

# Land Security and Mobility Frictions

Tasso Adamopoulos  
York University

Loren Brandt  
University of Toronto

Chaoran Chen  
York University

Diego Restuccia  
University of Toronto  
and NBER

Xiaoyun Wei  
Shanghai Jiaotong  
University

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# Motivation

- ▶ Literature views labor mobility barriers as key constraint on rural-urban migration
- ▶ We instead focus on insecure land tenure as an implicit migration cost:
  - ▶ renting land out: costly with potential risk of losing land
  - ▶ having family members continue farming helps “secure” their landholdings
- ▶ Our research question:
  - ▶ quantify migration cost arising from insecure land tenure versus “residual”

# Model

- ▶ Build a model nesting individual occupational choice with family decision
  - ▶ individual: occupational choice (agr versus non-agr) as in Roy '51
    - ▶ Non-agriculture: idiosyncratic labor mobility barriers (implicit taxes)
  - ▶ family decision: who (if any) works as the farm operator
    - ▶ Assigning an operator: gets farm profit + secures land
    - ▶ at cost of the outside option of this operator
    - ▶ may not aim to maximize profit (could be minimizing opportunity cost)
    - ▶ if aim to secure the land: least productive individual to be the operator
  - ▶ highlights within family selection
- ▶ Close the economy in a general equilibrium with structural transformation from agricultural to non-agricultural sectors

# Individual Occupational Choice and Family Decisions

- ▶ Heterogeneous individuals choose to work in agriculture or non-agriculture
  - ▶ Non-agriculture: idiosyncratic labor mobility barriers (implicit taxes)
- ▶ Each family can assign one individual as farm operator
  - ▶ If individual  $j$  is the farm operator, then the household income is given by

$$I_i(\text{operator} = j) = \pi_{ij} + \sum_{k \neq j} inc_{ik}$$

- ▶ pick the  $j$  that maximizes the total income:

$$I_i = \max_{j \in J} \{I_i(\text{operator} = j)\}.$$

- ▶ A family can choose not to operate a farm (no operator)
  - ▶ This household's allocated land may be expropriated—expected loss  $b_i$
  - ▶ Everyone is free to choose their own occupations

$$I_i^n = \sum_j inc_{ij} - b_i.$$

# Calibration and Estimation

- ▶ Unique household and individual panel data (RCRE's Fixed Point Survey)
  - ▶ Farm inputs and outputs; used to estimate farm productivity and wedges
  - ▶ Individual labor supply to agriculture, rural/urban non-agriculture and wage
  - ▶ Supplementary survey on land redistribution or land taking risks
- ▶ Calibrate a benchmark economy to 2004 data moments using SMM

# Relative Importance of Two Frictions: Baseline (2004)

- ▶ Disentangle the relative importance of land insecurity from mobility barriers
  - ▶ Shut down land insecurity and mobility barriers separately

	Baseline	Land Security	No Labor Barriers
Village families operating farms (%)	71.8	42.7	50.2
Agr employment share among villagers (%)	56.6	51.1	47.3
$\Delta$ Agricultural labor productivity (%)	–	+10.5	+11.8
Within-household selection in farming: % of farm operators with highest $s_{ij}$	56.0	60.3	57.6

## Relative Importance of Frictions: 2004 VS 2018

- ▶ Recalibrate the model to 2018 moments
- ▶ Perform counterfactual based on the benchmark 2004 economy:
  - ▶ change land insecurity or labor mobility barriers to 2018 level separately

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	Baseline	2018 Land Security	2018 Labor Barriers
Village households operating farms (%)	71.9	53.9	72.8
Agr employment share among villagers (%)	56.6	53.2	57.2
$\Delta$ Agricultural labor productivity (%)	–	+6.2	–0.2

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- ▶ Overall migration cost reduces over time
  - ▶ mostly from the part tied to land—consistent with literature on land reform
  - ▶ the “residual” mobility barriers barely change



# Interaction between Land Insecurity and Misallocation

	Baseline	Land Security	No Output Wedges	+ Land Security
Village households operating farms (%)	71.9	42.7	48.8	2.4
Agr. employment share among villagers (%)	56.6	51.1	33.5	21.4
<b>Δ Agricultural labor productivity (%)</b>	–	<b>+10.5</b>	–	<b>+63.4</b>
Within-household selection in farming: % of farm operators with highest $s_{ij}$	56.0	60.3	38.7	91.3

- ▶ Land security increases productivity more in an economy without misallocation
- ▶ Key: where does the land surrendered by zombie farms go to? More productive farmers or more “subsidized” farmers?

# Conclusion

- ▶ Important features of China's structural transformation
- ▶ Build a framework:
  - ▶ nesting individual's occupational choice with family decision on farming
  - ▶ land insecurity can be an implicit migration cost
  - ▶ highlights the importance of within-family selection
- ▶ Estimate the model using rich micro data and SMM.
- ▶ Land insecurity is an important component of migration cost.
  - ▶ crucial in explaining the prevalence of small/unproductive/subsistence farms.
- ▶ Overall migration cost reduces over time
  - ▶ mostly from the part tied to land: consistent with studies on land titling reform
  - ▶ the “residual” mobility barriers barely change
- ▶ Important interaction between land insecurity and static misallocation