

**THE EFFECTS OF IMPROVED LAND RIGHTS ON  
LAND MARKETS, LAND USE EFFICIENCY,  
EMPLOYMENT AND HOUSEHOLD WELFARE:  
EVIDENCE FROM THE 2013 VIETNAM LAND LAW**

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# Introduction

- Access to and utilization of farm land is crucial in driving agricultural productivity and fostering economic growth.
- An efficient land rental and/or sales market would optimize allocation of production resources and increase productivity (Ayerst et al. 2022; Chen et al. 2023)
- An effective land markets are also found to
  - improve income and alleviate poverty (de Janvry 2001; Ghebru et al. 2009; Jin and Jayne 2013; Zhang et al. 2018; Seewald et al. 2023),
  - enhance food security (Ricker-Gilbert and Chamberlain 2018; Muraoka et al. 2022), and
  - facilitate economic growth and transformation (Deininger 2003; de Janvry et al. 2015)

# Introduction

- The land rental and/or sales markets are found to be underperformed in many developing countries (Brandt et al. 2002; Deininger, Jin and Nagarajan 2008; Ghebru et al. 2009; Rie et al. 2018; Ricker-Gilbert and Chamberlain 2018).
- Tenure insecurity is a prevalent hindrance to the effective functioning of land markets (Brandt et al. 2017; Crewett and Korf, 2008; Do and Iyer, 2003 and 2008; Deininger et al. 2011).

# Introduction

- There has been a large literature examining the impacts of various land titling programs on productivity, investments, land values, and land market participation (Brandt et al. 2017; Crewett and Korf, 2008; Do and Iyer, 2003 and 2008; Gao, Shi, and Fang 2021; Galiani and Ernesto 2010; Barajas 2023; Jacoby and Minten 2017; Zhou et al. 2022).
- However, research regarding the effects of land laws on land markets and broader economic outcomes has been scarce, with few exceptions (Deininger and Jin 2009; Holden, Deininger, and Ghebru 2010; Chari et al. 2020; Bellemare et al. 2020).

# Introduction

- This study aims to fill the gap by estimating the effects of the passage of the 2013 land law in Vietnam on land transfers and related economic outcomes.
- The findings of this study are likely to have important implications for future land policy in Vietnam and other developing countries.
- Methodologically, the fact that the land law only affects annual land, not the perennial land, creates an opportunity for us to employ the difference-in-differences (DID) strategy to more rigorously identify the land law effects.

# Research Questions

- How has the passage of the 2013 land law impacted land rental and land sales activities?
- Has the passage of the law further enhanced the efficient allocation of land rental and sales markets in Vietnam?
- How has the passage of the law affected household's labor employment and welfare?

# Background

- In Vietnam, land ownership belongs to the people, managed by the state, and land use rights are allocated and leased to the individual holders.
- 1988 was the first land law, followed by 1993, 2003, 2013, and 2023 updates
- Each update has been aimed at improving and strengthening land use rights.



# Background

- Starting from 1993, annual land lease contracts last 20 years while perennial land lease contracts last 50 years
  - By 2012, annual land use rights were set to expire.
  - The 2013 Land Law extends the annual land contracts to last a total of 50 years, while not affecting perennial land lease holders.
- Opportunity to use difference-in-differences design
- First difference is between annual and perennial plots
  - Second difference is between after and before the law

# Conceptual framework

- Household's problem:

$$\begin{aligned} \text{Max}_{L^{Out}, L^{In}, N^{In}} & pf(\alpha; \bar{L} - L^{Out} + L^{In}, \bar{N} - N^{Out}) \\ & + (r - TC^{Out})L^{Out} - (r + TC^{In})L^{In} + wN^{Out} \end{aligned}$$

Production  $f(\alpha; L, N)$  where  $f_\alpha > 0, f' > 0, f'' < 0$  with farming ability  $\alpha$ , land  $L$  at price  $r$  and endowment  $\bar{L}$ , labor  $N$  at wage  $w$  and with endowment  $\bar{N}$ .  $TC$  are transaction costs.

$$\text{FOC: } pf_L = r - TC^{Out} \quad \text{or} \quad pf_L = r + TC^{In}$$

$$\text{and } pf_N = w$$

(1)

# Hypotheses

- **Proposition 1:** The passage of 2013 land law increases the probability of leasing out (due to the reduction of transaction cost).
- **Proposition 2:** While the land law has no direct effect on transaction cost of leasing in land, leasing in land is expected to increase (the equilibrium effect).
- **Proposition 3:** The probability of renting in (out) land is strictly increasing (decreasing) in households' agricultural ability ( $\alpha$ ).
- **Proposition 4:** The passage of 2013 land law leads to a higher probability of hiring out labor from the farm.
- **Proposition 5:** The passage of 2013 land law improves income.
- We expect the effects of the law on selling and purchasing land to have the same direction as renting out and renting in land.

# Data

- Vietnam Access to Resources Household Survey (VARHS)
- Household panel data representative of the rural population
- Plot level data on land transfer outcomes (Lease out, Lease in, Sell, Purchase)
- Before the law: 2008, 2010, 2012  
After the law: 2014, 2016

# Estimating the effects on land transfers

- Difference-in-differences (DID) strategy

$$y_{iht} = \beta_0 + \beta_1 TREAT_{iht} + \beta_2 T_t + \beta_3 (TREAT_{iht} \cdot POST_t) + \beta_4 Z_{iht} + \sigma_h + \epsilon_{it} \quad (2)$$

- Plot  $i$  household  $h$  year  $t$
- $y_{iht}$  dummy for {rented out, rented in, sold, purchased}
- $TREAT_{iht}$  dummy for annual type plots
- $T_t$  is the year  $t$  fixed effect
- $P_t = 1$  for observations from years 2014 and 2016 after the law is implemented and 0 otherwise
- $Z_{iht}$  are plot and household characteristics
- $\sigma_h$  is household  $h$  fixed effect
- $\epsilon_{iht}$  is random error terms with mean zero.
- $\beta_3$  is the DID estimate of the Land Law impact on transfer outcomes

# Effects on Land Transfers

- Pre-trend test

	(1) Rented Out	(2) Rented In	(3) Sold	(4) Purchased
Annual x Year 2008	-0.010 (0.008)	0.006 (0.008)	-0.004 (0.011)	0.008 (0.018)
Annual x Year 2012	0.007 (0.008)	0.001 (0.008)	-0.026** (0.012)	-0.026** (0.011)
Observations	30,544	30,870	30,145	30,544
R-squared	0.528	0.357	0.237	0.237

Note: Control is included throughout but coefficients that are not reported include, plot land quality, household head's gender, age, squared age, education, and household size, distance between plot and home, log of plot area, dummy for average quality plot, and dummy for above average quality plot. Standard errors are clustered at the commune level. Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$ .

# Effects on Land Transfers

- DID results: Effects of land law on land transfers

		Post-law vs Pre-law			
		(1)	(2)	(3)	(4)
		Rented Out	Rented In	Sold	Purchased
<i>Post-law vs. Pre-law</i>	Annual x Post-law	0.034*** (0.009)	0.004 (0.009)	0.056*** (0.017)	0.023 (0.016)
<i>By individual years</i>	Annual x Year 2008	-0.013 (0.009)	0.004 (0.008)	-0.004 (0.011)	0.008 (0.018)
	Annual x Year 2014	0.020** (0.010)	0.005 (0.009)	0.084*** (0.027)	0.030 (0.019)
	Annual x Year 2016	0.035*** (0.011)	0.007 (0.010)	0.026* (0.015)	0.024 (0.015)
	Mean	0.071 (0.001)	0.060 (0.001)	0.063 (0.001)	0.050 (0.001)
	Observations	38,573	38,122	39,072	38,573
	R-squared	0.480	0.328	0.257	0.185

Note: Control is included throughout but coefficients that are not reported include, plot land quality, household head's gender, age, squared age, education, and household size, distance between plot and home, log of plot area, dummy for average quality plot, and dummy for above average quality plot. Standard errors are clustered at the commune level. Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.10.

# Estimating the Effects on Efficiency

- Household annual crop production function:

$$y_{ht} = \alpha_0 + \alpha_1 l_{ht} + \alpha_2 n_{ht} + \alpha_3 m_{ht} + \alpha_4 X_{ht} + \alpha_h + \alpha_t + \epsilon_{ht} \quad (3)$$

- Household  $h$  year  $t$
- $y_{ht}$  is logarithm of (rice, or rice and maize) crop value.
- Input factors land ( $l$ ), labor ( $n$ ), and intermediate input ( $m$ ).
- Covariate  $X_{ht}$  represents household demographics, land characteristics, quality and weather variables.
- $\alpha_h$  and  $\alpha_t$  are household and year fixed effects.

→ Fixed effects estimation to predict household's time-invariant ability  $\widehat{\alpha}_h$



# Estimating the Effects on Efficiency

- Econometrics model to explore the relationship between the 2013 land law and the allocative efficiency:

$$y_{ht} = \beta_0 + \beta_1 HA_h + \beta_2 T_t + \beta_3 (HA_h \cdot POST_t) + \beta_4 Z_{ht} + \epsilon_{ht} \quad (4)$$

- $y_{ht}$  is **household's** annual land transfer outcomes (Lease out, lease in, sold, bought).
- $HA_h$  is the time-invariant household fixed component  $\widehat{\alpha}_h$  from equation (2).
- $\beta_1$  represents the extent land transaction is driven by farming ability pre-law.
- Most relevantly, the coefficient  $\beta_3$  represents the difference in rental likelihood post-law specifically driven by household's farming ability.  $\beta_3 = 0$  would indicate that the policy has little marginal effect on redistributing land in a manner that would improve market efficiency.

# Results: Land law & allocative efficiency

	Rice				Rice and Maize			
	(1) Rented Out	(2) Rented In	(3) Sold	(4) Purchased	(1) Rented Out	(2) Rented In	(3) Sold	(4) Purchased
HA x Post-law	-0.015 (0.017)	-0.028 (0.022)	0.007 (0.020)	-0.000 (0.030)	-0.012 (0.016)	-0.033 (0.021)	0.020 (0.016)	0.055 (0.035)
HA	-0.043*** (0.016)	0.062* (0.033)	-0.024** (0.011)	0.015 (0.026)	-0.050*** (0.017)	0.071** (0.033)	-0.028*** (0.010)	-0.045 (0.029)
HA x Year 2008	0.010 (0.018)	0.042** (0.020)	0.024 (0.019)	0.020 (0.037)	0.006 (0.016)	0.027 (0.017)	0.019 (0.017)	-0.037 (0.035)
HA x Year 2014	-0.019 (0.019)	-0.004 (0.021)	0.029 (0.034)	-0.000 (0.044)	-0.021 (0.018)	-0.015 (0.018)	0.033 (0.027)	0.036 (0.044)
HA x Year 2016	-0.001 (0.027)	-0.010 (0.025)	0.009 (0.024)	0.019 (0.038)	0.003 (0.026)	-0.024 (0.023)	0.025 (0.022)	0.037 (0.034)
HA	-0.048** (0.021)	0.041 (0.034)	-0.036* (0.020)	0.005 (0.033)	-0.053** (0.022)	0.057* (0.032)	-0.037** (0.018)	-0.027 (0.031)
Mean	0.115 (0.003)	0.135 (0.004)	0.093 (0.003)	0.150 (0.004)	0.115 (0.003)	0.135 (0.004)	0.093 (0.003)	0.150 (0.004)
Observations	9,291	9,291	9,367	9,367	9,291	9,291	9,367	9,367
R-squared	0.107	0.032	0.065	0.023	0.109	0.034	0.065	0.024

Note: Control is included throughout but coefficients that are not reported include, household head's gender, age, squared age, education, and household size. Standard errors are clustered at the commune level. Robust standard errors in parentheses.  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.10.

# Estimating the Effects on HH Welfare

- Econometrics model to estimate the relationship b/t 2013 land law and labor allocation and household expenditures

$$y_{ht} = \beta_0 + \beta_1 TREAT_{ht} + \beta_2 T_t + \beta_3 (TREAT_{ht} \cdot POST_t) + \beta_4 Z_{ht} + \sigma_h + \epsilon_{ht} \quad (5)$$

- $y_{ht}$  denote outcomes for households  $h$  in year  $t$ .
  - $y_{ht} = 1$  if households work on farm, off farm, have members working for wage, and in agriculture-related fields, and have members working in their own commune, outside of their commune or even outside of their province.
  - Logarithm of household's expenditure per capita.
- $TREAT_{ht}$  denote household  $h$ 's lag ratio in year  $t - 2$  of annual landholdings to total landholding.

# Results

- Relationship between the 2013 land law and labor allocation and household expenditures

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Wage Labor	Nonfarm Wage Labor	Farm Wage Labor	Wage Labor in Commune	Wage Labor in Province	Wage Labor Outside of Province	Owned Business	Food Expenditure Per Capita
Lagged Annual Ratio x Post Law	0.111*** (0.036)	0.014 (0.038)	0.141*** (0.048)	0.136*** (0.046)	-0.001 (0.027)	0.030 (0.024)	0.013 (0.046)	0.128* (0.072)
Lagged Annual Ratio x Year 2014	0.133*** (0.051)	0.035 (0.039)	0.129** (0.053)	0.154*** (0.051)	0.005 (0.032)	0.018 (0.027)	-0.006 (0.040)	0.189** (0.089)
Lagged Annual Ratio x Year 2016	0.091* (0.052)	0.005 (0.043)	0.162*** (0.053)	0.136*** (0.049)	-0.007 (0.032)	0.045 (0.028)	0.036 (0.063)	0.116 (0.077)
Mean	0.606 (0.005)	0.434 (0.005)	0.237 (0.004)	0.430 (0.005)	0.193 (0.004)	0.083 (0.003)	0.229 (0.004)	4.710 (0.009)
Observations	7,795	7,795	7,795	7,795	7,795	7,795	7,797	7,797
R-squared	0.539	0.607	0.524	0.504	0.525	0.437	0.567	0.662

Note: Control is included throughout but coefficients that are not reported include, household head's gender, age, squared age, education, household size, and lagged annual and perennial landholdings (log). Standard errors are clustered at the commune level. Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.10.

# Conclusion and policy implications

- We find that increased tenure security from the 2013 Land Law leads to
  - improved land use efficiency through promoting higher land market activity
  - occupation structure changes by shifting from self-employed farm work to agriculture-related wage employment.
  - higher welfare by an increase in household expenditures per capita.
- Methodologically, the distinction between the law's impact on annual land and perennial land provides a distinctive opportunity for rigorous evaluation.
- Land law without involving systematic titling can have significant effect on efficiency and development.

# Limitations

There are several caveats of the current study.

- First, we are not able to perform true DID analysis on the household outcomes.
- Second, we are not able to provide a more complete impact evaluation of the law on the demand for land, mainly due to the lack of information on other non-household-based land operators.
- Third, the estimated effects of the land law are relatively short-term.

# Future research

- Use more recent and nation-wide data to explore long-term effects
- Extend to broader development indicators such as poverty alleviation, land and income inequality, etc.