Leibniz Institute of Agricultural Development in Transition Economies

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# *Land property rights and investment incentives in Kazakhstan and Uzbekistan: evidence from farm survey data*


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# Land tenure module in Susadica survey

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Cultivate similar crops, but under different tenure conditions.

- legal security is weak: gov can easily terminate lease contracts
- control over production decisions.
- in Kazakhstan, land tenure is more legally secure and liberal

Thus, it is often argued farmers in Kazakhstan setting has higher investment incentives.

→ We dont really have some numerical value of legal security and decision-making autonomy.

The farm survey in selected settings

- 503 individual farmers in Turkistan province (Kazakhstan) is surveyed (337 private owners, and 166 lease owners).
- 460 lease owners in Samarkand province (Uzbekistan)

# We capitalize on this data

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Research objectives

1. We quantify four (conceptually distinct) land rights—**use (operational) rights, management, transfer**, and **protection rights**.

2. Econometrically explore if farmers with higher perceptions have higher quantities of **movable farm assets such as machinery and equipment**.

# Our approach to measure land tenure conditions in two settings

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| < 20 Rights surveyed (selected) |
|---|
| free to enter land |
| free to collect harvest |
| free to change ag purpose |
| free to choose crop |
| free to choose input |
| free to invest in land |
| free to exlude others<br>free to rent out |
| trust in courts in disputes against government |
| trust in courts in disputes against investors |

| Responses | Coded (Likert scale) |
|---|---|
| impossible/ cannot | 1 |
| rarely | 2 |
| occasionally | 3 |
| most of the times | 4 |
| always/can | 5 |

Farmers have choice to express uncertainty , not just YES or NO

**Example: quantifying land use rights**

| Responses | Coded (Likert scale) | Score assigned | ∑use bundle |
|---|---|---|---|
| impossible/cannot | 1 | 0 | **3** |
| rarely | 2 | 0.5 | |
| occasionally | 3 | | |
| most of the times | 4 | | |
| always/can | 5 | 1 | |

# Perceived tenure situation differences between settings and within

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| Private: 337 | mean | s.d | min | max |
|---|---|---|---|---|
| Use rights | 2.68 | 0.46 | 1 | 3 |
| Management rights | 4.45 | 0.78 | 1 | 5 |
| Alienation rights | 4.02 | 1.30 | 0 | 5 |
| Protection rights | **2.73** | 0.67 | 0.5 | 4 |
| Expropriation risk ← | 1.60 | 0.90 | 1 | 5 |
| **Use rights: 166** | 2.69 | 0.42 | 1.5 | 3 |
| Management rights | 4.35 | 0.66 | 2 | 5 |
| Alienation rights | 2.48 | 1.54 | 0 | 5 |
| Protection rights | **2.54** | 0.67 | 1 | 4 |
| Expropriation risk ← | 1.68 | 0.99 | 1 | 5 |
| **Use rights: 460** | 1.50 | 0.49 | 0 | 3 |
| Management rights | 2.75 | 0.76 | 0.5 | 5 |
| Alienation rights | 0.49 | 0.61 | 0 | 2 |
| Protection rights | **2.21** | 0.48 | 0.5 | 4 |
| Expropriation risk ← | 2.75 | 0.96 | 1 | 5 |

→ Most numerical values are in line with general qualitative description of tenure

→ Farmers assessment of own protection rights my be formed by others experience (Cheng et al 2022: '*Your misfortune is my misfortune*').

# Part 2: Econometric estimation

## Land tenure rights (four bundles and expropration risk) and investment.

# Measuring investment, model choice, and specification

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J.1 Inventory and transactions

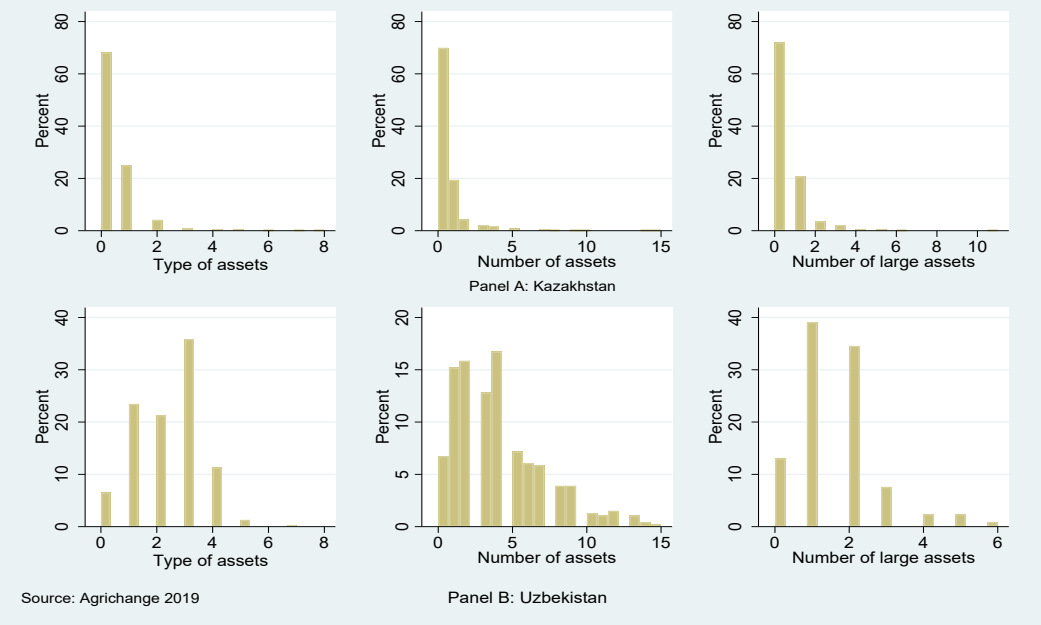
| | Types of farm equipment and machinery | Did you own the following equipment and machinery in 2018? (Yes=1; No=0) | How many of the following equipment and machinery did you own in 2018? |
|---|---|---|---|
| 1 | Tractor | | |
| 2 | Trailer | | |
| 3 | Lorry | | |
| 4 | Mechanized irrigation pump | | |
| 5 | Sower machine | | |
| 6 | Grain combine | | |
| 7 | Mechanized cotton harvester / combine | | |
| 8 | Mechanized fruit harvester | | |

## Three measures of investment

$$\sum Asset\ diversity_{types}$$

$$\sum Asset\ quantity_{low-value}$$

$$\sum Asset\ quantity_{high-value}$$




## Model choice

Count data → count models Poisson, Negative binomial, etc. (KAZ)

GLM and NB → Uzb.

## Model specification

*I (private)= F (Land tenure vars; Farm and Personal characteristics, Districts)*

Note: Studies which use similar approach to measure investment (**Omura 2008; Sources**).

# Summary of findings from econometric analysis

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| | Kaz private owners | Kaz lease owners | Uzb lease owners |
|---|---|---|---|
| Use rights | **+++** | **+** (low value assets) | **---** |
| Management rights | | | **+** (low-value assets) |
| Alienation rights | | | **-** (low-value assets)<br>**+** (high-value assets) |
| Protection rights | | **+** (high-value assets) | - (low-value assets) |
| Expropriation risk | | **---** | **+***** (low value assets) |

**First, interpretation:**

+++ or + (investment measure) --> farmers invest as their perceptions of land rights increase

--- or – () --> farmers reduce investment as perceptions increase

# Summary

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In existing literature

- 2 commonly accepted measures of tenure security: transfer and protection rights
- land use (operational) and management rights not separated

Our evidence suggests in Kazakhstan setting,

- **Investment incentives** for private and lease owners are coming from **mainly from land use flexibility** (esp. **crop choice** flexibility).
- But lease owners face additional tenure constraint—weak protection rights.

In Uzbekistan setting,

- Investment incentives are coming from land management and alienation rights.
- They also acquire low value assets as they feel weak protection rights.

Definition of land tenure security should include also land use and management flexibility.

- Surprisingly this has been awknowledge in sub-literature *intra-household bargaining*
  - women decision making power in farming decisions, keeping income from activities.
- But ignored in mainstream literature *land property individualization*.

# Reference




- Cheng, M., Du, J., Ye, C., & Zhang, Q. (2022). Your misfortune is also mine: Land expropriation, property rights insecurity, and household behaviors in rural China. Journal of Comparative Economics, 50(4), 1068-1086.
- Galudra, G. (2010). *RaTA: A Rapid Land Tenure Assessment manual for identifying the nature of land tenure conflicts*. World Agroforestry Centre.
- Huntington, H., & Stevens, C. (2023). Taking stock of global land indicators: A comparative analysis of approaches for a globally consistent land tenure security measure. *Land Use Policy*, *124*, 106376.
- Oberkircher, L. (2011). On pumps and paradigms: water scarcity and technology adoption in Uzbekistan. *Society & Natural Resources*, *24*(12), 1270-1285.
- Qian, C., Antonides, G., Heerink, N., Zhu, X., & Ma, X. (2022). An economic-psychological perspective on perceived land tenure security: Evidence from rural eastern China. *Land Use Policy*, *120*, 106294.

# Q & A ?

Maybe some comments, insights?