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US-China Competition for Hegemony: the Role of Technology

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Theorists often argue that the changing balance of power between an existing hegemonic power and a rising challenger, and see the prospects of conflict arising from their failure to manage the hegemonic transition. For some, the problem lies in the rising power of a challenger like Germany before 1914, but for others the disaster of the 1930s was the failure of the rising United States to impose international order and help to provide global public goods. In one variant, the rising power comes on too strong; in the other too weak. Hegemonic transition theory provides a warning but not a recipe for how to respond to a rising China.

Many observers believe that the rise of China will spell the end of the American era, but it is equally dangerous to over- or underestimate Chinese power. Underestimation breeds complacency, while overestimation creates fear – either of which can lead to miscalculation. History is replete with misperception about changing power balances.

Net Assessment of the US-China Balance

China has not yet replaced the United States as the world's largest economy. Measured in purchasing power parity, the Chinese economy became larger than the American economy in 2014, but purchasing power parity is a valid economist's device for comparing estimates of welfare, not for measuring power. For example, oil and jet engines are imported at current exchange rates, and by that measure China is about two-

thirds the size of the United States. Moreover, Gross Domestic Product (GDP) is a very crude measure of power. Including per capita income gives a better index of the sophistication of an economy and American per capita income is about four times that of China.

China's huge economic scale matters. The United States was once the world's largest trading nation. Today nearly a hundred countries count China as their largest trading partner, compared to fifty-seven that have such a relationship with the United States. China plans to lend more than a trillion dollars for infrastructure projects with its "Belt and Road" initiative over the next decade. China gains economic power from the sheer size of its market as well as its overseas investments and development assistance. Of the seven giant global companies in the important technology of Artificial Intelligence (Google, Facebook, Amazon, Microsoft, Baidu, Alibaba, and Tencent), nearly half are Chinese. With its large population, the world's largest Internet, and with its vast data resources China has enormous amounts of big data. Overall, Chinese power relative to the United States is likely to increase, particularly as it invests in advanced technology as described in the China 2025 plan and the goal to prevail in artificial intelligence by 2030. However, one should be cautious not to fall into technology determinism in a net assessments of power.

China is a country of great strengths but also important weaknesses. The United States has some long-term power advantages that will persist regardless of current Chinese actions. One is geography. The United States is surrounded by oceans and neighbors that are likely to remain friendly. China has borders with fourteen countries and has territorial disputes with India, Japan, and Vietnam that set limits on its soft power. Energy is another American advantage. A decade ago, the United States seemed hopelessly dependent on imported energy. Now the technology revolution related to shale has transformed it from an energy importer to exporter. At the same time, China is becoming more dependent on energy imports, and much of the oil it imports is transported through the Indian. While it is investing in renewable energy technologies, they will not remove China's vulnerability in the near term.

The United States also enjoys financial power derived from its large transnational financial institutions as well as the role of the dollar. Of the foreign reserves held by the world's governments, a little over one percent are in yuan, compared with 64 percent for the dollar. While China aspires to a larger role, and is advancing technologies of crypto currency, a credible reserve currency depends on other factors such as currency convertibility, deep capital markets, honest government, and the rule of law—all lacking in China. The yuan is unlikely to displace the dollar in

the near term. The United States also has demographic strengths. It is the only major developed country that is currently projected to hold its place (third) in the demographic ranking of countries. Over the next decade and a half, the US workforce is likely to increase while China's will decline. Chinese sometimes say they worry about "growing old before growing rich." Given the demographic decline plus China's low level of total factor productivity, some believe that despite its high savings rate and capital expenditure, China will not escape the middle income trap unless it is rescued by technology.

Competition in Technology

America has been at the forefront in the development of key technologies (bio, nano, information) that are central to this century's economic growth, and American research universities dominate higher education. In a ranking by Shanghai Jiaotong University, sixteen of the top twenty global universities were in the United States; none were in China. At the same time, China is investing heavily in research and development, competes well in some fields now, and has set a goal to be the leader in artificial intelligence. Some experts believe that with its enormous data resources, and lack of privacy restraints on how data is used, and the fact that advances in machine learning will require trained engineers more than cutting edge scientists, China could achieve its artificial intelligence goal. Given the importance of machine learning as a general purpose technology that affects many domains, China's gains in AI are of particular significance.

Moreover, Chinese technological progress is no longer based solely on imitation. The Trump administration punished China for its cybertheft of intellectual property, coerced intellectual property transfer, and unfair trade practices. The US insisted on reciprocity, arguing that if China can ban Google and Facebook from its market for security reasons, the US can take similar steps against Huawei or ZTE.

However, a successful American response to China's technological challenge will depend upon improvements at home more than upon external sanctions. American complacency is always a danger, but so also is lack of confidence and exaggerated fears that lead to overreaction. In the view of John Deutch, former provost of MIT, if the US attains its potential improvements in innovation potential, "China's great leap forward will likely at best be a few steps toward closing the innovation leadership gap that the

United States currently enjoys." Immigration plays an important role in maintaining America's technology lead. In 2015, when I asked former Singapore Prime Minister Lee Kuan Yew why he did not think China would pass the US, he cited the ability of America to draw upon the talents of the whole world and recombine them in diversity and creativity that was not possible for China's ethnic Han nationalism. For example, a large number of high tech Silicon Valley companies have Asian founders or CEOs. An overly restrictive immigration policy could curtail those sources of technological innovation.

US-China Interdependence

After the Great Recession of 2008 called American leadership into question and increased belief in American decline, Chinese leaders abandoned Deng Xiao Ping's moderate policy of biding their time and became more assertive in ways ranging from building artificial islands in the South China Sea to economic coercion of Australia to abrogating guarantees to Hong Kong. On the trade front, China tilted the playing field with subsidies to state-owned enterprises and coercive intellectual property transfer. Trump clumsily responded with a tariff war that included penalties on our allies as well as on China, but he correctly defended against Chinese companies like Huawei whose plans posed a security threat. Some people in Washington began to talk about a general "decoupling," but while is important to decouple some technology supply chains that directly relate to security, it is mistaken to think the US can decouple our economy completely from China without enormous economic costs.

That interdependence is what makes the current relationship with China different from the Cold War. With the Soviets, the US was involved in a regular two dimensional chess game in which we were highly interdependent in the military sphere but not in economic or transnational relations. With China, the US is involved in a three dimensional game with different power distribution at each level. At the military level, the world is still unipolar and the US is the only global power, but at the economic level, the distribution of power is multipolar with US, China, Europe and Japan as major players, and on the transnational level of networks that are outside the control of governments (such as climate and pandemics), power is chaotically distributed and no one country is in control. A traditional strategy that focuses on one level is a path to loss

in a 3D game. And when we look at the economic level, we have to remember that while symmetrical sensitivity can restrain conflict, asymmetrical vulnerability creates an instrument for wielding power. We have to plan carefully our horizontal moves on the traditional military board of chess (or weiqi if one prefers a two dimensional Chinese metaphor). However, if we ignore the power relations on the economic or transnational boards and the vertical interactions among the boards, we will suffer. A good strategy for China must avoid military or technological determinism and encompass all three dimensions of our interdependence and power.

Cooperation among Democratic Countries

As for economic relations, the rules will require revision. Well before the pandemic, China's hybrid state capitalism provided an unfair mercantilist model that distorted the functioning of the World Trade Organization and contributed to the rise of disruptive populism in Western democracies. Today America's allies are far more cognizant of the security and political risks entailed in China's espionage, forced tech transfers, strategic commercial interactions and asymmetric agreements. The result will be some decoupling of technology supply chains, particularly where national security is at stake. Negotiating new trade rules can help prevent the decoupling from escalating.

At the same time, global challenges like climate change and pandemics pose an insurmountable obstacle to sovereignty, because the threats are transnational. Regardless of policy for economic globalization, environmental globalization will continue, because it obeys the laws of biology and physics, not the logic of contemporary geopolitics. Such issues threaten everyone, but no country can manage them alone. As I argue in my book Do Morals Matter?, in this context, it is not enough to think of exercising power *over* others. We must also think in terms of exercising power *with* others, even when ideological values fundamentally diverge. The Paris climate agreement and the World Health Organization help us as well as others.

Middle powers could join together to create a trade agreement for information and communication technology that would be open to countries that met democratic standards. In short, one size will not fit all. In some areas like non-proliferation, peace-keeping, health and climate change we can find common institutional ground with China. In other areas, it makes more sense to set our own democratic standards. The

door could remain open to China in the long run , but we should realize the run would be very long.

Working with like-minded partners would increase the chances of liberal norms on trade and technology asserting themselves, notwithstanding the growing strength of China. Establishing a stronger consensus on global governance between the US and Europe is important, but it is only by partnering internationally with Japan, South Korea and other Asian economies, that we can ensure a more level playing field for their companies abroad by shaping global trade and investment rules and standards for technology. Taken together, the size of the economies of the democratic countries will exceed that of China well into this century if we pull together. But that will be a more important question than the technological development of China. In assessing the future of the US-China balance, technology matters, but alliances matter even more.

The End.