

SCUSA 72 Table Paper: The United States and the Political Economy of Innovation
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Disruptive technologies of the 21st century hold both promise and threat for the United States, particularly in the arena of political economy with its focus on the relationship between markets and the state. America seems well-positioned to lead in vital areas such as robotics and solar power. Other technological advances, reminiscent of the disruptive power of fracking, are on the horizon. How well the United States manages the socio-economic and ecological disruptions of these new technologies will be a vital test of the American economy and political system. China and other states will also challenge America and its capacity to maintain or regain its lead in developing and refining key technologies. Given partisan gridlock in Washington, is the U.S. political system capable of developing national programs for the development of vital technologies? Should it? Apart from partisan divisions, what are most important obstacles to American leadership in this arena? For example, does the United States have the educational and economic infrastructure to maintain its position as a global leader in technology? How do disruptive technologies, including those that rely on solar, wind, and battery power, help solve one set of problems (fossil fuel effects on climate, etc.) while creating others (industrial dislocation, etc.)? What is the political impact?

Understanding the United States and the Political Economy of Innovation in 2021

American Politics in the 21st century are characterized by division, polarization, and distrust. As the country attempts to respond to the economic downturn caused by the COVID-19 pandemic, several opportunities for innovation have emerged. From advances in public health to

the broad demand (and expectation) of high-speed internet, the conditions for innovation suggest that the United States should make significant gains in economic innovation. These innovations must be durable as the pandemic will likely remain a fixture in American life for the foreseeable future. Yet, domestic politics are marred by partisan gridlock. Several pieces of legislation remain inside of Congress at the time of this writing. Can the United States overcome the contemporary domestic challenges? William Kingston writes, “*economic* innovation... involves dependence upon the environment. If that environment is altogether hostile, there can be no innovation at all.”¹ What are the domestic political effects of innovation as some regions may feel distinct and different economic consequences of future innovation? This table paper will introduce the domestic and international considerations of the political economy of innovation and then offer two potential areas of focus- Robotics and Solar Power. To be sure, these are not the only two areas where the United States can focus its innovative efforts in the future. It will conclude with a discussion of the proper form of innovation policy and some discussion questions to consider when approaching the issue of the political economy of innovation.

Domestic Considerations

The politics of innovation seem on their face to have bipartisan support. The Democrat Party Platform states that, “Democrats value American innovation and believe it is one of our country’s great strengths.”² In the Republican Party’s 66-page party platform from 2016, they

¹ William Kingston, *The Political Economy of Innovation*, (The Hague, Netherlands: Martinus Nijhoff Publishers, 1984), 1.

² Democratic Party Platform, “Science and Technology,” <https://democrats.org/where-we-stand/the-issues/science-and-technology/>.

mention innovation 23 times including a pledge to “create incentives for investment and innovation.”³

Innovation, it appears, is a political winner. Yet the politics and gridlock surrounding most budget bills, the proposed infrastructure spending, and domestic legislation in general are characterized by polarization and inaction. Support for infrastructure, for example, should have been the bill most likely to have bipartisan buy-in, yet it continues to face obstacles as the legislation travels through Congress. Previous areas for political consensus and bipartisan cooperation are now more likely viewed as opportunities for divergent partisan definitions and disunity. Additionally, the rise of economically protectionist policies and the backlash to globalization create challenges for the future of innovation policy.

A second look at innovation must understand the underlying partisan politics. The specific and consolidated societal impacts of innovation may change the base of those who oppose it. Building a broad base for congressional legislation will be difficult given the unequal impacts across the country. For some districts the consequences of innovation mean that entire industries will become obsolete. Some of the most powerful lobbies in the United States oppose certain aspects of innovation that may damage their economic might and resulting political power. Given this diverse set of conditions predicated primarily on region, a cross-cutting coalitions may appear united by economic interest over partisan goals.

Depending upon the depth of the economic costs to certain industries and the regional coalitions, the United States may again face an electoral realignment as constituents employed by careers that are replaced may form a new cross-cutting voting coalition with sufficient political power to reframe the dimensions of the current partisan dynamic within the country.

³ Republican Party Platform, 2016.

In the face of this partisan divide and potential regional fracture, non-state actors may emerge to play a key role in innovation. Large corporations have economic interests directly tied to innovations in several sectors. Corporations often have revenues that exceed several countries' Gross Domestic Product. Corporations have conducted "corporate foreign policy"⁴ in the policy area of climate change. It is corporations, not state actors, that are choosing to implement key policies and this model can be applied to innovation.⁵ Innovation provides corporations with key comparative advantages that solidify their influence on the international stage. It is true that corporations, supported by their significant revenue can lead to key innovations that transcend partisan politics.

International Considerations?

As the United States and its corporations seek to maximize innovation, they do so with the knowledge that China is also seeking to innovate at a relentless pace. Maintaining intellectual capital and privacy will be essential to any sort of U.S.-centric innovation policy. The U.S. will likely seek to keep pace and exceed innovation in the areas where China is advancing.

The future success of the Chinese economy lies in innovation.⁶ China was able to use brute-force innovation and leverage its cheap labor to model and replicate off other countries innovations, but recent demographic changes, particularly the aging of the population and weak replacement trends have shrunk and will continue to shrink the size of China's work force. To

⁴ John Chipman, "Why Your Company Needs a Foreign Policy", *Harvard Business Review* (September 2016), <https://hbr.org/2021/05/chinas-new-innovation-advantage>.

⁵ Charlotte Hulme, "Change of Players, Change of Game: How States Got Left Behind on Climate Change." *E-International Relations*. November 2019. <https://www.e-ir.info/2019/11/05/change-of-players-change-of-game-how-states-got-left-behind-on-climate-change/>

⁶ John Chipman, "Why Your Company Needs a Foreign Policy", *Harvard Business Review* (September 2016), <https://hbr.org/2021/05/chinas-new-innovation-advantage>.

maintain developmental success, China must continue to innovate in sustained fashion because its population size is no longer the asset it once was.

Competition with China is an additional lens that should accompany proposed approaches to US innovation. This competition shapes the range of politically feasible options for Congress. The share of semiconductor manufacturing in the United States has significantly fallen in part because of the aggressive focus of other countries on chip manufacturing. The recent policy initiatives passed in the U.S. Senate that were offered by the United States Innovation and Competition Act (USICA)⁷ provides \$52 billion to fund semiconductor research, design, and manufacturing.

Robotics

Within the field of Robotics, Artificial Intelligence, and Automation Technologies (RAIA) several innovations over the past two decades have decreased the cost of operation and made production times faster. This technology has led to consolidated economic gains in several areas as corporations are able to accomplish more capital with less human capital.

As automation increases profit in several areas, the impacts are felt in other economic sectors. Political innovation that benefits some manufacturing sectors may cause losses in others. For example, almost half of US jobs are vulnerable to automation and computerization.⁸ These innovations could decimate segments of the existing work force, like truck drivers.⁹ Imagine a United States where up to half the workforce is in flux or transition to other occupations. . Not

⁷ U.S. Congress. Senate *United States Innovation and Competition Act* (USICA), S. 1260, 117th Congress, Introduced into Senate April 20, 2021, <https://www.congress.gov/bill/117th-congress/senate-bill/1260>.

⁸ Carl B. Frey and Michael A. Osborne, "The Future of Employment: How Susceptible Are Jobs to Computerization," *Technological Forecasting and Social Change*, January 2017 no. 114.

⁹ Olivia Solon, "Self-Driving Trucks: What's the Future for America's 3.5 Million Truckers," *The Guardian*, June 2016.

surprisingly, Americans display “mixed support for the development of AI”¹⁰ and other automation technologies. Those who oppose such innovation are often the workers who have the most to lose economically due to lower formal education and socio-economic status. The effective management of technological innovation should acknowledge which workers are likely to be left behind and craft plans to mitigate socio-economic distress.

Solar Power

Innovation in the energy sector is a topic that has risen to prominence in the Biden administration. Polling reveals the largest percentage of Americans in the history of public opinion surveys now believe the United States should focus on energy conservation of oil, gas, and coal instead of production in 2018 (63% v. 32%).¹¹ At the same time, attitudes towards other forms of non-fossil energy are not as popular, especially nuclear energy. Solar power, on the other hand enjoys a significant amount of popularity both in polls of the general public and among politicians.

Despite political polarization, the issue of solar power enjoys broad bipartisan support. Overall, 89% percent of all Americans (93% of Democratic respondents and 84% of Republican respondents) think that there should be more solar panel farms.¹² The inclusion of solar power is viewed as a relatively low-risk political decision that both contributes to clean energy and reduces energy costs. Several pieces of legislation have been introduced by a bipartisan group of

¹⁰ Bao Zhang and Allan Dafoe, “Artificial Intelligence: American Attitudes and Trends” (2019), 3.

¹¹ In-Depth Topics: Energy, *Gallup*, <https://news.gallup.com/poll/2167/energy.aspx>.

¹² Cary Funk, Brian Kennedy, Meg Hefferon, and Mark Strauss, “Majorities See Government Efforts to Protect the Environment as Insufficient” *Pew Research Center*, (May 2018).

members of Congress to support the Department of Energy in distributing grants and cooperative agreements that would develop solar energy technologies.¹³

Policy Recommendations

Success in innovation requires adaptive policy solutions to guide innovation efforts, protect personal data, maintain cyber security, and regulate corporate behavior. Developing regulations in the field of innovation is challenging because innovative technologies often outpace the government's capacity to develop appropriate legislation and bureaucratic supervision. Which agency within the government should offer what type of regulation and guidance is also a matter of concern? Policy making must necessarily adapt to the socio-economic and ecological environments that attract and support innovation.

Or take innovation in policy-making itself. Policy innovation encompasses the “novel processes, tools, and practices used for policy design and development that results in better problem solving of complex issues.”¹⁴ Approaches to developing policies for technological innovation may apply to three frameworks: 1) a focus on “innovation for growth” which emphasizes modern economic growth, mass production and consumption. 2) “national systems of innovation”¹⁵ that are developed in response to international competition and globalization. And 3) an aspirational frame of “transformative change” that sets substantial goals like ending poverty or reducing socio-economic inequality. This frame offers development goals which may

¹³ H.R. 3597 from the 116th Congress is the most recent example.

¹⁴ “Exploring Policy Innovation: Tools, Techniques, and Approaches” *The Brookfield Institute for Innovation and Entrepreneurship*, May 2018, 6.

¹⁵ Johan Schot and W. Edward Steinmueller, “Three Frames for Innovation Policy: R&D, Systems of Innovation, and Transformative Change,” *Research Policy* 47 (2018): 1555.

or may not be achievable but provide appropriate focus and inspiration for future policy development.

The international threat of China can refocus future policies that support sweeping advances in the political economy of innovation. Competition with China provides an underlying impetus that can potentially spur all aspects of innovation. And harnessing technological innovation as a means to compete successfully with China is a goal that seems to have broad bipartisan support. However, some caution is called for. While the dangers posed by China may help the United States unite and mobilize for efforts at technological innovation, it is important that such efforts remain connected for the most part to peaceful economic and technological competition. An arms race based on technological innovation would do little to advance the well-being of American society and may lead to conflicts that could actually destroy core elements of human security.

Discussion

The political economy of innovation faces domestic and international challenges. Key decision makers must weigh the economic gains of disruptive technologies against the potential costs to an evolving economy. Disruptive technologies are by definition sources of both opportunity and threat. Several questions remain:

1. Given the domestic and international challenges to developing disruptive, innovative technologies, how should policy-makers respond? Are the challenges greatest in the domestic or international arenas? Why? Should the United States select or bet on certain “winners” in key strategic sectors to help them be more self-sufficient in important innovation industries?

2. What other sectors should the United States focus on to develop a competitive edge?
3. In the context of great power competition, how might a Defense Innovation Board and Army Futures Command contribute to the innovation effort?
4. How might the Congress address the problem of socio-economic dislocation brought by disruptive, innovative technologies? To what extent does the proposed legislation sent to Congress by the Biden administration tackle this problem? What else needs to be done? And will the cost of such innovative policy making be acceptable to most Americans?
5. To what extent should the burdens and benefits of America's efforts at technological innovation be shared with our friends and allies?

Suggested Reading

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