Collective reputation and externalities in agriculture: Lessons from Fukushima nuclear accident

Masanori Matsuura-Kannari (IDE-JETRO), Taisuke Takayama (Fukushima U), Yuzuka Kashiwagi (Nihon U), Tetsuji Senda (Kyoto U), Takeshi Fujie (Meiji U)

IDE-JETRO

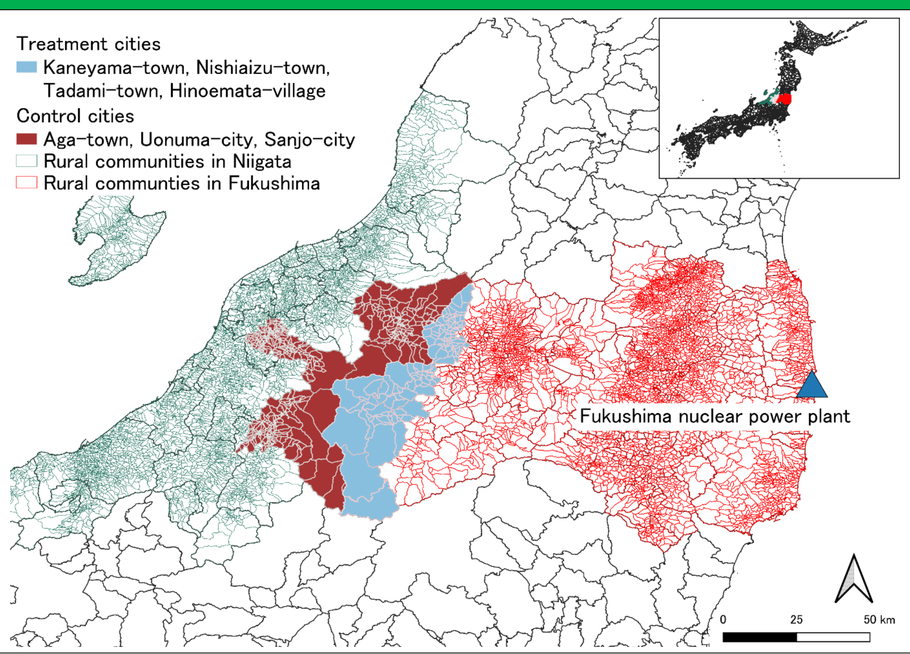
Motivation

- Collective reputation: idea of aggregate reputation of individual reputation
  - Countries, ethnic, racial or religious groups known to be hard-working, honest, corrupt, hospitable or belligerent (Tirole, 1996)
- The Great East Japan Earthquake (M 9.0)
  - Killed 15,900 people
  - Caused Tsunami
  - Triggered explosion of a nuclear power plant
  - Avoiding Fukushima
    - Food (Ito & Kuriyama, 2017)
    - Severe negative externalities on agriculture and environment

Motivation

- Fukushima
  - Agrarian area: rice (Aizu Koshihikari)
- Destruction by the earthquake and the tsunami
  - Not all areas of Fukushima (coastal side)
- Radioactive pollution by the accident
  - Not all areas of Fukushima (coastal side)
- Import ban for agricultural products by many countries after the accident

Motivation



Research question and contribution

- Does the reputational damage affect farmers' welfare and decision-making?
  - Not easy to isolate the effect from physical impacts of the earthquake and the tsunami
- Who are more affected?
- Many papers on collective reputation
  - Bachmann et al., 2023; Bai et al., 2022; Gergaud et al., 2017; Jin & Leslie, 2009; Koenig & Poncet, 2022; Matsumoto & Hoang, 2020
- Few studies with a focus on input decision-making

Data and empirical strategy

- Microdata of Agriculture, Forestry, and Fishery census in Japan
  - 1995, 2000, 2005, 2010, and 2015
  - 8000 households in every round
  - Household-level panel data
  - Restricted sample of farmers near boarder of Fukushima Prefecture and Niigata Prefecture
- Difference in differences (Two-way fixed effect)

$$y_{it} = \gamma Fukushima_p \times Post_t + \beta X_{it} + \delta_t + \epsilon_{it}$$

Result

- Reputational effects after the Fukushima nuclear accident

	Rice revenue	Owned paddy field	Cultivated paddy field	Total field rent out	Paddy field rent out
Fukushima	-0.124**	-0.060**	-0.103***	0.164**	0.223***
	(0.593)	(0.027)	(0.038)	(0.070)	(0.066)
Parallel trend	No	Yes	Yes	Yes	Yes
N	39,558	39,558	39,558	39,558	39,558

Result

- Reputation effect on eco-friendly farming

	No-pesticide	Manure fertilizer	Compost soil
Fukushima	-0.129***	-0.159***	-0.065***
	(0.023)	(0.023)	(0.018)
Parallel trend	No	No	Yes
N	28,501	28,501	28,501

Conclusion and further research

- Damaged collective reputation
  - Decrease in owned and cultivated paddy field
  - Increase in renting out
  - Decrease in eco-friendly agriculture
- High-valued agriculture affected
- Additional analysis
  - Heterogeneity of full-time/part time farmer
  - Heterogeneity of selling place
  - Heterogeneity of farm size

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