Taxation and AI

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Three important topics

1. Global corporate taxation, intangibles, and AI.
2. Data externalities, privacy, and Pigou taxes.
3. AI for optimal taxation - maximizing welfare versus observables.

1) Global corporate tax avoidance

- Traditional corporate taxation:
  - Multinational corporations owe taxes where production occurs.
  - Use “arms length pricing” to apportion profits across countries.
- Problem:
  - Where does “production” for AI occur?
  - Can use fictitious prices for data, algorithms,
    to move profits to countries with the lowest tax rate.
  - Race to the bottom of tax rates ensues.

The 2021 Global Tax Agreement

- Sensible partial solutions:
  1. Profits are partially taxed in countries where sales occur.
  2. Global minimum tax on corporate profits.
- But: The US under the current administration has threatened retaliation against countries complying with the agreement.

2) Data ownership and privacy

- Two complementary approaches to privacy:
  - Differential privacy (in computer science):
    Make individuals indifferent whether their data are collected.
  - Individual control rights of data subjects (e.g. GDPR):
    Right to refuse data collection, right to be forgotten, etc.
- Problem:
  - Machine learning is about patterns *across* observations,
    not *individual* observations.
  - Can maintain differential privacy without cost to learning.
  - Downstream harms and benefits of AI are unaffected.

Data externaities

- $\Rightarrow$ Individuals do not bear the costs or benefits of sharing their data.
- Conventional economic solution: "Pigou taxes."
  - Tax individuals according to these social costs or benefits.
  - But how to sensibly quantify these?
- Maybe better:
  - Collective governance of data collection.
  - E.g. Data trusts.

3) The pitfalls of "AI for good"

- Almost all of AI:
  - Maximize observed rewards / minimize observed losses.
  - E.g.: algorithms for labor market service agencies to maximize the probability of finding employment.
- Problem:
  - Big gap between observables and welfare.
  - Example: Unemployment insurance.
    - Forced labor maximizes employment prospects.
  - Versus maximizing welfare:
    - Requires increasing option sets, not penalties.

Adaptive welfare maximization

- Some recent theoretical work (with machine learning co-authors):
  - Modifying machine learning algorithms (bandits, reinforcement learning)
  - to incorporate insights of welfare economics / optimal tax theory.
  - Algorithms learn how to maximize welfare, rather than observable outcomes.

Thank you!

For more on these topics, see my forthcoming book:

https://press.uchicago.edu/ucp/books/book/chicago/M/bo255887145.html