago Booth School of Business, 7/1/2019, https://www.chicagobooth.edu/-/media/research/stigler/pdfs/market-structure-report.pdf

The risk, of course, is that new legislation will not be enacted by experts committed to sound, economically-focused antitrust. It will be designed by Congress in a politically charged environment subject to pressure from the very companies who stand to lose their market power if subject to increased antitrust oversight, or who benefit if their trading partners are subjected to excessive oversight.

There is more at stake than the risk of flawed legislation. Antitrust law has maintained legitimacy and widespread support for nearly 130 years in part because it applies to all forms of commercial activity and is not perceived as special interest legislation. In our view it is very important that antitrust law not have different rules aimed at different sectors—such as technology151 or agriculture152—that would differentiate industries and undermine political support for antitrust law in general. For this reason, the report outlines a number of useful digital platform interventions that can be undertaken by a sectoral regulator rather than falling to the task of antitrust enforcement.

#### ‘Substantially’ is considerable.

G. Barry Anderson 20, Judge on the Minnesota Supreme Court, “State v. Culver”, 941 N.W.2d 134, 4/1/2020, Lexis [abbreviation spelled out for readability]

HN14 Because the adverb "substantially" is defined as "in a substantial manner; so as to be substantial," Webster's Third New International Dictionary Unabridged 2280, we look to the meaning of the word "substantial." The parties agree that the word "substantial" should be interpreted in light of its common and accepted usage because the word is not defined in Minn. [statute] Stat. § 609.26. HN15 They also agree that the common and accepted usage of the word "substantial" is "[c]onsiderable in importance, value, degree, amount or extent." This definition from The American Heritage Dictionary is the same definition used by the court of the appeals in its opinion. Culver, 2018 Minn. App. Unpub. LEXIS 1104, 2018 WL 6837735, at \*1. HN16 Based on the parties' agreement and our independent [\*\*17] consideration of the common and accepted usage of the word "substantial," we conclude that Minn. Stat. § 609.26, subd. 1(3), requires a deprivation of parental rights that is "[c]onsiderable in importance, value, degree, amount or extent."

### Substantial PIC

#### Institutional turf wars derail it

Timothy J. Muris 10, George Mason University School of Law, and Bilal K. Sayyed, Kirkland & Ellis, LLP, “Three Key Principles for Revising the Horizontal Merger Guidelines”, Antitrust Source, George Mason University Law and Economics Research Paper Series 12-56, April 2010, https://www.law.gmu.edu/assets/files/publications/working\_papers/1256ThreeKeyPrinciples.pdf

We recognize that neither the FCC nor FERC follow the Guidelines slavishly. In fact, in our experience, there are significant transaction costs associated with dual agency merger review, even accounting for the different standard—a public interest standard—that the FCC and FERC must follow. (For a discussion of the limitations of application of a Section 7 standard to the public interest standard of the FCC, see Howard A. Shelanski, Antitrust Law as Mass Media Regulation: Can Merger Standards Protect the Public Interest, 94 CAL. L. REV. 371 (2006).) While it may be too aspirational given the regulatory structure of the FCC and FERC, we believe the DOJ, FCC, FERC, and FTC should engage in greater institutional efforts to more fully harmonize their competitive effects analysis of mergers, with an eye towards the adoption of Federal Merger Guidelines. Of course, any such guidelines should not implement a “lowest common denominator” approach. We understand that this may, and likely will, require significant procedural and perhaps statutory adjustments. The Domestic Competition Network proposed by FTC Commissioner William Kovacic presents a model for this type of discussion, substantive convergence, and procedural cooperation. See William E. Kovacic, Toward a Domestic Competition Network, in COMPETITION LAWS IN CONFLICT: ANTITRUST JURISDICTION IN THE GLOBAL ECONOMY 316 (2004).

#### No spillover.

Kimberly Robinson 15, J.D. from Harvard University, B.A. from the University of Virginia, Professor of Law at the University of Richmond School of Law; Washington University Law Review, “Disrupting Education Federalism,” Rev. 959

In offering a theory for how education federalism should be restructured to strengthen the federal role over education, and thus reduce reliance on states to ensure equal access to an excellent education, I build upon Yale Law Professor Heather Gerken's argument that federalism theory should eschew advancing a single theory for all occasions because "[b]oth in theory and practice .. . there are many federalisms, not one."39 She astutely contends that scholars developing and critiquing federalism theory should consider the appropriate balance of institutional arrangements for a specific context. 40 Therefore, my theory for how education federalism should be restructured does not attempt to propose a federalism theory for other policymaking arenas such as environmental law or healthcare policy. Instead, it solely proposes a shift in the balance of federal, state, and local authority in order to strengthen the federal role in ensuring equal access to an excellent education while preserving the aspects of state and local autonomy over education that do not undermine equal access to an excellent education.

#### It's resilient AND checks prevent collapse.

Jenna Bednar 20, Professor of Political Science at the University of Michigan, Member of the External Faculty at the Santa Fe Institute and Author of “The Robust Federation: Principles of Design”, "Of Course Trump’s Authority Isn’t ‘Total.’ Here Are 3 Myths About How Federalism Works," Washington Post, 4/17/2020, https://www.washingtonpost.com/politics/2020/04/17/course-trumps-authority-isnt-total-here-are-3-myths-about-how-federalism-works/

Instead of coordinating a national pandemic response, the federal government has compounded the collective action problem, as shown by Jared Kushner’s striking assertion that the national stockpile is “ours” and not a resource for the states. The founders pointedly included safeguards to prevent national government overreach or shirking; those include the judiciary, separation of powers, state representation in federal decisions, intergovernmental councils, the people themselves and states’ ability to push back. Another safeguard emerged later: the party system. In a robust federal system, these reinforce one another, a kind of fail-safe system intentionally full of redundancies. The founders worked to design an institutional immune system so that no single person or faction could disrupt the government. They hoped that federalism might sustain democracy. What might threaten this robustness would be what the Federalist Papers called a “lack of diverse interests”: If the judiciary, the branches of federal government and the internal workings of political parties were all aligned in their thinking or had a culture of obedience, and if the public were apathetic or ill-informed, then the safeguards may simultaneously fail. Where Trump has faced limits to his attempts to expand powers, he has attempted to skirt them: purging internal oversight by firing inspectors general and on Wednesday, making the extraordinary threat to adjourn Congress so he can make recess appointments. Will the pandemic serve as a catalyst, making it even easier for the president to accumulate power, or awaken the slumbering safeguards? The governors’ decisive responses to the pandemic may suggest that the safeguards can again constrain the federal government.

### Enforcer firms CP

#### Investors AND enforcers need clear guidelines.

Marlene Amstad 19, Professor, School of Management and Economics, The Chinese University of Hong Kong. Vice Chair, Swiss Financial Market Supervisory Authority, "Regulating Fintech: Objectives, Principles, and Practices," Asian Development Bank Institute, Working Paper Series, No. 1016, 2019, pg. 5.

A key principle to any regulation is to provide legal certainty. This includes a robust definition of regulatory perimeters as well as transparent application of the law. Unclear terminology and classification encourage regulatory arbitrage and ultimately hamper a robust legal framework and financial innovation, alike. It therefore comes as no surprise that many fintech projects are eager to be regulated as this instills the legal certainty needed to attract investors. Further, there is a risk that coding regulator approaches at an early stage of development is normative and might even intentionally or unintentionally steer innovation from the public sector.

In the context of fintech at least three challenges to legal certainty arise. First, the high speed of development of fintech in terms of different business models and from basically nil to taking center-stage in discussions on the financial system within just a decade contrasts with the usually time-consuming procedures for new regulatory rules commonly embedded in a system of public consultation of the most important involved stakeholders. The second challenge pertains to the number of involved government institutions. Financial regulation in many jurisdictions involves a variety of institutions (including the central bank, financial supervisory bodies, other government departments such as the tax administration, legislative and anti-money laundering regulator). The scope of different regulatory authorities (“regulatory perimeter”), which varied significantly even before the digital age, potentially overlaps even more when regulating digital asset activities. This is illustrated by the finding that, on average, three distinct national bodies per jurisdiction have issued official statements on digital assets, including warnings (Cambridge 2019). The third challenge is, vis-à-vis regulators and market participations, fintech increasingly mandates computer science and coding knowledge in addition to the usual legal and financial market knowledge.

#### AND the world sees it and is confused AND it makes the U.S. unpredictable---global war

Dr. G. John Ikenberry 15, PhD in Political Science from the University of Chicago, Albert G. Milbank Professor of Politics and International Affairs at Princeton University in the Department of Politics and the Princeton School of Public and International Affairs, “Getting Hegemony Right”, in Korean Attitudes Toward the United States: Changing Dynamics, Ed. Steinberg, p. 17-18

A critical ingredient in stabilizing international relations in a world of radical power disparities is the character of America itself. The United States is indeed a global hegemon, but because of its democratic institutions and political traditions it is--or can be--a relatively benign one. Joseph Nye's arguments on "soft power" of course come to mind here, and there is much to his point. But, in fact, there are other, more significant aspects of the American way in foreign policy that protect the United States from the consequences of its own greatness.

When other major states consider whether to work with the United States or resist it, the fact that it is an open, stable democracy matters. The outside world can see American policymaking at work and can even find opportunities to enter the process and help shape how the overall order operates. Paris, London, Berlin, Moscow, Tokyo and even Beijing--in each of these capitals officials can readily find reasons to conclude that an engagement policy toward the United States will be more effective than balancing against U.S. power.

America in large part stumbled into this open, institutionalized order in the 1940s, as it sought to rebuild the postwar world and to counter Soviet communism. In the late 1940s, in a pre-echo of today's situation, the United States was the world's dominant state--constituting 45 percent of world GNP, leading in military power, technology, finance and industry, and brimming with natural resources. But America nonetheless found itself building world order around stable and binding partnerships. Its calling card was its offer of Cold War security protection. But the intensity of political and economic cooperation between the United States and its partners went well beyond what was necessary to counter the Soviet threat. As the historian Geir Lundestad has observed, the expanding American political order in the half century after World War II was in important respects an "empire by invitation." The remarkable global reach of American postwar hegemony has been at least in part driven by the efforts of European and Asian governments to harness U.S. power, render that power more predictable, and use it to overcome their own regional insecurities. The result has been a vast system of America-centered economic and security partnerships.

Even though the United States looks like a wayward power to many around the world today, it nonetheless has an unusual ability to co-opt and reassure. Three elements matter most in making U.S. power more stable, engaged and restrained. First, America's mature political institutions organized around the rule of law have made it a relatively predictable and cooperative hegemon. The pluralistic and regularized way in which U.S. foreign and security policy is made reduces surprises and allows other states to build long-term, mutually beneficial relations. The governmental separation of powers creates a shared decision-making system that opens up the process and reduces the ability of any one leader to make abrupt or aggressive moves toward other states. An active press and competitive party system also provide a service to outside states by generating information about U.S. policy and determining its seriousness of purpose. The messiness of a democracy can, indeed, frustrate American diplomats and confuse foreign observers. But over the long term, democratic institutions produce more consistent and credible policies--policies that do not reflect the capricious and idiosyncratic whims of an autocrat.

#### Businesses won’t self-regulate

George Landrith 21, President and CEO of Frontiers of Freedom, “Proposed Defense Merger Puts National Security at Risk”, 790 KABC, https://www.kabc.com/news/proposed-defense-merger-puts-national-security-at-risk/

Even if the DoD and FTC require that the new company not use its monopoly power to its advantage, it will. That’s simply how it works. We’ve already seen that.

The DoD and the FTC have ordered other companies to not use the monopoly power that they acquired in a merger, but that doesn’t actually stop them. It just means that they can’t be too obvious about it. They can still give themselves certain competitive advantages in price and cooperation levels.

This limits competition, harms innovation, soaks the taxpayer and in the end endangers our national security.

#### It's key to cooperation.

Despina Pachnou 17, Organization for Economic Co-operation and Development, "Directorate for Financial and Enterprise Affairs Competition Committee," Roundtable on the Extraterritorial Reach of Competition Remedies, Working Party No. 3: Co-operation and Enforcement, December 2017, pg. 8-11.

5. The Agencies’ Cooperation with Foreign Jurisdictions on Remedies

18. Achieving effective remedies often entails cooperation with foreign jurisdictions. Such cooperation may allow the U.S. agencies to secure relief that sufficiently protects U.S. competition and consumers without applying the remedy to conduct or assets outside the United States. When an extraterritorial remedy is necessary to address harm or threatened harm to U.S. commerce and consumers, cooperation helps to minimize the risk of conflict with obligations of foreign laws or foreign remedial orders.35 Cooperation and coordination on remedies can be efficient for enforcers and the parties under investigation, especially given that over 130 jurisdictions have antitrust laws and over 80 require pre-merger notification. Cooperation may result in a remedies package that addresses competition concerns in multiple jurisdictions.36 The Agencies work closely with competition enforcers in other jurisdictions on cases under common review, including to help foster convergence and consistent remedy determinations.37

6. U.S. Case Examples

19. To the extent that the Agencies rely on extraterritorial remedies, they do so in both merger and conduct cases, although they arise most frequently in the merger context. In all cases, the Agencies seek remedies that are appropriately tailored and that do not apply extraterritorially unless necessary to address the harm or threatened harm to U.S. commerce or consumers.

6.1. Merger Cases

20. In most mergers, the Agencies can obtain an effective remedy for U.S. competition and consumers without extraterritorial divestitures or other relief. This is the case even when an Agency coordinates with other jurisdictions in investigating a transaction that raises concerns in both domestic markets and markets outside the U.S. Even in these instances, however, coordination between jurisdictions can be helpful. For example, the FTC benefited from coordinating with antitrust authorities in Canada, the EU, and Mexico during the investigation of Emerson Electric Co.’s acquisition of Pentair plc, even though the potential harm to U.S. markets was resolved exclusively through the divestiture of a U.S. switchbox facility.38 Similarly, in the General Electric-Alstom SA merger, effective relief for U.S. markets required divestiture of only U.S. based assets; however, coordination between the Department and the EC in connection with the Department’s investigation “facilitated [the Department’s] investigation and helped formulate remedies that [preserved] competition in the United States and internationally.”39 A coordinated remedy resulted in the Department and the EC announcing separate settlements that eliminated harm to consumers in their respective jurisdictions. 40 There are many more cases in which the Agencies have coordinated with their foreign counterparts on mergers that affect multiple jurisdictions.41

21. Although a merger may affect competition in several jurisdictions, the Agencies focus on preserving competition in the domestic markets that may be harmed by the proposed acquisition. On some occasions, relief secured by foreign jurisdictions means that no remedy, domestic or extraterritorial, is necessary to protect domestic competition. Though our experience in deferring to another authority’s remedy is limited, we have relied on informal deference and remain interested in doing so, under the right conditions. A notable example was in connection with Cisco’s acquisition of Tandberg in 2010. The Department declined to challenge the merger in part due to certain commitments that Cisco made to the European Commission (EC) to facilitate interoperability in products related to a type of videoconferencing called telepresence. Waivers of confidentiality by the parties and industry participants allowed the Department and the EC to cooperate closely in their parallel reviews of the transaction, resulting in an efficient outcome for the enforcers and the merging parties.42

22. Nevertheless, certain merger investigations resolved by consent decree have required the divestiture of assets located outside the United States to preserve competition within the United States. For example, the FTC consent decree resolving concerns regarding the merger of cement manufacturers Holcim Ltd. and Lafarge SA required, in part, divestiture of a Canadian cement plant and related U.S. terminals along with two Canadian terminals related to a U.S. cement plant. The FTC explained that the divested assets “remedy competitive concerns in northern U.S. markets [and are] part of a larger group of Holcim assets located in Canada that Holcim and Lafarge have agreed to divest to address competitive concerns raised by the [Canadian Competition Bureau (“CCB”)]. Commission staff worked closely with staff from the CCB to reach outcomes that benefit consumers in the United States.” 43 An extraterritorial remedy was also required to resolve Department’s investigation of the Anheuser-Busch InBev SA/NV & Grupo Modelo S.A.B. merger. The consent decree in that matter similarly required divestiture of a facility outside of the United States, the Grupo Modelo brewery in Mexico, and a perpetual and exclusive U.S. trademark license to the seven brands of beer that Modelo then offered in the United States, as well as three brands not yet offered in the United States, but currently sold by Modelo in Mexico. This remedy allowed the acquirer “to meet current and future demand for Modelo Brand Beer in the United States,” which resolved concerns that the merger would harm competition in twenty-six local U.S. markets. 44

### Adv CP

### AI DA

#### Other barriers block AI antitrust.

Cary Coglianese & Alicia Lai 22, Edward B. Shils Professor, Law, University of Pennsylvania Law School. Director, Penn Program on Regulation, University of Pennsylvania Law School; Judicial Law Clerk, United States Court of Appeals for the Federal Circuit, "Antitrust by Algorithm," Stanford Computational Antitrust, Vol. 2, 2022, pg. 22.

The digital technologies transforming private markets present daunting challenges for all regulators. But perhaps nowhere more than in the realm of antitrust do the rapid changes created by digital platforms, dynamic pricing algorithms, and other new technologies present a more direct challenge to governmental performance. Today’s technological advances are leading to markets rife with possibilities for increasingly subtle and evasive forms of anticompetitive behavior by private firms. If antitrust authorities simply maintain their operational and analytic status quo, they are likely to be left behind by private sector innovation and will fail to fulfill their public mandates.

But just as technological advances present new problems for antitrust authorities, they also present potential new solutions that can assist antitrust regulators in identifying and addressing anticompetitive behavior. To implement these new machine-learning solutions with success, antitrust authorities must build up their organizational capacity to deploy algorithms effectively and responsibly. An increasing shift to the algorithmic administration of antitrust law and policy will not be easy and may pose some risk of new legal challenges. But with thoughtful design and development, along with appropriate transparency and public engagement, antitrust authorities should be able to build public confidence in, and withstand judicial scrutiny of, their use of “antitrust by algorithm.”

#### Administrative collapse now.

Jeff Overly 21, Editor At Large, “High Court's Right Flank Floats Chevron Deference Overhaul” Law360, 11-30-21, https://www.law360.com/articles/1444478/high-court-s-right-flank-floats-chevron-deference-overhaul

Five conservative justices on the U.S. Supreme Court suggested Tuesday that a multibillion-dollar battle over Medicare drug reimbursement could become a vehicle for clarifying or nullifying so-called Chevron deference, a backbone of federal regulatory power and increasingly high-priority target of corporate America.

The intimations from a majority of the high court's members dominated oral arguments in a case where the American Hospital Association is fighting a $1.6 billion annual cut to payments in a major drug-discount program.

The D.C. Circuit upheld the cut by citing Chevron v. Natural Resources Defense Council — a towering Supreme Court precedent that requires judicial deference to reasonable agency readings of ambiguous statutes — and right-leaning justices on Tuesday indicated that the case's outcome may be significant for much more than hospital finances.

Questions presented in American Hospital Association v. Becerra

Whether Chevron deference permits HHS to set reimbursement rates based on acquisition cost and vary such rates by hospital group if it has not collected adequate hospital acquisition cost survey data.

Whether petitioners' suit challenging HHS' adjustments is precluded by 42 USC 1395l(t)(12)."[If] we agree that Chevron disposes of this, would you argue, or are you arguing, that we should overrule Chevron to get to the statutory approach that you're taking?" Justice Clarence Thomas asked Munger Tolles & Olson partner Donald B. Verrilli Jr., counsel for the AHA, at the outset of Tuesday's arguments.

Verrilli, a former U.S. solicitor general, didn't offer a direct answer — at least, not until he was pressured later in the arguments. Instead, Verrilli contended that the statutory text is "clear, unambiguous," and that the case therefore "doesn't get to the question of whether Chevron needs to be overruled." The D.C. Circuit, he added, went "hunting for ambiguity," purported to find it by identifying superfluous statutory provisions that were at odds with one another, and then concluded by "throwing up its hands and deferring."

About 20 minutes later, however, Justice Samuel Alito came back in search of an answer. "Can I just take you back to Justice Thomas' first question? If the only way we can reverse the D.C. Circuit is to overrule Chevron, do you want us to overrule Chevron?" Justice Alito asked. Verrilli didn't attempt another dodge, instead replying without hesitation, "Yes. We want to win the case. Yes."

The Chevron decision dates to 1984, and criticism of it has grown in tandem with the rise of "textualist" philosophies that ostensibly emphasize strict fidelity to the plain meaning of legislative language. Right-leaning observers often call the rising disdain a response to bureaucrats playing fast and loose with the actual words that Congress used when passing laws; left-leaning observers often see an attack on government oversight of industry dressed up as high-minded legal thinking.

The AHA case stems from a Trump administration move to slash reimbursement by nearly 30% for drugs in the socalled 340B program. The justices are also examining whether federal law prohibits judicial review of the payment cut, but the preclusion issue generated scant discussion on Tuesday. Justice Alito's repetition of Justice Thomas' question was quickly followed by similar inquiries from other high court conservatives. Justice Neil Gorsuch, for example, noted that the AHA's petition described "a troubling trend" of judges deferring too quickly to agency interpretations. Justice Brett Kavanaugh then followed up on that comment, discussing how the Chevron ruling tells courts "to apply all the traditional tools of statutory interpretation and construction." "I understand that to be what you're saying we should do here, and not give up too soon, but follow it all the way through" in search of plain meaning, Justice Kavanaugh said. Verrilli answered in the affirmative and suggested that the Supreme Court could decide the case using the framework it described in a 2019 case called Kisor v. Wilkie. In the Kisor case, the justices sharply curtailed a doctrine known as Auer deference, which covers agency interpretations of ambiguous regulations. Amicus briefs in the AHA case have expressed discontent with Chevron deference and advocated something similar. As one example, the U.S. Chamber of Commerce told the justices that the case is "an opportunity for the court to reinforce limits on Chevron deference that are akin to the limits articulated in Kisor."

Justice Amy Coney Barrett, whose ascent to the Supreme Court last year energized critics of Chevron deference, weighed with a similar remark on Tuesday, asking whether the D.C. Circuit tried hard enough to discern the text before it.

"The D.C. Circuit said that the basis for Chevron deference here was that resolving which superfluity was worse was [a responsibility of] the agency," Justice Barrett said. "It seems to me that that might be just an interpretive question. You know, the classic problem of statutory interpretation that a court should resolve."

Also during Tuesday's arguments, Justice Gorsuch asked a government lawyer representing the U.S. Department of Health and Human Services to explain when a law becomes so murky that deference makes sense.

"How much ambiguity is enough?" Justice Gorsuch asked." You could write a whole law review article about that," Christopher G. Michel, an assistant to the U.S. solicitor

general, responded.

Justice Barrett fielded the same question during her confirmation hearings and replied, "It's an art, not a science." She added that "deciding when something crosses the threshold of becoming ambiguous" is "very difficult" and is "part of the debate about the Chevron doctrine."

The final word on that subject came at the end of Tuesday's arguments, when Verrilli used his rebuttal to urge reversal of the D.C. Circuit. "The question with respect to Chevron deference is, how much ambiguity is enough?" Verrilli said. "I think the

answer is, way more than you have here."

There was no obvious consensus on the high court Tuesday for how to rule on the 340B cut, much less Chevron deference more broadly; the justices are expected to decide the case by the end of their term in June.

### Bedoya

#### Antitrust enforcement is ramping up---Biden AND agencies are spending PC

Rebecca Klar 3-29, Staff Writer at The Hill, “Biden Administration Boosts Support for Antitrust Efforts,” Hill, 3/29/2022, https://thehill.com/policy/technology/600270-biden-administration-boosts-support-for-antitrust-efforts/

The Biden administration is throwing its weight behind efforts to boost antitrust enforcement as federal agencies take on the market power of tech giants.

President Biden’s $5.8 trillion budget proposal requests $227 million in increased funding for the Federal Trade Commission (FTC) and the Department of Justice (DOJ) combined — a bump advocates and agency leaders say is needed to tackle cases against the nation’s wealthiest companies.

In addition to the request for increased funding, the DOJ sent letters to top lawmakers on the House and Senate Judiciary committees endorsing a key antitrust bill, a move that some advocates said could sway lawmakers who are hesitant to back the seemingly stalled legislation.

“It’s very significant and it’s definitely a step in the right direction. I think the thing that’s been dogging any antitrust enforcement efforts, whether that’s at the FTC or the Department of Justice, for decades is really a lack of capacity,” Matt Kent, a competition policy advocate at Public Citizen told The Hill.

The DOJ and the FTC enforce antitrust laws, which means that they face dominant companies — not just in the tech industry — with access to some of the best legal representation and monetary resources in the nation.

Advocates say that the boost in funding would put the administration on a more equal playing field with big corporations.

#### Tons of antitrust now

V. Kathleen Dougherty 3-4, Partner in the Government Investigations and White Collar Litigation group at McGuireWoods LLP, et al., “DOJ, Federal Maritime Commission to Cooperate on Antitrust Enforcement in Ocean Shipping Industry”, JD Supra, 3/4/2022, https://www.jdsupra.com/legalnews/doj-federal-maritime-commission-to-8464532/

In his March 1, 2022 State of the Union Address, President Joe Biden again emphasized his commitment to increased competition — this time directing attention to the ocean shipping industry. In support of this commitment, the Department of Justice (DOJ) and Federal Maritime Commission (FMC) announced this week new steps to share resources for antitrust-related enforcement.

The FMC, which regulates international ocean shipping, will now give DOJ’s Antitrust Division “support and maritime industry expertise for Sherman Act and Clayton Act enforcement actions,” and the Antitrust Division will provide the FMC with attorney and economist support to enforce the Shipping Act and related statutes. This announcement also coincides with the introduction of proposed legislation, with bipartisan sponsorship, aimed at repealing federal laws that provide certain antitrust exemptions for ocean carriers.

In comments at a shipping conference this week, FMC Chair Daniel Maffei emphasized that, although the agency to date had found “no evidence” of actionable antitrust behavior in the ocean shipping industry, the FMC would be increasing reporting requirements and “deepening” its analysis of the industry. As reported by Bloomberg, Maffei pegged recent shipping rate increases to jumps in U.S. demand. He shared that “the ocean carriers on the whole are, in fact, moving many more containers than pre-pandemic.”

These announcements are the latest in a series of actions implementing stricter antitrust enforcement stemming from President Biden’s July 9, 2021 executive order on competition. In another recent development, on Feb. 17, 2022, the DOJ Antitrust Division and FBI announced an initiative targeting collusion exploiting COVID-19-related supply-chain disruptions. Together, these initiatives signal expanded antitrust scrutiny of all aspects of the transportation industry.

#### Aerojet pounds

William Gavin 2-1, Writer at Open Secrets, Longtime GOP Aide, “FTC Sues to Block Lockheed Martin’s Acquisition of Aerojet Following Companies’ Lobbying Push”, Open Secrets, 2/1/2022, https://www.opensecrets.org/news/2022/02/ftc-sues-to-block-lockheed-martins-acquisition-of-aerojet-following-companies-lobbying-push/

In an earnings call held the same day the FTC announced its lawsuit, Lockheed President and CEO Jim Taiclet said[18] the company would review the lawsuit and evaluate their options. Later in the call Taiclet said the merger agreement allowed for a 30-day period post-filing of a lawsuit to decide whether or not they would defend or terminate the agreement.

Industry analyst Bryron Callan, of Capital Alpha Partners, has seen the lawsuit as an indicator that President Joe Biden[19]'s FTC is less tolerant of mergers than the FTC under former President Donald Trump[20].

'The FTC during the Biden administration has taken a different view on market concentration and vertical integration than the last one, which approved the Northrop Grumman-Orbital ATK deal,' said[21] Callan in a note to investors.

The FTC's lawsuit also comes just a week before the Senate Commerce Committee votes[22] on Biden's nominees to fill positions at the FTC and the Federal Communications Committee. The FTC nominee, Alvaro Bedoya, said[23] the agency should use its authority to crack down on unfair practices that hinder competition during a November congressional hearing. The FTC is led by five commissioners, currently two Democrats and two Republicans; if confirmed, Bedoya could be a critical vote for a new Democratic majority.

#### The perception of over-aggressive antitrust is baked in and inevitable

Ben Brody 2-25, Senior Reporter at Protocol, 2/25/22, “An FTC Nominee Shrugged On Tech Antitrust. Now He Needs Votes.,” https://www.protocol.com/newsletters/policy/bedoya-ftc-tech-antitrust-republicans?rebelltitem=2#rebelltitem2

But Bedoya, who did call "antitrust enforcement on Big Tech a top priority" in paperwork, may also be suffering for Khan’s successes.

When Biden put Khan forward, he said only that he wanted her to serve on the FTC. Only after she was confirmed with all that bipartisan support did he designate her as the chair.

Republicans have since watched in shock as she uses her power to set a progressive FTC agenda.

“He’s actually being plagued by a larger issue,” said Rachel Bovard, a former Senate Republican staffer, “which is the bait-and-switch on Lina Khan.”

Bovard, who’s now senior director of Policy at the Conservative Partnership Institute, said the whole dynamic is “such an inside-the-Beltway thing.” But ultimately, to the people who decide whether the U.S. has a fully functioning tech enforcement/regulator agency, “it does matter.”

#### Zombie votes solve

Ashley Gold 12-20, Tech and Policy Reporter at Axios, Covering Regulators and Big Tech, “Six Months With Lina Khan's FTC”, Axios, 12/20/2021, https://www.axios.com/lina-khan-ftc-six-months-4a5c4ba6-cef1-4a1f-b1dc-a528b2b41471.html

A number of bureaucratic actions by Khan have elicited cheers or dismay from those watching the FTC.

For the past 20 years, FTC meetings had not been open to the public. Now anyone can watch and the public can leave comments.

Former FTC Commissioner Rohit Chopra cast up to 20 votes on his last day at the agency, which can be used to sever ties to the House while Alvaro Bedoya awaits confirmation, according to Politico. Some argue that Chopra’s “zombie votes” are used to push through partisan agenda items they oppose.

#### Biden will just recess appoint him

David Dayen 2-22, executive editor of The American Prospect, 2/22/22, “The Wilson Phillips Blockade and Republican Obstruction,” https://prospect.org/politics/wilson-phillips-blockade-and-republican-obstruction/

But while a handful of Republicans support the study, it was the two Republican commissioners, Wilson Phillips, who blocked it. And it’s Republican senators who are holding Bedoya’s nomination hostage to prevent a majority that would likely favor an investigation into PBMs. Republican obstruction, in fact, could prevent any Biden nominees from taking their seats in the indefinite term, disrupting Lina Khan’s efforts to reinvigorate the FTC, along with hobbling agencies across the government.

Senate Democrats could do something about that last bit by changing the Senate rules, or enabling President Biden to recess-appoint Bedoya and others. Until or unless that happens, Republicans will likely continue down this path to grind down government and protect their favored corporations from scrutiny and the public’s need for a fairer economy.

#### Tons of antitrust now

V. Kathleen Dougherty 3-4, Partner in the Government Investigations and White Collar Litigation group at McGuireWoods LLP, et al., “DOJ, Federal Maritime Commission to Cooperate on Antitrust Enforcement in Ocean Shipping Industry”, JD Supra, 3/4/2022, https://www.jdsupra.com/legalnews/doj-federal-maritime-commission-to-8464532/

In his March 1, 2022 State of the Union Address, President Joe Biden again emphasized his commitment to increased competition — this time directing attention to the ocean shipping industry. In support of this commitment, the Department of Justice (DOJ) and Federal Maritime Commission (FMC) announced this week new steps to share resources for antitrust-related enforcement.

The FMC, which regulates international ocean shipping, will now give DOJ’s Antitrust Division “support and maritime industry expertise for Sherman Act and Clayton Act enforcement actions,” and the Antitrust Division will provide the FMC with attorney and economist support to enforce the Shipping Act and related statutes. This announcement also coincides with the introduction of proposed legislation, with bipartisan sponsorship, aimed at repealing federal laws that provide certain antitrust exemptions for ocean carriers.

In comments at a shipping conference this week, FMC Chair Daniel Maffei emphasized that, although the agency to date had found “no evidence” of actionable antitrust behavior in the ocean shipping industry, the FMC would be increasing reporting requirements and “deepening” its analysis of the industry. As reported by Bloomberg, Maffei pegged recent shipping rate increases to jumps in U.S. demand. He shared that “the ocean carriers on the whole are, in fact, moving many more containers than pre-pandemic.”

These announcements are the latest in a series of actions implementing stricter antitrust enforcement stemming from President Biden’s July 9, 2021 executive order on competition. In another recent development, on Feb. 17, 2022, the DOJ Antitrust Division and FBI announced an initiative targeting collusion exploiting COVID-19-related supply-chain disruptions. Together, these initiatives signal expanded antitrust scrutiny of all aspects of the transportation industry.

#### Winners win---strong enforcement builds agency capital

William E. Kovacic 15, Global Competition Professor of Law and Policy, George Washington University Law School and Non-Executive Director of the United Kingdom Competition and Markets Authority, “Creating a Respected Brand: How Regulatory Agencies Signal Quality”, George Mason Law Review, 22 Geo. Mason L. Rev. 237, Winter 2015, Lexis

The queue of matters that comes before an antitrust agency is partly determined exogenously and partly endogenously. Mergers provide an illustration. From the perspective of the competition agency, a major cause of merger rates is the state of the economy. In periods of growth and ascending stock values, firms are more likely to undertake mergers than when economic conditions are bleak. 54 The decision to merge, however, also depends on an endogenous factor. The agency's enforcement record and its statements of enforcement intentions shape the perceptions of potential merging parties and their advisors about whether to proceed.

The order in which specific matters come before the agency may affect what the agency decides to do. In the mid-1990s, under the leadership of Robert Pitofsky, the FTC achieved important litigation merger victories in transactions involving office supplies (FTC v. Staples, Inc.) 55 and pharmaceutical distribution systems (FTC v. Cardinal Health, Inc.). 56 Later in the [\*249] decade, the FTC allowed Boeing to purchase McDonnell Douglas without restrictions 57 and permitted several large mergers of petroleum companies (most notably, Exxon's purchase of Mobil) with some divestitures. 58

Let us consider how the FTC might have evaluated Boeing/McDonnell Douglas or Exxon/Mobil if one of these transactions had occurred earlier in Pitofsky's tenure. Would the FTC chairman, who had criticized enforcement policy under the Reagan administration as being too lax, 59 have allowed Boeing to purchase McDonnell Douglas if the deal had been the first major transaction to emerge in, say, 1995? One possible interpretation of FTC merger enforcement policy in the 1990s is that the successful challenges to the Staples and Cardinal Health transactions established the agency's reputation for toughness. The Staples and Cardinal Health decisions, in effect, put reputational and political capital in the bank that the FTC could spend on future decisions not to prosecute. These litigation victories enabled the agency to say, when the Boeing merger and the petroleum deals came along, that it was willing to intervene when the facts so required, but sufficiently discerning to stand down when the transaction was benign.

#### FTC capital is resilient

William E. Kovacic 16, Visiting Professor at King's College London and the Global Competition Professor of Law and Policy at George Washington University Law School, and Marianela Lopez-Galdos, Legal Consultant with the Inter-American Development Bank and the Director of the Global Competition Law Benchmarking Project at the Competition Law Center of the George Washington University Law School, “Explaining Variation in the Implementation of New Regimes”, Law and Contemporary Problems, 79 Law & Contemp. Prob. 85, Lexis

For the most part, an older, better-established, and more experienced agency is more likely to be in a stronger position to respond to such blows and recover. This is because: (a) a better-established and more experienced agency has had more time to build a career staff that provides continuity and stability over time and is able to carry out the work of the agency despite significant disruptions in leadership; 92 and (b) such an agency probably has accumulated reputational capital that it can "spend" in the time of a crisis to maintain its standing in the eyes of external audiences. 93 [FOOTNOTE] 93 See William E. Kovacic & Marc Winerman, The Federal Trade Commission as an Independent Agency: Autonomy, Legitimacy, and Effectiveness, 100 Iowa L. Rev. 2085, 2106-07 (2015) (discussing how competition agencies accumulate and spend political capital). [FOOTNOTE] A relatively newer agency, by contrast, may be more vulnerable to being swept aside or permanently diminished because it has not had the opportunity to build a staff of sufficient depth and experience or to build a reputation that can sustain it in difficult times.

## 1AR

### Adv 1

### Adv 2

### Adv CP

### UQ CP

### Enforcer Firms CP

#### The CP looks incoherent---that guts international acceptance.

William E. Kovacic 15, Global Competition Professor of Law and Policy, George Washington University Law School and Non-executive Director, United Kingdom Competition and Markets Authority, JD from Columbia University Law School, BA from Princeton University, “The United States and its Future Influence on Global Competition Policy, George Mason Law Review, 22 Geo. Mason L. Rev. 1157, Lexis

A. Reputation

Regulatory agencies develop reputations, 31 and the reputation of a competition system affects whether other authorities choose to emulate that jurisdiction's applications, seek its know-how, or even amend their own operating systems. A competition agency's reputation is a function of many factors. The most important is the perceived quality of its programs: has the agency delivered visibly good economic results for consumers in its decisions about what to do and what not to do?

In some cases, it is possible to link improvements in economic performance directly to the agency's work. 32 Because it can be difficult to show how the operation of a competition system affects economic performance, other proxies of effectiveness serve to separate stronger competition systems from weaker ones. In many instances, the volume of the agency's activity--notably, the filing of cases and the successful defense of litigation matters in court--and the sum of monetary penalties recovered are taken as [\*1165] measures of agency quality. 33 Agencies that bring big cases and obtain substantial penalties figure prominently in discussions about agency quality. 34

Reputation also is shaped by perceptions of the quality of an agency's process. 35 One important element of process is the set of procedural techniques (both formal rules and norms) that the agency uses to ensure that it operates within the boundaries of the law and tests theory and evidence rigorously. Another ingredient of good process is meaningful public disclosure--notably, informative statements about priorities, guidelines and other commentary that spell out how the agency analyzes business behavior, and clear explanations of why the agency chose to issue complaints, close files, or settle cases. Good practice also leads agency officials to appear regularly in public to explain their views and accept criticism. A further measure is the establishment of a routine practice to evaluate the substance of the agency's work and its procedures.

B. Branding

Reputation is the central ingredient of an agency's efforts to build a well-respected brand internationally. 36 The concept of branding extends beyond the development of a good reputation to encompass efforts that make the agency well-known and well-respected in the eyes of external observers, including other competition authorities. In this way, branding has an important dimension of marketing. An agency's good work is unlikely to exert substantial influence abroad unless it is known and understood by a wider audience.

Effective branding is a function of how the agency formulates and communicates its policies. A major determinant of effectiveness is to ensure that the agency's expressions of policy--through hard tools such as law enforcement and rulemaking or though softer policy instruments, such as guidelines, reports, and speeches--are coherent. Policy coherence in turn depends heavily on the agency's ability to form an overall strategy and to set out priorities that guide its staff about the selection of programs and inform outsiders about its intentions.

Coherence also requires discipline in external communications, including the agency's public relations program. Means of informing external observers include public statements by the agency and its senior managers, [\*1166] presentations at conferences, formal decisions on the initiation or resolution of cases, and the publication of studies. Each public utterance of an agency or its officials is an occasion to emboss or tarnish the agency's brand. As a group, these messages should consistently and clearly reinforce the agency's main themes, as contained in its statement of strategy and priorities.

#### The CP undercuts legitimacy and credibility of the plan by making the process seem rigged.

Blake R. Hills 20, Prosecuting Attorney, Summit County Utah Attorney's Office. Special Assistant United States Attorney, District of Utah. Former Judicial Clerk, Tennessee Court of Criminal Appeals. J.D., S.J. Quinney University of Utah College of Law (1998), Order of the Coif, “Sua Sponte Dismissals: Is Efficiency More Important Than Procedural Fairness?”, UMKC Law Review, 89 UMKC L. Rev. 243, Winter 2020, Lexis

B. Sua Sponte Dismissals Reduce Respect for Judicial Decisions

In addition to violating due process, sua sponte dismissals reduce respect for judicial decisions. This is because "[a]ppearances matter tremendously in court. The legal system shouldn't just be fair, it should also appear to be fair." 177As stated by Lord Chief Justice Heward in the Sussex Justice case, "justice should not only be done, but should manifestly and undoubtedly be seen to be done." 178

The principle that the legal system must be fair and must be seen to be fair is known as "procedural justice." 179This principle is important because research has shown that "the manner in which disputes are handled by the courts has an important influence upon people's evaluations of their experience in the court system." 180 Indeed, "[t]hey accept 'losing' more willingly if the court procedures used to handle their case are fair." 181A fair proceeding is one in which all litigants have the opportunity to present their argument and have it considered by the court. 182 Under this principle, sua sponte dismissals do not have the appearance of [\*263] fairness because the litigants do not have the opportunity to respond to dispositive issues and have their arguments considered by the court.

The adversary system is built on the premise that allowing litigants to address the court on dispositive issues both increases the accuracy of the decision and "increases the parties' sense that the court's process and result are fair." 183As stated by the Supreme Court, "[f]airness can rarely be obtained by secret, one-sided determination of facts decisive of rights. . . . No better instrument has been devised for arriving at truth than to give a person in jeopardy of serious loss notice of the case against him and opportunity to meet it." 184

Sua sponte dismissals reduce "societal acceptance of courts' decisions because the losing party will feel that [they have] he has not been given a fair opportunity to present his case when he had neither notice of, nor the chance to present, arguments on the issue that the court found determinative." 185As one commentator has noted: "If the grounds for the decision fall completely outside the framework of the argument, making all that was discussed or proved at the hearing irrelevant--the adjudicative process has become a sham, for the parties' participation in the decision has lost all meaning." 186This is a real problem:

Indeed, one study revealed that even lawyers who won a case based on an issue decided sua sponte did not like the practice: "[T]hey said the cases should have been decided on issues they had argued. Perhaps they felt it did not reflect well on their advocacy." A lawyer who lost a case on a sua sponte decision was more blunt: "The case became somewhat personal to me. I felt, one, [the client] got screwed. Two, I got screwed. He got screwed, that's pretty bad. Me getting screwed, that's an imposition up with which I shall not put." 187

The bottom line is that courts should recognize that there are negative consequences that result from sua sponte dismissals. Whatever the situation may have been in the past, courts currently operate "in an environment in which people have generally lower levels of trust and confidence in all forms of governmental authority." 188 Modern courts should "care about the public appearance of their actions because abstract truth is not the criterion of legitimacy for legal obligations; legal obligations must be justified as authentic." 189There is an easy way to do this:

[Courts] can provide evidence that they are listening to people and considering their arguments by giving people a reasonable chance to [\*264] state their case, by paying attention when people are making that presentation, and by acknowledging and taking account of people's needs and concerns when explaining their decisions. This is true even if the [courts] cannot accept those arguments and give people what they feel they deserve. 190

In sum, courts must recognize that they cannot dismiss cases sua sponte without causing the public to lose respect for those decisions.

### AI DA

#### Too far off.

---[UK in yellow]

Mattiuzzo & Machado 22 --- Marcela Mattiuzzo, PhD Candidate at the University of São Paulo, Henrique Felix Machado, Master of Laws and Bachelor in Law from the University of Brasília, “Algorithmic Governance in Computational Antitrust—a Brief Outline of Alternatives for Policymakers”, Stanford Computational Antitrust, VOL. 11, 2022, https://law.stanford.edu/wp-content/uploads/2022/03/Mattiuzzo-Machado.pdf

However, paradoxically, antitrust itself is still lagging behind in incorporating digital elements into its own practice.5 Taking note of this situation, a number of scholars and practitioners have very recently started to devise proposals with the aim of closing the gap. In Eliot’s6 terms, the application of “antitrust to AI” is slowly helping to develop its counterpart, the application of “AI to antitrust.” We will refer to this approach, following how some of its proponents have conceived it, as the “computational antitrust” proposition.7

#### Institutional barriers are too high.

Cary Coglianese & Alicia Lai 22, Edward B. Shils Professor, Law, University of Pennsylvania Law School. Director, Penn Program on Regulation, University of Pennsylvania Law School; Judicial Law Clerk, United States Court of Appeals for the Federal Circuit, "Antitrust by Algorithm," Stanford Computational Antitrust, Vol. 2, 2022, pg. 15-16.

Data availability will be the first organizational capacity hurdle that antitrust authorities must overcome. If antitrust by algorithm is justified by the rapid pace of market activity—including activity driven itself by private actors’ use of algorithms—then antitrust regulators will almost surely need data access at a speed that mirrors the market activity the regulators are seeking to oversee. To obtain this access, antitrust officials could insist on including real-time sharing of digital data on a case-by-case basis as part of the settlement agreements they negotiate in enforcement actions taken against firms.90 More generally, some firms might be persuaded to provide such data access voluntarily on a regular basis.91 But perhaps more likely, legislatures or antitrust agencies will need to establish legal requirements for data-sharing to ensure that all firms provide necessary data access to antitrust authorities.92

Access to necessary data, though, is only part of the overall capacity needed by antitrust organizations if they are to transform significantly in their reliance on artificial intelligence. Organizations also need hardware and cloud computing capacity to store and analyze these massive quantities of data. Although the dramatic advances in computing power in recent decades are precisely what have made the machine-learning revolution feasible, many governmental IT systems nevertheless remain significantly older, even antiquated.93 Moreover, governments not only need up-to-date hardware for data storage and analysis; they also need to invest in the technologies and operational procedures required for robust privacy and cybersecurity protection of all the data they use.94 Here, too, governments’ current capacity has generally been lacking, with vulnerabilities that antitrust authorities will need to guard against in their data operations.95

Antitrust authorities will need adequate human capital and expertise as well.96 Even though machine learning is usually referred to as artificial intelligence, self-learning analysis still depends vitally on humans to program and structure algorithms, as well as to train, test, validate, and refine them.97 Antitrust authorities—which already do have staffs of economists and other analysts—will need to ensure that these analytic personnel also possess the latest data science skills as well as exhibit appropriate sensitivity to legal and ethical issues presented by governmental use of artificial intelligence. It will always be challenging to build or maintain an in-house workforce with cutting-edge analytic skills, as public sector organizations face inherent competitive disadvantages vis-à-vis the private sector when it comes to recruiting expertise.98 When antitrust authorities rely on private contractors and consulting firms to provide necessary human capital to support algorithmic antitrust tools, they must ensure that their procurement contracts protect their organizations and ensure sufficient access to information that may need to be disclosed in litigation or in response to other public oversight demands.99

#### So are legal challenges.

Cary Coglianese & Alicia Lai 22, Edward B. Shils Professor, Law, University of Pennsylvania Law School. Director, Penn Program on Regulation, University of Pennsylvania Law School; Judicial Law Clerk, United States Court of Appeals for the Federal Circuit, "Antitrust by Algorithm," Stanford Computational Antitrust, Vol. 2, 2022, pg. 17-19.

Outside of the antitrust context, legal conflicts and public controversies have already arisen over governmental use of algorithmic tools.100 Antitrust authorities should prepare for similar disputes whenever they make a significant shift to relying on algorithmic tools.101 The range of legal issues that antitrust by algorithm will implicate parallel those that arise with administrative use of machine learning more generally: accountability, transparency, equality, privacy, and due process.102 Although antitrust authorities, like other governmental entities, will likely often enjoy a practical, if not legal, advantage in court, their prospects of prevailing in court will depend on the law in the specific jurisdictions in which they reside, the particularities of their use of machine-learning algorithms, and the performance of specific algorithmic tools.103

But to generalize: When these tools are used to support discretionary actions— for example, general background research—algorithms will pose the least amount of legal risk for antitrust regulators. Similarly, when machine learning is used simply to identify potential firms to target for human follow-up and investigation, these uses are likely to escape judicial interference, especially when human-gathered and human-analyzed evidence forms the actual basis for any subsequently imposed enforcement penalties.104 Perhaps for this same reason, wherever machine-learning algorithms are used merely to supplement, rather than replace, any kind of human decision-making by antitrust officials, they will likely be less susceptible to reversal by the courts.105

Transparency and due process considerations are nevertheless likely to loom large in any lawsuits that are filed challenging antitrust by algorithm. Machine-learning algorithms can achieve highly accurate forecasts but it is not easy for humans to understand or intuitively explain how these algorithms reach their predictions.106 These algorithms also typically do not directly support causal or even correlative claims—that is, conclusions that businesses with certain characteristics or behaviors are more likely to engage in anticompetitive behavior.107 Nevertheless, in some countries it may be legally sufficient for antitrust authorities to release only relatively limited information about their algorithms— limited, in some cases, to only the objective functions and general structures—or even to be exempt altogether from disclosing any information if the algorithms are used for law enforcement purposes.108 But even in these jurisdictions, the law may change, as it has in some countries to date. Under the 2016 European General Data Protection Regulation, for example, businesses that are subjected to algorithmic tools deployed by antitrust authorities will enjoy at least some right to an explanation of how these algorithms work.109

Furthermore, some of the same concerns that stand behind calls for consumer protection regulation of artificial intelligence in the private sector may apply whenever the government uses algorithms for consequential purposes. If antitrust or consumer protection agencies demand disclosure of information related to private firms’ use of algorithms, they might reasonably expect that the public will demand similar disclosures of their own use of algorithms. It is unsurprising, for example, that the European Commission’s 2021 proposal for AI regulation would apply to both private and public sector uses of artificial intelligence.110

Antitrust regulators may also face legal challenges related to algorithmic bias, especially should their own algorithms lead to outcomes that unfairly impose disproportionate impacts on businesses owned by women or members of certain racial or religious groups.111 The potential for algorithmic bias has given rise to a considerable degree of legal and public concern in other contexts, especially when machine-learning algorithms are trained on data that are already infused with human biases.112 Such concern is most palpable with algorithms trained on general law enforcement data, because crime data are infused with historical, humancreated biases.113 In addition, algorithmic bias is a particular concern in settings where individuals rather than organizations are directly affected or targeted by algorithms.114 For these reasons, algorithmic bias may seem, at least at first glance, less of a concern with the algorithmic tools likely to be used by antitrust authorities.115 Nevertheless, given the importance and salience of concerns of algorithmic bias, it would be prudent for antitrust analysts and decision-makers to address these concerns when pursuing antitrust by algorithm.116

#### Tools don’t exist

---[UK in yellow]

Eliot 22 --- Dr. Lance Eliot is a globally recognized expert on AI and previously served as a professor at the University of Southern California, “Response: Artificial Intelligence Dovetails Judiciously into Computational Antitrust”, January 12, 2022, https://law.stanford.edu/2022/01/12/codex-conversations-on-the-trail-of-computational-antitrust/

These stated uses of AI are considered to be embedded within the context of humans and machines working side by side, as it were. I mention this salient point because we are not yet at a juncture of AI systems attaining a semblance of autonomous capacities per se. For now, the idea is that these would be AI-based computational tools that are developed and tuned toward the antitrust realm for active hands-on use by antitrust analysts, regulators, enforcers, researchers, etc.

Few such AI-infused tools exist today in the antitrust space and, thus, suggest there is ample opportunity and challenge ahead in crafting and fielding these sorely needed AI-assisting capabilities.