# Notes

I did a ton of larp prep for Bronx but I never got to break any of it because ~~~the northeast~~~ ☹ -- huge shoutout to joanne park for sending me a bunch of her AI and heg cards and to nevin gera and peter zhang for cutting the good version of this aff before I went and made it stupid – they (smartly) just read the (probably true) soft left scenario because tbh there wasn’t really a good reason to make this aff big stick – I kinda just did it because I thought it would be fun and good practice larping

I also had a butler version that was just the soft left part of the advantage with a butler fw

The precision ag advantage took forever to cut and had weirdly good evidence considering how stupid it was

# 1AC

## 1AC ~5:10

### Plan

#### Resolved: In the United States, colleges and universities ought not consider placement tests in undergraduate admissions decisions. If you want me to specify further, I defend the College Board’s Accuplacer test and ACT’s Compass Test.

#### Reasonability with a brightline of solvency advocate and structural abuse on neg T and spec – [A] There are multiple T interps the 1NC can read, like spec good or spec bad, which the aff will always violate — if the interp the aff picked is okay, you should default to substance – outweighs – topic ed is unique to this resolution – where the majority of debate education occurs [B] There’s only 4 minutes for the 1AR to generate offense, answer standards, and weigh while still covering all substance—reasonable aff interps allow us to actually get education

### Inherency

#### Community colleges use placement tests to determine whether students are admitted to their major or forced to take remedial courses.

Mathews 11 – (Jay Mathews, 09-08-11, “Where community colleges go wrong”, education columnist for The Washington Post and created the annual Challenge Index rankings of high schools, https://www.washingtonpost.com/blogs/class-struggle/post/where-community-colleges-go-wrong/2011/09/08/gIQA5kGNCK\_blog.html?noredirect=on) NG

Susan Headden begins her eye-opening piece in the September/October issue of the Washington Monthly with the unsettling story of Monica Dekany, a California mom barred from taking courses at a local community college for no good reason. Like most of America’s two-year colleges, Golden West College in Huntington Beach asked her to take a short, computerized placement test. The college used the most popular one, called Accuplacer. When her score was below the level the college set for its for-credit courses, she was shunted to remedial courses that earned no credit but which she still had to pay for. The college’s placement system ignored the fact that she had already passed similar for-credit courses at other colleges years before. For Dekany, the remedial courses were a breeze. Their instructors saw she had been misplaced and helped her get around the rules. One professor even helped her sign up for a for-credit math course at another college when Golden West insisted she needed more remediation. Now, Headden reports, Dekany is “a member of the Alpha Gamma Sigma honors society, a reporter for the Golden West college newspaper and the school’s homecoming queen. She’s just a semester away from getting her associate’s degree in social science and on her way to a bachelor’s in counseling. But there’s no getting back what the Accuplacer took from her. Remediation cost her several thousand dollars and set her education and her career back a year.” I have written about problems with the community college placement system, including new research indicating the remedial courses often do no good. But Headden, a senior writer/editor at the Education Sector think tank in the District, explains the issue better than anyone ever has. Many who read her piece will be outraged, and want community colleges — which educate nearly half of the undergraduates in the country — to do something about it. But will they? Most of them are struggling with budget cuts and more applicants than they can handle. Education writers like me rarely report what they are doing. We prefer to pay attention to the upper crust four-year schools that readers have heard of and yearn for their children to attend. Still, Headden rips apart all the excuses for inaction. “The remedial placement process is ground zero for college noncompletion in America,” she says. “If the nation is going to make any headway in helping more students graduate from college, it will have to completely overhaul the way students enrolling in nonselective colleges are tested for college readiness, and make fundamental changes in how colleges use that information to help students earn degrees.” I am among those who complain that four-year colleges put too much emphasis on the SAT or ACT in admitting students. Headden says people like me are ignoring the fact that placement tests like Accuplacer, owned by the College Board, and COMPASS, administered by ACT, impose higher stakes on millions of would-be college students than even the infamous SAT. “When students apply to selective colleges,” Headden says, “they’re evaluated based on high school transcripts, extracurricular activities, teacher recommendations, and other factors alongside their SAT scores. In open admission colleges, placement tests typically trump everything else. If you bomb the SAT, the worst thing that can happen is you can’t go to the college of your choice. If you bomb the Accuplacer, you effectively can’t go to college at all.” As I noted in my last column on community colleges, most of their applicants don’t know how important their placement tests are. Guidance published by the College Board tells them they can’t really fail a placement test, even though from the student’s point of view that is not true. “Because they don’t know what’s coming, most students don’t prepare for the tests,” Headden notes, “even though studies have shown that a review course can raise scores enough to place students at a higher remedial level or keep them out of remediation altogether.” Her analysis also applies to many four-year colleges that accept nearly all applicants and use placement tests to see who will have to pay for remedial courses that earn no credit. Headden unearthed a study I had not seen that shows that tens of thousands of community college students who found a way to take for-credit courses despite flunking the placement tests passed the courses 71 percent of the time. That was close to the 77-percent passing rate for all students who took those for-credit courses. Experts told Headden that tests or interviews that calibrate students’ ambition, persistence and willingness to seek help and connect with instructors can identify which students are good bets to pass the for-credit course despite bad placement test scores. Austin Peay University, a four-year state college in Tennessee that admits 90 percent of applicants, found when it eliminated remedial courses in favor of extra tutoring and other after-class assistance, the passing rate in its college-level math course for new students doubled to 67 percent. I know several well-regarded community colleges that use Accuplacer and similar tests. I will ask them what they think of what appear to be their bankrupt admissions systems. I will let you know what they say.

### The Advantage is STEM

#### **STEM talent shortage now – increasing diversity is key.**

Ambrose 3/14 [(Mitch, Acting Director of the American Institute of Physics FYI Bulletin, previously a fellow at the Science and Technology Policy Institute and member of the Senate Commerce, Science, and Transportation Committee) “Panel Warns US Faces STEM Workforce Supply Challenges,,” American Institute of Physics, 03/14/2019] DD // RCT by WWBW  
They stressed **the U.S. must better develop domestic talent** and continue to welcome students and researchers from abroad to ensure the future sufficiency of its STEM workforce. The hearing surveyed strategies for better matching training with industry needs and encouraging more women to pursue STEM careers. **China** also loomed large, with committee leaders noting it **has been on pace to soon surpass the U.S. in total R&D spending**. Three Republican members also asked witnesses how the government should respond to Chinese espionage, a topic that has come to the fore in Congress over the past year. Potential for workforce shortages or oversupply spotlighted Committee Chair Eddie Bernice Johnson (D-TX) opened the hearing by [citing](https://science.house.gov/imo/media/doc/03.06.19%20CJohnson%20USS_and_T%20Hearing%20OS.pdf) various benchmarks of U.S. competitiveness in science and technology. She lamented the stagnant performance of U.S. students in math and science assessments as well as the **persistent underrepresentation of women and minorities in STEM fields, saying it could lead to “dire workforce shortfalls” if not addressed soon.** She also noted the U.S. is behind several other countries in terms of the share of GDP spent on R&D and said China “likely” surpassed the U.S. in total R&D spending last year. Committee Ranking Member Frank Lucas (R-OK) likewise expressed concern about China potentially surpassing the U.S. He [signaled](javascript:textise('https://republicans-science.house.gov/news/opening-statements/lucas-opening-statement-american-competitiveness-science-and-technology')) support for increasing R&D spending despite current budget pressures and said the federal government “has a responsibility to prioritize basic R&D.” He noted that Congress appropriated $152 billion for R&D last year, which he said is a historic high in inflation-adjusted dollars. To sustain support for such spending, Lucas continued, Congress needs to do a better job of explaining the value of science to the public. “We need to break down the barrier between the ivory tower of academia, the hallways of Silicon Valley, and the Main Street of Cheyenne, Oklahoma,” he said. Witnesses also weighed in on the level and composition of U.S. investment in R&D. McNutt said the U.S. is “doing okay” on total R&D spending, but noted China has rapidly caught up and that the return of tight budget caps could cause significant damage. “There is nothing more disruptive to the U.S. science enterprise than huge swings in science budgets,” she remarked. Citing the recent government shutdown as a prime example of such a shock, she noted the National Academies is considering doing a rigorous assessment of its impacts. Asked by Rep. Brian Babin (R-TX) what the government should cut to support more R&D spending, McNutt said a large increase is not necessarily needed, again stressing that budget predictability is paramount. She also said that large increases in funding can actually be harmful if they create a workforce that cannot be supported when budgets later stagnate. Gallagher also highlighted how a lack of long-term planning in federal budgeting can create mismatches between supply and demand for STEM workers. “We have not yet found ways to link industry’s workforce needs effectively and efficiently to the rate at which federal R&D investments can or should change. [If we fail] to do this, we risk severe oversupply or shortages in science and technology workforce,” he said. Gallagher elaborated on this problem in his written testimony. He suggested the current arrangement in which universities focus on basic research and industry focuses on later-stage R&D has exacerbated mismatches between training and workforce needs. He pointed to a nascent network of advanced manufacturing institutes as a model for bringing the sectors together around pre-competitive R&D projects. Representing the industry perspective, Khan emphasized how federally funded research at universities trains the technical workforce on which companies rely. He said the statistic that currently worries him the most is that **approximately half of U.S. workers in industry that have science degrees will be eligible for retirement in a decade. “We have no line of sight today on how to replace them,”** he warned. The witnesses also highlighted how the U.S. is no longer attracting and retaining talent from around the world as it once did. McNutt cited the recent decline in international applications to U.S. graduate programs in science and engineering as a worrying sign, suggesting the drop is due to a “strong perception, if not the reality, that international students are not welcome here.” According to her written testimony, sharp drops have occurred in the physical sciences and engineering. She also noted that foreign-born researchers are also increasingly drawn toward better funding prospects in other countries. Gallagher said that competitor nations have made concerted efforts to build their domestic research bases by emulating the U.S. system and are successfully drawing talent away from the U.S. He said the U.S. would benefit from systematically monitoring the research strategies of other countries as it can no longer afford to be a leader in all areas. Given that the U.S. will not have the same supply of talent from overseas, McNutt said **growing the domestic STEM workforce by drawing more women and minorities into STEM fields is increasingly important.** Asked what could be done to help more women to pursue STEM careers, McNutt described how the recent National Academies report on sexual harassment opened her eyes to the “undercurrent” of more subtle forms of harassment such as "put downs" that discourage women from remaining in the field. She suggested the White House Office of Science and Technology Policy require that every agency come up with a plan of action for changing the culture of science to root out harassment, similar to its actions on scientific integrity during the Obama administration. Universities seek clarity on concerns about China The hearing was the latest in a series across Congress to broach the topic of how to better protect universities from being exploited by foreign nations, particularly China. Asked by Babin to comment on the subject, Gallagher noted that historically the tension between the openness of the scientific enterprise and the sensitivity of some research was mitigated by the fact that universities do little classified research or intellectual property-intensive work. “What’s happening right now is that this boundary between sensitive information versus open information is becoming blurrier, and I think the highly competitive interaction between the U.S. and China is making us relook at the risk proposition,” he continued. “I think this is an area where we’re looking for clearer guidance from the government. I think one of my big concerns now is that we’re reacting to the concern, but really without a policy strategy.” Later asked by Rep. Michael Cloud (R-TX) how the U.S. should react to persistent cybertheft by China, Gallagher contrasted the “exfiltration of data and information” with the “exfiltration of talent,” saying he worries far more about the latter. If the U.S. does not retain a workforce capable of producing the next generation of breakthroughs, he said, “we won’t have anything that is worth exfiltrating in the future.”

#### Community colleges are key to fill STEM jobs.

Aspen Institute 18 [Aspen Institute, (The Aspen Institute is an educational and policy studies organization based in Washington, DC. Its mission is to foster leadership based on enduring values and to provide a nonpartisan venue for dealing with critical issues. The Institute is based in Washington, DC; Aspen, Colorado; and on the Wye River on Maryland’s Eastern Shore. It also has offices in New York City and an international network of partners. For more information, visit www.aspeninstitute.org.) "Community College STEM Awards Recognize Outstanding Education" 2-7-2018, https://www.aspeninstitute.org/news/press-release/siemens-aspen-community-college-stem-awards/, DOA:10-4-2019 // WWBW]

**There are more than five million jobs in STEM fields that require more than a high school diploma but less than a four-year degree.** These jobs pay wages that average more than $50,000 annually. Yet, **employers throughout the country are experiencing and projecting significant shortages of qualified workers in many STEM fields**. To respond, the Aspen Institute College Excellence Program and the Siemens Foundation have partnered to create the Siemens-Aspen Community College STEM Award to elevate excellent middle-skill STEM programs at community colleges, the jobs these programs lead to, and the value they confer on students, their families, and their communities. “**There is a growing demand for specialized STEM skills that weren’t required a generation ago. Our nation is simply not developing enough talent in middle-skill STEM fields, limiting opportunity for individuals, growth for industries, and economic strength for communities,**” said David Etzwiler, CEO of the Siemens Foundation. “**Quality community college STEM programs** are a pathway to job security and financial success for many students, and can **help meet employer needs** and strengthen our middle class.” These community college program awards are now the first step in awarding scholarships to Siemens Technical Scholars, an exceptional group of diverse students from across the country who demonstrate excellence that matches the exceptional opportunities offered by today’s awardees. The 2018 Class of Siemens Technical Scholars will be announced in the fall. In a change from previous years, the Aspen Institute, in partnership with the community colleges that win the Siemens-Aspen Community College STEM Award, will select the students to be recognized as Siemens Technical Scholars. Students will be awarded scholarship funds between $3,500 and $10,000. Aspen will share those Scholars’ stories to showcase the economic opportunities provided through STEM middle-skill jobs. “**Our nation’s best community colleges are incredible engines of opportunity for students seeking rewarding careers in STEM fields,**” said Joshua Wyner, executive director of the Aspen Institute College Excellence Program. “This award recognizes colleges that provide an excellent education for talented students from every community, delivering on the promise of social mobility and lifelong opportunity.”

#### Placement tests misplace students into remedial classes which kills degree completion – empirics.

Hanford 17 – (Emily Hanford, 04-17-17, “How a Little-Known Standardized Test Harms Community College Students”, Washington Monthly, https://washingtonmonthly.com/2017/04/17/how-a-little-known-standardized-test-harms-community-college-students/) NG recut WWBW

The most recent evidence comes from an analysis published in September by the National Center for Education Statistics. **NCES took a big set of data on college students and determined who was weakly prepared for college, moderately prepared, or strongly prepared, based not just on standardized test scores but also on high school GPA and the highest level of completed math coursework.** (Research shows high school grades are a better predictor of how a student will do in college than test scores.) Then NCES looked at who ended up in remedial classes. **Nearly half of the community college students who were strongly prepared** by the researchers’ measure **ended up in remediation**. Ending up in a remedial class when you don’t need it is bad news. **The classes cost money, don’t count for college credit, and add to the time it takes to get a degree.** And while the NCES analysis found that **remedial classes** provided benefits for some weakly prepared students, they **did nothing for strongly or moderately prepared students.** In fact, **those students were less likely to get bachelors’ degrees** because **more than a quarter of them didn’t finish their remedial classes.** Why would this be? It’s not entirely clear, but researchers have some ideas. If you’re already juggling a busy life that may include both work and kids, college probably seemed like a precarious proposition to begin with. Having to sit through classes that aren’t “real” college courses might be what tips you into thinking this whole college thing just isn’t worth it. Plus, the longer the road to a degree, the more likely a life event—such as losing a job or a kid getting sick—could derail you. And people get discouraged. “A lot of students would say, ‘You know, I’m not even sure that I am college material,'” said Peter Adams, who taught developmental writing at a community college for 36 years. Adams is one of the pioneers in a movement to change the way remedial classes work. In a “co-requisite” system, students take remedial classes at the same time as college-level math and English, rather than before. The idea is to get students into college classes quicker, and provide remediation on the side in a “just in time” fashion. It works. Students in co-requisite remediation are significantly more likely to persist in college. But that still leaves the question of whether one test can determine who needs remediation in the first place—or whether it is measuring inequality more than ability to succeed in college. A wide body of research shows that **test scores reflect family income more than any other factor.** Adams once heard an official from a testing company say that instead of giving incoming students a placement test, colleges could just ask how many bathrooms in the house where they grew up. The fewer bathrooms, the worse they’re likely to do on the test. And the more likely they’ll end up in remedial classes. There are certainly low-income students who do well on tests. But those students are not, for the most part, ending up at elite colleges. Only 23 percent of high-achieving, low-income students even apply to a selective school. Almost half of students from the lowest-income families go to community colleges. So do most Hispanic students and 44 percent of black students. And **if you end up at a community college, test scores may be your only ticket into college-level math and English classes—even if you’ve already proven you can do college-level work.**

#### Two impacts: [1] Structural violence – degree completion increases social mobility and helps low-income communities.

Strumbos et al. 18 [Diana Strumbos, Donna Linderman, Carson C. Hicks, (Diana Strumbos is director for research and evaluation for Accelerated Study in Associate Programs (ASAP) at the City University of New York (CUNY). Donna Linderman is university dean for Student Success Initiatives at CUNY’s Office of Academic Affairs and executive director of ASAP. Carson C. Hicks is deputy executive director of the New York City Mayor’s Office for Economic Opportunity.) "Postsecondary Pathways Out of Poverty: City University of New York Accelerated Study in Associate Programs and the Case for National Policy" RSF: The Russell Sage Foundation Journal of the Social Sciences, 2-1-2018, https://www.rsfjournal.org/content/4/3/100/tab-article-info, DOA:9-28-2019 // WWBW]

Focusing specifically on mobility, Ron Haskins finds that a **college degree has a large impact on the likelihood of moving up the economic ladder.** With a college degree, children born into the bottom income quintile had a 41 percent chance of making it to the top two quintiles, relative to just a 14 percent chance without a college degree (Haskins 2008). Furthermore, **the changing economy now demands employees with more education and training and provides fewer opportunities for those with only a high school education.** Anthony Carnevale, Nicole Smith, and Jeff Strohl predict that **50 percent of U.S. job growth expected by 2018 would require at least an associate degree, underscoring that an associate degree may be even more essential for employment** than it has been historically (2010). **A postsecondary education also has non-economic benefits.** Researchers have found evidence of social and health benefits, including **better health outcomes, reduced welfare receipt, and a decrease in criminal involvement** (Belfield and Bailey 2011). Other benefits include **positive effects on the community, family life, and reported levels of happiness, as well as increases in social capital** (Hout 2012). Postsecondary Degree Attainment Although evidence suggests that postsecondary education can lead to social and economic mobility, the unfortunate reality is that **many individuals from low-income families struggle to earn a college degree** (Haskins, Holzer, and Lerman 2009). Low-income students are less likely to enroll in postsecondary education in the first place, which has led to calls for policies and programs designed to increase access to college (Ellwood and Kane 2000; Haveman and Smeeding 2006). However, access is not the only problem—there are also stark inequalities in college completion. Martha Bailey and Susan Dynarski find that students from low-income families were six times less likely to have earned a bachelor’s degree by age twenty-five than those from high-income families, with only 9 percent of low-income students earning a degree by that age (2011). These differences remained when controlling for prior academic performance and the gap has grown over time. Part of these differences arises from the fact that low-income students are more likely to begin their path to a bachelor’s degree by first enrolling at a community college with the intention of transferring. Few make it to that point. COMMUNITY COLLEGES **Low-income students are more likely to attend community colleges** than other types of institutions, both because they are less expensive and because many of them are open access institutions, allowing students to enroll who do not meet college readiness standards required by other types of institutions. Between 6.7 and 7.7 million students nationwide enroll at community colleges in degree-seeking programs each year, about 40 percent full time (National Center for Education Statistics 2016). Unfortunately, most of them do not complete a degree. National statistics show that only 19.8 percent of first-time, full-time degree-seeking students at public two-year institutions had earned a certificate or associate degree from their initial institution three years after entry (Snyder and Dillow 2015). Looking more broadly to consider students who transfer and over a longer time frame, only 35.1 percent of students who began at two-year public institutions had earned a degree from any institution six years later (Snyder and Dillow 2015). A large percentage of students at community colleges nationwide are low income, with over half in receipt of federal Pell grants, which are predominately awarded to students with less than $20,000 in household income (National Center for Education Statistics 2014; U.S. Department of Education, Office of Postsecondary Education 2014). **Students at community colleges, and low-SES students more specifically, face many barriers to completion** (Attewell, Heil, and Reisel 2011; Goldrick-Rab 2010). **Many students** are not academically prepared for college-level courses, and **must take remedial or developmental coursework that is difficult and time-consuming before they can even begin credit-bearing courses. This presents an immediate challenge to building academic momentum and decreases a student’s chance of success because the number of credits earned in the first year is a key predictor of degree completion** (Adelman 2006). In addition, many students struggle with financial issues, and need to work while in school or have family responsibilities that require them to balance school, work, and family—or both. Work and family obligations sometimes force students to attend part time, which can again lead to a loss in momentum and decrease their likelihood of graduating. Students may also struggle to feel integrated into college life and achieve a sense of belonging (Tinto 1993; Karp and Bork 2014). In particular, first-generation college-goers may not have the social capital or networks of family and friends familiar with the demands of college to help guide them.

#### [2] US Hegemony – STEM growth is key to US heg.

Herman 19 [Arthur Herman, (Arthur Herman is a senior fellow at the Hudson Institute. He is the author, most recently, of 1917: Lenin, Wilson, and the Birth of the New World Disorder (Harper, 2017).) "America’s STEM Crisis Threatens Our National Security" American Affairs Volume III, Number 1 (Spring 2019): 127–48, https://americanaffairsjournal.org/2019/02/americas-stem-crisis-threatens-our-national-security/, DOA:10-4-2019 // DD recut WWBW]

Meanwhile, **a new competitor for STEM leadership is looming on the horizon**, just as the Soviet Union did in 1950s—namely **China**. And **STEM leadership** **remains** just as **vital to our national security**—perhaps even more so now than when Sputnik was launched. Today’s Defense Department and other leading experts all agree that **the future of America’s defense will rely on advanced technologies such as AI, cyber, quantum, robotics, directed energy and hypersonic weapons, and even 3-D printing.** The Obama Pentagon began pointing out this reality in 2014, in a series of landmark speeches unveiling what it dubbed the Third Offset Strategy.[2](https://americanaffairsjournal.org/2019/02/americas-stem-crisis-threatens-our-national-security/#notes) All of the above **technologies will be critical if the United States is to maintain its military superiority over its rivals, including China. They will also require new levels of scientific and engineering aptitude and understanding, not just from their designers but from producers and users, including the next generation of warfighters.** This is particularly, even acutely, true of quantum computing and quantum technology. Both rest on an entirely different basis than classical computing, namely quantum physics rather than mathematics. As I’ve written in an earlier American Affairs article, quantum’s disruptive possibilities far exceed that of any technology since nuclear weapons.3 **Without a trained quantum workforce, and without a strong cadre of researchers and teachers who are capable of expanding our knowledge of quantum information science, we will face a shortfall in this critical twenty-first-century technology. Such a shortfall would materially affect our ability to win wars in the coming decades.** The same is true in other areas of the struggle for high-tech supremacy. Where will those trained cadres come from? If current trends continue, they will increasingly, and inevitably, come from outside the United States. The long-term trend of having to rely on foreign nationals to fill America’s STEM gap, which began in the late 1990s and early 2000s, is now here to stay. Immigrants accounted for well over 50 percent of the growth in employment in STEM-related fields between 2003 and 2008.[4](https://americanaffairsjournal.org/2019/02/americas-stem-crisis-threatens-our-national-security/#notes) In addition, foreign students make up the majority of majors and graduate students in many STEM fields in American universities—including students from our leading geopolitical competitor, mainland China. Overall, the data shows that enrollment of international students in U.S. science and engineering university programs has been steadily rising since 2008, while the number of U.S. citizens and permanent residents enrolled in those programs has steadily declined. **We are witnessing a gradual withering away of American college student engagement in the very same STEM disciplines that will determine who dominates, and who is dominated, in the twenty-first century.** The Trump administration’s recently released report “Charting a Course for Success: America’s Strategy for STEM Education” stated: “Now more than ever **the innovation capacity of the United States—and its prosperity and security—depends on an effective and inclusive STEM education ecosystem**. . . . Simply to function as an informed consumer and citizen in a world of increasingly sophisticated technology requires the ability to use digital devices and STEM skills such as evidence-based reasoning.”[5](https://americanaffairsjournal.org/2019/02/americas-stem-crisis-threatens-our-national-security/#notes) In fact, the administration’s report understates the case. We now face a crisis, and one that will not wait for free market forces to solve.

#### American military power is key to prevent nuclear war and uphold the liberal order.

Kagan 18 — Robert Kagan; PhD, Senior fellow at the Brookings Institution and a member of the Council on Foreign Relations. (9-18-2018; “The Jungle Grows Back: America and Our Imperiled World;” pg. 160-162; Published by *Alfred A. Knopf*; //GrRv)

What is likely to follow is a return to the multipolar power struggles that brought so much devastation to the world before the United States redirected the course of history. That is where the deep ruts lead, back to the state of the world prior to 1945. Only this time, the powers competing and clashing will be armed with nuclear weapons. It is ironic that some of those who spent the Cold War warning that America’s hawkish foreign policies would result in nuclear ~~holocaust~~ do not seem to fear nuclear war in the competitive multipolar world that may be our future. We have yet to test the question of whether nations with nuclear weapons can go to war, because so far the United States and the liberal world order have prevented such wars. But if history is any guide, to count on the horror of new weaponry alone to maintain the peace is a most risky bet. Had you cast that bet before the two world wars, you would have lost. These days some experts tell us it was the existence of nuclear weapons that prevented the United States and the Soviet Union from coming to blows, but few at the time had any confidence that nuclear weapons were a guarantor of peace. Throughout much of the Cold War there were those who simply assumed that the world was heading inevitably toward Armageddon. They were wrong that it would come as a result of American Cold War policies, but in the long run they may still prove right.

These are the quandaries we cannot avoid no matter how hard we try. Reinhold Niebuhr believed that what he called “the world problem” could not be solved if America did not “accept its full share of responsibility in solving it.”187 To support a “world community beyond our own borders” he went on, both was virtuous and reflected a “prudent understanding of our own interests.” But he also predicted that Americans would be “the poorer for the global responsibilities which we bear.” And poorer not just in a material sense but also in a moral sense. It was impossible “to build a community without the manipulation of power,” and it was impossible “to use power and remain completely ‘pure.’ ”188 As Hans Morgenthau put it, “Whoever wants to retain ~~his~~ moral innocence must forsake action altogether.” Niebuhr did not want Americans to have an “easy conscience” about the things they were going to have to do, for there was always the danger that they would enjoy power too much and would use it to dominate others rather than to address the “world problem.” But he also did not want their “uneasy conscience” to “tempt us into irresponsibility.”189

Americans, it is fair to say, have not enjoyed power too much. These days, they would prefer to wield it less. Yet the struggle for power in the international system is eternal, and so is the struggle over beliefs and ideals. If it is not our system of security and our beliefs shaping the world order, it will be someone else’s. If we do not preserve the liberal order, it will be replaced by another kind of order, or more likely by disorder and chaos of the kind we saw in the twentieth century. That is what the world “as it is” looks like. That is what history and human nature have led to in the past and will lead to in the future if not continually shaped, managed, and resisted.

This is a pessimistic view of human existence, but it is not a fatalistic view. Nothing is determined, not the triumph of liberalism nor its defeat. As we have seen these past seventy-five years, even in a dangerous world tremendous human progress and human betterment are possible. The “better angels” of human nature can be encouraged and the demons dampened. To know that the jungle will always be there is not to despair of keeping it at bay, as we have done for decades. In 1956 the German American historian Fritz Stern wrote that “the deepening of our historical experiences” should not lead us to abandon our faith in “the possibilities of human progress” but rather to “a stronger sense of the precariousness of human freedom and to a still greater dedication to it.”190 The liberal order is as precarious as it is precious. It is a garden that needs constant tending lest the jungle grow back and engulf us all.

#### Even if heg is bad, the transition period is worse.

Twining 17 (Daniel; 3/21/17; Counselor & Asia Director, the German Marshall Fund of the United States; Medium; “Abandoning the Liberal International Order for a Spheres-of-Influence World is a Trap for America and its Allies”; https://medium.com/out-of-order/abandoning-the-liberal-international-order-for-a-spheres-of-influence-world-is-a-trap-for-america-7bfcdbb83df4; DOA: 5/7/17 //WWDH)

The liberal world order is under assault. Polls suggest an American ambivalence about upholding the rules-based global system. Populists are besieging governing elites in the West while Russia works strategically to destabilize European and American governments through propaganda and proxies. A rising China wants to create a global system that is not U.S.-centric, one in which smaller powers defer to bigger ones and norms of democracy and rule of law do not prevail. Meanwhile, the U.S. alliance system looks adrift while competitors in China and Russia appear to be on the march. If it holds, this trend could produce a spheres-of-influence world — which many, including the current presidents of the United States, China, and Russia, find intuitively attractive. But were such an order to replace one based on global integration and American leadership in the geopolitical cockpits of Europe and Asia, it would only engender insecurity and conflict. In a spheres-of-influence world, great powers order their regions. The United States would go back to a “Monroe Doctrine” version of grand strategy; Russia would dominate the former Soviet space; China would govern East Asia, and India South Asia. The problem with this kind of order, however, is several-fold. Too many spheres overlap in ways that would generate conflict rather than clean lines of responsibility. Japan would oppose Chinese suzerainty in East Asia, including by developing nuclear weapons; India and China would compete vigorously in Southeast Asia; Russia and China would contest the resources and loyalties of Central Asia; Europe and Russia would clash over primacy of Central and Eastern Europe. The Middle East would be an even more likely arena for hot war between Saudi Arabia and Iran, and Turkey would contest regions also claimed by Russia, Europe, and possibly China. A spheres of influence world would also sharpen great power competition outside of each region. Regional hegemony is a springboard for global contestation. China would be more likely to challenge the United States out-of-area if it had subdued strategic competition in its own region. Russia, like the Soviet Empire before it, would keep pushing west until it met enough hard power to stop it. (The fact that Russian troops marched through Paris during the Napoleonic Wars demonstrates that the limits of Russian power need not be confined to the former Warsaw Pact). American leaders have long understood that a “Fortress America” approach is a source of national insecurity. Franklin Roosevelt made this case in a series of “fireside chats” in the run-up to America’s participation in World War II — even before the advent of the far more sophisticated power-projection technologies that exist today. Roosevelt and his generals well understood that the United States could not be safe if hostile powers controlled Europe and Asia, despite the wide oceans separating North America from both theaters. A spheres-of-influence world would also crack up the integrated global economy that underlies the miracle in human welfare that has lifted billions out of poverty in past decades. It would replicate the exclusive economic blocs of the 1930s, including an East Asia “co-prosperity sphere,” seeding conflict and undercutting prosperity. A real-world and real-time example of what happens when American power retreats in an effort to encourage regional powers to solve their own problems is the mess in Syria. It has produced the greatest refugee crisis since 1945 — a stain on the consciousness of human civilization — and has led many to conclude that the Middle Eastern order of states dating to the end of World War 1 is collapsing. President Obama pursued an express policy of retracting American military power from the Middle East, including withdrawing all troops from Iraq and refusing to intervene militarily when President Assad used chemical weapons against his own people, despite a red-line injunction from the United States not to do so. Obama and his White House political advisors believed that American withdrawal from the Arab Middle East (if not from the ironclad U.S. commitment to Israel) would lead a new balance of power to form, one policed by regional powers rather than by America. This flawed, amoral, and un-strategic approach has led to a series of hot wars — in Syria, Iraq, and Yemen — the collapse of Arab allies’ confidence in the United States as an ally, as well as an intensified cold war with Iran. Despite the international agreement freezing Iran’s nuclear program, Iran’s support for terrorism and hostile insurgencies targeting American allies across its region actually intensified during this period. This experience underlines a core problem with a spheres-of-influence world. It leaves weaker states to become the victims of stronger or more aggressive ones, and it seeds insecurity by removing the reassuring variable of American military guarantees and presence. It emboldens American adversaries and leads American allies to take self-help measures that themselves may undercut American security interests. A spheres-of-influence world would also produce contestation of the open global commons that are the basis for the unprecedented prosperity produced by the liberal international economic order. Should the Indian and Pacific Oceans, or the Arctic and Mediterranean Seas, become arenas of great-power conflict (like the South China Sea already has thanks to China’s militarization and unilateral assertion of sovereignty over it) as leading states seek to incorporate them into their privileged zones of control, economic globalization would collapse, harming the economies of every major power. The United States, because of its sheer power and resource base as well as its relative geographical isolation, might do OK in a spheres-of-influence world. Most of America’s friends and allies would not. Their weakening and insecurity would in turn render the United States weaker and more insecure — since U.S. allies are force-multipliers for American hard and soft power, and since norms like freedom of the global commons are in fact underwritten by that power. More broadly, such a transition would also likely lead to the kind of hot wars that reorder the international balance of power, including by incentivizing aggressive states to push out and assert regional dominion, knowing that America does not have the will or interest to oppose them.

### The Advantage is Food Security

#### Community college graduates are key to fill precision agriculture job shortages.

Erickson et al. 18 [Bruce Erickson, Scott Fausti, David Clay and Sharon Clay, (Erickson – Dep. of Agronomy, Purdue Univ.; Fausti – College of Business, California State Univ., Monterey Bay College of Science Media Arts and Technology; Clay (both) – Dep. of Agronomy, Horticulture and Plant Science, South Dakota State Univ.) "Knowledge, Skills, And Abilities In The Precision Agriculture Workforce: An Industry Survey" Natural Sciences Education, 9-28-2018, https://dl.sciencesocieties.org/publications/nse/articles/47/1/180010, DOA:10-17-2019 // WWBW]

The survey results show that precision workers generally have a diploma or degree that meets or exceeds the expectations of their employers. However, it has been hard to find qualified applicants, and the **precision agriculture proficiencies of those candidates interviewed are mostly low or deficient.** This possibly indicates a mismatch of degree and the ability to perform satisfactorily in a position. Except for equipment operators, effective written and verbal communication skills and a general knowledge of precision technologies were the KSAs retailers most valued in their precision workers. Most of the precision workforce has a bachelor’s (4-year) degree, with the exception of equipment operators. Most equipment operators currently have a high school diploma, and retailers indicate that this will be sufficient in the future. For agronomists and precision sales specialists, survey respondents indicated that a bachelor’s level of education will be the minimum in the future for these positions. And although most current equipment technicians and tech support personnel also have bachelor’s degrees, retailers were split on the need for that degree, with a slightly higher percentage of respondents indicating that an associate’s (2-year) degree was the required educational level. The results from a complementary survey of university and community college educators (Fausti et al., 2018) suggests that **1- and 2-year post high school educational institutions may have a competitive advantage in training students for entry into certain positions in retail precision agriculture. This may be because preparation from a 2-year institution could be more practical and field-applied vs. the more theoretical approach often used by many 4-year institutions.** Also, with an overall lack of confidence in the proficiencies of their hires, retailers may have decided that they or their affiliate companies will necessarily take on the responsibility of providing training of new employees—so why make the often more expensive investment in a bachelor’s degree holder? Given that **there is a shortage of qualified applicants for precision agriculture openings, 1- and 2-year programs can produce potential employees faster than 4-year institutions.** Therefore, the challenge to bachelor’s degree–granting institutions is in developing the curriculum necessary to produce the type of employee to meet the needs of the retail industry. In a related question regarding education, retailers expect to pay a higher salary for workers earning bachelor’s degrees as compared with high school diplomas or associate’s degrees, but master’s degrees held a premium price only for an agronomist. **Retailers indicate an acute need for precision agriculture education.** One indication of this is the overall difficulty in finding qualified candidates for precision agriculture positions. For the five positions defined, most retailers overall thought finding qualified candidates was at least difficult (at least 60 days to fill a position), and with the exception of equipment operators, more than one-third of respondents said filling any of the other four positions was very difficult (at least 90 days to fill a position).

#### Placement tests misplace students into remedial classes which kills degree completion – empirics.

Hanford 17 – (Emily Hanford, 04-17-17, “How a Little-Known Standardized Test Harms Community College Students”, Washington Monthly, https://washingtonmonthly.com/2017/04/17/how-a-little-known-standardized-test-harms-community-college-students/) NG recut WWBW

The most recent evidence comes from an analysis published in September by the National Center for Education Statistics. **NCES took a big set of data on college students and determined who was weakly prepared for college, moderately prepared, or strongly prepared, based not just on standardized test scores but also on high school GPA and the highest level of completed math coursework.** (Research shows high school grades are a better predictor of how a student will do in college than test scores.) Then NCES looked at who ended up in remedial classes. **Nearly half of the community college students who were strongly prepared** by the researchers’ measure **ended up in remediation**. Ending up in a remedial class when you don’t need it is bad news. **The classes cost money, don’t count for college credit, and add to the time it takes to get a degree.** And while the NCES analysis found that **remedial classes** provided benefits for some weakly prepared students, they **did nothing for strongly or moderately prepared students.** In fact, **those students were less likely to get bachelors’ degrees** because **more than a quarter of them didn’t finish their remedial classes.** Why would this be? It’s not entirely clear, but researchers have some ideas. If you’re already juggling a busy life that may include both work and kids, college probably seemed like a precarious proposition to begin with. Having to sit through classes that aren’t “real” college courses might be what tips you into thinking this whole college thing just isn’t worth it. Plus, the longer the road to a degree, the more likely a life event—such as losing a job or a kid getting sick—could derail you. And people get discouraged. “A lot of students would say, ‘You know, I’m not even sure that I am college material,'” said Peter Adams, who taught developmental writing at a community college for 36 years. Adams is one of the pioneers in a movement to change the way remedial classes work. In a “co-requisite” system, students take remedial classes at the same time as college-level math and English, rather than before. The idea is to get students into college classes quicker, and provide remediation on the side in a “just in time” fashion. It works. Students in co-requisite remediation are significantly more likely to persist in college. But that still leaves the question of whether one test can determine who needs remediation in the first place—or whether it is measuring inequality more than ability to succeed in college. A wide body of research shows that **test scores reflect family income more than any other factor.** Adams once heard an official from a testing company say that instead of giving incoming students a placement test, colleges could just ask how many bathrooms in the house where they grew up. The fewer bathrooms, the worse they’re likely to do on the test. And the more likely they’ll end up in remedial classes. There are certainly low-income students who do well on tests. But those students are not, for the most part, ending up at elite colleges. Only 23 percent of high-achieving, low-income students even apply to a selective school. Almost half of students from the lowest-income families go to community colleges. So do most Hispanic students and 44 percent of black students. And **if you end up at a community college, test scores may be your only ticket into college-level math and English classes—even if you’ve already proven you can do college-level work.**

#### Two impacts: [1] Structural violence – degree completion increases social mobility and helps low-income communities.

Strumbos et al. 18 [Diana Strumbos, Donna Linderman, Carson C. Hicks, (Diana Strumbos is director for research and evaluation for Accelerated Study in Associate Programs (ASAP) at the City University of New York (CUNY). Donna Linderman is university dean for Student Success Initiatives at CUNY’s Office of Academic Affairs and executive director of ASAP. Carson C. Hicks is deputy executive director of the New York City Mayor’s Office for Economic Opportunity.) "Postsecondary Pathways Out of Poverty: City University of New York Accelerated Study in Associate Programs and the Case for National Policy" RSF: The Russell Sage Foundation Journal of the Social Sciences, 2-1-2018, https://www.rsfjournal.org/content/4/3/100/tab-article-info, DOA:9-28-2019 // WWBW]

Focusing specifically on mobility, Ron Haskins finds that a **college degree has a large impact on the likelihood of moving up the economic ladder.** With a college degree, children born into the bottom income quintile had a 41 percent chance of making it to the top two quintiles, relative to just a 14 percent chance without a college degree (Haskins 2008). Furthermore, **the changing economy now demands employees with more education and training and provides fewer opportunities for those with only a high school education.** Anthony Carnevale, Nicole Smith, and Jeff Strohl predict that **50 percent of U.S. job growth expected by 2018 would require at least an associate degree, underscoring that an associate degree may be even more essential for employment** than it has been historically (2010). **A postsecondary education also has non-economic benefits.** Researchers have found evidence of social and health benefits, including **better health outcomes, reduced welfare receipt, and a decrease in criminal involvement** (Belfield and Bailey 2011). Other benefits include **positive effects on the community, family life, and reported levels of happiness, as well as increases in social capital** (Hout 2012). Postsecondary Degree Attainment Although evidence suggests that postsecondary education can lead to social and economic mobility, the unfortunate reality is that **many individuals from low-income families struggle to earn a college degree** (Haskins, Holzer, and Lerman 2009). Low-income students are less likely to enroll in postsecondary education in the first place, which has led to calls for policies and programs designed to increase access to college (Ellwood and Kane 2000; Haveman and Smeeding 2006). However, access is not the only problem—there are also stark inequalities in college completion. Martha Bailey and Susan Dynarski find that students from low-income families were six times less likely to have earned a bachelor’s degree by age twenty-five than those from high-income families, with only 9 percent of low-income students earning a degree by that age (2011). These differences remained when controlling for prior academic performance and the gap has grown over time. Part of these differences arises from the fact that low-income students are more likely to begin their path to a bachelor’s degree by first enrolling at a community college with the intention of transferring. Few make it to that point. COMMUNITY COLLEGES **Low-income students are more likely to attend community colleges** than other types of institutions, both because they are less expensive and because many of them are open access institutions, allowing students to enroll who do not meet college readiness standards required by other types of institutions. Between 6.7 and 7.7 million students nationwide enroll at community colleges in degree-seeking programs each year, about 40 percent full time (National Center for Education Statistics 2016). Unfortunately, most of them do not complete a degree. National statistics show that only 19.8 percent of first-time, full-time degree-seeking students at public two-year institutions had earned a certificate or associate degree from their initial institution three years after entry (Snyder and Dillow 2015). Looking more broadly to consider students who transfer and over a longer time frame, only 35.1 percent of students who began at two-year public institutions had earned a degree from any institution six years later (Snyder and Dillow 2015). A large percentage of students at community colleges nationwide are low income, with over half in receipt of federal Pell grants, which are predominately awarded to students with less than $20,000 in household income (National Center for Education Statistics 2014; U.S. Department of Education, Office of Postsecondary Education 2014). **Students at community colleges, and low-SES students more specifically, face many barriers to completion** (Attewell, Heil, and Reisel 2011; Goldrick-Rab 2010). **Many students** are not academically prepared for college-level courses, and **must take remedial or developmental coursework that is difficult and time-consuming before they can even begin credit-bearing courses. This presents an immediate challenge to building academic momentum and decreases a student’s chance of success because the number of credits earned in the first year is a key predictor of degree completion** (Adelman 2006). In addition, many students struggle with financial issues, and need to work while in school or have family responsibilities that require them to balance school, work, and family—or both. Work and family obligations sometimes force students to attend part time, which can again lead to a loss in momentum and decrease their likelihood of graduating. Students may also struggle to feel integrated into college life and achieve a sense of belonging (Tinto 1993; Karp and Bork 2014). In particular, first-generation college-goers may not have the social capital or networks of family and friends familiar with the demands of college to help guide them.

#### [2] Food Security – precision agriculture is key to global ag growth and food security.

Gagliordi 18 [Natalie Gagliordi, (Natalie Gagliordi is a staff writer for CBS Interactive based in Louisville, Kentucky, covering business technology for ZDNet., ) "How self-driving tractors, AI, and precision agriculture will save us from the impending food crisis" TechRepublic, 12-12-2018, https://www.techrepublic.com/article/how-self-driving-tractors-ai-and-precision-agriculture-will-save-us-from-the-impending-food-crisis/, DOA:10-17-2019 // WWBW]

At the core of this new era in farming is **precision agriculture**, a farming management concept that uses technology to observe, measure, and respond to field variability in crops. As the concept has evolved, it’s **allowed farmers to** view their cropland as sub zones within a field to **optimize equipment and supplies** like fertilizer, herbicides, and water. More refined applications are trying to take that precision all the way down to the plant level, allowing farmers to understand and treat plants individually. In John Deere’s case, innovation has ramped up since its purchase of artificial intelligence (AI) startup Blue River Technology in 2017. The acquisition cemented John Deere’s arrival in Silicon Valley and now supports its efforts to incorporate machine learning, deep learning, and robotics into the brains of its precision farm equipment. **The goal is to use** automated driving **technology**, computer vision, telematics, and cloudbased mobile applications **to help farmers double or triple their yields—a feat that will be key to keeping up with global food demands as the Earth’s population grows over the next 30 years.** “By 2050, there’s going to be nine billion people on the planet,” said Terry Pickett, manager of advanced engineering for John Deere’s Intelligent Solutions Group. “And **to feed those people**, there’s different estimates out there, but **we probably need to increase current production by 70%. That’s not very long away when you look at the number of years it takes to develop the type of equipment and technology we need. It’s a real race.**” The path to precision ag In the late 1990s, John Deere became one of the first farm equipment vendors to bring GPS guidance to agriculture. Nowadays, GPS guidance is almost ubiquitous in large production ag and farming. GPS guidance is arguably the most significant technological advancement that has come out of the precision ag movement over the last two decades, says John Stone, senior vice president for John Deere’s IntelligentSolutions Group. The reason GPS is so important, Stone posits, is because it’s what makes both precision and automation possible. Driving a tractor isn’t like driving a car—there are no yellow and white lines to keep drivers in check. To plow straight, the farmers of yore used the hood ornament—akin to a gunsight—to line up the tractor with a distant landmark, like a tall tree or a jut in the hillside. By aiming for that landmark, the farmer could keep the tractor’s path straight within a reasonable margin of error. But a tractor is usually pulling a plow, or some other implement, upwards of 30 feet wide, meaning the driver not only had to stay focused on the distant tree, but constantly turn and look to make sure the plow was still in line. “If I’m a tractor operator, I need to be more concerned with what’s going on behind me,” said Stone. “Planting seeds in the right place, and doing that job with the right precision, is far more important than, ‘Am I steering the tractor in a straight line?’ So we let the technology, the GPS guidance, do that for you. And the operator can focus on more high-value added tasks.” As for the precision aspect, GPS receivers built by John Deere provide navigation accura cy down to one inch. In the context of farming, that accuracy is critical to making sure every seed is in the right place, with the right depth, soil contact, and spacing that it needs to grow into a food-producing crop. The combination of precision and automation has already made a consequential impact on the job of farming. “Today, precision ag touches on every little bit of our operation,” said Jamie Blythe, owner of the Blythe Cotton Company in Town Creek, AL. She grew up fifth generation on the farm and became a formal partner in operations when she was 18. “I was probably one of the last generations to actually chop cotton in my area, and since I was a kid things have changed drastically,” she said. Blythe and her husband work 3,500 acres on what she describes as a midsize farm for her area. In 2007 they implemented John Deere’s AutoTrac guidance system on their equipment, and now utilize an array of technology geared toward equipment and input, monitoring, and data collection and analysis. With these systems, Blythe said **crop yields have doubled over the past 10 years. Some of the gains are** due to to better agronomics, seed selection, and use of hybrid seeds, but they’re also **attributable to** land optimization thanks to **precision ag.** “It’s no longer possible to manage a field as one complete entity,” Blythe said. “Due to the variability in our soil types, elevation, and microenvironments, we now manage fields in zones that allow us to tailor inputs to the specific yield potential of those parts of the field. **Precision ag technology has made a huge difference in helping us make a quicker transition to the more modern style of management.**” IoT and AI take root The Internet of Things (IoT) is tangible for today’s farmers. The machines farmers employ to traverse their fields are stuffed with sensors and software that gather data, process it with machine learning, and beam it into mobile apps. The sensors are the eyes of the machine. The software and mobile apps bring the data to life. On John Deere’s MyOperations app, for instance, a machine operator can see the five most critical settings of a combine while it’s harvesting a field of corn. If a setting is out of whack, the operator can adjust the settings of one or multiple combines remotely from a mobile device. “In many cases, farmers are operating across 10 to 15 mile radiuses for their fields,” said Lane Arthur, director of digital solutions for John Deere. “Obviously they can’t be in every spot at once. They need the technology and connectivity in order to see in real time what’s actually happening. That’s critical for the on-the-go decision making that farmers face.” John Deere began using GPS regularly around 1997. Roughly 20 years on, IoT now has a firm foundation in precision agriculture. The next mission for ag-tech vendors is to apply AI to the three main steps of the farming process— planting, spraying, and harvesting. Each of these steps has a material impact on a farmer’s output and productivity. The planting stage is especially intricate, sort of like performing surgery on dirt. A tractor with a planter attached creates beds where the seeds are planted; and furrows, which are the narrow trenches between the beds. As this happens, seeds are shot out at a certain cadence to ensure proper depth and spacing. If a seed fails to land in the right spot, it doesn’t get watered and fertilized efficiently, and most likely doesn’t grow. With AI, John Deere envisions a planter that can be made to understand the ground conditions and alter planting settings automatically. The spraying step needs to make the same type of tiny precisions as the planting step. Weeds cost farmers an estimated $11 billion a year, according to the US Environmental Protection Agency (EPA). For John Deere, this is where the motives for its acquisition of Blue River become obvious. Blue River made the See & Spray, a weed control cotton machine that’s capable of seeing the ground and distinguishing between crops and the weeds, down to a level of millimeters. It then zaps the weeds—and only the weeds—with herbicides to kill them off. “Precision spraying solves a bunch of herbicide resistance problems for cotton growers,” said Willy Pell, director of new technology for Blue River. “It saves them about 90% on herbicides; so it’s better for the environment, better for their pocketbook, and gets a better result as well.” Pell said the harvesting step is due for a similar AI treatment. Eventually, harvesters will have the brains to adjust their blades to a custom setting for individual stalks, rather than operating on a single setting for an entire field. “The really, really exciting part is closing the whole loop,” Pell said. “Think of A/B testing for agriculture. We can induce variation at various parts of the grow stage, and run experiments all the time to generate agronomic knowledge, so that every year Deere equipment gets put out in the field, it does it better and better and better.” “The next stage of precision ag is to go down to the plant level,” Pell continued. “With cameras, with onboard computing, computer vision, and machine learning, we can understand what that plant needs and give it exactly what it needs right then and there. The potential upsides to this are yield doubling with the same machine.” A farmer’s uncertainties The farming advances John Deere and others in the precision ag industry are working on tie into a range of issues facing today’s farmers. Some of the ag tech benefits are blatant, like saving farmers time and money, and boosting average crop yields; but others stem from more complex global concerns, like weather uncertainties and labor shortages, and a rising demand for healthier, sustainably grown food. Adapting to weather changes is a constant in the job of farming, as severe weather events brought on by rising temperatures and atmospheric changes are known to cripple crop yields. Recent analysis from the National Academy of Sciences that looked into the climate impact on crop yields produced sobering results. The study’s authors argue that for each 1° Celsius rise in global mean temperature there would be a 7.4% decrease in yields of corn, a 6% decrease in yields of wheat, and a 3% yield decrease in rice. Modern farmers now look to technology and data to understand and mitigate the impacts brought on by climate variability. Even with a perfectly balanced scenario of seeding, spraying, and harvesting, the inevitable unknowns—be it floods, droughts, or pests— always remain a threat. But **agronomic data gathered by precision farming systems allows farmers to stay ahead of these threats and work around problems when they arise**. “We see data really helping farmers make more informed decisions around what they should be doing,” said Arthur. “In the event of bad weather, for example, my hope is that our sensors and our technology will allow them to adjust and adapt. Even in a bad scenario, precision ag really helps the farmer preserve and conserve the value they have in their field.” And then there’s the labor dilemma. From 2005 to 2019, an estimated 58 million fewer people will be employed in agriculture, a decrease of 11% of the agricultural workforce, according to data from the Global Harvest Initiative. Similarly, more humans are moving to live in cities, compounding the workforce shortage on farms. Meanwhile, the average US farm clocks in at 434 acres, or roughly 330 football fields, per the US Department of Agriculture (USDA). Boiled down, this means **more acres of cropland are at risk of being underutilized or abandoned due to a lack of farm labor.** Back at the Blythe Cotton Company, 3,500 acres are maintained by a total of five people— the husband and wife ownership team and three laborers. Jamie Blythe recalls a time of cheap, plentiful labor when she was growing up on the farm. But then diesel fuel became more expensive, and people started leaving the area. Blythe said the farm was forced to evolve, adapting a more streamlined operations approach to get work done, and, in the end, survive. “My husband and I operate the equipment with three other guys,” Blythe said. “As a result, **we need to maximize the use and efficiency of our equipment and technology.** This has been a very gradual, organic evolution, but at some point I looked around and realized this is the only way we’re going to stay in business.” What’s even more important than yield increase is the increase of profit by acre, explained Blythe. “The net profit per acre is extremely important because the amount we put in per an acre to increase yield and to make sure it’s appropriate is what’s going to keep us in business,” she said. “Equally important are time and energy saved, not just in diesel fuel but also in physical energy. There are very few of us out on the field, and we need to be going anywhere from 12 to 20 hours a day and still come home to our families. If we can maximize the amount of energy we put out and still have energy to play with our kids at the end of the day, then that’s the biggest benefit for us.” Food safety, nutrition, and sustainability are also driving forces behind innovations in ag. Data from the Global Harvest Initiative shows that a rising number of consumers want to ensure their food is sustainably produced and many are concerned about the safety, price, and availability of nutritious food. “Diets are improving, and that’s compounding the need and demand for grains,” said John Deere’s John Stone. “We’ve got to find a way to meet that need. Precision technology, we feel, is the way to do that.” **Precision agriculture can also help the food industry to become more sustainable. For instance, data generated by sensors allows farmers to see areas where soil moisture has dropped and prevents them from wasting water in areas that don’t need it.** Sensors can also collect data about soil nutrient profiles, enabling farmers to use precise fertilizer applications only where the soil requires it. “We use water sensors to measure soil moisture and various depths in the soil profile,” said Blythe. “Less than 10% of our acres are irrigated, but those sensors help me make decisions to utilize our water resources in a more sustainable manner.” Problem solving with AI A farmer often says they have 40 shots to get it right in their lifetime. They start farming around age 20 and aim to retire around age 60. Every year is a new experiment, with unseen variables they can’t control. Maybe the ground’s a little different, or the weather patterns change, or they’re trying out different seeds and new equipment. The role of AI in all of this is to help farmers learn from the sort of A/B tests that are happening all around them. An AI system can look across a farmer’s operations to analyze data on weather, temperature, moisture, and soil composition, and provide insights on how to optimize equipment, improve planning, minimize waste and increase yields. “We have the sensors in all of these parts of the farming job, and now we can actually use AI to begin to have insights about what is the best way to approach farming challenges given certain conditions,” said Julian Sanchez, director of the John Deere European Technology Innovation Center. “It’s really impossible to do without something like AI because otherwise, you’re just deterministically trying to understand multivariate equations, endlessly.” Consider the need to boost crop yields. The Global Harvest Initiative predicts that the world’s population of 7.3 billion will grow to nearly 10 billion by 2050. Some estimates, such as the one cited by John Deere’s Terry Pickett, puts that figure closer to 9 billion. In either case, there’s consensus that **to feed those additional people by 2050, the global food supply needs to at least double, and global agricultural productivity needs to increase by 1.75% a year.** How close we’ve come to meeting these food production goals depends on the statistic. One barometer raising concern is what’s known as total factor productivity (TFP), a measure of agricultural productivity that takes into account all of the land, labor, capital, and material resources utilized in farm production and compares them with the total amount of crop and livestock output. The 2017 GAP Index reveals that for the fourth straight year, global TFP **growth is not accelerating fast enough to sustainably double agricultural output by 2050**. When put into a historical context, however, the overall productivity gains are promising. According to the US Department of Agriculture (USDA), in 1940 the average American farmer fed 19 people a year; today the USDA estimates that the average American farmer feeds 155 people. Breaking it down to individual crops, corn yields in the US grew by 61% between 1980 and 2015, while soybean yields improved by 29% over the same period. It’s a similar story with labor. In the early 1800s, it would take about 300 hours of labor to produce 100 bushels of wheat. Today, with the application of technology and AI, it takes less than an hour to produce 100 bushels of wheat. Nevertheless, there’s a consensus that **farmers will be challenged to do even more in the years ahead, and technology will be key to making it happen.** The connectivity challenge **The precision ag industry is aiming high when it comes to food production targets, but the technologies being developed right now cannot exist effectively without the proper infrastructure.** For high-tech farming systems, the infrastructure challenge boils down to connectivity, and in many rural settings, the lack thereof. In rural America, 5G technology is a promising connectivity development. The fifth-generation wireless broadband technology is expected to bring low-latency wireless speeds of up to 1GB/s to parts of the country that typically lack coverage. While 5G is not yet widely available, John Deere is optimistic about its potential to support new precision agriculture capabilities on farm equipment with real-time connectivity. Highspeed connectivity is essential to the technology inside John Deere’s farm equipment. John Deere says that every new machine that leaves its factory has a 4G LTE modem, Wi-Fi, and Bluetooth. The idea is to have farm equipment that’s able to communicate with other machines on the field by streaming data from vehicle to cloud and back down to machine operators in the shortest time possible. Machine-to-machine communication is what helps farmers prevent row overlap if they’re running multiple machines at the same time. It also lets operators share data with each other for things like machine optimization. With connectivity the machines become socially aware, knowing exactly where other machines are located in relation to themselves. “So you might have two combines in the same field harvesting the same crop,” said Sanchez. “Right now we have to assume there will be 30 to 60 second delays in communications between these combines while they upload data to the cloud, have it processed, and downloaded to the other combine so they can share information.” With 5G, Sanchez said communication between those two combines through the cloud could be cut down to less than one second. Of course, there are vast infrastructure challenges to reaching this kind of connectivity utopia in America’s heartland. Telecommunications providers caution that 5G wireless could struggle in rural areas, particularly ones with lots of trees and foliage, and could encounter other issues due to low population density. As a re- sult, adoption of precision agriculture systems is limited in many rural areas due to a lack of broadband service. Although we’re still years from realizing the true potential of rural 5G, the precision ag industry plans to continue making advancements to farm technology until US telcos and regulators catch up. The road **ahead Food security is an issue facing all of humanity.** The bleakest predictions suggest that the world is careening toward a dystopian future where food shortages prompt riots and wars. It’s an unlikely outcome, but still motivating for companies like John Deere. The farm equipment giant is rallying around emerging technologies that will improve its precision farming systems and help stabilize the world’s food supply for the years ahead. Executives from John Deere are now known to roam the floors of CES, the massive technology conference held each year in Las Vegas, looking for new moon shot ideas to bring into the fold. In the near term, John Deere is focused on ways to incorporate computer vision, augmented with deep learning algorithms and AI, into next-gen precision farming systems. “We also monitor quite a bit the progress in automotive, especially things around the connected vehicle,” said Sanchez. “If you track our capabilities in having mobile devices as part of our vehicle ecosystems, it drags very, very closely with the connected vehicle, the connected model.” John Deere is also watching developments around microelectromechanical systems (MEMS), nanoelectromechanical systems, and nanotechnology. These technologies tie into the sensors used in precision ag to collect different types of information. “They give us capabilities that are unimaginable,” said Blue River’s Pell. “The question is, which ones will become popular, and can use them in a low cost manner? We try to focus on one technology and watch it swirl, and then we’ll pick it up at some point when it’s very valuable to us and our customers.” But technology advances in the private sector only represent one side of the global food supply equation. In the US, some of the responsibility falls to the Department of Agriculture and funding it allocates via farm bills toward research and development of sustainable production technologies. Experts within the SoAR Foundation, which advocates for agricultural research funding, say the USDA’s annual research budget needs to increase substantially from today’s levels in order to revitalize the productivity growth rates of American agriculture and ensure the sustainability of the sector. Regulators should also be conscious of land shrinkage and the impacts it could have on US food production. The American Farmland Trust projects that more than 40 acres of US farm and ranch land are lost every hour to urban sprawl or development. On a global scale, scientists also estimate a more than 2% loss of highly productive cropland due to urban expansion. Technology advancements also present an obstacle for farmers. The team back at the Blythe Cotton Company admits to the learning curve they still face when adopting new technologies. In the end, it’s up to the men and women out in the field to make sense of precision ag technology and how to truly utilize the systems to their potential. “**The scope of precision ag is so tremendous**, and there’s so many different applications to it that I feel like we’re still getting our toes wet,” said Blythe. “In 20 years from now, **precision ag will drastically change the way we farm.**”

#### Food wars are an existential threat.

FDI 12 – (5/25, Future Directions International, independent, not-for-profit research institute based in Perth Western Australia, workshop report including the following contributors, Major General John Hartley AO (Retd), CEO and Institute, Director Future Directions International, Roundtable Chairman, Lindsay Falvey, Professor, Fellow Clare Hall University of Cambridge, past/foundation Dean of Land and Food and Chair of Agriculture at the University of Melbourne, Monika Barthwal-Datta, Food Security Programme Leader, Centre for International Security Studies, University of Sydney, Philip Hirsch, Professor, Director Mekong Research Group, University of Sydney, Bill Pritchard, Associate Professor, School of Geography, University of Sydney, Simon Hearn, Principal Advisor, Australian Centre for International Agricultural Research, Rudi Appels, Professor, Centre for Comparative Genomics, Murdoch University, Bill Kean, former Executive Director, Office of the Director General, World Health Organization, member of the Australian Institute of International Affairs, and MORE, “International Conflict Triggers and Potential Conflict Points Resulting from Food and Water Insecurity,” http://www.futuredirections.org.au/files/Workshop\_Report\_-\_Intl\_Conflict\_Triggers\_-\_May\_25.pdf)

There is little dispute that conflict can lead to food and water crises. This paper will consider parts of the world, however, where **food** and water **insecurity can be the cause of conflict and**, at worst, result in **war**. While dealing predominately with food and water issues, the paper also recognises the nexus that exists between food and water and energy security. **There is a growing appreciation that the conflicts in the next century will most likely be fought over a lack of resources. Yet**, in a sense, **this is not new. Researchers point to the French and Russian revolutions as conflicts induced by a lack of food**. More recently, **Germany’s World War Two efforts are said to have been inspired**, at least in part, **by its perceived need to gain access to more food**. Yet **the general sense** among those that attended FDI’s recent workshops, **was that the scale of the problem in the future could be significantly greater as a result of population pressures**, changing weather, **urbanisation, migration, loss of arable land and other farm inputs, and increased affluence** in the developing world. In his book, Small Farmers Secure Food, Lindsay Falvey, a participant in FDI’s March 2012 workshop on the issue of food and conflict, clearly expresses the problem and why countries across the globe are starting to take note. . He writes (p.36), “…**if people are hungry, especially in cities, the state is not stable – riots, violence, breakdown of law and order and migration result**.” “**Hunger feeds anarchy**.” This view is also shared by Julian Cribb, who in his book, The Coming Famine, writes that **if “large regions of the world run short of food, land or water in the decades that lie ahead, then wholesale, bloody wars are liable to follow.”** He continues: “**A**n increasingly **credible scenario for World War 3 is not so much a confrontation of super powers** and their allies, **as a festering, self-perpetuating chain of resource conflicts**.” He also says: “The wars of the 21st Century are less likely to be global conflicts with sharply defined sides and huge armies, than a scrappy mass of failed states, rebellions, civil strife, insurgencies, terrorism and genocides, sparked by bloody competition over dwindling resources.” As another workshop participant put it, **people do not go to war to kill; they go to war over resources**, either **to protect or to gain** the resources for themselves. Another observed that hunger results in passivity not conflict. Conflict is over resources, not because people are going hungry. **A study by the International Peace Research Institute indicates that where food security is an issue, it is more likely to result in some form of conflict**. Darfur, Rwanda, Eritrea and the Balkans experienced such wars. Governments, especially in developed countries, are increasingly aware of this phenomenon. **The UK Ministry of Defence, the CIA, the US C**enter for **S**trategic and **I**nternational **S**tudies **and the Oslo Peace Research Institute, all identify famine as a potential trigger for conflicts and** possibly even nuclear war**.**

### The Advantage is STEM – AI version

#### **STEM talent shortage now – increasing diversity is key.**

Ambrose 3/14 [(Mitch, Acting Director of the American Institute of Physics FYI Bulletin, previously a fellow at the Science and Technology Policy Institute and member of the Senate Commerce, Science, and Transportation Committee) “Panel Warns US Faces STEM Workforce Supply Challenges,,” American Institute of Physics, 03/14/2019] DD // RCT by WWBW  
They stressed **the U.S. must better develop domestic talent** and continue to welcome students and researchers from abroad to ensure the future sufficiency of its STEM workforce. The hearing surveyed strategies for better matching training with industry needs and encouraging more women to pursue STEM careers. **China** also loomed large, with committee leaders noting it **has been on pace to soon surpass the U.S. in total R&D spending**. Three Republican members also asked witnesses how the government should respond to Chinese espionage, a topic that has come to the fore in Congress over the past year. Potential for workforce shortages or oversupply spotlighted Committee Chair Eddie Bernice Johnson (D-TX) opened the hearing by [citing](https://science.house.gov/imo/media/doc/03.06.19%20CJohnson%20USS_and_T%20Hearing%20OS.pdf) various benchmarks of U.S. competitiveness in science and technology. She lamented the stagnant performance of U.S. students in math and science assessments as well as the **persistent underrepresentation of women and minorities in STEM fields, saying it could lead to “dire workforce shortfalls” if not addressed soon.** She also noted the U.S. is behind several other countries in terms of the share of GDP spent on R&D and said China “likely” surpassed the U.S. in total R&D spending last year. Committee Ranking Member Frank Lucas (R-OK) likewise expressed concern about China potentially surpassing the U.S. He [signaled](javascript:textise('https://republicans-science.house.gov/news/opening-statements/lucas-opening-statement-american-competitiveness-science-and-technology')) support for increasing R&D spending despite current budget pressures and said the federal government “has a responsibility to prioritize basic R&D.” He noted that Congress appropriated $152 billion for R&D last year, which he said is a historic high in inflation-adjusted dollars. To sustain support for such spending, Lucas continued, Congress needs to do a better job of explaining the value of science to the public. “We need to break down the barrier between the ivory tower of academia, the hallways of Silicon Valley, and the Main Street of Cheyenne, Oklahoma,” he said. Witnesses also weighed in on the level and composition of U.S. investment in R&D. McNutt said the U.S. is “doing okay” on total R&D spending, but noted China has rapidly caught up and that the return of tight budget caps could cause significant damage. “There is nothing more disruptive to the U.S. science enterprise than huge swings in science budgets,” she remarked. Citing the recent government shutdown as a prime example of such a shock, she noted the National Academies is considering doing a rigorous assessment of its impacts. Asked by Rep. Brian Babin (R-TX) what the government should cut to support more R&D spending, McNutt said a large increase is not necessarily needed, again stressing that budget predictability is paramount. She also said that large increases in funding can actually be harmful if they create a workforce that cannot be supported when budgets later stagnate. Gallagher also highlighted how a lack of long-term planning in federal budgeting can create mismatches between supply and demand for STEM workers. “We have not yet found ways to link industry’s workforce needs effectively and efficiently to the rate at which federal R&D investments can or should change. [If we fail] to do this, we risk severe oversupply or shortages in science and technology workforce,” he said. Gallagher elaborated on this problem in his written testimony. He suggested the current arrangement in which universities focus on basic research and industry focuses on later-stage R&D has exacerbated mismatches between training and workforce needs. He pointed to a nascent network of advanced manufacturing institutes as a model for bringing the sectors together around pre-competitive R&D projects. Representing the industry perspective, Khan emphasized how federally funded research at universities trains the technical workforce on which companies rely. He said the statistic that currently worries him the most is that **approximately half of U.S. workers in industry that have science degrees will be eligible for retirement in a decade. “We have no line of sight today on how to replace them,”** he warned. The witnesses also highlighted how the U.S. is no longer attracting and retaining talent from around the world as it once did. McNutt cited the recent decline in international applications to U.S. graduate programs in science and engineering as a worrying sign, suggesting the drop is due to a “strong perception, if not the reality, that international students are not welcome here.” According to her written testimony, sharp drops have occurred in the physical sciences and engineering. She also noted that foreign-born researchers are also increasingly drawn toward better funding prospects in other countries. Gallagher said that competitor nations have made concerted efforts to build their domestic research bases by emulating the U.S. system and are successfully drawing talent away from the U.S. He said the U.S. would benefit from systematically monitoring the research strategies of other countries as it can no longer afford to be a leader in all areas. Given that the U.S. will not have the same supply of talent from overseas, McNutt said **growing the domestic STEM workforce by drawing more women and minorities into STEM fields is increasingly important.** Asked what could be done to help more women to pursue STEM careers, McNutt described how the recent National Academies report on sexual harassment opened her eyes to the “undercurrent” of more subtle forms of harassment such as "put downs" that discourage women from remaining in the field. She suggested the White House Office of Science and Technology Policy require that every agency come up with a plan of action for changing the culture of science to root out harassment, similar to its actions on scientific integrity during the Obama administration. Universities seek clarity on concerns about China The hearing was the latest in a series across Congress to broach the topic of how to better protect universities from being exploited by foreign nations, particularly China. Asked by Babin to comment on the subject, Gallagher noted that historically the tension between the openness of the scientific enterprise and the sensitivity of some research was mitigated by the fact that universities do little classified research or intellectual property-intensive work. “What’s happening right now is that this boundary between sensitive information versus open information is becoming blurrier, and I think the highly competitive interaction between the U.S. and China is making us relook at the risk proposition,” he continued. “I think this is an area where we’re looking for clearer guidance from the government. I think one of my big concerns now is that we’re reacting to the concern, but really without a policy strategy.” Later asked by Rep. Michael Cloud (R-TX) how the U.S. should react to persistent cybertheft by China, Gallagher contrasted the “exfiltration of data and information” with the “exfiltration of talent,” saying he worries far more about the latter. If the U.S. does not retain a workforce capable of producing the next generation of breakthroughs, he said, “we won’t have anything that is worth exfiltrating in the future.”

#### Community colleges are key to fill STEM jobs.

Aspen Institute 18 [Aspen Institute, (The Aspen Institute is an educational and policy studies organization based in Washington, DC. Its mission is to foster leadership based on enduring values and to provide a nonpartisan venue for dealing with critical issues. The Institute is based in Washington, DC; Aspen, Colorado; and on the Wye River on Maryland’s Eastern Shore. It also has offices in New York City and an international network of partners. For more information, visit www.aspeninstitute.org.) "Community College STEM Awards Recognize Outstanding Education" 2-7-2018, https://www.aspeninstitute.org/news/press-release/siemens-aspen-community-college-stem-awards/, DOA:10-4-2019 // WWBW]

**There are more than five million jobs in STEM fields that require more than a high school diploma but less than a four-year degree.** These jobs pay wages that average more than $50,000 annually. Yet, **employers throughout the country are experiencing and projecting significant shortages of qualified workers in many STEM fields**. To respond, the Aspen Institute College Excellence Program and the Siemens Foundation have partnered to create the Siemens-Aspen Community College STEM Award to elevate excellent middle-skill STEM programs at community colleges, the jobs these programs lead to, and the value they confer on students, their families, and their communities. “**There is a growing demand for specialized STEM skills that weren’t required a generation ago. Our nation is simply not developing enough talent in middle-skill STEM fields, limiting opportunity for individuals, growth for industries, and economic strength for communities,**” said David Etzwiler, CEO of the Siemens Foundation. “**Quality community college STEM programs** are a pathway to job security and financial success for many students, and can **help meet employer needs** and strengthen our middle class.” These community college program awards are now the first step in awarding scholarships to Siemens Technical Scholars, an exceptional group of diverse students from across the country who demonstrate excellence that matches the exceptional opportunities offered by today’s awardees. The 2018 Class of Siemens Technical Scholars will be announced in the fall. In a change from previous years, the Aspen Institute, in partnership with the community colleges that win the Siemens-Aspen Community College STEM Award, will select the students to be recognized as Siemens Technical Scholars. Students will be awarded scholarship funds between $3,500 and $10,000. Aspen will share those Scholars’ stories to showcase the economic opportunities provided through STEM middle-skill jobs. “**Our nation’s best community colleges are incredible engines of opportunity for students seeking rewarding careers in STEM fields,**” said Joshua Wyner, executive director of the Aspen Institute College Excellence Program. “This award recognizes colleges that provide an excellent education for talented students from every community, delivering on the promise of social mobility and lifelong opportunity.”

#### Placement tests misplace students into remedial classes which kills degree completion – empirics.

Hanford 17 – (Emily Hanford, 04-17-17, “How a Little-Known Standardized Test Harms Community College Students”, Washington Monthly, https://washingtonmonthly.com/2017/04/17/how-a-little-known-standardized-test-harms-community-college-students/) NG recut WWBW

The most recent evidence comes from an analysis published in September by the National Center for Education Statistics. **NCES took a big set of data on college students and determined who was weakly prepared for college, moderately prepared, or strongly prepared, based not just on standardized test scores but also on high school GPA and the highest level of completed math coursework.** (Research shows high school grades are a better predictor of how a student will do in college than test scores.) Then NCES looked at who ended up in remedial classes. **Nearly half of the community college students who were strongly prepared** by the researchers’ measure **ended up in remediation**. Ending up in a remedial class when you don’t need it is bad news. **The classes cost money, don’t count for college credit, and add to the time it takes to get a degree.** And while the NCES analysis found that **remedial classes** provided benefits for some weakly prepared students, they **did nothing for strongly or moderately prepared students.** In fact, **those students were less likely to get bachelors’ degrees** because **more than a quarter of them didn’t finish their remedial classes.** Why would this be? It’s not entirely clear, but researchers have some ideas. If you’re already juggling a busy life that may include both work and kids, college probably seemed like a precarious proposition to begin with. Having to sit through classes that aren’t “real” college courses might be what tips you into thinking this whole college thing just isn’t worth it. Plus, the longer the road to a degree, the more likely a life event—such as losing a job or a kid getting sick—could derail you. And people get discouraged. “A lot of students would say, ‘You know, I’m not even sure that I am college material,'” said Peter Adams, who taught developmental writing at a community college for 36 years. Adams is one of the pioneers in a movement to change the way remedial classes work. In a “co-requisite” system, students take remedial classes at the same time as college-level math and English, rather than before. The idea is to get students into college classes quicker, and provide remediation on the side in a “just in time” fashion. It works. Students in co-requisite remediation are significantly more likely to persist in college. But that still leaves the question of whether one test can determine who needs remediation in the first place—or whether it is measuring inequality more than ability to succeed in college. A wide body of research shows that **test scores reflect family income more than any other factor.** Adams once heard an official from a testing company say that instead of giving incoming students a placement test, colleges could just ask how many bathrooms in the house where they grew up. The fewer bathrooms, the worse they’re likely to do on the test. And the more likely they’ll end up in remedial classes. There are certainly low-income students who do well on tests. But those students are not, for the most part, ending up at elite colleges. Only 23 percent of high-achieving, low-income students even apply to a selective school. Almost half of students from the lowest-income families go to community colleges. So do most Hispanic students and 44 percent of black students. And **if you end up at a community college, test scores may be your only ticket into college-level math and English classes—even if you’ve already proven you can do college-level work.**

#### Two impacts: [1] Structural violence – degree completion increases social mobility and helps low-income communities.

Strumbos et al. 18 [Diana Strumbos, Donna Linderman, Carson C. Hicks, (Diana Strumbos is director for research and evaluation for Accelerated Study in Associate Programs (ASAP) at the City University of New York (CUNY). Donna Linderman is university dean for Student Success Initiatives at CUNY’s Office of Academic Affairs and executive director of ASAP. Carson C. Hicks is deputy executive director of the New York City Mayor’s Office for Economic Opportunity.) "Postsecondary Pathways Out of Poverty: City University of New York Accelerated Study in Associate Programs and the Case for National Policy" RSF: The Russell Sage Foundation Journal of the Social Sciences, 2-1-2018, https://www.rsfjournal.org/content/4/3/100/tab-article-info, DOA:9-28-2019 // WWBW]

Focusing specifically on mobility, Ron Haskins finds that a **college degree has a large impact on the likelihood of moving up the economic ladder.** With a college degree, children born into the bottom income quintile had a 41 percent chance of making it to the top two quintiles, relative to just a 14 percent chance without a college degree (Haskins 2008). Furthermore, **the changing economy now demands employees with more education and training and provides fewer opportunities for those with only a high school education.** Anthony Carnevale, Nicole Smith, and Jeff Strohl predict that **50 percent of U.S. job growth expected by 2018 would require at least an associate degree, underscoring that an associate degree may be even more essential for employment** than it has been historically (2010). **A postsecondary education also has non-economic benefits.** Researchers have found evidence of social and health benefits, including **better health outcomes, reduced welfare receipt, and a decrease in criminal involvement** (Belfield and Bailey 2011). Other benefits include **positive effects on the community, family life, and reported levels of happiness, as well as increases in social capital** (Hout 2012). Postsecondary Degree Attainment Although evidence suggests that postsecondary education can lead to social and economic mobility, the unfortunate reality is that **many individuals from low-income families struggle to earn a college degree** (Haskins, Holzer, and Lerman 2009). Low-income students are less likely to enroll in postsecondary education in the first place, which has led to calls for policies and programs designed to increase access to college (Ellwood and Kane 2000; Haveman and Smeeding 2006). However, access is not the only problem—there are also stark inequalities in college completion. Martha Bailey and Susan Dynarski find that students from low-income families were six times less likely to have earned a bachelor’s degree by age twenty-five than those from high-income families, with only 9 percent of low-income students earning a degree by that age (2011). These differences remained when controlling for prior academic performance and the gap has grown over time. Part of these differences arises from the fact that low-income students are more likely to begin their path to a bachelor’s degree by first enrolling at a community college with the intention of transferring. Few make it to that point. COMMUNITY COLLEGES **Low-income students are more likely to attend community colleges** than other types of institutions, both because they are less expensive and because many of them are open access institutions, allowing students to enroll who do not meet college readiness standards required by other types of institutions. Between 6.7 and 7.7 million students nationwide enroll at community colleges in degree-seeking programs each year, about 40 percent full time (National Center for Education Statistics 2016). Unfortunately, most of them do not complete a degree. National statistics show that only 19.8 percent of first-time, full-time degree-seeking students at public two-year institutions had earned a certificate or associate degree from their initial institution three years after entry (Snyder and Dillow 2015). Looking more broadly to consider students who transfer and over a longer time frame, only 35.1 percent of students who began at two-year public institutions had earned a degree from any institution six years later (Snyder and Dillow 2015). A large percentage of students at community colleges nationwide are low income, with over half in receipt of federal Pell grants, which are predominately awarded to students with less than $20,000 in household income (National Center for Education Statistics 2014; U.S. Department of Education, Office of Postsecondary Education 2014). **Students at community colleges, and low-SES students more specifically, face many barriers to completion** (Attewell, Heil, and Reisel 2011; Goldrick-Rab 2010). **Many students** are not academically prepared for college-level courses, and **must take remedial or developmental coursework that is difficult and time-consuming before they can even begin credit-bearing courses. This presents an immediate challenge to building academic momentum and decreases a student’s chance of success because the number of credits earned in the first year is a key predictor of degree completion** (Adelman 2006). In addition, many students struggle with financial issues, and need to work while in school or have family responsibilities that require them to balance school, work, and family—or both. Work and family obligations sometimes force students to attend part time, which can again lead to a loss in momentum and decrease their likelihood of graduating. Students may also struggle to feel integrated into college life and achieve a sense of belonging (Tinto 1993; Karp and Bork 2014). In particular, first-generation college-goers may not have the social capital or networks of family and friends familiar with the demands of college to help guide them.

#### [2] AI – US-China war is impending but avoidable – the race comes down to tech leadership.

Heath and Thompson 18 Timothy R. Heath, William R. Thompson, 4-1-2018, Timothy Heath is a senior international defense researcher at the RAND Corporation. Prior to joining RAND in October 2014, he served as the senior analyst for the USPACOM China Strategic Focus Group for five years, William R. Thompson is Distinguished Professor and Donald A. Rogers Professor of Political Science Emeritus at Indiana University, Editor-in-chief of the Oxford Research Encyclopedia of Politics and Affiliated Professor at the University of Washington. "Avoiding U.S.-China Competition Is Futile: Why The Best Option Is To Manage Strategic Rivalry", National Bureau Of Asian Research, https://muse.jhu.edu/article/693206, Accessed on 9-13-2019 // JPark

This article argues that the structural drivers of U.S.-China competition are too deep to resolve through cooperative engagement and that policymakers must instead accept the reality of strategic rivalry and aim to manage it at a lower level of intensity. main argument Rising tensions between China and the U.S. have spurred fears that the two countries could end up in conflict or recreate the Cold War. To avoid these outcomes, analysts have proposed ways to defuse competition and promote cooperation. However, because these arguments do not address the structural drivers underpinning U.S.-China competition, such proposals are unlikely to end the rivalry. Conflict is not inevitable, however, and aggressive strategies that unnecessarily aggravate the sources of rivalry are likely to prove dangerously counterproductive. The best option at this point is, paradoxically, for the U.S. to accept the reality of the growing strategic rivalry and manage it at a lower level of intensity. policy implications • Maintaining a technological edge is critical for the U.S. to successfully manage the rivalry with China. Policies should be pursued to ensure that the U.S. continues to attract and nurture the best science and technology talent and retains its status as the global leader in technology. • To compete with China’s narrative about leading regional integration, the U.S. should both put forth a compelling vision for the region that encompasses widely held economic, security, and political values and continue to bolster its diplomatic and military positions in Asia. • To maintain the U.S.-China rivalry at a stable level, policymakers in both countries should prioritize measures that discourage the mobilization of popular sentiment against the other country and encourage cultural exchanges. • U.S.-China competition will likely become increasingly entwined with rivalries between China and U.S. allies and partners such as Japan and India. U.S. policymakers will need to take into account the independent dynamics of those separate rivalries when managing relations with China. [ 93 ] heath and thompson • avoiding u.s.-china competition is futile The United States and China find themselves increasingly enmeshed in a strategic rivalry, the basic nature of which remains poorly understood in the United States. To be sure, disagreements between the two countries have gained widespread attention. Disputes involving Chinese confrontations with U.S. allies and partners such as Japan, the Philippines, and Taiwan have frequently grabbed the headlines. At other times, disagreements over Chinese trade practices and U.S. military activities in the South China Sea have occasioned discord. All these sources of conflict are genuine, but they mask the main drivers of rivalry, which are twofold. First, the United States and China are locked in a contest for primacy—most clearly in Asia and probably globally as well. The United States has been the dominant power, and China seeks to eventually supplant it. By definition, two different states cannot simultaneously share primacy at either the regional or global level. Second, economic, demographic, and military trajectories suggest that China has the potential to contend in a significant way for leadership at the global systemic level. At this level, the most decisive competition will be for technological leadership. Should China supplant the United States as the world’s premier country in terms of technology, its claim to regional and global supremacy will be difficult to deny. And once it has gained that supremacy, China will be well positioned to restructure institutional arrangements to privilege itself and disadvantage the United States. Although this competition is occurring simultaneously at both levels, observers have focused primarily on the struggle for primacy at the regional level and overlooked or downplayed the competition at the global systemic level.1 To counter China’s pursuit of regional primacy, the United States has bolstered its alliances in Asia (albeit inconsistently), expanded diplomatic outreach to China and rising powers in Southeast Asia, and revised its military posture—efforts captured by President Barack Obama’s “rebalance to Asia.” President Donald Trump may have abandoned the rebalance, but many of the related initiatives remain more or less in place.2 China’s challenge at the global systemic level, especially in the field of technology, has received less attention. Confidence in the proven U.S. ability to produce new technologies and facile assumptions about the difficulties China will face in promoting innovation in new industries have led many to dismiss the challenge posed by China. But the contest for technological leadership is actually even more consequential than that for regional primacy. Should China succeed in surpassing the United States as the world’s technological leader, U.S. diplomacy and military power will not suffice to hold the line either in Asia or around the globe. Under those conditions, countries throughout the world, including U.S. allies in Asia, will be forced to come to terms with the new leading economy. Military power projection could be far less relevant as China moves to consolidate its leading status at both the regional and global levels in such a scenario. Accordingly, although the United States cannot abandon its efforts to bolster its diplomatic and military position in Asia, the country must step up its efforts to strengthen its faltering lead in new technology development. While China clearly grasps the stakes, it is not clear that the United States does. For example, China’s government has promoted R&D into quantum computing. The investment appears to be paying off, as the country has leaped ahead of the United States in developing quantum communications.3 Similarly, the U.S. Congress has proposed to dispense with subsidies for the purchase of electric vehicles, even as China pushes ahead in its plan to become the lead producer of this technology.4 And while the U.S. government seeks to restrict immigration and discourage foreign students from attending U.S. universities (and staying after they receive their advanced training), China has revised its policies to welcome foreigners, prioritizing those with science and technology expertise. Moreover, Chinese investment in basic R&D is rapidly catching up to that of the United States.5 Studies have also noted a shrinking U.S. lead in science and technology as such investment is beginning to bear fruit.6 Similarly, the United States has lost its once-undisputed lead in the per capita number of engineers and scientists.7

#### Chinese AI lead destabilizes the world order since humans don’t check AI in authoritarian regimes.

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China’s initial approach to AI has been heavily influenced by its assessment of U.S. military initiatives; in particular, those associated with the DoD’s Third Offset Strategy, and more recently, “Project Maven” (e.g. human-machine collaboration; convolutional neural networks; big-data analytics; machine-learning; human-assisted operations; combat-teaming; and autonomous weapons).108 108. China’s long-standing approach to military innovation has been based on a “leap-frogging” strategy; designed to encourage civil-military collaboration in the development of dual-use asymmetric capabilities. View all notes As China’s approach to AI matures, however, it will more likely align closer with the People’s Liberation Army’s (PLA’s) unique organisational, command and control, and strategic cultural traditions.109 109. Johnson, The US-China Military and Defense Relationship during the Obama Presidency, chap. 4. View all notes Beijing, like the U.S., has yet to formally articulate a coherent strategic framework, operational concepts, or the establishment of institutions and mechanisms to support the use of AI for warfighting.110 110. For a recent study on Chinese approaches to weapon system-related operational concepts see, Jeffrey Engstrom, Systems confrontation and system destruction warfare (Santa Monica: RAND Corporation, 2018). View all notes That said, the intensity of discussion and research within the PLA surrounding military-use AI is indicative of the high-level importance attached to this ubiquitous dual-use technology.111 111. ‘National People’s Congress Representative Liu Guozhi: Artificial Intelligence Will Accelerate the Process of Military Transformation’, PLA Daily, March 7, 2017, http://jz.chinamil.com.cn/zhuanti/content/2017-03/07/content\_7517615.htm/. View all notes As China and the U.S. internalise these emerging technological trends, it is likely that each side will conceptualise them very differently. Scholarship on military innovation has demonstrated that – with the possible exception of nuclear weapons – technological innovation alone rarely causes the military balance to shift; rather how militaries employ a technology usually proves critical.112 112. See, Barry R. Posen, The sources of military doctrine: France, Britain, and Germany between the world wars (Ithaca: Cornell Studies in Security Affairs, 1986). View all notes A major cause for concern is that if the many national, cultural, and normative differences that separate Sino-American approaches to military innovation are reflected in the software used to teach AI programmes, the resultant prejudices and preferences might become baked into the weapon systems they support. 113 113. For example, Microsoft’s racist “Chatbot Tay” is the most infamous example of this kind of prejudice displayed based on the data and parameters used by developers. View all notes As a corollary, even if AI systems are designed to produce bias-free analysis, human bias inherent in data sampling, sensor types, and other uncontrollable factors, might nonetheless result in subjective decision-making.114 114. However, if future AI is able to collect and categorise its own data via sensors, then the susceptibility of machines to human biases will likely decrease. For a history of AI and the military see, Ayoub and Payne, ‘Strategy in the Age of Artificial Intelligence’, 793–819. View all notes Under crisis and conflict conditions, these kinds of cognitive biases might exacerbate underlying U.S.-China mutual mistrust, suspicion, and misperceptions. In the race to innovate in AI, uncertainties surrounding U.S and China progress (and setbacks) will have profound and potentially destabilising implications for the strategic balance.115 115. China and the United have developed the capability to leverage AI to achieve asymmetric combat advantages, but its employment will also introduce certain vulnerabilities. Moreover, there will likely be continued obstacles to the effective sharing, acquisition, and fielding of AI systems for military applications. View all notes For now, at least, the U.S. retains the upper-hand in AI innovation,116 116. The U.S. leads China in the number of AI patent applications, the number of AI-related organisations, the amount of funding provided, but China is quickly closing this gap. View all notes but in this emerging innovation arms-race, China is no longer the inferior party. Instead, China is fast becoming a true peer-competitor in AI and is expected to soon overtake the U.S. in this emerging strategic domain.117 117. International Institute for Strategic Studies (IISS), The Military Balance, 2018 (London: IISS, 2018), 10–3. View all notes By its own estimates, Beijing has set 2020 as a target to achieve “major breakthroughs in a series of landmark AI products”, and to establish an “international competitive advantage” in the development of dual-use technologies and applications – especially those which target the United States.118 118. From 2014, China has surpassed the United States in the output of published research papers on deep learning - by circa 20 per cent in 2016 alone. While increases in the quantity of AI-related publications do not necessarily correspond to advances in quality, this trajectory nonetheless, clearly demonstrates that China is resolutely committed to its AI development agenda. View all notes To be sure, China’s innovation ambitions could be expedited by a fundamental mismatch (even dissonance) analysts have identified between the rapid pace of commercial innovation and academic research into AI and the lagging timescales and assumptions that underpin the Pentagon’s existing procurement processes and practices.119 119. Andrew Ilachinski, AI, Robots, and Swarms - Issues, Questions, and Recommended Studies (Washington: CNA Analysis and Solutions, 2017), xiv. View all notes Chinese centralised planning, socialist market economy, and in particular, a vast pool of data-sets, could offer Beijing significant scope to leverage China’s market forces and human capital to realise its “civil-military fusion” objective in AI.120 120. Beijing’s approach to AI is, however, far from perfect. Chinese state-led resource management characterised as inefficient and intrinsically corrupt (with government-favoured research institutions receiving a disproportionate share of state-funding) might cause the government to misallocate resources, over-invest in non-productive and poorly conceptualised AI projects. View all notes While vast data is clearly an advantage, however, it remains an open question whether China’s national strategic planning, and socialist market economy will prove advantageous in the development of AI. According to a recent report, China is on track to possess twenty per cent of the world’s entire data by 2020 – and thirty per cent by 2030.121 121. In contrast, between 2012–2017 U.S. DoD expenditure on AI-related contracts was relatively flat. Govini, ‘Department of Defense Artificial Intelligence, Big Data, and Cloud Taxonomy’, December 3, 2017, 9, http://www.govini/home/insights/. View all notes The head of the U.S. DoD’s Strategic Capabilities Office, William Roper, highlighted the pivotal role the accumulation of, and competition for, information for machine learning will play in future warfare. Roper stated: “It’s wealth and fuel. Your data keeps working for you. You stockpile the most data that you can and train that to teach and train autonomous systems”.122 122. Patrick Tucker, ‘The Next Big War Will Turn on AI, Says US Secret-Weapons Czar’, Defense One, 28, March 2017, https://www.defenseone.com/technology/2017/03/next-big-war-will-turn-ai-says-pentagons-secret-weapons-czar/136537/. View all notes In contrast to the nuclear arms race that defined the Cold War-era, states competing in the AI arms race will be less concerned with sustaining the qualitative and quantitative lead in warheads, but instead will be more concerned with maintaining information superiority – to feed machine-learning algorithms.123 123. Sharikov, ‘Artificial intelligence, cyberattack, and nuclear weapons - A dangerous combination’, 370. View all notes Chinese President Xi Jinping recently stated that AI, “big data”, cloud storage, cyberspace, and quantum communications were amongst the “liveliest and most promising areas for civil-military fusion”, and towards this end, he pledged additional state support and resources.124 124. For example, in collaboration with Baidu, Beijing established a “National Engineering Laboratory of Deep Learning Technology” initiative. Robin Li, ‘China brain project seeks military funding as Baidu makes artificial intelligence plans’, South China Morning Post, 3 March, 2015, https://www.scmp.com/lifestyle/article/1728422/china-brain-project-seeks-military-funding-baidu-makes-artificial. View all notes In contrast, the increasingly strained relationship between the Trump administration and Silicon Valley will likely pose additional challenges to this critical partnership in the development of AI technologies for the U.S. military.125 125. For example, when Google acquired DeepMind it specifically prohibited the use of its research for military purposes. Loren DeJonge Schulman, Alexandra Sander, and Madeline Christian, ‘The Rocky Relationship Between Washington & Silicon Valley: Clearing the Path to Improved Collaboration’, (Washington: CNAS, July 2015). View all notes Following a recent high-profile backlash from employees at Google, the company recently announced that it would discontinue its work with the Pentagon on Project Maven.126 126. Jeremy White, ‘Google Pledges not to work on weapons after Project Maven backlash’, The Independent, 7 June, 2018, https://www.independent.co.uk/life-style/gadgets-and-tech/news/google-ai-weapons-military-project-maven-sundar-pichai-blog-post-a8388731.html. View all notes As a first mover AI-power, therefore, China will likely chart a course to be at the vanguard in the development of technical standards, mechanisms, and governance of AI that will likely strengthen the competitiveness and quality of China’s military capabilities.127 127. Given the lack of empirical open-sources that relates to Chinese view on military applications of AI, this paper highlights some of the key observable trends, and proffers areas for future research that relates to these issues. View all notes China’s early approach to AI suggests a wide-reaching conceptualisation that the PLA will synthesise into its entire force structure; to support future “intelligentised” operations, and seise the “commanding heights” of future strategic competition.128 128. ‘National People’s Congress Representative Liu Guozhi: Artificial Intelligence Will Accelerate the Process of Military Transformation’, PLA Daily, March, http://jz.chinamil.com.cn/zhuanti/content/2017-03/07/content\_7517615.htm/. View all notes Specifically, Chinese researchers have focused on AI applications for war-gaming, training, command and control, intelligence analysis, and augmenting autonomous weapons systems.129 129. Shou Xiaosong, ed., The Science of Military Strategy, 3rd ed. (Beijing: Military Science Press, 2013). View all notes President Xi’s “One Belt One Road”, and the virtual dimension the “digital Silk Road”, are high-level efforts designed to ensure that the mechanisms, co-ordination, and support for this agenda will become increasingly normalised.130 130. China’s recent five-year plan reportedly committed over USD$100 billion to AI. Moreover, as China moves forward with its One Belt One Road related projects that extend to potentially more than eighty countries AI would become an integral part of these international infrastructure projects. Wenyuan Wu, ‘China’s Digital Silk Road: Pitfalls Among High Hopes’, The Diplomat, 3 November, 2017, https://thediplomat.com/2017/11/chinas-digital-silk-road-pitfalls-among-high-hopes/. View all notes Moreover, in 2017 Xi explicitly called for the acceleration of the military “intelligentisation” agenda, to better prepare China for future warfare against a near-peer adversary like the United States.131 131. ‘Xi Jinping’s Report at the 19th Chinese Communist Party National Congress’, Xinhua, October 27, 2017, http://www.china.com.cn/19da/2017-10/27/content\_41805113\_3.htm. View all notes China’s pursuit of AI (especially dual-use capabilities) will fuel the perception (accurate or otherwise) in Washington that Beijing is intent on exploiting this strategically critical technology to fulfil its broader revisionist goals. Despite a brief pause in the development of the U.S.’s AI strategic roadmap, the White House recently announced the creation of a new committee of AI experts to advise it on policy choices.132 132. Aaron Boyd, ‘White House Announces Select Committee of Federal AI Experts’, Nextgov, May 10, 2018, https://www.nextgov.com/emerging-tech/2018/05/white-house-announces-select-committee-federal-ai-experts/148123/. View all notes In 2017, following the recommendation of the Committee on Foreign Investment in the U.S., President Trump blocked a Chinese firm from acquiring Lattice Semiconductor; a company that manufactures chips critical in the operation of AI applications.133 133. Ana Swanson, ‘Trump Blocks China-Backed Bid to Buy U.S. Chip Maker’, The New York Times, September 13, 2017, https://www.nytimes.com/2017/09/13/business/trump-lattice-semiconductor-china.html. View all notes This action typifies a broader concern that synergies created by China’s civil-military fusion strategy could allow the technology, expertise, and intellectual property shared between American and Chinese commercial entities to be transferred to the PLA.134 134. Bartholomew and Shea, U.S.-China Economic and Security Review Commission - 2017 Annual Report, 507. View all notes Though Chinese strategic writings have emphasised the importance of human-machine collaboration and teaming (or keeping humans “in the loop”),135 135. “Keeping humans in the loop” refers to maintaining human control of autonomous weapons; both in the design of the rules that govern these systems, and the execution of those rules when firing. That said, human decision-making and automation are not necessarily mutually exclusive. For example, the human-machine teaming cognitive design envisaged by the Pentagon, in theory at least, could leverage the predictability, reliability, and speed of full-automation while retaining the robustness and flexibility of human intelligence. View all notes the PLA’s historical resistance to command and control decentralisation, and general mistrust of human personnel could prompt military leaders to gravitate more quickly towards full-battlefield autonomy.136 136. For a recent comprehensive examination of the PLA’s shortcomings see, Michael S. Chase, Jeffrey Engstorm, Tai Ming Cheung, Kirsten A. Gunness, Scott W. Harold, Susan Puska, and Samuel K. Berkowitz, China's incomplete military transformation- assessing the weaknesses of the people's liberation army (PLA) (Santa Monica: RAND Corporation, 2015). View all notes The opposite conclusion could also be drawn, however: if Chinese commanders were unwilling to give up centralised control to junior officers, why would they give such control to machines? Recent reports indicate China’s navy is contemplating fitting its nuclear-powered submarines (and possibly nuclear-armed ones) with a so-called “AI-augmented brainpower”.137 137. Stephen Chen, ‘China’s plan to use artificial intelligence to boost the thinking skills of nuclear submarine commanders’, South China Morning Post, 4 February, 2018, https://www.scmp.com/news/china/society/article/2131127/chinas-plan-use-artificial-intelligence-boost-thinking-skills. View all notes This capacity could, in theory, synthesise and interpret large quantities of data generated by sonar signals and sound pulses, to detect submerged objects, and support a broad range of maritime operations. To be sure, the kinds of operations and the level of autonomy afforded to AI-augmented systems to support China’s strategic underwater forces will have profound implications for future crisis and conflict in the increasingly contested undersea domain. In extremis, if military command and control systems came under attack (possibly from AI-augmented cyber-weapons), military commanders may decide to pre-delegate decision-making to machine-learning systems. Russia, for example, operates a so-called “dead hand” designed to automatically launch its nuclear missiles at hyper-speed, if its pressure sensors were to detect an imminent nuclear attack.138 138. Fontaine and Miller, A new era in U.S.-Russian strategic stability, 26. View all notes The evidence suggests that China (and Russia) has relatively few moral, legal or ethical qualms in deploying lethal autonomous weapons.139 139. To date, there have been few publications on the legal and ethical implications for military-use AI, which have dominated the discourse in the West. Bendett, ‘Get Ready, NATO.’ View all notes Moreover, and in contrast to the U.S., discussion on the potential limitations and risks associated with AI, autonomy and cyber-warfare appears largely absent from Chinese open-sources.140 140. For example, Johnson, The US-China Military and Defense Relationship during the Obama Presidency, chap. 4. View all notes Reports suggest that China has already begun to incorporate AI into its next-generation conventional missiles and missile-defense intelligence gathering systems, to enhance their precision and lethality.141 141. Kania, Battlefield singularity. View all notes By contrast, the U.S. will likely be much more constrained in the development of these technologies. Resistance within the U.S. military to incorporate AI stems in large part from the prevailing liberal-democratic norms governing the use of military force, and the growing concerns surrounding the many “black box” aspects of AI-machine learning, and in particular, to avoid the so-called “Terminator Conundrum” – the implications of weapons that could operate independently and beyond the control of their developers.142 142. Colin Clark, ‘“The Terminator Conundrum:” VCJCS Selva On Thinking Weapons’, Breaking Defense, January 21 2016, https://breakingdefense.com/2016/01/the-terminator-conundrum-vcjcs-selva-on-thinking-weapons/. View all notes Chinese analysts, by overlooking the potential shortcomings, uncertainties, and vulnerabilities associated with AI, and overstating (even overdramatising) the utility of AI and autonomy (or taking humans “out of the loop”), could under crisis and conflict conditions complicate escalation management,143 143. For example, whilst much has been written by Chinese analysts on the Pentagon’s Third Offset Strategy programmes (including AI) there has been very little discussion on the potential limitations of these advanced systems - including those associated with reducing human control. View all notes and worsen strategic stability in future warfare.144 144. Geist and Lohn, How might artificial intelligence affect the risk of nuclear war? (Santa Monica: RAND Corporation, 2018), 5. View all notes That said, given the aggressive pursuit of military-use AI by its strategic rivals, America’s current commitment to having humans in charge might waver.145 145. It remains unclear, however, what operational contexts and applications, and to what degree China and Russian might pursue fully autonomous weapon systems. View all notes Moreover, international law remains unclear and indeterminate on lethal autonomy, and in its absence, militaries (including the U.S.) will continue to develop weapon systems with varying degrees of autonomy.146 146. Kelsey Atherton, ‘3 big takeaways from the Navy’s new robot road map’, C4ISRnet, 30 May, 2018, https://www.c4isrnet.com/unmanned/2018/05/30/three-big-takeaways-from-the-navys-new-robot-roadmap/. View all notes Ultimately, militaries will need to consider the trade-off between the risks associated with autonomous weapons, with the possibility of affording an adversary using fully autonomous weapons the asymmetric upper hand. At this early stage, it is impossible to know for certain when, whether, and under what circumstances greater degrees of autonomy in human-machine collaboration will provide a distinct strategic battlefield advantage.

#### Autonomous AI ends MAD and goes nuclear – extinction.

Payne 18 (Kenneth; senior lecturer in the School of Security Studies at King's College, London, senior member of St Antony’s College, Oxford, PhD from the University of Essex; 9/18/18; “Artificial Intelligence: A Revolution in Strategic Affairs?”; <https://www.tandfonline.com/doi/full/10.1080/00396338.2018.1518374>; Survival, Vol. 60, Issue 5; accessed 4/25/19; TV)

In contrast to strategic thinking about nuclear weapons, that about AI is immature. Among the key considerations are speed and command and control. Then there are concerns unique to the technology: the capacity of AI to cope with ambiguous and rapidly evolving data and to learn from limited data; its ability to intuit complex, associative meaning and develop imaginative responses; and its capacity to effectively interpret and execute the human intentions that underpin its activities, even where these are themselves complex and multifaceted. The uncertainty over the precise capabilities that will emerge and their distribution among states complicates efforts to discern broad strategic principles for AI. Nevertheless, some themes have already emerged. While the strategic fundamentals of air, sea and land power are well understood, and have withstood many technological changes, the ability of AI to seamlessly connect disparate domains and to dominate through the speed and accuracy of its thought, manoeuvre and fire capabilities will challenge some of these long-standing strategic standards, including those that relate to nuclear weapons. What can be said already about these changes? Firstly, AI will change power balances. AI systems will undoubtedly enhance the ability of militaries that possess them to reconnoitre, manoeuvre and employ deception, before rapidly concentrating force and delivering precision fires. This will change the utility of force by enhancing lethality and reducing risk to societies possessing AI war-fighting systems. Effective AI will likely overmatch legacy military capabilities, dramatically redrawing the balance of power. Moreover, a marginal technological advantage in AI is likely to have a disproportionate effect on the battlefield, given that small advantages in decision-making ability, notably in terms of speed and accuracy, can translate disproportionately into dominance. The key question then becomes who gets what sort of AI, and how quickly? There are some key technical barriers to entry, which suggest a variegated uptake and limited capacity for others to innovate or emulate. This probably favours existing advanced industrial societies such as the US, Europe and perhaps China. These societies will see their military power enhanced relative to others, well beyond the enhancements already realised through the information revolution in military affairs. The distinction most relevant will be between the best algorithm and the rest. That’s because marginal quality might prove totally decisive: other things being equal, we can expect higher-quality AI to comprehensively defeat inferior rivals. In contrast, even rough-and-ready nuclear arsenals, like that possessed by North Korea, can deter more sophisticated adversaries. But while AI quality will count, antebellum uncertainty about whose AI is best will complicate power assessments and may be destabilising. In this respect at least, AI is comparable to earlier conventional weapons technologies. The route to dominant AI need not be linear. Local optimisations generating a temporary strategic advantage will not necessarily preclude the eventual emergence of better alternative approaches. If the local optimisation is sufficiently advanced, however, it might trump all comers decisively enough to stymie other approaches. Alternatively, a marginal advantage in AI quality may accelerate, perhaps even towards ‘superintelligent’ AGI capable of more flexible and self-directed learning. Under the most dangerous scenario, one power threatens dominance and induces rivals to court great risk to avoid that outcome. A nuclear deterrent would mitigate this alarming prospect, but only if the adversary’s emerging AI capability did not wholly preclude a retaliatory second strike. Another, perhaps more likely, possibility is that uncertainty about the relative capabilities of rival AIs, and thus of the distribution of military power at any moment, could provide scope for considerable brinkmanship, and therefore miscalculation. The current multipolar distribution of power further compounds the difficulty of gauging power reliably when it rests on a fast-changing capability. If legacy military power is rapidly overtaken by AI, the overall distribution of power might switch from multipolar to unipolar with unprecedented speed. In assessing the impact of AI on the balance of power and incidence of conflict, much will depend on the speed with which any given AI is acquired, and the extent to which there are significant barriers to proliferation. In broad terms, gains will probably be rapid (given current rates of progress) and unevenly distributed (given technical challenges of emulation and bottlenecks in expertise). A great deal also hinges on the particular qualities of any given AI. It’s likely that the more generalisable and flexible the intelligence created, the greater its military advantage. But the first military AIs will be specialists and operate at the tactical level. Narrow, domainspecific AIs may outperform more general-reasoning AIs in their area of expertise for a long while to come, given the considerable challenges of conceptualising and coding AGI. Secondly, AI changes the risks from using force, especially for casualtyaverse states, which are most likely to field it. The net effect is unclear. Changes in the pay-offs associated with fighting may actually provoke conflict by making it affordable for hitherto risk-averse states. Elsewhere, however, AI could deter aggression by adventurers seeking easy gains that are no longer below the threshold for intervention. Alliance relationships could become complicated: alliance members not possessing cutting-edge AI capabilities could be correspondingly reluctant to engage in operations that were still risky for them. Such allies might be useful legitimisers for action, without contributing themselves, reducing them to client-state status, effectively demilitarising states content to function under a Pax AI. The varied distribution of capabilities and significant barriers to entry echo concerns from the nuclear era about blackmail by possessing states and preventive strikes by states fearing what rivals might do with the technology if they obtain it. Strategically, the options are also familiar for the laggards – balancing against AI-possessing powers (difficult, given the qualitative edge) or bandwagoning alongside them. Geography and culture (including ideology) provide rationales for both options. Thirdly, in contrast to nuclear weapons, which heavily favour defence provided they can survive a first strike, AI should favour the offence, given its speed, precision, and acquisition and analysis of unbiased (by human heuristics) knowledge. While such attributes can equally be utilised by militaries on the defensive, there are two important respects in which AI shifts the balance. Most obviously, the offence by definition has the initiative, and with mature AI that alone might be sufficient to overwhelm defences. Secondly, Clausewitz’s remarks about the culminating point of attack and the relative strength of the defence have an underlying psychological quality that he himself articulated, and that subsequent research has demonstrated: humans are loss averse, place greater value on possessions in hand than those sought, and are prone to gamble more when losing than when gaining.24 What we have, we hold. AI, by contrast, is not susceptible to these human tendencies. Its resolve and appetite for risk is not shaped by a subjective, psychological anchor favouring the defender. Among other considerations are nuclear ones. Weak states have been able to effectively deter stronger ones by dint of acquiring a nuclear weapon for its tremendous defensive strengths. But AI enhances the possibilities for successful first strike against adversaries possessing limited nuclear arsenals, and could even shift the balance against adversaries that are better endowed with nuclear weapons.

### Solvency

#### Placement tests increase both over- and under-placement – GPAs alone are more accurate.

Talbert 17 Talbert, Corwin. “Multiple Measures Assessment: Improving Course Placement in Two-Year Institutions.” University of Minnesota Master’s Theses, May 2017, https://conservancy.umn.edu/bitstream/handle/11299/188756/Talbert\_umn\_0130M\_18084.pdf?sequence=1. WWBW

Over the past seven years, the Community College Research Center (CCRC), housed at the Teacher’s College of Columbia University, has published a number of influential working papers and journal articles calling into question the validity of placement exams (Belfield & Crosta, 2012; Hughes & Scott-Clayton, 2011; Scott-Clayton, 2012; Scott-Clayton et al., 2014). The latest publication (Scott-Clayton et al., 2014) provides the most comprehensive research to date by the CCRC in this area, as it made use of both of the two large community college system datasets presented in Scott-Clayton (2012) and Belfield & Crosta (2012). The 2014 study examined the placement accuracy of ACCUPLACER and COMPASS test scores and then estimated the incremental value of high school transcript information in making placement decisions. Rather than focusing on correlation coefficients or other goodness-of-fit statistics, their analysis involved calculating rates of diagnostic accuracy. They estimated how often the placement exam assessed students as developmental when they could have succeeded at the college level (underplacement), and how often the exam placed them at the college level when they were predicted to fail there (overplacement). Rather than computing accuracy rates, which may vary depending on how “success” is defined (e.g., is it B or higher, C or higher, or even D or higher, as a D still earns a student credit for most courses?), they decided to narrow their analysis on error rates and what they call the “severe error rate.” Many potential cutoffs can generate similar accuracy rates while the underplacement and overplacement rates can vary drastically (Sawyer, 1996). This gives additional information to practitioners who may prefer to minimize one type of error over the other. **The severe error rate** (SER) **combines the proportion of those predicted to earn an A or B in the college-level course but instead placed into developmental with the proportion of students placed into college level but were predicted to fail or withdraw there.** They also calculated the predicted success rate of those placed into the college-level course under a given assignment rule, 15 as well as the overall proportions assigned to developmental and college level (what they call the “remediation rate”).2 They found that in both English and mathematics, **using high school GPA alone as a placement tool resulted in fewer proportions of students being severely misplaced, with error rate reductions ranging from 12% to 30%. Both underplacement and overplacement rates were reduced, and at the same time the estimated success rates in these college-level courses increased.** Stated in another way, when they held the remediation rate constant (i.e., assigned the same proportions of students to developmental and college-level courses as the traditional placement test cutoffs did) but instead used high school GPA for course placement, **they reduced both the rates of severe under- and overplacement as well as increased the predicted course success rates in the college-level course.** For some of the courses, the SER was further reduced by using high school GPA in conjunction with test scores.

#### **Placement tests are racist – minorities are most likely to be GPA discrepant.**

Talbert 2 Talbert, Corwin. “Multiple Measures Assessment: Improving Course Placement in Two-Year Institutions.” University of Minnesota Master’s Theses, May 2017, https://conservancy.umn.edu/bitstream/handle/11299/188756/Talbert\_umn\_0130M\_18084.pdf?sequence=1. PZ

One of the goals of this study was to look at the disparate impact of assessment on underrepresented groups like students of color. There were large disparities in placement results from the ACCUPLACER. For instance, **71% of Black or African-American students tested into developmental English as opposed to only 21% of White students.** The disparity was much smaller for math, with 98% of Black or African-American students testing into developmental compared to 96% for White students, but this is because nearly all students tested below college level in math anyway. The real disparity in math was found in those who tested into adult basic education: 55% of Black or African American students tested into ABE in math compared to only 20% for White students. I also computed the effect sizes (ES) for mean differences of the ACCUPLACER tests and high school GPA and rank by race/ethnicity. For calculating the ES, I used Cohen’s d, which is simply the mean score for a given group subtracted by the mean score of the base group divided by the standard deviation (Cortina & Nouri, 2000). I chose to use the pooled standard deviation from these four groups (approximated by the square root of the mean squared error of a one-way ANOVA). Figure 2 shows these effect sizes with White students as the base group. One can see that both the Reading Comprehension test and the Arithmetic test had much larger effect sizes by race/ethnicity than the other two ACCUPLACER tests and the high school statistics. Cohen (1992) proposed the following operational definitions for the values of d: 0.2 is small, 0.5 is medium, and 0.8 is larg For the Reading Comprehension test, these values were drastic: for both Asian and Black or African American students, d was extremely large, and for Hispanic students, it was mediumlarge. This indicates that on average, **minority students performed much worse than White students on this test.** These values remained medium-large to large for the Arithmetic test as well, especially for Black or African Americans. For the Elementary Algebra test and College-Level Math test, d was much smaller, and Asians outperformed Whites (negative d values). Both tests may have been prone to selection bias, however. Since only those who performed well on the lower ACCUPLACER tests were branched into the higher tests, both were a select subset of higher-performing students. This may be an indication that there were less racial and ethnic disparities in higher-performing test-takers High school statistics showed much smaller values of d as well. There existed no medium or large effect sizes except for a negative ES for Asian students and HS rank. However, there may have been some selection bias here too: from the descriptive statistics above, students with HS GPA had slightly higher average ACCUPLACER scores on three of the tests. They also had a slightly different demographic makeup. Nevertheless, **HS GPA and HS rank appear to be less prone to racial and ethnic disparities and could help temper what appears to be an “assessment gap” at the college. The most commonly administered ACCUPLACER tests** (Reading Comprehension and Arithmetic) **had the largest race/ethnicity gaps, which gives an additional impetus to explore multiple measures to improve equity at the college.**

### Framing

#### **Extinction precludes—inevitable moral progress means it’s better to keep our options open.**

MacAskill 14, William, Oxford Philosopher and youngest tenured philosopher in the world, Normative Uncertainty, 2014

The human race might go extinct from a number of causes: asteroids, supervolcanoes, runaway climate change, pandemics, nuclear war, and the development and use of dangerous new technologies such as synthetic biology, all pose risks (even if very small) to the continued survival of the human race.184 And different moral views give opposing answers to question of whether this would be a good or a bad thing. It might seem obvious that human extinction would be a very bad thing, both because of the loss of potential future lives, and because of the loss of the scientific and artistic progress that we would make in the future. But the issue is at least unclear. The continuation of the human race would be a mixed bag: inevitably, it would involve both upsides and downsides. And if one regards it as much more important to avoid bad things happening than to promote good things happening then one could plausibly regard human extinction as a good thing.For example, one might regard the prevention of bads as being in general more important that the promotion of goods, as defended historically by G. E. Moore,185 and more recently by Thomas Hurka.186 One could weight the prevention of suffering as being much more important that the promotion of happiness. Or one could weight the prevention of objective bads, such as war and genocide, as being much more important than the promotion of objective goods, such as scientific and artistic progress. If the human race continues its future will inevitably involve suffering as well as happiness, and objective bads as well as objective goods. So, if one weights the bads sufficiently heavily against the goods, or if one is sufficiently pessimistic about humanity’s ability to achieve good outcomes, then one will regard human extinction as a good thing.187 However, even if we believe in a moral view according to which human extinction would be a good thing, we still have strong reason to prevent near-term human extinction. To see this, we must note three points. **First, we should note that the extinction of the human race is an extremely high stakes moral issue.** Humanity could be around for a very long time: if humans survive as long as the median mammal species, we will last another two million years. On this estimate, the number of humans in existence in the The future, given that we don’t go extinct any time soon, would be 2×10^14. So if it is good to bring new people into existence, then it’s very good to prevent human extinction. **Second, human extinction is** by its nature an **irreversible** scenario**. If we continue to exist, then we always have the option of letting ourselves go extinct in the future** (or, perhaps more realistically, of considerably reducing population size). **But if we go extinct, then we can’t magically bring ourselves back** into existence at a later date. **Third, we should expect ourselves to progress, morally, over the next few centuries,** as we have progressed in the past**. So we should expect that in a few centuries’ time we will have better evidence about how to evaluate human extinction than we currently have.** Given these three factors, it would be better to prevent the near-term extinction of the human race, even if we thought that the extinction of the human race would actually be a very good thing. To make this concrete, I’ll give the following simple but illustrative model. Suppose that we have 0.8 credence that it is a bad thing to produce new people, and 0.2 certain that it’s a good thing to produce new people; and the degree to which it is good to produce new people, if it is good, is the same as the degree to which it is bad to produce new people, if it is bad. That is, I’m supposing, for simplicity, that we know that one new life has one unit of value; we just don’t know whether that unit is positive or negative. And let’s use our estimate of 2×10^14 people who would exist in the future, if we avoid near-term human extinction. Given our stipulated credences, the expected benefit of letting the human race go extinct now would be (.8-.2)×(2×10^14) = 1.2×(10^14). Suppose that, if we let the human race continue and did research for 300 years, we would know for certain whether or not additional people are of positive or negative value. If so, then with the credences above we should think it 80% likely that we will find out that it is a bad thing to produce new people, and 20% likely that we will find out that it’s a good thing to produce new people. So there’s an 80% chance of a loss of 3×(10^10) (because of the delay of letting the human race go extinct), the expected value of which is 2.4×(10^10). But there’s also a 20% chance of a gain of 2×(10^14), the expected value of which is 4×(10^13). That is, in expected value terms, **the cost of waiting for a few hundred years is vanishingly small compared with the benefit of keeping one’s options open while one gains new information.**

#### High magnitude scenarios disproportionately hurt disadvantaged communities.

Thompson 18 Nicole Akoukou Thompson 18. Chicago-based creative writer. 4-6-2018. "Why I will not allow the fear of a nuclear attack to be white-washed." RaceBaitR. http://racebaitr.com/2018/04/06/2087/#

I couldn’t spare empathy for a white woman whose biggest fear was something that hadn’t happened yet and might not. Meanwhile, my most significant fears were in motion: women and men dying in cells after being wrongly imprisoned, choked out for peddling cigarettes, or shot to death during ‘routine’ traffic stops. I twitch when my partner is late, worried that a cantankerous cop has brutalized or shot him because he wouldn’t prostrate himself. As a woman of color, I am aware of the multiple types of violence that threaten me currently—not theoretically. Street harassment, excessively affecting me as a Black woman, has blindsided me since I was eleven. A premature body meant being catcalled before I’d discussed the birds and the bees. It meant being followed, whistled at, or groped. As an adult, while navigating through neighborhoods with extinguished street lights, I noticed the correlation between women’s safety and street lighting—as well as the fact that Black and brown neighborhoods were never as brightly lit as those with a more significant white population. I move quickly through those unlit spaces, never comforted by the inevitable whirl of red and blue sirens. In fact, it’s always been the contrary. Ever so often, cops approach me in their vehicle’s encouraging me to “Hurry along,” “Stay on the sidewalk,” or “Have a good night.” My spine stiffening, I never believed they endorsed my safety. Instead, I worried that I’d be accused of an unnamed accusation, corned by a cop who preys on Black women, or worse. A majority of my 50-minute bus ride from the southside of Chicago to the north to join these women for the birthday celebration was spent reading articles about citywide shootings. I began with a Chicago Tribute piece titled “33 people shot, seven fatally, in 13 hours,” then toppled into a barrage of RIP posts on Facebook and ended with angry posts about police brutality on Tumblr. You might guess, by the time I arrived to dinner I wasn’t in the mood for the “I can’t believe we’re all going to die because Trump is an idiot” shit. I shook my head, willing the meal to be over, and was grateful when the check arrived just as someone was asking me about my hair. My thinking wasn’t all too different from Michael Harriot’s ‘Why Black America Isn’t Worried About the Upcoming Nuclear Holocaust.” While the meal was partly pleasant, I departed thinking, “fear of nuclear demolition is just some white shit.” Sadly, that thought would not last long. I still vibe with Harriot’s statement, “Black people have lived under the specter of having our existence erased on a white man’s whim since we stepped onto the shore at Jamestown Landing.” However, a friend—a Black friend—ignited my nuclear paranoia by sharing theories about when it might happen and who faced the greatest threat. In an attempt to ease my friend’s fear, I leaned in to listen but accidentally toppled down the rabbit hole too. I forked through curated news feeds. I sifted through “fake news,” “actual news,” and foreign news sources. Suddenly, an idea took root: nuclear strike would disproportionately impact Black people, brown people, and low-income individuals. North Korea won’t target the plain sight racists of Portland, Oregon, the violently microaggressive liberals of the rural Northwest, or the white-hooded klansmen of Diamondhead, Mississippi. No, under the instruction of the supreme leader Kim Jong-un, North Korea will likely strike densely populated urban areas, such as Los Angeles, Chicago, Washington D.C., and New York City. These locations stand-out as targets for a nuclear strike because they are densely populated U.S. population centers. Attacking the heart of the nation or populous cities would translate to more casualties. With that in mind, it’s not lost on me that the most populous cities in the United States boast sizeable diverse populations, or more plainly put: Black populations. This shit stresses me out! There’s a creeping chill that follows me, a silent alarm that rings each time my Google alert chimes letting me know that Donald Trump has yet again provoked Kim Jong-Un, a man who allegedly killed his very own uncle. I’ve grown so pressed by the idea of nuclear holocaust that my partner and I started gathering non-perishables, candlesticks, a hand-crank radio, and other must-buy items that can be banked in a shopping cart. The practice of preparing for a nuclear holocaust sometimes feels comical, particularly when acknowledging that there has long been a war on Black people in this country. Blackness is bittersweet in flavor. We are blessed with the melanized skin, the MacGyver-like inventiveness of our foremothers, and our blinding brightness—but the anti-blackness that we experience is also blinding as well as stifling. We are stuck by rigged systems, punished with the prison industrial complex, housing discrimination, pay discrimination, and worse. We get side-eyes from strangers when we’re “loitering,” and the police will pull us over for driving “too fast” in a residential neighborhood. We get murdered for holding cell phones while standing in our grandmother’s backyard. The racism that strung up our ancestors, kept them sequestered to the back of the bus and kept them in separate and unequal schools still lives. It lives, and it’s more palpable than dormant. To me, this means one thing: Trump’s America isn’t an unfortunate circumstance, it’s a homecoming event that’s hundreds of years in the making, no matter how many times my white friends’ say, “He’s not my president.” In light of this homecoming, we now flirt with a new, larger fear of a Black genocide. America has always worked towards Black eradication through a steady stream of life-threatening inequality, but nuclear war on American soil would be swift. And for this reason I’ve grown tired of whiteness being at the center of the nuclear conversation. The race-neutral approach to the dialogue, and a tendency to continue to promote the idea that missiles will land in suburban and rural backyards, instead of inner-city playgrounds, is false. “The Day After,” the iconic, highest-rated television film in history, aired November 20, 1983. More than 100 million people tuned in to watch a film postulating a war between the Soviet Union and the United States. The film, which would go on to affect President Ronald Reagan and policymakers’ nuclear intentions, shows the “true effects of nuclear war on average American citizens.” The Soviet-targeted areas featured in the film include Higginsville, Kansas City, Sedalia, Missouri, as well as El Dorado Springs, Missouri. They depict the destruction of the central United States, and viewers watch as full-scale nuclear war transforms middle America into a burned wasteland. Yet unsurprisingly, the devastation from the attack is completely white-washed, leaving out the more likely victims which are the more densely populated (Black) areas. Death tolls would be high for white populations, yes, but large-scale losses of Black and brown folks would outpace that number, due to placement and poverty. That number would be pushed higher by limited access to premium health care, wealth, and resources. The effects of radiation sickness, burns, compounded injuries, and malnutrition would throttle Black and brown communities and would mark us for generations. It’s for that reason that we have to do more to foster disaster preparedness among Black people where we can. Black people deserve the space to explore nuclear unease, even if we have competing threats, anxieties, and worries. Jacqui Patterson, Director of the Environmental and Climate Justice Initiative, once stated: African American communities are disproportionately vulnerable to and impacted by natural (and unnatural) catastrophes. Our socio-economic vulnerability is based on multiple factors including our lack of wealth to cushion us, our disproportionate representation in lower quality housing stock, and our relative lack of mobility, etc.

omitted

## U/V

### U/V – T

#### [Omitted]

# 1AR – Case

## Ext – Advantage – Heg Version

### Ext – SV

#### Placement tests put students in remedial courses they don’t need which guts graduation rates. Access to college degrees is critical to check runaway inequality and reduce structural violence.

#### Outweighs their offense: [a] Cyclicality—systems of institutional repression are self-perpetuating and guarantee more violence in the future [b] Probability—the impact is already happening so we know it’s real.

### Ext – Heg

#### Placement tests put students in remedial courses they don’t need which guts graduation rates. Community college graduates are key to STEM jobs, which is key to US military technology and superiority – stops China from challenging heg and causing great power wars.

#### Case outweighs: a] time frame – Ambrose and Herman prove that China is challenging the US now – we’re on the brink b] scope – even short of extinction, hot wars affect every person in every country around the globe – regional aggressors spring up out of nowhere

### Ext – Ag

#### Placement tests put students in remedial courses they don’t need which kills graduation rates. Community college graduates are key to developing new technologies for ag growth, which is key to global food security – food insecurity causes resource wars and great power conflicts—goes nuclear.

#### Outweighs: a] Historical precedent – resource scarcity has caused wars from the Russian revolution to World War 2 to Iraq – proves the impact is likely b] scope – nuclear war affects and kills everyone on earth c] time frame – Gagliordi proves that technological development is key now to stop famine later – we’re on the brink

#### [vs. k] ---- generic case outweighs

### Ext – AI

#### Placement tests put students in remedial courses they don’t need which guts graduation rates. Community college graduates are key to STEM jobs, which is key to US leadership in AI – Chinese AI lead causes nuclear war because control of their military shifts to robots whose only goal is to increase Chinese power – only US AI deters Chinese aggression.

#### Case outweighs: a] time frame – Ambrose and Johnson prove that China is challenging the US now – we’re on the brink b] reversibility – once the dynamite goes boom, there’s no going back

## F/L – Advantage

### AT Holistic Worse

#### 1] empirically false – talbert proves that GPA is better for minorities and allows accurate placement

#### 2] no link – rich ppl who can take advantage of holistic admissions mostly don’t go to community college – that’s Strombos

### AT Tests Accurate

#### 1] no they’re not – the talbert ev is better than yours – it outweighs – it cites the largest data set in the field and is specifically comparative

#### 2] try or die – community colleges are doing really badly now – aff is the only hope

### AT Benatar

#### [omitted]

## F/L – Heg Bad

### AT MAD

#### 1] wars aren’t intentional – ww1 proves countries are forced to escalate

#### 2] rogue states – lack of heg creates incentives to expand

#### 3] don’t know who launched the nukes – attribution is imperfect

### AT Multipolarity

#### 1] alliance traps – ww1 proves that small conflicts escalate

#### 2] cx Twining – causes conflict between different spheres of influence

### AT Unsustainable

#### Heg is sustainable – institutional foundations are strong now.

Brands 17 (Hal, the Henry A. Kissinger distinguished professor of global affairs at Johns Hopkins University’s School of Advanced International Studies. With Charles Edel associate professor of strategy and policy at the U.S. Naval War College. 7/14/17, “The Gathering Storm vs. the Crisis of Confidence” http://foreignpolicy.com/2017/07/14/the-gathering-storm-vs-the-crisis-of-confidence-trump-1930s-1970s/ //WWDH recut)

In many ways, this was an accurate reflection of the national mood at the end of the 1970s. During that decade, the United States faced a raft of serious challenges — severe economic competition from other leading powers, the rise of the Soviet Union as a global peer competitor in military terms, the stagflation and national humiliation caused by the oil shocks. There were concerns that the United States was turning inward in the wake of Vietnam, as leading congressional observers even sought to withdraw significant numbers of U.S. troops from Europe. Economic nationalism was on the rise. Richard Nixon’s first treasury secretary, John Connally, artfully expressed the ethos: “Foreigners are out to screw us. Our job is to screw them first.” In these circumstances, doubts about the staying power of the United States and the postwar international system were pervasive. Defenders of that system fretted that the American era was coming to a close; enemies of the free world were often exultant. “The retreat of American power” could “become a rout,” James Schlesinger, the former secretary of defense and secretary of energy, wrote in 1979. “The trend could well become irreversible in many respects.” “Imperialism is not able to face the crises,” Leonid Brezhnev had told Warsaw Pact leaders the year prior. And yet the 1970s proved not to be the death knell for American power and the free world system erected after World War II, but simply a difficult moment that served as prelude to renewal. By the late 1970s, the world was again turning in America’s direction — democracy was spreading, globalization was racing ahead, America’s primary great-power competitor was sliding into irreversible decline. And by the early 1980s the United States was pursuing assertive and broadly effective strategies for re-establishing its global ascendancy and pushing the positive trends along. Within a decade, the Cold War had ended on American terms, as democracy and markets were advancing — with U.S. assistance — further than ever before. If focusing on the 1930s analogy thus leads one to fear that the end of the international order is nigh, looking at the 1970s encourages the conclusion that perhaps the future is relatively bright after all. In this view, the United States and the international system it anchors still have tremendous and unmatched strengths vis-à-vis the competition, the long-term trends are working in Washington’s favor, and America is simply experiencing one of its periodic moments of doubt and introspection rather than a more fundamental turn away from internationalism — just as occurred during the 1970s. So how well does this analogy fit? In some ways, emphasizing the 1970s comparison risks understating the difficulties and challenges America faces today. For all the disillusion occasioned by Vietnam, America did not elect a president who repudiated key traditions of U.S. foreign policy as vehemently and frequently as Donald Trump did during the 2016 campaign. American “soft power” took a beating amid the domestic upheaval of the 1970s, but that weakness may ultimately prove to be minor compared with the loss of prestige the United States is already suffering as a result of Trump’s presidency. From a global perspective, the Soviet Union may have been an authentic military peer rival during the 1970s, but even at its peak its sclerotic, command economy never threatened U.S. economic primacy as China does today. And in the 1970s, the United States was able deftly to play China and the Soviet Union against each other; today, Washington has fraught and deteriorating relations with both powers as they challenge international norms and geopolitical arrangements to which they were never genuinely reconciled. The 1970s were a difficult period, no doubt, but the comparison may — at least in some ways — encourage too rosy a view of what America confronts today. Yet if the 1970s are far from the perfect analogy, the period does nonetheless illuminate important aspects of the contemporary moment. It reminds us that, today as in the past, America’s competitors face long-term challenges that make ours look relatively modest by comparison. Russia is, after all, a declining economic power and a demographic basket case; its military power thus rests on extremely precarious foundations. China is already dealing with slowing economic growth, a rapidly aging population, and a massive debt bubble, and its sense of geopolitical self-confidence hardly conceals its leadership’s transparent nervousness about growing social unrest and other signs of dissatisfaction with a corrupt and ruthlessly authoritarian political system. Similarly, the 1970s analogy reminds us to take into account long-range U.S. strengths that no adversary can match and to factor in emerging trends that may play to America’s advantage. Washington’s unequaled collection of allies, its relatively healthy demographic profile, its culture of innovation, and its repeated resilience in the face of macroeconomic shifts falls into the first category; an energy revolution that is giving America new economic and geopolitical leverage is but one example of the second. Moreover, the experience of the 1970s underscores that assertive challengers often overplay their hand, thereby risking overreach and exposing vulnerabilities for the United States and its allies to exploit. An overconfident Moscow took on numerous Third World commitments during the 1970s, allowing Carter and then Reagan to punish that overextension through support to anti-communist guerrillas. Should Russia and China continue their revisionist behavior today, they are similarly likely to encourage geopolitical blowback, if only by driving their rivals toward closer cooperation with one another and with the United States. Additionally, we can learn from the 1970s that our current traumas are neither unprecedented nor particularly severe by historical standards. In its effects on U.S. political stability and American power, the Vietnam War was far worse than anything the country has experienced in Iraq or Afghanistan over the past 15 years. Finally, the experience of the 1970s also cautions us not to panic about the state of American internationalism. Yes, the Trump phenomenon is deeply disturbing for those who wish to see a globally engaged America contributing constructively on issues including international trade and combating climate change. But we have lived through periods of American disillusion with the world before, as the experience of the 1970s reminds us, and the logic of global engagement and activism has generally reasserted itself after a fashion — usually in response to threatening developments abroad. Indeed, the fact that public opinion polling on support for U.S. alliances and honoring America’s overseas commitments actually looked much worse in the mid-1970s than it does at present (after the U.S. withdrawal from Vietnam, for instance, only 36 percent of Americans felt that “it was important for the United States to make and keep commitments to other nations”) provides some antidote to pessimism today.

#### but lack of STEM jobs makes it unsustainable long-term – that’s 1ac herman.

#### We indict their consistently-disproven pessimism—heg is here to stay.

Drezner 16 [(Daniel W. Drezner, May 2016, professor of international politics at the Fletcher School of Law and Diplomacy at Tufts University and a senior editor at The National Interest, Project on International Order and Strategy at BROOKINGS, “Five Known Unknowns about the Next Generation Global Political Economy”, https://www.brookings.edu/wp-content/uploads/2016/07/IOS-Drezner-web-1.pdf, p. 4-5)//SJK //WWDH recut]

More generally, just as economic forecasters seem to suffer from an optimism bias, geopolitical forecasters tend to display a profound pessimism bias. Political scientists failed to predict both the manner and the end of the Cold War.29 Realists in particular made overly pessimistic predictions about how the post-Cold War order would affect NATO, nuclear proliferation, violent conflict, and balancing against the United States.30 In actuality, the twenty years after the breakup of the Soviet Union saw dramatic declines in almost every category of political violence.31 More generally, international relations scholars have been predicting the end of American hegemony since the start of American hegemony. The centennial anniversary of the start of the First World War led to a raft of historians predicting a replay of those events in the Pacific Rim in 2014.32 A year later, that region looks more stable than either the Middle East or Eastern Europe.

## Ext – Framing

omitted

# 1AR – K

## 1AR – Antiblackness

### TL

omitted

### 1AR – AT Wilderson

#### omitted

### 1AR – AT Warren

#### omitted

### 1AR – AT Barber

#### omitted

## 1AR – Baudrillard

### TL

#### Send this silliness away – ask yourself if you heard a warrant during any part of the K and then vote aff because their ev is just a bunch of assertions about signs.

#### The rest is omitted but people should say this more v baudrillard imo

## 1AR – Habeas Viscus

### TL

#### omitted

## 1AR – Settler Colonialism

### Settler Perfcon

omitted

### TL

omitted

## 1AR – Capitalism

### 1AR – Cap Good – Environment

#### omitted

### 1AR – Cap Good – Poverty

omitted

## 1AR – Threat Construction

### 1AR – No Threat Inflation

#### omitted

### 1AR – AT Reps Link

omitted

# 1AR – LARP

## 1AR – Advantage CP

### 1AR – End Remediation CP

#### [1] Perm do the CP – entails the aff since colleges can’t consider placement tests.

#### [2] Remedial classes are still necessary for English learners or students without access to an effective high school education. Plan strikes the right balance—let’s students voluntarily enroll if they need it.

### 1AR – Reform Tests CP

#### [1] Doesn’t solve case—extemp

#### [2] Reforms fail—stereotype threat means that regardless of the test format, black students will always be a structural disadvantage—that’s Talbert.

#### [3] Perm—don’t consider the old placement tests and consider the new ones instead. Solves best—ensures colleges switch to the better test.

### 1AR – Test-optional CP

#### [1] doesn’t solve the aff since it causes selection bias – students only submit if they do well – means they lose all predictive power

#### [2] doesn’t solve overplacement – students who do disproportionately well will take classes they aren’t prepared for – that still kills degree completion

#### [3] Perm do the CP – they’re not competitive since colleges can still use tests in the world of the aff.

Supreme Court of Appeals of West Virginia 2000 (539 S.E.2d 757, No. 27377, 27378. In re TAX ASSESSMENT AGAINST AMERICAN BITUMINOUS POWER PARTNERS, L.P, 764)

The term "consider" is defined as "to think carefully about, esp[ecially] in order to make a decision; contemplate; reflect on." Random House Webster's Unabridged Dictionary 434 (2d ed.1998). Conversely, the verb "use" is defined as "to employ for some purpose; put into service; make use of." Id. at 2097; see also Black's Law Dictionary 1541 (6th ed. 1990) ("To make use of; to convert to one's service; to employ; to avail oneself of; to carry out a purpose or action by means of; put into action or service; especially to attain an end.") (emphasis added). As employed in the regulation at issue, these two words have wholly divergent meaning: The Tax Commissioner is required to "consider" the various approaches to valuation by contemplating the feasibility of utilizing each of the ascribed methods. On the other hand, these methods are to be "used" or actually employed only where "applicable."

## 1AR – 2020 DA

### TL

#### 1] No link – Trump doesn’t get credit for something colleges and universities do – uniquely true since his electoral success is built on his personal brand.

#### 2] General election polls are not predictive this far out – this cards kills the DA.

Rakich 7/22 [Nathaniel Rakich, (Nathaniel Rakich is FiveThirtyEight’s elections analyst.) "How To Read 2020 Polls Like A FiveThirtyEighter" FiveThirtyEight, 7-22-2019, https://fivethirtyeight.com/features/how-to-read-2020-polls-like-a-fivethirtyeighter/, DOA:7-22-2019 // WWBW]

On the flip side, **early general-election polls are pretty much worthless. They are hypothetical match-ups between candidates who haven’t had a chance to make their case to the public**, who haven’t had to withstand tough attacks **and who still aren’t on many Americans’ radar. And these polls aren’t** terribly **predictive** of the eventual result either. From 1944 to 2012, **polls that tested the eventual Democratic and Republican nominees about a year before the election** (specifically, in November and December of the previous year) **missed the final margin by almost 11 percentage points**, on average — though it’s worth noting that they were more accurate in 2016, missing by around 3 points. In other words, at this stage in the cycle, primary polls can be useful but are by no means infallible, while **general-election polls can safely be ignored.** That may seem frustrating, but just remember that pollsters aren’t trying to make predictions; they’re simply trying to capture an accurate snapshot of public opinion at a given moment in time.

#### 3] case outweighs: (extemp)

## 1AR – Anti-trust DA

### TL

#### 1] SCOTUS shredded anti-trust law last summer

Khan 18 [Lina Khan, () "The Supreme Court just quietly gutted antitrust law" Vox, 7-3-2018, https://www.vox.com/the-big-idea/2018/7/3/17530320/antitrust-american-express-amazon-uber-tech-monopoly-monopsony, DOA:9-30-2019 // WWBW]

The decision was overshadowed by other blockbuster cases and the announcement of Justice Anthony Kennedy’s retirement, but **the Supreme Court last week delivered the most significant antitrust opinion by the Court in more than a decade** — one **that made it extraordinarily more difficult for the government to rein in certain companies that abuse their market power.** The case was Ohio v. American Express**,** and it arrived against a backdrop of growing public recognition of the excessive clout wielded by corporations over American workers and consumers, and rising interest in anti-monopoly law and policy, especially on the left. In it, **the Court dealt a huge blow to the ability of government and private plaintiffs to enforce existing antitrust laws**, making it easier for dominant firms — especially those in the tech sector — to abuse their market power with impunity.

#### 2] trump uses strong anti-trust to kill the environment – increases structural violence

Newman 19 bracketed for grammar [John Newman, (Former attorney with the U.S. Department of Justice Antitrust Division) "The U.S. Forgot What Antitrust Is For" Atlantic, 9-11-2019, https://www.theatlantic.com/ideas/archive/2019/09/how-antitrust-became-pro-pollution-tool/597712/, DOA:9-30-2019 // WWBW]

President Donald **Trump’s** Justice Department has [reportedly](https://www.wsj.com/articles/justice-department-launches-antitrust-probe-into-four-auto-makers-11567778958) **launched an antitrust investigation into four automakers**—Ford, Honda, BMW, and Volkswagen. **Their** supposed **offense**? Agreeing with one another, and with the state of California, to **[for] develop[ing] vehicles that are more fuel-efficient and have lower emissions than federal standards require.** This is a noble goal. As any introductory economics textbook explains, pollution is a classic example of market failure. The problem arises from a [negative externality](https://www.khanacademy.org/economics-finance-domain/microeconomics/market-failure-and-the-role-of-government/environmental-regulation/a/the-economics-of-pollution-cnx): When cars emit carbon, all of us—not just buyers and sellers of cars—bear the costs. The automakers’ agreement, which seeks to reduce that externality, is the exact opposite of selfish behavior: It is likely to increase the automakers’ own costs, rather than their profits. In short, this is a very strange choice of target for an antitrust-enforcement agency. But **the Trump administration is keen on lowering federal environmental standards—apparently even to the point of targeting companies that are willing to hold themselves to higher ones.** While some companies are at risk of being punished for fighting pollution, others are getting a pass despite creating a negative externality. The conservative wing of the Supreme Court recently did just that in Ohio v. American Express. The genesis of the case was an Obama-administration lawsuit against American Express targeting certain rules in the credit-card giant’s contracts with business owners. Under those rules, businesses cannot tell their customers how big a cut Amex takes from each purchase, nor can they offer a discount to shoppers who use less expensive cards. The rules obviously harm [merchants](https://www.justice.gov/atr/case-document/complaint-equitable-relief-violation-section-1-sherman-act-15-usc-1), especially small businesses.

#### Link turns the DA – environmental regulations k2 stop \_\_\_\_\_

### CP

Perm do both

CP links to the DA – it’s collective action by testing companies

Perm do the cp – either it affirms since colleges can’t use tests or it doesn’t solve the case

## 1AR – Court Ptx DA

### TL

#### 1] gpa proves no link – it’s objective and non-abritrary

#### 2] rich people don’t care abt community colleges so they won’t challenge

#### 3] case outweighs: (extemp)

# 1AR – T/Theory

## 1AR – T – Nebel

### Niemi

#### this is racist – voting issue for deterrence and its key to punish racism as a judge.

Niemi 15 Rebar. “Nebel T: I sip it.” Premier Debate. September 22, 2015.

Correctness is racism. Correctness is “you must be either a boy or a girl or you are wrong.” Correctness is “the ideal functioning body versus all others.” Correctness is one kind of person having access to The Truth and others lacking it. Correctness is “sit down and shut up.” Correctness is “your kind aren’t welcome here.” Any debater who runs so called “Nebel T” and any judge who votes for this argument must acknowledge that they are situationally and strategically embracing a perspective from which there is an implicit or explicit metric of what it means to be a competent english speaker. What is the logical conclusion of speaking competent english? The notion that “mongrel” forms of english are inferior, diminished, unpersuasive, and should not have access to the ballot. Quite possibly the notion that those who can’t live up to these standards should not be involved in debate. After all, their dialects are not what resolutions are written in – it is people like Mr. Nebel whose dialect prescribes correct resolutional meaning.

### CI

#### CI: The aff may specify a subset of standardized tests if they have a solvency advocate – solves their offense – they could’ve prepped but didn’t. Prefer it:

#### 1] topic lit – conceded 1AC Matthews says ACCUPLACER is for half of all undergrads – excluding that topic lit is a move to render low-income students invisible in our policy calculus. Our plan centers discussion around admissions policies at less selective colleges which is key to diverse topic education.

#### 2] Resolvability – different tests are more or less accurate – we can’t weigh the goodness of the SAT v the badness of TOEFL – causes vacuous debates that aren’t real world. Outweighs – the judge can’t determine who the better debater is if the debate is irresolvable.

### AT Textuality

omitted

### AT Limits

omitted

### AT Ground

omitted

### 2AR PICs

omitted

## 1AR – T – Government

### 1AR – AT DD

#### CI: Merriam-Websters says Resolved means “to find an answer to”.

<https://www.merriam-webster.com/dictionary/resolved>

#### United States refers to the country.

CIA World FactbookThe World Factbook 2016-17. Washington, DC: Central Intelligence Agency, 2016. https://www.cia.gov/library/publications/the-world-factbook/index.html

Britain's American **colonies** broke with the mother country in 1776 and **were recognized as the new nation of the United States of America** following the Treaty of Paris in 1783. During the 19th and 20th centuries, 37 new states were added to the original 13 as **the nation expanded** across the North American continent and acquired a number of overseas possessions. The two most traumatic experiences in the nation's history were the Civil War (1861-65), in which a northern Union of states defeated a secessionist Confederacy of 11 southern slave states, and the Great Depression of the 1930s, an economic downturn during which about a quarter of the labor force lost its jobs. Buoyed by victories in World Wars I and II and the end of the Cold War in 1991, **the US remains the world's most powerful nation state.** Since the end of World War II, the economy has achieved relatively steady growth, low unemployment and inflation, and rapid advances in technology.

#### Takes out their definition – a federal government couldn’t expand and the original colonies were a nation before they had a government.

#### Standard is topic education – they’ll moot the aff with dumb politics disads and ignore core topic controversies – outweighs since we only have 2 months to debate the topic.

#### Their offense – no multi-actor fiat – they all implement uniformly.

#### Their irreciprocal arg – no you get multi-actor fiat too if it’s good on this topic.

#### Their real world arg – 1] no debate topic has ever been implemented anyway 2] colleges make shifts together all the time – common app proves

#### Their stable advocacy arg – 1] uniformity solves – you can ask in CX and you’ll get links 2] you still get ground like tests good because you can’t misinterpret whether tests exist

#### Their ground arg – we’ve impact turned it – it’s bad ground and you should just say tests accurate.

## 1AR – T – Standardized

### CI

#### CI: I’ll defend the violation – 1AC Hanford refers to the ACCUPLACER as a standardized test.

## 1AR – T – Admissions

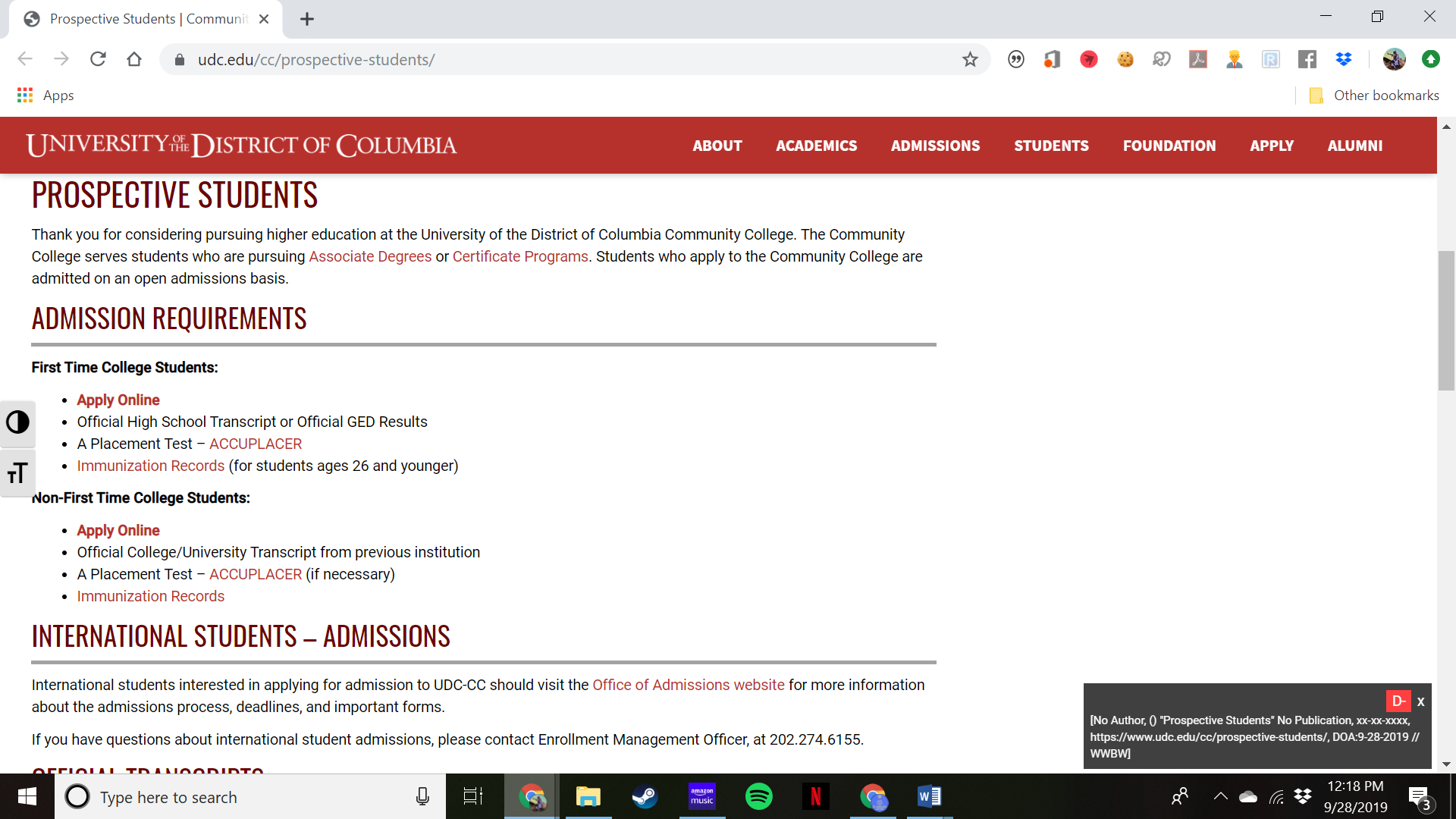
### I Meet

#### I meet—

#### [A] They’re used as admissions tests—conceded 1AC Matthews explains that “If you bomb the Accuplacer, you effectively can’t go to college at all.”

#### [B] Remediation is rejection—students are denied admission to the majors that they apply for.

#### [C] Placement tests are still part of admissions decisions—they’re required as a part of the application—screenshot in the doc.



#### Text of the interp—anything else renders theory a moving target which crushes 1AR strategy. No 2NR re-articulation or definitions—they’ll always be able to find some contrived violation.

### CI

#### I’ll defend the violation.

#### Standard is topic lit – conceded 1AC Matthews says ACCUPLACER is for half of all undergrads – excluding that topic lit is a move to render low-income students invisible in our policy calculus. Our plan centers discussion around admissions policies at less selective colleges which is key to diverse topic education.

### AT Limits

#### 1] overlimiting worse – kills innovation

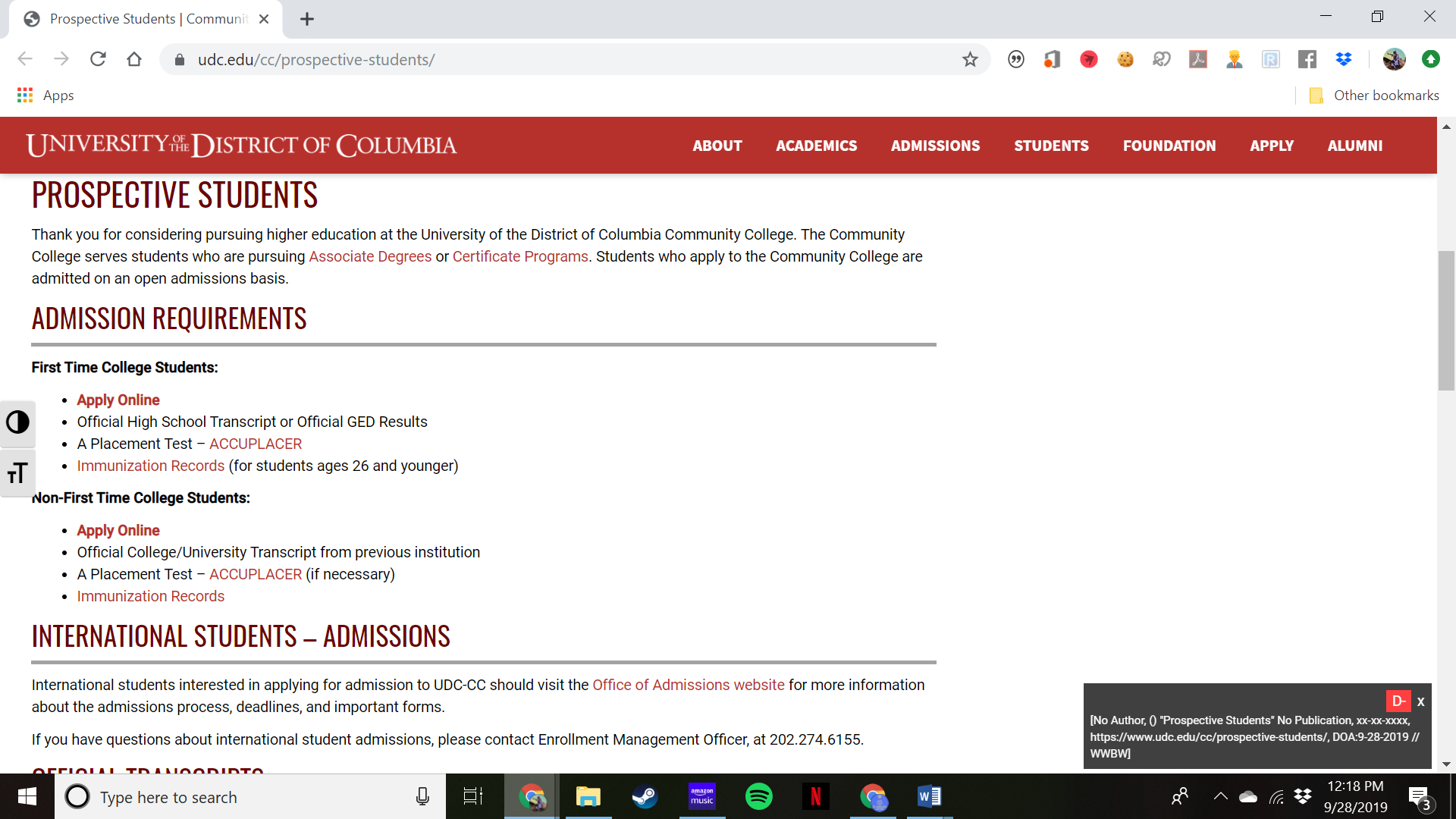
#### 2] 4 viable affs – sat/act, toefl, placement tests, US history

## 1AR – T – Universities

### I Meet

#### I meet—universities also use placement tests. Here’s a list: Huntington U[[1]](#footnote-1), August U[[2]](#footnote-2), National U[[3]](#footnote-3), Jackson State[[4]](#footnote-4)—the list goes on to the 10th page of Google.

#### I meet—community colleges are also universities—UDC is a community college—SS in the doc.



### CI

#### I’ll defend the violation.

#### Standard is topic lit – conceded 1AC Matthews says ACCUPLACER is for half of all undergrads – excluding that topic lit is a move to render low-income students invisible in our policy calculus. Our plan centers discussion around admissions policies at less selective colleges which is key to diverse topic education.

### AT Interp

#### No abuse—

#### [1] Half of students go to community college—we defend most of the topic.

#### [2] Generics check—you still get all your Ks, NCs, and stock CP/DA strats.

1. <https://www.huntington.edu/math/accuplacer> [↑](#footnote-ref-1)
2. <https://www.augusta.edu/tds/placement.php> [↑](#footnote-ref-2)
3. <https://www.nu.edu/studentservices/testingservices/accuplacertest/> [↑](#footnote-ref-3)
4. <http://www.jsums.edu/universitycollege/accuplacer/> [↑](#footnote-ref-4)