

Discussant Comments on  
*The Impact of AI and Cross-Border Data Regulation on  
International Trade in Digital Services*

Sun and Trefler (2025)

Discussant: Maggie Chen  
George Washington University

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- Pressing and contemporary topic in international trade: AI, digital services, and cross-border data regulation
- Questions:
  - Does AI adoption enable cross-border digital trade?
  - How do data regulations affect the role of AI?
- Drawn from a large panel of mobile apps linked with AI patents and regulatory indices, the paper finds:
  - AI adoption triples digital exports.
  - Data regulations cut AI's trade effects by about half.

- **Empirical Novelty:** first large-scale empirical study of AI's impact on digital trade and the role of data regulations
- **Use of LLMs for Measuring AI Deployment:** Innovative use of BERT to match AI patents to app functions based on similarity
- **Theoretical Underpinning:** Theory-grounded IV strategy and interaction between AI adoption and trade flows
- **Policy Relevance:** current debates on digital trade agreements, the regulation of cross-border data flows, and national security concerns

# AI and Trade: Mechanisms for AI Technologies

- What are the (nonmutually exclusive) mechanisms for AI to affect the demand and supply of digital services?
- Could the effects of AI on different outcomes (num of users/markets, pricing, engagement, ratings) shed some light on the mechanisms?

## Search and matching

Recommendations and personalization (e.g., Youtube shorts; Netflix; Duolingo);

## Productivity

AI chatbots (e.g., banking customer services); content generation

## Transaction cost

AI language translation; payment

# AI and Trade: Measure of AI Deployment

- Creative and rigorous measure of AI deployment by matching app descriptions with AI patents owned by the app developer
  - How about open-source AI or licensing?
- Supply-side IV motivated by HO: Nearest neighbor's AI deployment
  - Implications of first-mover advantage/network effect: US-based Google Suite and Social Network apps

# Regulations: Mapping Digital Regulations

Regulation Area	Mechanism	Type	Example
Data generation	Resource	Data collection and consent restrictions	EU's General Data Protection Regulation; California Consumer Privacy Act
Algorithm	Productivity	Algorithmic transparency, fairness, and accountability	EU's Digital Services Act; China's Algorithmic Regulation Rules
Data flow	Trade restriction	Cross-border transfer of personal data	EU's GDPR Data Transfer Rules; China's Personal Information Protection Law

- How would the effects vary across domestic sales, exports, and imports?
  - Data generation and algorithm policies (national treatment) shape comparative advantage: domestic sales, exports, and imports
  - Data flow (unilateral or preferential) policies affect trade cost: imports

# Regulations: Other (Digital) Regulations

- Can other (digital/nondigital) regulations also affect cross-border data flow?
  - Other DSTRI categories; cybersecurity law; sector regulations

## ^ ☐ Electronic transactions

- ☐ Discriminatory conditions for licenses to engage in e-commerce
- ☐ Memo: License or authorisation is required to engage in e-commerce
- ☐ Online tax registration and declaration is available to non-resident foreign providers
- ☐ National contract rule for cross-border transaction deviate from internationally standardised rules
- ☐ Laws or regulations explicitly protect confidential information
- ☐ Laws or regulations provide electronic signature with the equivalent legal validity with hand-written signature
- ☐ Dispute settlement mechanism exist to resolve disputes arising from cross-border digital trade

## ^ ☐ Payment system

- ☐ Discriminatory access to payment settlement methods
- ☐ National payment security standards deviate from international standards
- ☐ Restrictions on internet banking or insurance

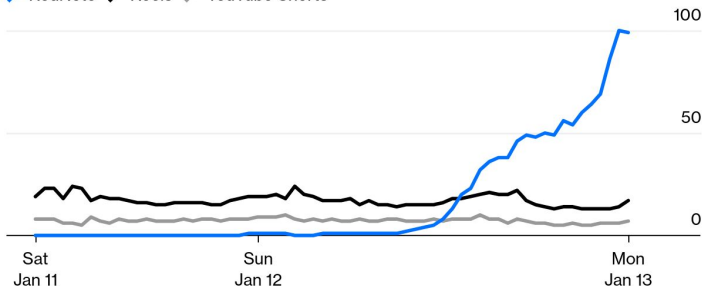
# Regulations: Substitutability and Trade Diversion

- How do the effects of regulations vary across different types of apps depending on their substitutability?
- Do bilateral restrictions lead to trade diversion?

## US Google Search Interest in RedNote Rises

TikTok users are flocking to the Chinese social media app Xiaohongshu

RedNote Reels YouTube Shorts



Source: Google Trends

Bloomberg Opinion



# Conclusion

- Outstanding and timely paper!
- Another important contribution by the authors
- Message: Regulations can offset the trade effect of technology
- Policy questions:
  - Could data generation regulations shape comparative advantage?
  - What are the recommendations for promoting both digital trade and data security: international standards/harmonization, bilateral/plurilateral data agreements, national treatment?