



# New Challenges to International Cooperation: Automation and Climate Change

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MacMillan Center

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## Last class: AI, globalization and autocracy

- ▶ AI creates low-cost for deterring political unrest; for targeting political dissent
- ▶ AI can undermine capacity for organization; increases costs of mobilization.
- ▶ Co-existence of market economy (AI companies) + authoritarianism.
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## Cooperation and technological change

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# Governance problems: inequality and stagnation

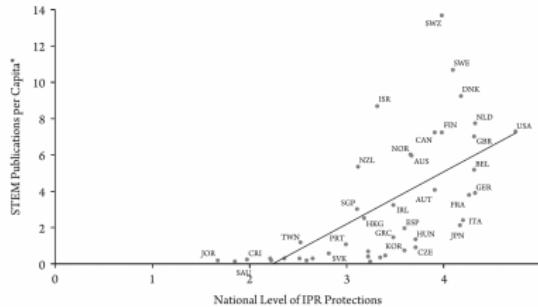


Figure 4.2 IPR protections versus national science performance (1981–2011).

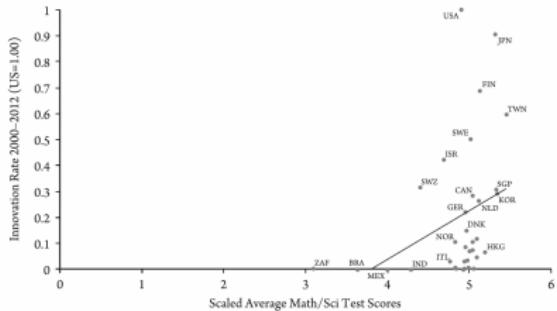
Sources: Thomson- ISI National Science Indicators database; Ginarte and Park (1997); Park (2008),

most recent update at: <http://nw08.american.edu/~wgp/>

\*Per million people, weighted by forward citations.

- ▶ Property rights are necessary but insufficient.
- ▶ Education may be necessary but insufficient.
- ▶ Successful firms can create barriers to entry.
- ▶ Trade policy to establish barriers for foreign competition.
- ▶ How do we balance promoting efficiency and redistribution?

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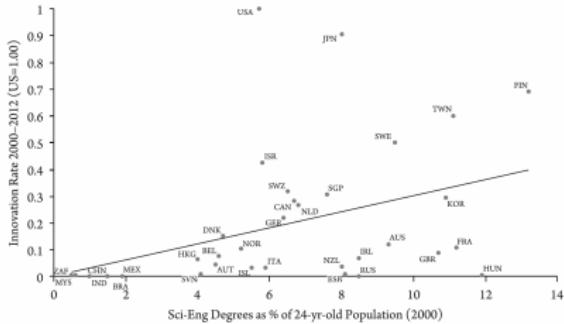


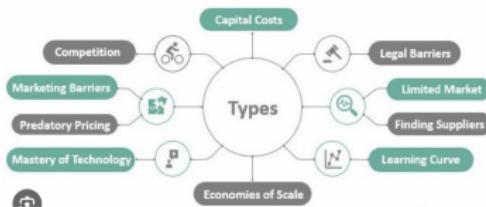
Figure 4.5 STEM undergraduates versus national technology performance.

Source: National Science Foundation (2004). Appendix table 2-33: First university degrees and ratio of first university degrees and S&E degrees to 24-year-old population in selected locations, by region: 2000 or most recent year (revised); NBER Patent Database.

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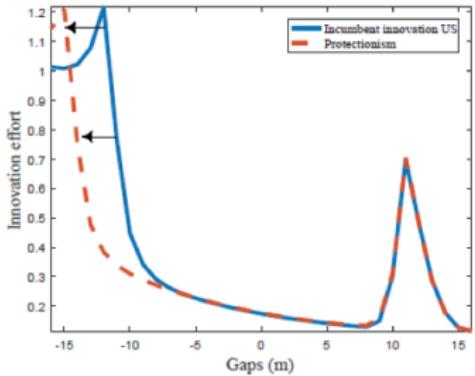
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## Barriers to Entry



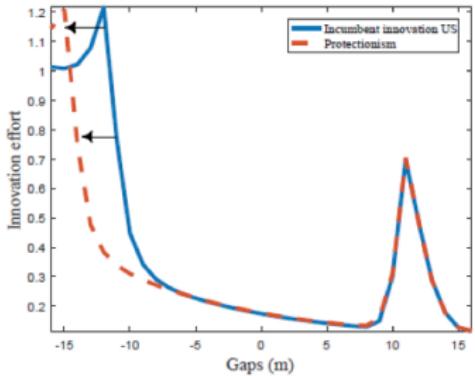
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# Governance problems: international competition

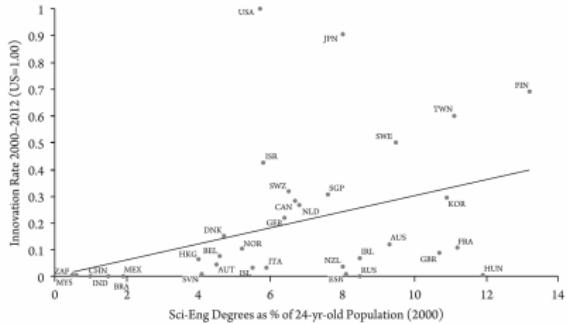
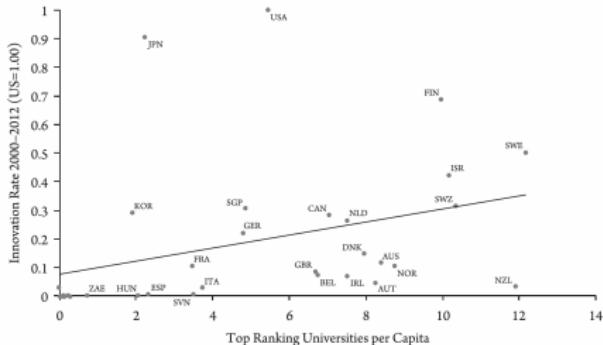


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- ▶ Neither necessary nor sufficient to hold comparative advantage.
- ▶ Widespread R&D activities for multinational firms.
- ▶ Race-to-the-bottom for taxes and regulation.
- ▶ How/which barriers to data flows (B2B digital trade).
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**Table I.4** Share of US patents of the world's largest firms attributable to research in foreign locations, 1987–1995

Nationality of parent firm	%
US	8.3
Japan	1.0
European countries (total)	32.5
Germany	19.0
UK	53.0
Italy	13.5
France	26.9
Netherlands	54.8
Belgium–Lux	47.7
Switzerland	47.7
Sweden	36.5

Source: adapted from Cantwell and Janne (2000); elaboration from US patent database developed by John Cantwell at the University of Reading.

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**Table 1.3** R&D expenditure of foreign affiliates as a percentage of total R&D expenditures in selected host economies, 1998 or latest year

Canada	34.2
Finland (1999)	14.9
France	16.4
Japan	1.7
Netherlands	21.8
Spain (1999)	32.8
UK (1999)	31.2
US	14.9
Czech Republic (1999)	6.4
Hungary	78.5
India (1994)	1.6

Source: UNCTAD (2002), table I.10.

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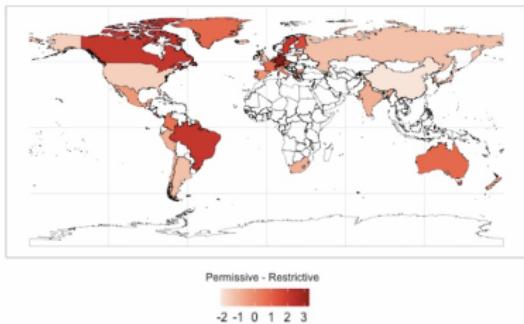


Figure 1: *National Regulation of Gene-editing Technology*. Thirty-nine countries are rated by the permissiveness of national gene-editing technology regulations. Ratings combine data

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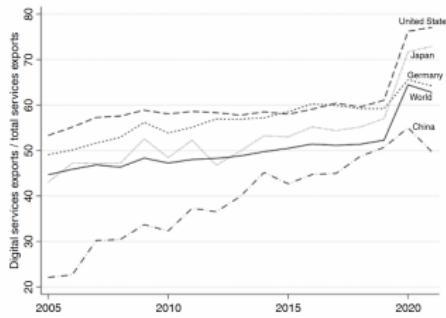


Figure 3 Digital services exports. Data from <https://unctadstat.unctad.org/>

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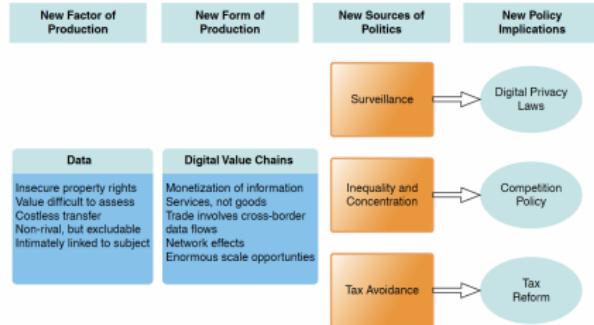


Figure 2 Data, digital value chains, and the new politics of globalization

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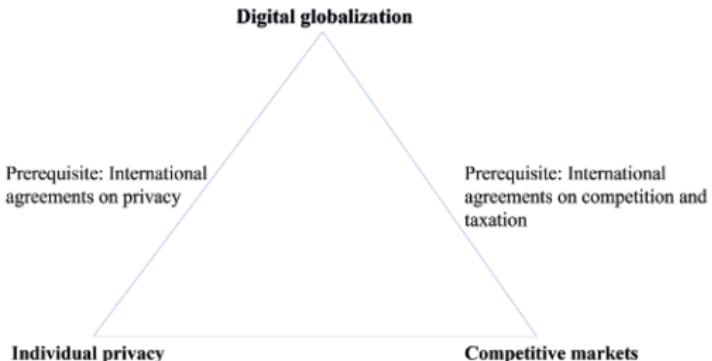


Figure 7 Institutional foundations for digital globalization

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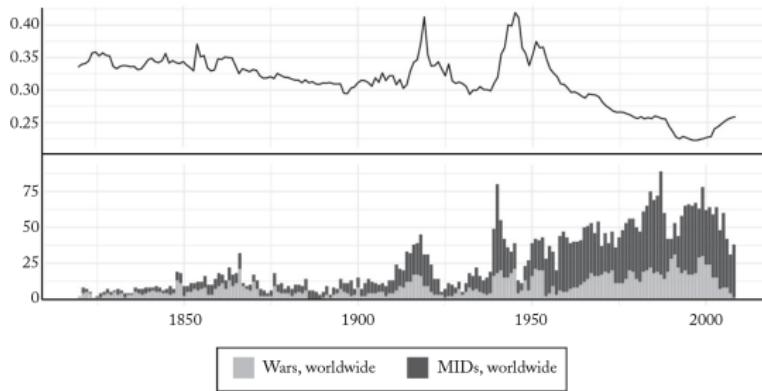


FIGURE 2  
SYSTEM CONCENTRATION AND INTERSTATE CONFLICT, 1816–2008<sup>a</sup>

- ▶ Runaway technological arms race.
- ▶ What/which technologies need 3rd party overseeing?
- ▶ Is cooperation incentive compatible?

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## U.S. aims to hobble China's chip industry with sweeping new export rules

The raft of measures could amount to the biggest shift in U.S. policy toward shipping technology to China since the 1990s.



President Joe Biden holds a microchip at the White House on Feb. 24, 2021.  
Saul Loeb / AFP via Getty Images file

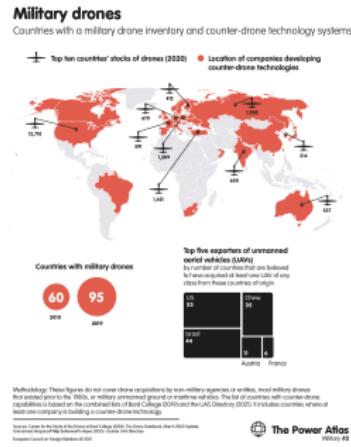
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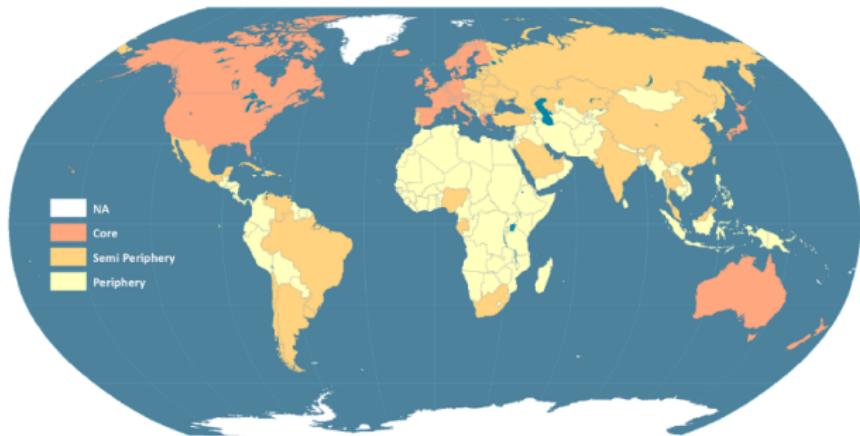
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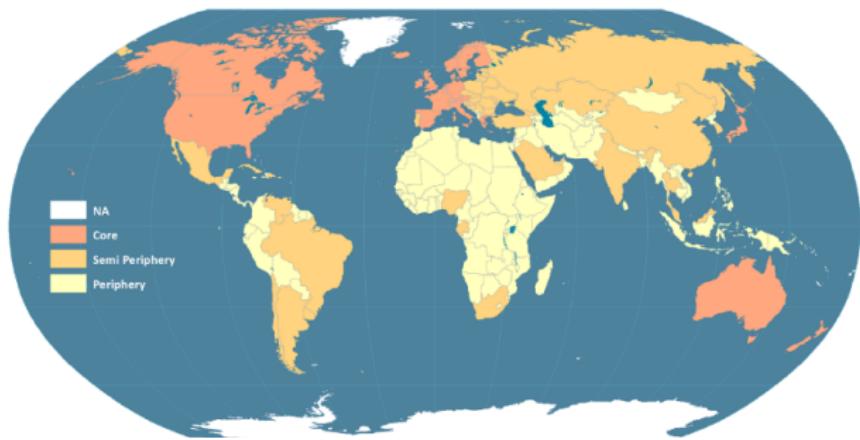
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Domestic:

- ▶ FDI-related policy and taxation.
- ▶ Corporate responsibility.
- ▶ Anti-monopoly and anti-lobbying laws .
- ▶ Protections to whistleblowers.

International:

- ▶ International standards with overseeing.
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## Class exercise: How can we achieve good regulation?

1. Make groups of 2/3 people.
2. How to build a legal and regulatory environment such that the profit motive leads firms to produce social value.t?
3. 10 minutes.
  - ▶ Feel free to use the Internet.

reset

Next class...

## **The political economy of climate change!**