International Competition and Technological Preferences: Evidence from the United States and China

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Motivation and Research Question

Research question:

International competition has become increasingly intensive in an interdependent world. How will it affect individuals' preferences for new technologies?

- Interdependence: Technological innovation and application are international
- Competition: Geopolitics and country of origin
- The time is different:
  - U.S.-U.S.S.R: Only geopolitical competition
  - U.S.-Japan: Only economic interdependence and competition
  - US-China: Efficiency–security dilemma

Theory and Hypotheses

Existing literature

- Domestic distributive effects and attitudes toward technologies (Gallego et al. 2021)
- Security externality of trade (Gowa & Mansfield 1993)

Theoretical Framework

- A trade-off between economic efficiency and national security for technological adoption (Keohane & Nye 1977)

		Country of Origin		
		Domestic	Friend	Competitor
Technological Sophistication	Traditional	Moderate-High	Moderate-High	Moderate
	Advanced	High	Moderate	Low

Table 1. International Competition and Technological Preferences

- **H1:** Individuals prefer using domestic technologies with a higher level of sophistication
- **H2a:** Individuals prefer using technologies owned by domestic firms relative to those owned by other countries
- **H2b:** Individuals prefer using technologies owned by friendly countries to those owned by competitors
- **H3:** Individuals prefer using foreign traditional technologies relative to foreign advanced technologies

Research Design

Manipulation

- Type of technology: (1) AI; (2) EV
- Technological sophistication: (1) Most advanced, with great economic potential; (2) average, with only limited economic potential
- Country of origin: (1) domestic vs. foreign; (2) friend vs. competitor; (3) democracy vs. non-democracy

Outcome Variables

- Main: Should the government restrict or encourage the usage of this technology?
- Medication: Technology's effects on: (1) The economy [Efficiency, Unemployment, Inequality] and (2) security [Risk, Dependence, Competition]
- Spillover: Adjustment of other social policies: (1) domestic redistribution [Unemployment Security, Corporate Taxation] and (2) international redistribution [Imports, Immigration] (Wu 2023)

Sample

- Region: The U.S. and China (planned)
- Size: 2200 participants, per country

Example

The government is currently considering policy responses to a technology that is rapidly gaining popularity among consumers in our country. The technology is ***an AI-related technology*** *(e.g., ChatGPT, DeepSeek, etc.). This technology has several characteristics:*
This technology is of ***average sophistication****, with only limited ability to enhance the efficiency and performance of the economy.*
The technology is owned by a ***foreign country****. It is* ***competing with our country*** *on an international scale. It does not have* ***a democratic government system****, which means it does not have free and fair elections regularly.*

Results

- Pilot Experiment
- Sample: 199 in the U.S.
- Manipulation: Technological sophistication × Country of origin

Main results

	Usage	Encouragement
	(1)	(2)
Technological Sophistication	0.02	0.03
	(0.15)	(0.15)
Foreign	−0.58*	−0.39
	(0.22)	(0.24)
Friend	−0.30†	−0.66**
	(0.17)	(0.24)
Democracy	0.28	−0.08
	(0.17)	(0.24)
Friend×Democracy		0.71*
		(0.34)
Num. obs.	199	199

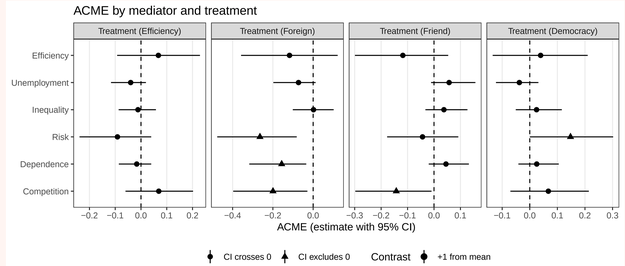
Notes: Y_M = 3.04, Y_{SD} = 1.10.
***$p < 0.001$; **$p < 0.01$; *$p < 0.05$; †$p < 0.1$.

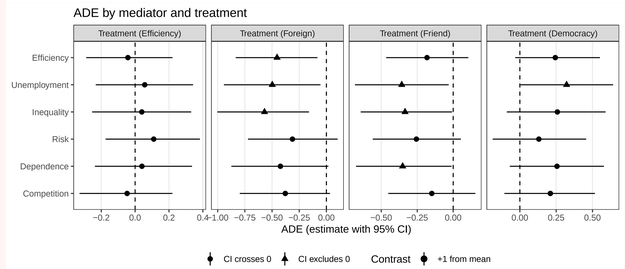
Efficiency-Security Trade-Off

		Country of Origin		
		Domestic	Friend	Competitor
Technological Sophistication	Traditional	3.5	3.2	2.9
	Advanced	3.5	2.9	2.6

Mediation and Spillover Effects

Mediation analysis





Spillover effects

	Redistribution		Anti-Globalization	
	(1)	(2)	(3)	(4)
Technological Sophistication	0.23†	0.71**	−0.12	−0.15
	(0.12)	(0.27)	(0.12)	(0.27)
Foreign	−0.00	0.26	−0.16	−0.24
	(0.18)	(0.26)	(0.18)	(0.25)
Friend	0.04	0.11	0.35*	0.35†
	(0.14)	(0.19)	(0.14)	(0.19)
Democracy	−0.03	−0.02	−0.06	0.04
	(0.14)	(0.19)	(0.14)	(0.19)
Sophistication×Foreign		−0.51		0.16
		(0.37)		(0.36)
Sophistication×Friend		−0.16		−0.01
		(0.28)		(0.28)
Sophistication×Democracy		−0.03		−0.22
		(0.28)		(0.27)
Num. obs.	199	199	199	199

Notes: The outcome variables are standardized.
***$p < 0.001$; **$p < 0.01$; *$p < 0.05$; †$p < 0.1$.

Contribution and Implications

- A contemporary and international theory for technological preferences: Economic efficiency × national security
- Will international competition lead to technological diffusion (Milner & Solstad 2021)?
- Technological innovation and domestic policymaking: Misattribution (Mutz 2021) or compensation?

References

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