Artificial Intelligence and Governments:

the Good, the Bad, and the Ugly

Martin Beraja (MIT)

AI and Governments: the Good, the Bad, and the Ugly

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3. **The Ugly:** AI is a surveillance technology. Gov't misuse for repression and social control?
   "*AI-tocracy*" (with Kao, Yang and Yuchtman)
   "*Exporting the surveillance state via trade in AI*" (with Kao, Yang and Yuchtman)

Outline

1. **The Good:** Access to Government Data as Innovation Policy
2. The Bad: Inefficient Automation
3. The Ugly: AI-tocracy

The Good: Access to Government Data as Innovation Policy

- Much focus on how data collected by **private** firms shapes AI innovation
  (Agrawal et al., 2019; Jones and Tonetti, 2020)
- Yet, throughout history, **states** have also collected massive quantities of data
- The state has a large role in many areas
  - Public security, health care, education, basic science...

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Can access to **government data** stimulate **commercial** AI innovation?

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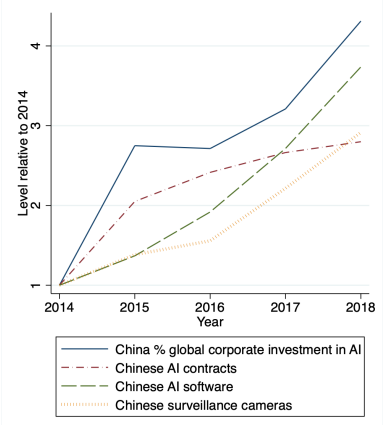
AI and the State in China



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- Algo's trained on video of faces from many angles
- Government units collect this data through their surveillance apparatus, and contract AI firms
- Firms gaining access to this data use it to train algorithms and provide gov't services
- If gov't data or algorithms are **sharable** across uses, they can be used to develop commercial AI
  (e.g., a facial recognition platform for retail stores)

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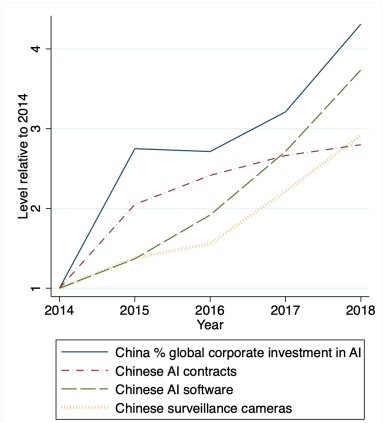

Data 1: linking AI firms to govt. contracts

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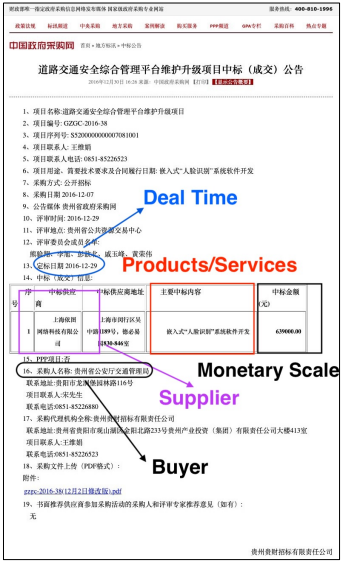
3. Link government **buyers** to AI **suppliers**
   - 10,677 AI contracts issued by public security arms of government (e.g., local police department)



Data 2: AI firms' software production

Registered with Min. of Industry and Information Technology

Categorize by intended customers (with RNN model using tensorflow):

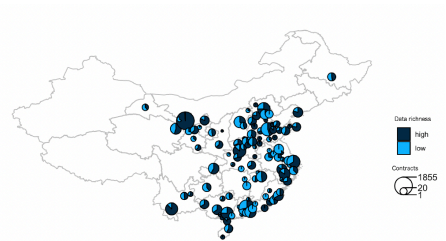
1. **Commercial:** e.g., *visual recognition system for smart retail*;
2. **Government:** e.g., *smart city — real time monitoring system on main traffic routes*;
3. General: e.g., *a synchronization method for multi-view cameras based on FPGA chips*.

Data 3: measuring access to government data

Within AI public security contracts: variation in the data collection capacity of the public security agency's local surveillance network

1. Identify non-AI contracts: police department purchases of street cameras
2. Measure quantity of advanced cameras in a prefecture at a given time
3. Categorize public security contracts as coming from "high" or "low" camera capacity prefectures

Regional variation in contracts



Empirical strategy

- **Triple diff:** software releases before and after firm receives 1st data-rich contract (relative to data-scarce)

$$y_{it} = \sum_T \beta_{1T} T_{it} Data_i + \sum_T \beta_{2T} T_{it} + \alpha_t + \gamma_i + \sum_T \beta_{3T} T_{it} X_i + \epsilon_{it}$$

  - T_{it}: 1 if T semi-years before/since firm i's 1st contract
  - $Data_i$: 1 if firm i receives "data rich" contract
  - X_i pre-contract controls: age, size, and software prod

Public security contracts "data-richness" & Commercial AI innovation

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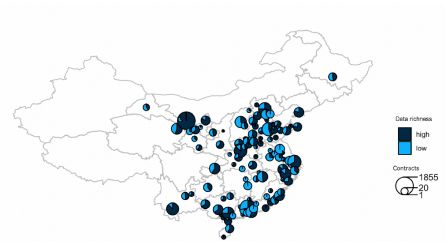
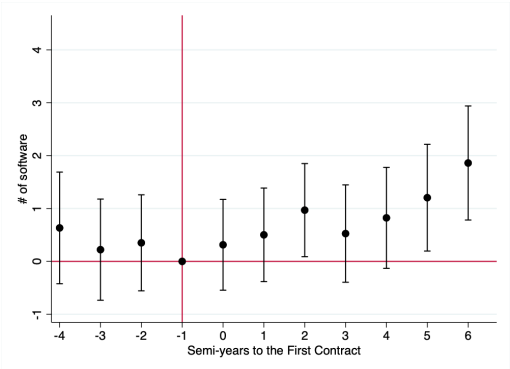


Cumulative commercial software releases



Magnitude: 2 new products over 3 years

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The Bad: Inefficient Automation

- Past automation (robots) has **displaced workers** and **lowered their earnings**

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- Two economic arguments for slowing down automation based on:
  1. Equity considerations (Guerreiro et al, 2022; Costinot and Werning, 2022)
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Are these arguments as strong for AI (e.g., LLMs) as they were for robots?

- Consider a firm choosing how much to automate (α)

$$\max_{\alpha} \text{PDV of profits} \equiv \sum_{t} \underbrace{\frac{1}{(1+r)^t}}_{\text{Interest rate}} \times \underbrace{\pi_t(\alpha)}_{\text{Profits}}$$

Firm Automation and Workers' Incomes

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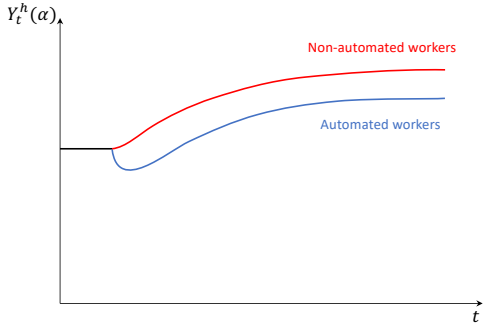
- Consider a worker of type h, e.g., a 40 year old in a routine occupation
- Their income is $\mathcal{Y}_t^h(\alpha)$
- $d\mathcal{Y}_t^h(\cdot)/d\alpha$ depends on their type, how easy it is to reallocate/retrain, etc

Workers' Incomes



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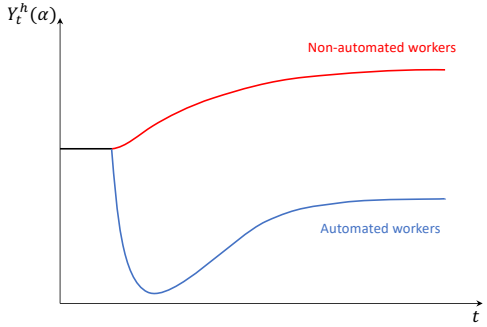

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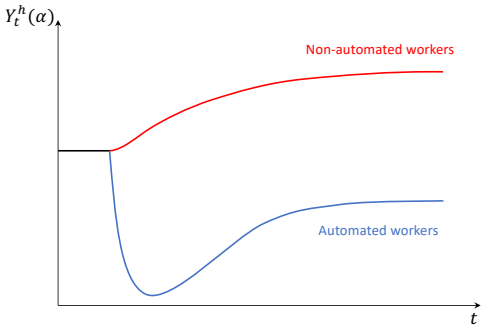

Ricardian workers
(ample savings, borrow easily)

$$c_t^h = \frac{r}{1+r} \sum_t \left(\frac{1}{1+r} \right)^t \mathcal{Y}_t^h(\alpha)$$

- Non-auto. better-off; Auto. worse-off

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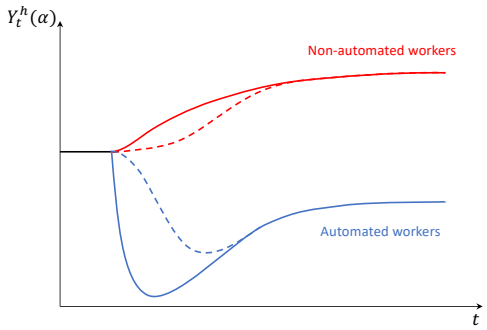

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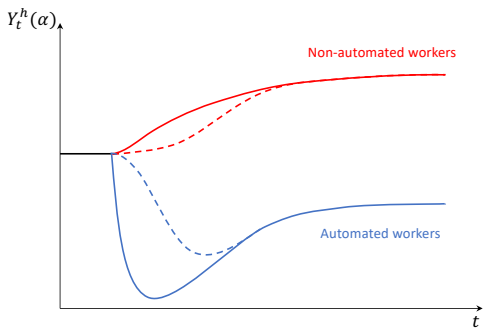

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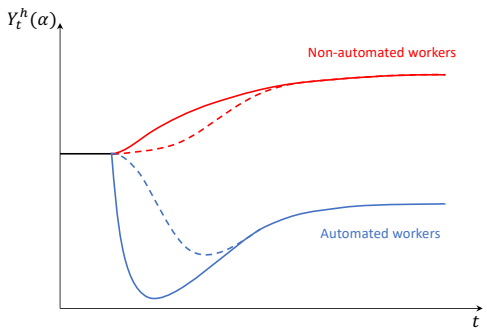

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- In practice, workers may be financially vulnerable...

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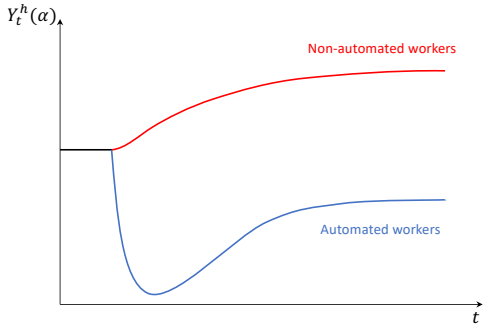

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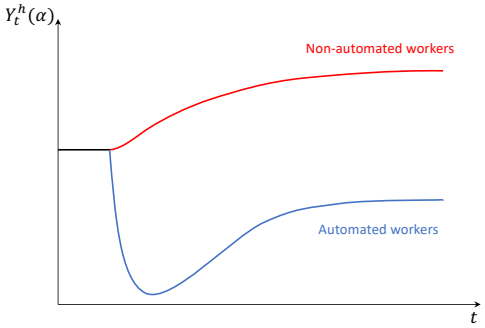

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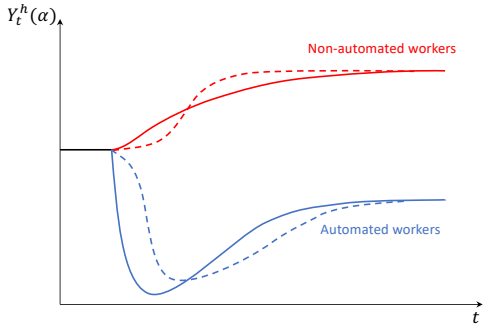

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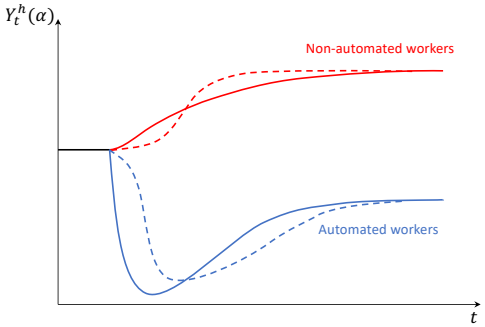

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- No **Efficiency** v. **Equity** trade-off

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- Weaker rationale for **slowing down AI** due to job automation. AI **alignment** concerns?

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  (Zuboff, 2019; Tirole, 2021; Acemoglu, 2021)
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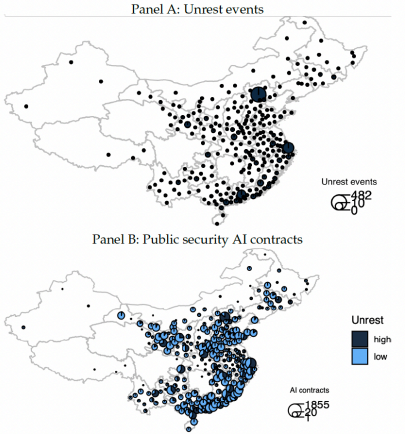
Evidence from China?

Unrest and gov't procurement of AI



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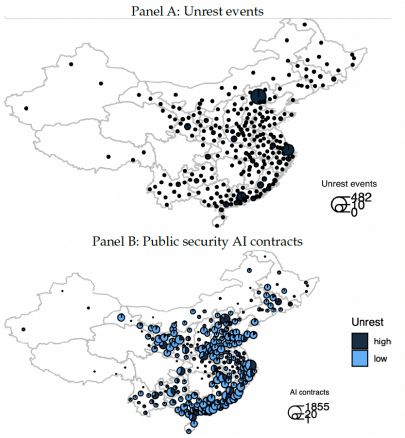
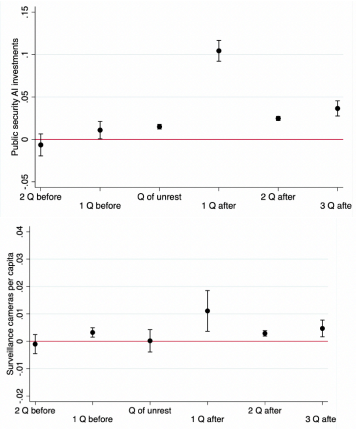
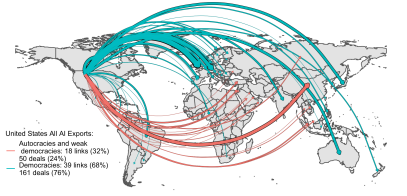


Unrest ⟶ Gov't buys AI and cameras



Exports of AI: China v. US

Democracies: Polity Score 7 or greater, Autocracies and weak democracies: Polity Score below 7



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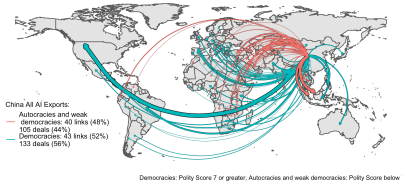
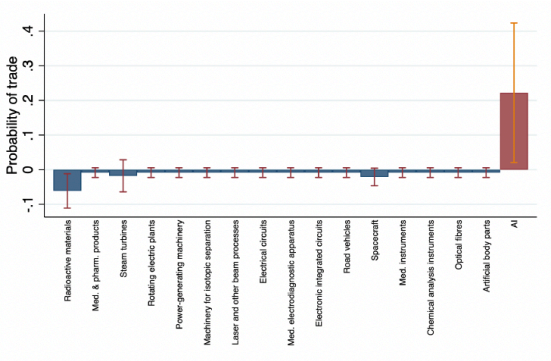


Autocracies and weak democracies are more likely to import AI from China



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- Touches on issues across fields: macro (growth, innovation, labor), pol. econ, IO
- We have a responsibility to study the benefits, risks, and policy implications of AI
  - Otherwise, we leave the task to...
- We have only started to scratch the surface. More questions as AI is widely adopted.