Experimentability in the Public Sector

Academy of Behavioral Economics 2019
January 30\textsuperscript{th} 2019
Dina Pomeranz
Experimentability

- A growing number of institutions in the public and private sector are partnering with researchers to analyze the impacts of their efforts.
Experimentability

- A growing number of institutions in the public and private sector are partnering with researchers to analyze the impacts of their efforts.

- Recent innovation in research designs and availability of more data makes these partnerships particularly fruitful.
  - Combine expertise from “real world” with academic know-how.
  - Create win-win situations.
How do we measure impact?

- Tease out effects of a program or policy amid all the other things that might be changing at the same time
Causality
Causality

- **Outcome**
- **Time**
- **Intervention starts**

The graph illustrates the relationship between outcome and time, showing how the intervention starts and affects the outcome over time.
Causality

Impact

Counterfactual
Causality

Outcome

<table>
<thead>
<tr>
<th>Time</th>
<th>Intervention starts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>
Causality

Outcome

Intervention starts

Time
Causality

Outcome

Intervention starts

Time

Impact

Counterfactual

5
One Method to Measure Causal Effects: Randomized Experiments

• Similar to medical trials: Instead of evaluating pills, we evaluate projects/programs/policies

• Also called randomized controlled trials (RCTs) or A/B testing

• E.g. effect of a training
Randomized assignment allows to draw causal conclusions

Green = treatment
White = comparison group
Randomized assignment allows to draw causal conclusions

Green = treatment
White = comparison group
Benefits of Randomized Experiments

Clear causal effect

→ Reduces risk of

• Self-selection
  • E.g. people who see advertisement are interested in product

• Ex-post subjective impression of improvement
Randomized Experiments & Big Data

- Randomized experiments combine well with big data
- When many information is available, we can use existing data
  - to select the people included in the experiment
  - to measure the impacts.

→ Experiments become easier and cheaper
A Few Examples from My Work
1) “Digital Peer Groups” to Help People Save

Context:

- Poverty is often characterized by:
  - highly variable income and expenditures → lots of risk
  - lack of insurance services

→ We studied in Chile how people can use savings to self-insure against economic fluctuations

→ We found that when people meet in peer groups to motivate each other to save, they save twice as much
Self-help Peer Groups for Savings

- Option to publicly announce savings goal
- In each meeting verify whether goal was reached
- Symbolic recognition for those who meet the goals
“Digitalized Peer Groups” via Text Messages

• Given the strong impact of self-help peer groups on savings
  • Can we find a more scalable delivery service of this mechanism?
  • Can we find out whether peer pressure is needed to help people save, or whether regular follow-up is sufficient?
Participants who had opened a bank account

- **Control group**: No SMS
- **SMS with savings buddy**: Participant and a “savings buddy” receive SMS about participant’s performance
- **SMS without savings buddy**: Participant receives SMS about own and others’ performance
Results

• SMS had almost as strong an impact as peer group meetings
Results

- SMS had almost as strong an impact as peer group meetings

- Message with savings buddy had no larger effect
  → Neither physical meetings nor peer pressure needed
  → Regular follow up seems key
Topic 2: Taxation
Taxation: Who Cares?

- Amid all the pressing needs related to poverty, urgency in undernourishment, education, healthcare or safety, why worry about taxes?
Taxation? We Should Care

• To execute its various roles, the state needs to collect taxes
  → No state can exist in the long run without effective taxation
Taxation? We Should Care

• To execute its various roles, the state needs to collect taxes → No state can exist in the long run without effective taxation

• Today’s rich countries acquired this capacity over the last century

Source: Piketty (2014)
Low-income countries tend to collect less tax

- Many countries strive to increase tax collection
- Harder in lower income countries, where large share of activities is informal without a paper trail
Experiments with Tax Authorities

- Ongoing collaborations with tax authorities in Chile, Ecuador, Kenya

- Example from Chile
  - Letters with different messages (deterrence, motivation, audits)
    - to over 100,000 firms randomly selected firms
Learnings

• The experimental designs allowed the government to learn
  • what type of letter messages was most impactful
  • what type of tax payers respond most
  • whether the Value Added Tax facilitates tax collection
  • how enforcement multiplies from one firm to another
  • where to best target their audits
Learnings

• The experimental designs allowed the government to learn
  • what type of letter messages was most impactful
  • what type of tax payers respond most
  • whether the Value Added Tax facilitates tax collection
  • how enforcement multiplies from one firm to another
  • where to best target their audits

• More general learning: forms of taxation that leave a stronger paper trail have advantage over other forms of taxation
  • E.g. VAT vs sales tax
  • E.g. digitalization
Conclusion

• Experiments play a growing role in both private corporations and public entities
  • Allow learning detailed lessons about what works and why in the organization
Experiments play a growing role in both private corporations and public entities
  • Allow learning detailed lessons about what works and why in the organization

Complementary with machine learning and big data
  • Machine learning most effective to make predictions & detailed descriptions
    • E.g. what type of client is most likely to default on loans
    • Experiments most effective to understand impacts
    • E.g. what program can help clients not to default

Exciting new developments for both practitioners and academics!
Thank you!