Policy Experimentation in China: the Political Economy of Policy Learning

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Learning and experimentation in policy making

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  - Many governments explicitly or implicitly engage in policy experimentation in various forms.

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  - Many speculated that policy experimentation plays a vital role in China's reform and growth. (e.g., Rawski 1995; Cao et al. 1999; Roland 2000; Qian 2003)
- However, little is understood about the characteristics of policy experimentation, and how they may affect policy learning and policy outcomes.

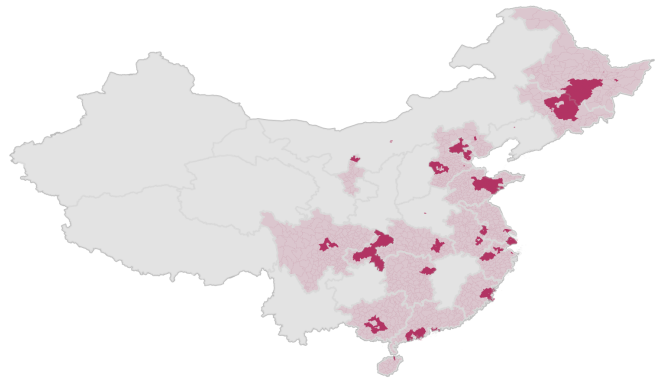
Policy experimentation: examples

B.1 Carbon emission trading

During 2011-2021
Experimentation in 1 wave
7 provinces / prefectures as experimentation sites

B.2 Separation of permits and licenses

During 2015-2018
Experimentation in 3 waves
24 prefectures as experimentation sites



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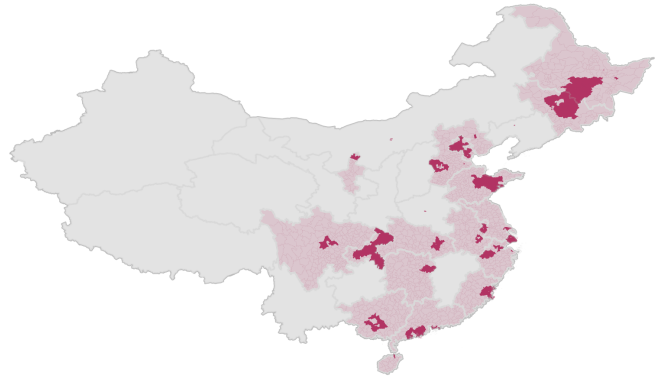
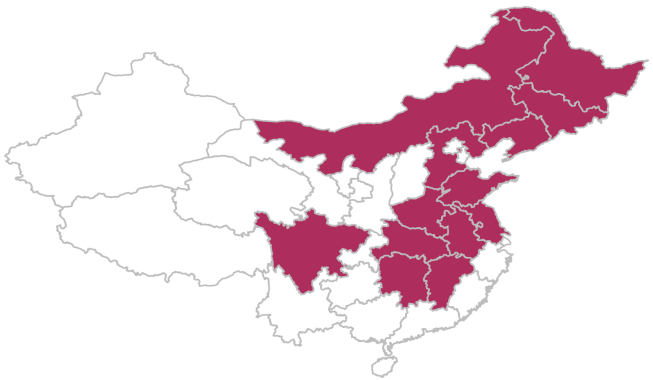


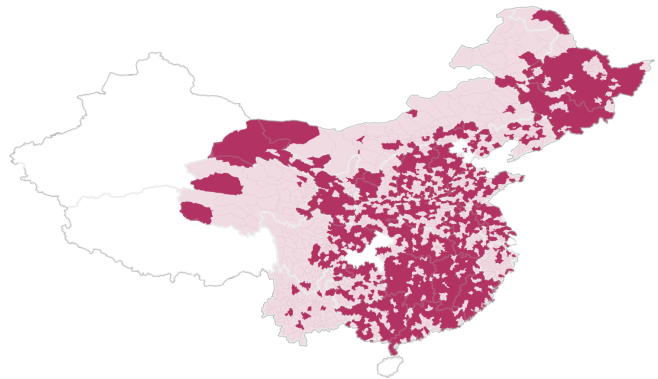
B.3 Agriculture catastrophe insurance

During 2017-2021
Experimentation in 2 waves
14 provinces as experimentation sites



B.4 County fiscal empowerment reform

During 2002-2015
Experimentation in 10+ waves
1,246 counties as experimentation sites



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We ask, in the context of China's policy experimentation:

1. Is sample selection of experimentation representative?
2. Does experimentation induce excessive efforts?
3. Is central government naive when interpreting experimentation outcomes?
4. What are the implications on learning from experimentation, and national policy outcomes?

1. Are experimentation sites representative?

Is the selection of experimentation sites representative?

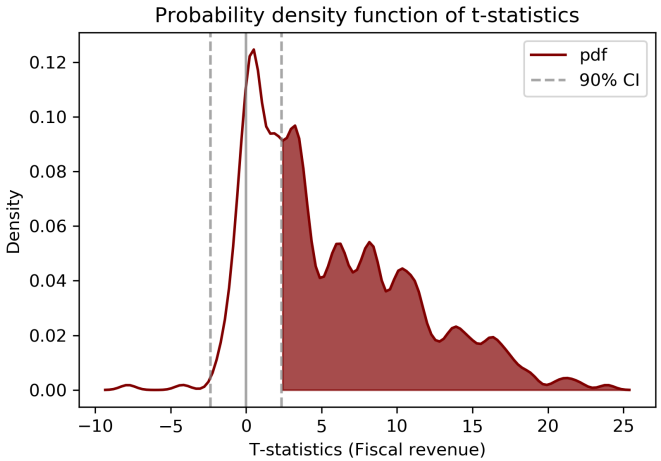
- For each experimentation, we compare pre-experimentation characteristics between "treatment" and "control" sites:
  - Baseline: pre-experiment local fiscal revenue;
  - Robust to using alternative characteristics including local GDP per capita, as well as those specific to policy domains.

- Use t-statistics of the comparison as a summary stats:

$$t_i = \frac{\hat{Y}_i(1) - \hat{Y}_i(0)}{\sqrt{\frac{\hat{S}_i^2(1)}{n_{i,1}} + \frac{\hat{S}_i^2(0)}{n_{i,0}}}}.$$

  - Underlying t-distribution with degrees of freedom adjusted for each experimentation. ▸ A few complications

Experimentation sites substantially positively selected



- >90% of experiments implemented in richer localities;
  - Can reject null of representativeness at 90% level for *at least* 67% of the experiments. ▸ Results

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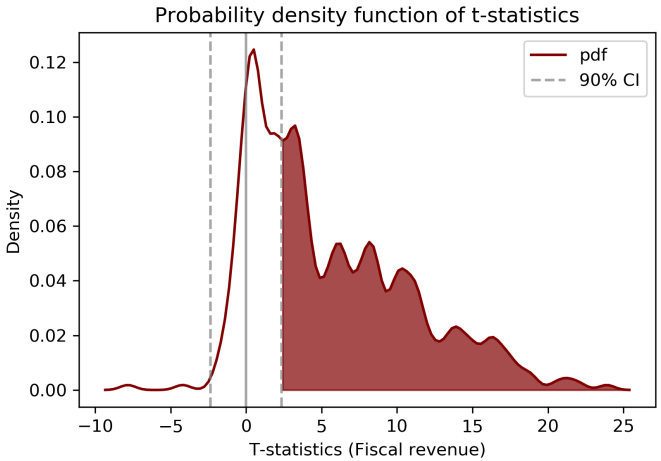

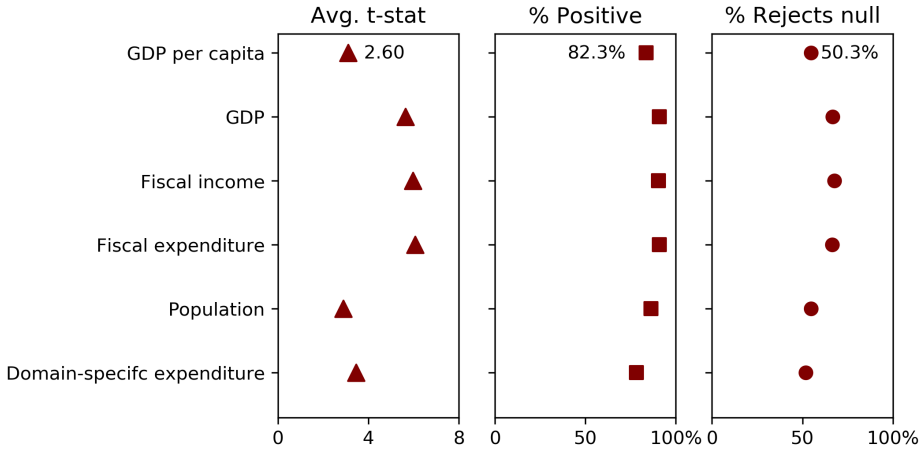

- >90% of experiments implemented in richer localities;
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  - Robust to just examining subsample of early-round sites; ▸ Results
  - Robust to other test procedures such as permutation tests. ▸ Results
  - Specification curve visualizing all combinations. ▸ Results
  - Share of experiments with positive exp. sites selection mildly decreases over time. ▸ Results

2. Endogenous efforts during experimentation?

Does domain-specific fiscal expenditure increase during experimentation?

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	Share of fiscal expenditure on experiment-related domains					
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Fiscal input among experimentation sites						
# of experiments	0.003***	0.002***	0.002***	-0.013***	-0.002*	-0.003
	(0.001)	(0.0004)	(0.0005)	(0.003)	(0.001)	(0.002)
# × career incentive				0.043***	0.009**	0.011**
				(0.007)	(0.004)	(0.005)
# of obs.	142,116	142,116	142,116	142,116	142,116	142,116
Mean of DV	0.174	0.174	0.174	0.174	0.174	0.174
County by domain FE	No	Yes	Yes	No	Yes	Yes
County by year FE	Yes	No	Yes	Yes	No	Yes
Domain by year FE	Yes	Yes	Yes	Yes	Yes	Yes

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				(0.007)	(0.004)	(0.005)
Panel B: Fiscal input among non-experimentation sites during national policy roll-out						
# of rolled out policies	0.001	0.001	0.001	0.001	0.001	0.001
	(0.001)	(0.0004)	(0.001)	(0.003)	(0.001)	(0.002)
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County by year FE	Yes	No	Yes	Yes	No	Yes
Domain by year FE	Yes	Yes	Yes	Yes	Yes	Yes

- Event study specification: no increase in expenditure prior to exp.; ▸ Results
- Results hold among exp. w/o fiscal support from central govt.; ▸ Results
- Larger results if exp. may not require additional fiscal inputs; ▸ Results
- Results robust to alternative measures of career incentives. ▸ Results
- Results unlikely to be driven by data manipulation (exaggerated reporting).

3. Naive interpretation of experimentation outcomes?

Policy learning and location-specific shocks

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- Land sale revenue was a major fiscal windfall in the 2000s;
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	National roll-out		
	(1)	(2)	(3)
Land revenue (instrumented)	0.020***	0.039***	0.029***
	(0.002)	(0.003)	(0.003)
# of obs.	18,464	18,464	18,464
Mean of DV	0.509	0.509	0.509
Ministry FE	No	No	Yes
Year FE	Yes	Yes	Yes
County FE	No	Yes	Yes

- Future interest rates do *not* predict contemporaneous land revenues; ▸ Results
- Future revenue windfall is *not* associated with increase in policy national roll-out. ▸ Results

Does policy's national roll-out depend on exp. outcomes?

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A. Pre vs. post

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A. Pre vs. post

B. Controlling for provincial trend

C. Synthetic control

▸ Details

4. Consequences on policy learning and policy outcomes?

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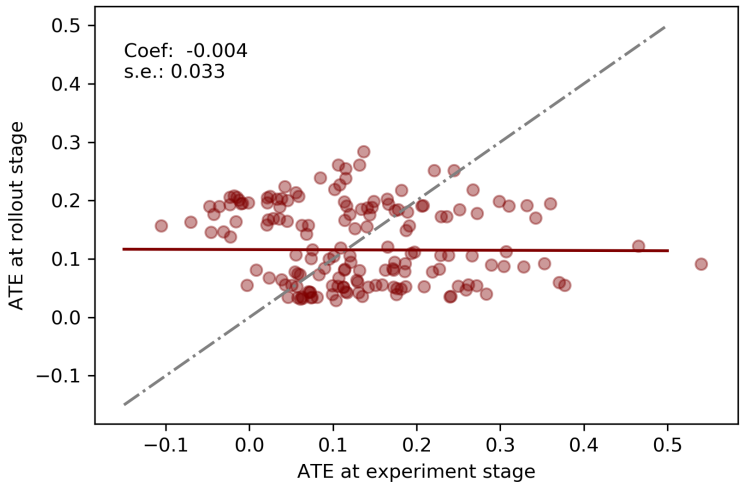

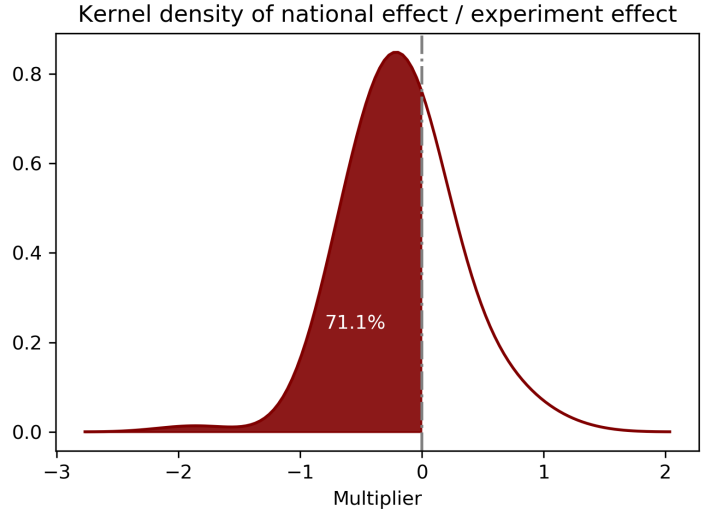

- Example: net zero overall effects of county fiscal empowerment exp. ▸ Details
- Results robust controlling for selection bias and endogenous efforts. ▸ Results
- National policy effects: what do exp. effects predict? ▸ Results

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  - Socioeconomic conditions *prior to* experimentation;
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- Policy and county FEs: identifying variations from composition of experimentation sites.

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	GDP per capita *(pre vs. post)*		
	(1)	(2)	(3)
Panel A: Selection of experimentation sites			
M-distance on local development	-0.007***	-0.007***	-0.006***
	(0.001)	(0.001)	(0.001)
# of obs.	77,588	77,588	77,588
Mean of DV	0.0806	0.0806	0.0806
Panel B: Endogenous efforts during experimentation			
M-distance on career incentives	-0.001***	-0.002***	-0.0001
	(0.0002)	(0.0003)	(0.0002)
# of obs.	86,221	86,221	86,221
Mean of DV	0.0930	0.0930	0.0930
Policy FE	No	No	Yes
Year FE	No	Yes	Yes
County FE	Yes	Yes	Yes

Discussion

Policy experimentation in China

We examine one of the largest scale of systematic policy experimentation in recent history.

1. Experimentation sites are substantially positively selected; misaligned incentives across political hierarchies account for much of the observed positive selection.
2. Unrepresentative experimental situation during experimentation: local politicians exert strategic efforts and allocate more resources that may exaggerate policy impacts.
3. Positive selection and experimenter effects not fully accounted for when evaluating experiments, biasing policy learning and national policies.

Policy experimentation in complex, political environment

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- Strong bureaucracy and centralization could facilitate implementation of systematic experimentation.
  - Contrast with under-experimentation under federalism. (Besley & Coate 2003; Mukand & Rodrik 2005; Callander & Harstad 2015)
- Misaligned incentives across political hierarchy could bias learning, inevitable in complex experimentation where bureaucracy needs to be involved.
  - Another form of capture and distortion in policy making (Stigler 1971; Peltzman 1976; Glaeser & Shleifer 2003; Bertrand et al. 2020): policy-making can be captured at the learning stage.
  - Trade-off: inducing efforts to improve policy outcomes, while minimizing experimenter effects that may bias learning. (Vivalt 2020; DellaVigna and Lino 2021)