Analytics to Inform Critical Technology Strategy

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Chips & Science Act Legislates National Technology Strategy

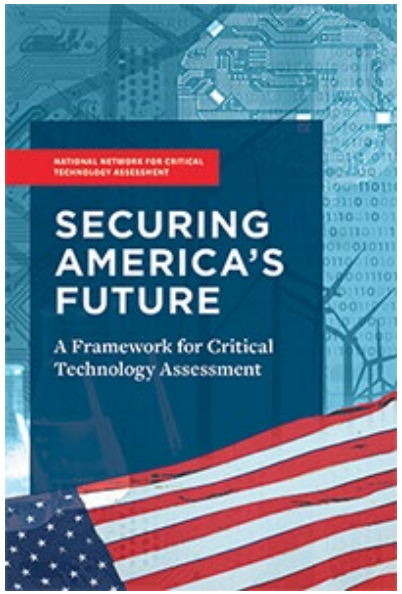
August 9, 2022

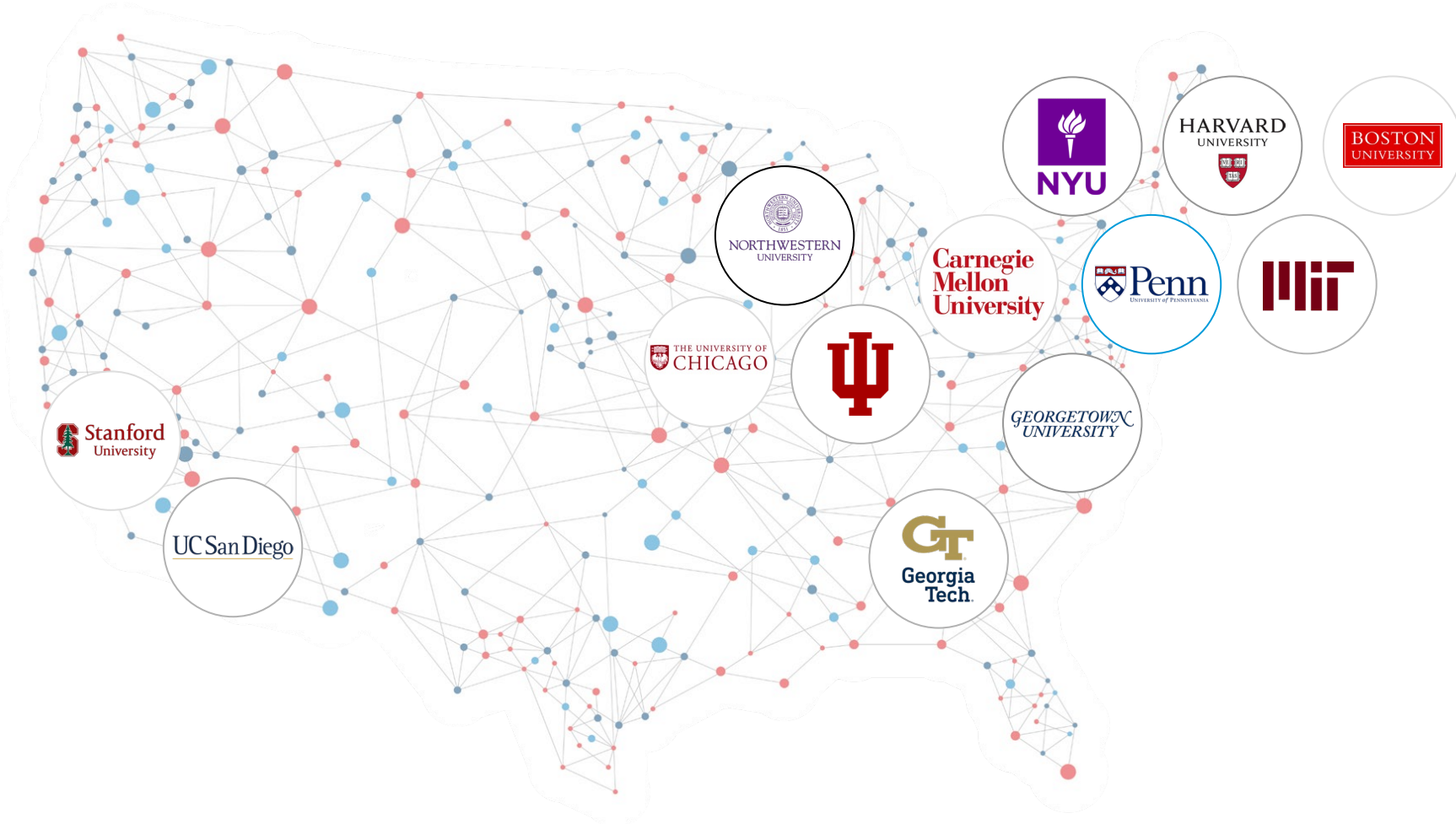
"In consultation with the interagency working group… [the National Science Foundation Technology Innovation and Partnerships Directorate will] identify and annually review and update a list of

1. Not more than 5 United States societal, national, and geostrategic challenges that may be addressed by technology
2. Not more than 10 key technology focus areas … *and*
3. Evaluate the relationship between U.S. societal, national, and geostrategic challenges and the key technology focus areas."

A pilot National Network for Critical Technology Assessment

"Best in Class" from 13 Tier 1 Universities, engagement throughout:industry leaders, agencies





Building the “Carnegie School” of Critical Technology Strategy

Leveraging the ongoing transformative advances in data and analytics methods, create a new interdisciplinary field that combines methods across engineering, economics, and computer science:

- Provide timely awareness
- Quantify vulnerabilities
- Prioritize action
- Identify the value of interventions
- Embrace technology, mission and global interdependencies

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HEINZ COLLEGE OF INFORMATION SYSTEMS AND PUBLIC POLICY

COLLEGE OF ENGINEERING

SCHOOL OF COMPUTER SCIENCE

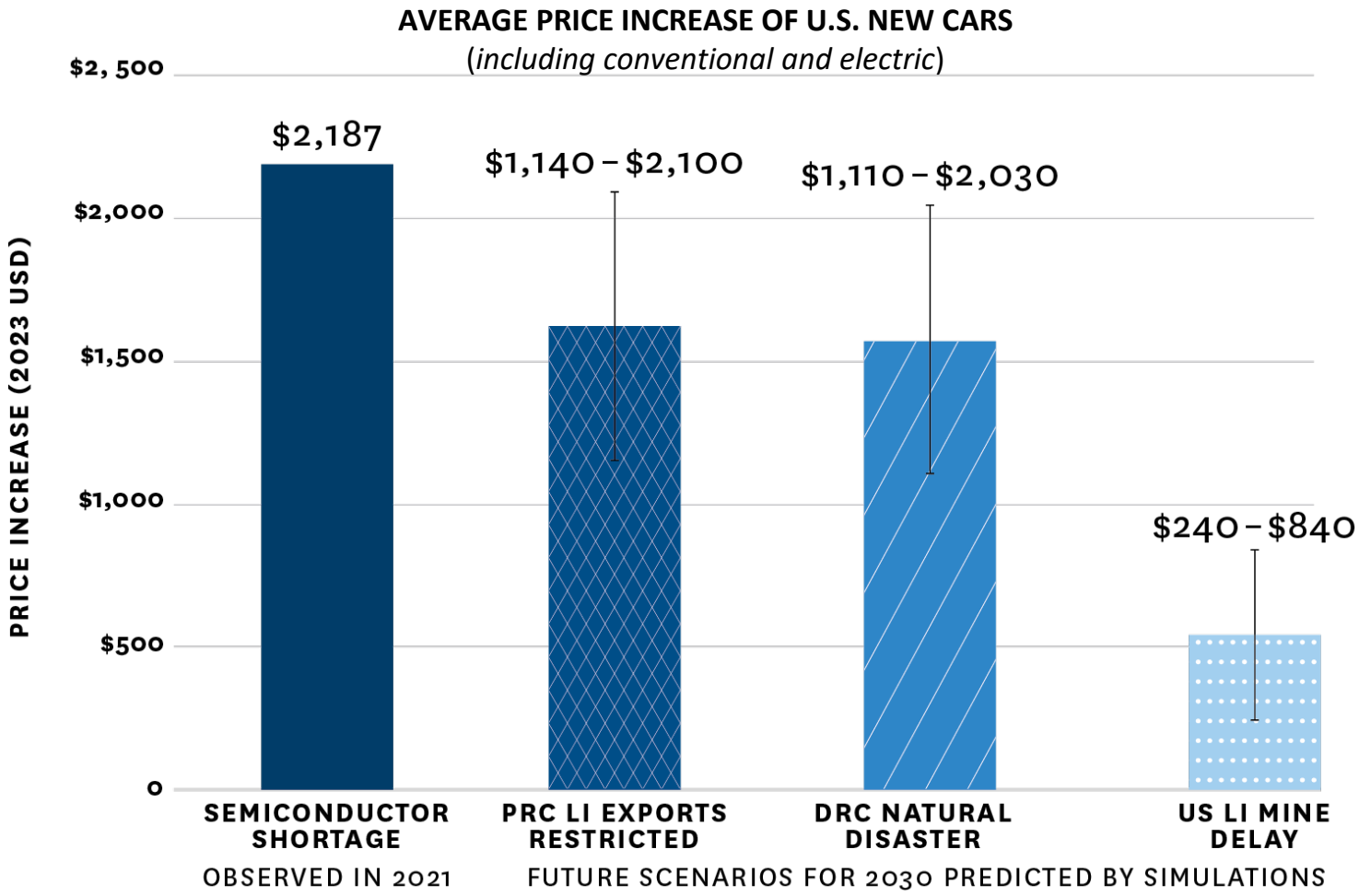
TEPPER SCHOOL OF BUSINESS

DIETRICH COLLEGE OF HUMANITIES AND SOCIAL SCIENCES

Quantify vulnerabilities: Critical mineral supply restrictions could have economic impacts similar to semiconductor shortage

IMPACTS:

$24B consumer surplus losses

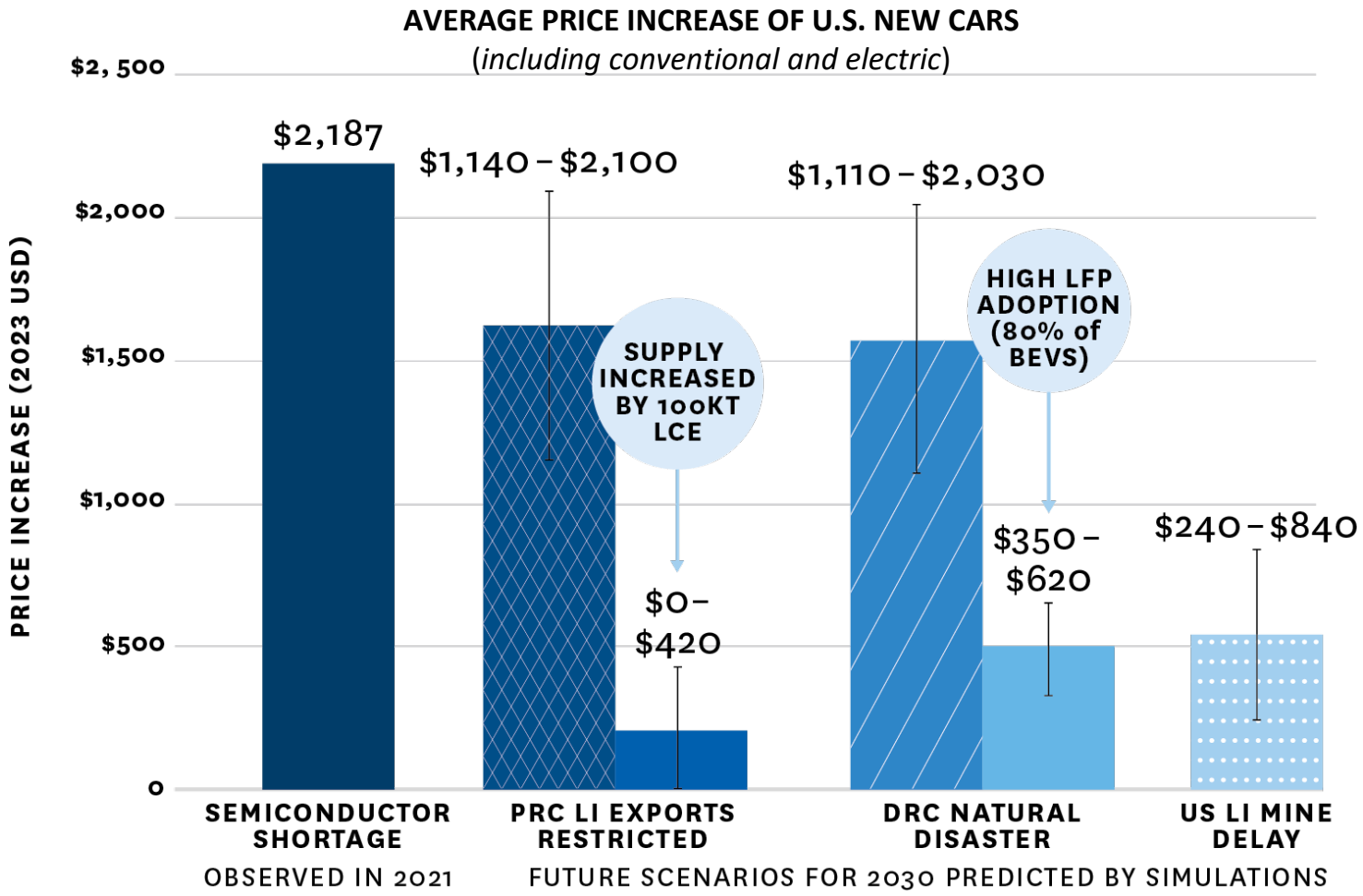


Prioritize Action: Lithium and cobalt supply should be prioritized

INTERVENTIONS:

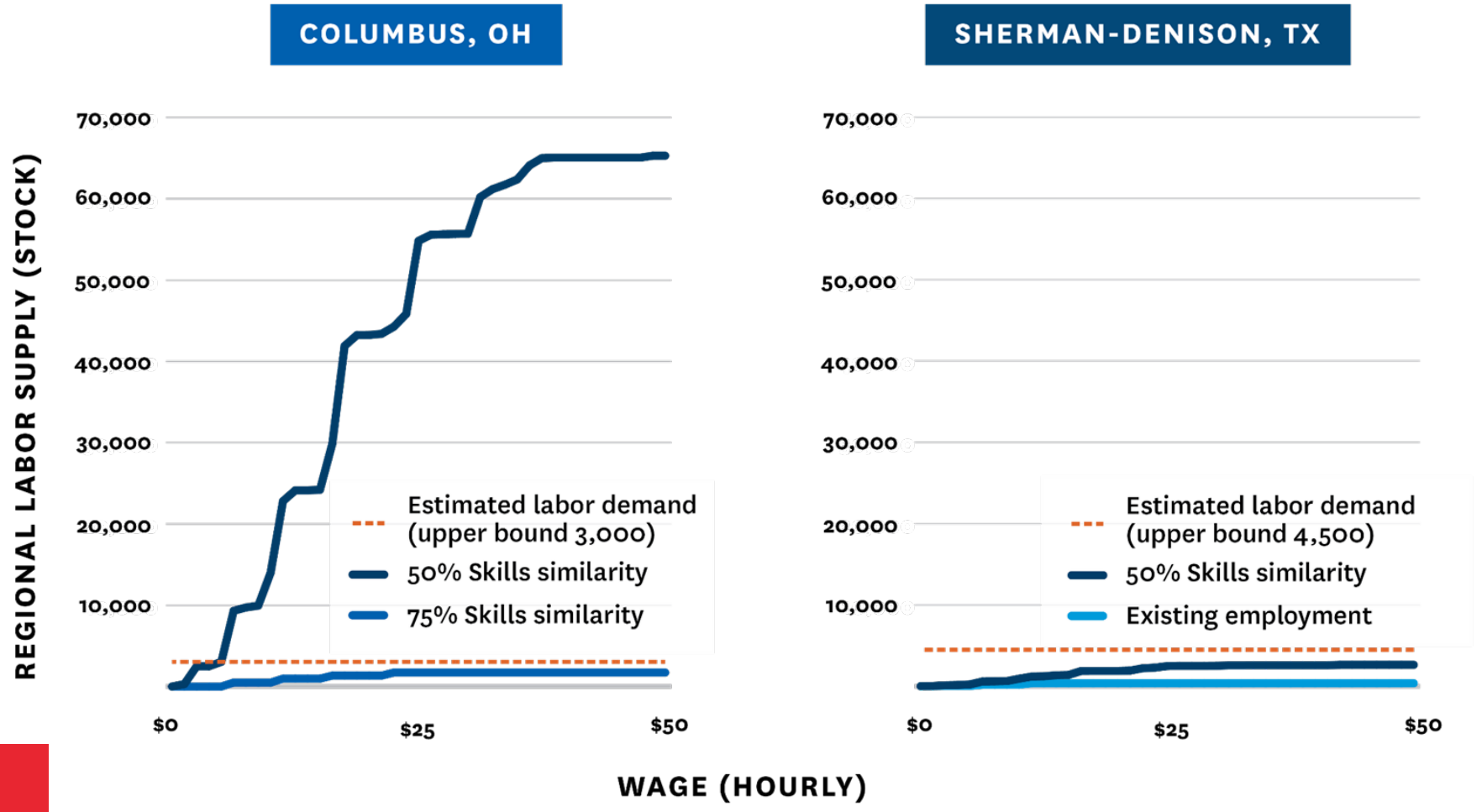
Increase lithium supply

Transition to cobalt-free batteries



Assess capabilities (and gaps): Workforce readiness for policy interventions differs by region

EXAMPLE:
Semiconductor Processing Technicians

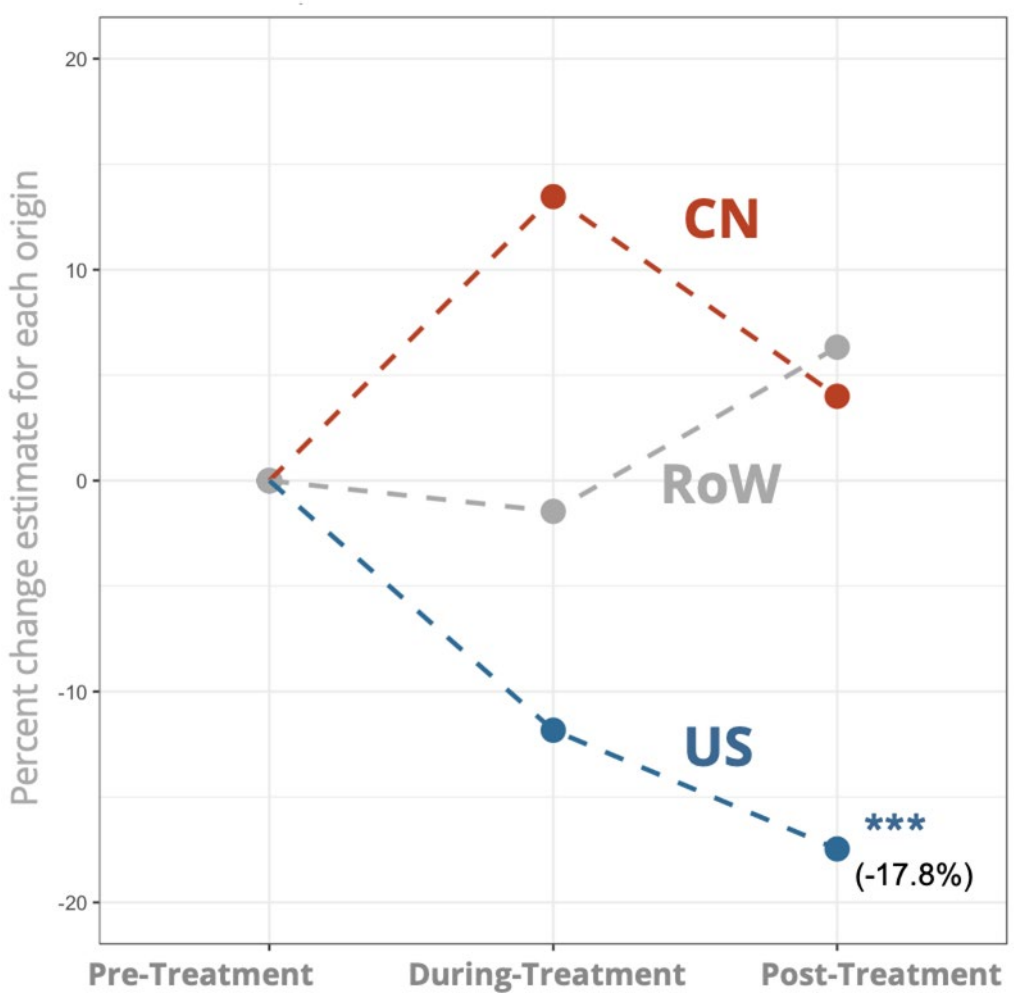


Embrace (global) interdependencies: Understand and avoid unintended consequences of policy action

GOVERNMENT PRIORITY RATED CONTRACTS:

US loses share global market (EU)

Allies (EU) increase reliance on China



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The CHIPS and Science Act calls for a new federal capacity to fortify the nation's leadership and ability to determine policies and investments that will ensure national security, global competitiveness, economic prosperity, and societal well-being.

This assessment is essential to ensure that the country smartly invests and enacts necessary policies to achieve short and long-term security, prosperity, and broad-based societal well-being.

To fulfill this charge, the federal government will need to intentionally design a rapid Critical Technology Assessment function for Congress and the Executive Branch alike.

This entity must bring the full capacity of the country to bear, with program managers marshalling the rich analytic capacity distributed nationwide across researchers, disciplines, and institutions.