

PROPERTY RIGHTS, LAND MARKETS, AND LAND USE IN BANGKOK: CONSEQUENCES OF SIAM'S 1901 LAND TITLE DEED ACT

Dr. Jessica Vechbanyongratana
Faculty of Economics, Chulalongkorn University

Research Questions

- Did the change from usufruct rights to full private property rights in land following Siam's 1901 Land Title Deed Act lead to:
 1. greater land market activity?
 2. diversification of land use in Bangkok?

Related Literature

- Besley and Ghatak (2010) – Comprehensive overview of the interplay between property rights and economic development
- Impact of land rights formalization on land markets:
 - ▣ Ravallion and van de Walle (2008)
 - Introduction of transferable usufruct rights created a robust market for rural land in Vietnam
 - ▣ Barnes and Griffith-Charles (2007)
 - Formalization of land rights in St. Lucia did not led to a vital urban land market because supporting government and cultural institutions were not in place.
- This paper considers the impact of introducing one dimension of land rights security on land market activity and land use in an urban land market.

Historical Background

19th Century Property Rights in Land

- Land rights were based on rights of usufruct.
- Land deeds were issued to cultivators who cleared land and proved to local government officials that they had made the plot productive within 3 years.
- After significant depopulation after the fall of Ayutthaya, these land institutions resulted in the settling of land around Bangkok by many smallholders.
- Legally, owners had the right to use the land for agriculture, use the deed as collateral for loans, and transfer property as long as land taxes were paid on an annual basis.

Were 19th century land rights secure?

- Previous researchers claim that 19th century Siamese land rights were insecure:
 - “Property rights in land in the mid-nineteenth century do not appear to have been well defined” and were generally ad hoc and lacking systemization prior to reforms (Feeny 1982, 93-94).
 - Prior to the modernization of the land code in 1901, “the expansion of land use in Siam was complicated by the fact that it was not clear which land belonged to whom” (Larsson 2012, 32).
 - Traditional *chanote tra daeng* deeds were “not important for the commoner nor the official” (Chitchang 2013, 137 and 139).

Were 19th century land rights secure?

- Besley and Ghatak (2010) discuss 4 ways in which insecure property rights negatively affect economic efficiency:
 1. High expropriation risk → low investment incentive
 2. Insecure/ill-defined property rights → need to defend property
 3. Insecure/ill-defined property rights → inability to use property as collateral (“dead asset”)
 4. Insecure/ill-defined property rights → reduces ability to utilize land to its best possible alternative use

Were 19th century land rights secure?

- Changkrajang and Vechbanyongratana (2016) note that 19th century land rights were secure in most dimensions.
 1. Expropriation risk minimal as evidenced by cultivation of long-term orchard crops in primary documents
 2. Insecure/ill-defined property rights unlikely given systematic land recordkeeping and evidence of formal arbitration of disputes
 3. Right to use land as collateral is given in law and observed in practice
- But...
 4. **Risk of deed loss due to lack of crop maintenance or change in land use.**

Historical Background

1901 Land Title Deed Act

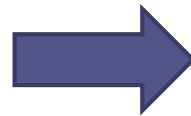
- King Chulalongkorn enacted the 1901 Land Title Deed Act
 - ▣ Introduced full private property rights in land
 - ▣ Divorced land use from land rights
- Potential reasons behind the enactment of the 1901 Land Title Deed Act
 - ▣ **Economic explanation:** Increased value of land as a factor of production in rice cultivation following the 1855 Bowring Treaty and other subsequent treaties was accompanied by the need for stronger property rights in land (Feeny 1989)
 - ▣ **Political explanation:** Introduction of full private property rights and titling based on cadastral survey was a political tool for keeping potential colonizers (British and French in particular) from encroaching further on Siam's territory (Larsson 2012)

Hypothesis

1901 Land Title Deed Act

Before 1901

- Usufruct rights in land
- Transferable
- Risk of loss due to
 - lack of crop maintenance
 - land use change



After 1901

- Full private property rights in land
- Transferable
- Reduced risk of deed loss since ownership is no longer tied to agricultural use

Reduced
risk of loss

Diversified potential
productive activities

Increase land market
activity in Bangkok's
growing commercial areas

Data

- Government copies of garden title deeds (*tonkua chanote suan*)
 - ▣ Served 2 purposes:
 - Ownership document for areca and fruit orchards
 - Tax document (taxes assessed per mature fruit tree)
 - ▣ Issued in 1884-89 during a comprehensive orchard tax reassessment ordered by King Chulalongkorn in 1882 (collection resides at the Department of Land Museum)
 - ▣ Records include:
 - Plot characteristics (location, size, tax assessment, productivity (tax per *rai*), and border properties)
 - Owner characteristics (social class, gender, relationship between owners)

6

Registration date

[illegible]

Border properties in the 4 cardinal directions

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Names of
transfer owners

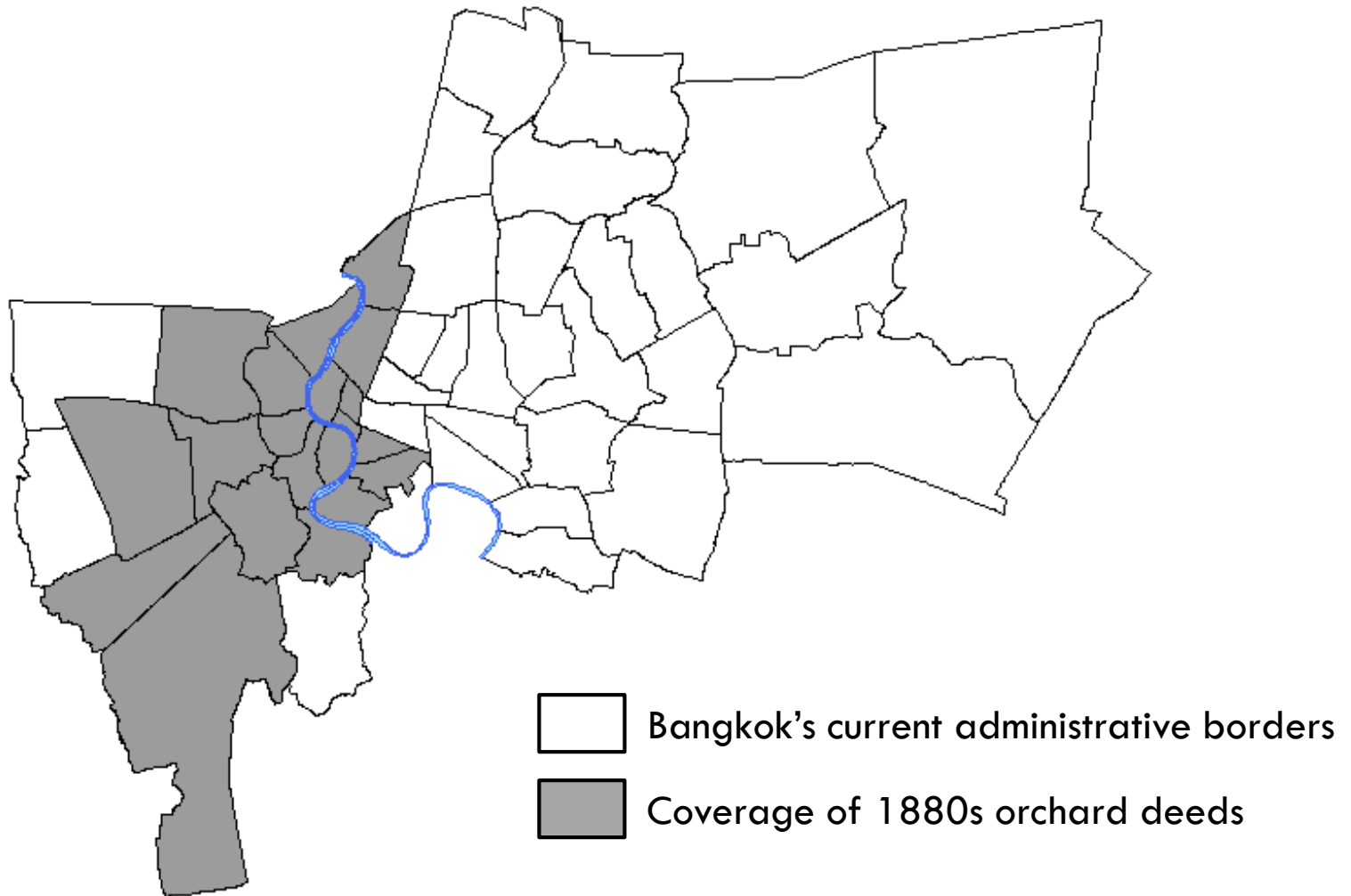
Date transfer of ownership was recorded

Details of the transfer

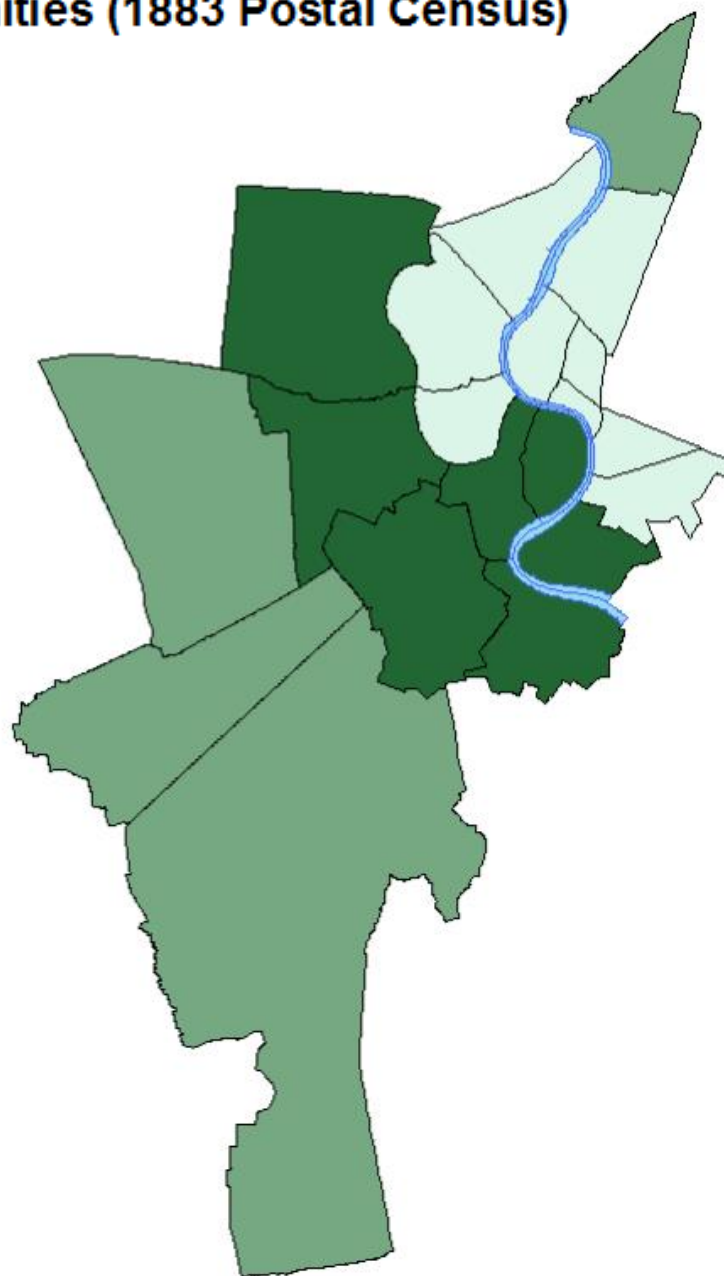
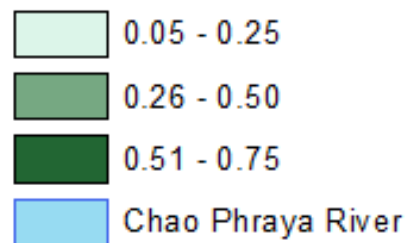
Data

- This sample:
 - ▣ 9,934 orchard land deeds
 - Excludes 137 government- and temple-owned properties
 - ▣ Located in 20 districts in Bangkok

Orchard Deed Sample Coverage



Proportion of Households Engaged in Orchard Cultivation in Bangkok Klong Communities (1883 Postal Census)



Map of Bangkok Land Use, 1896



Source: Royal Survey Department

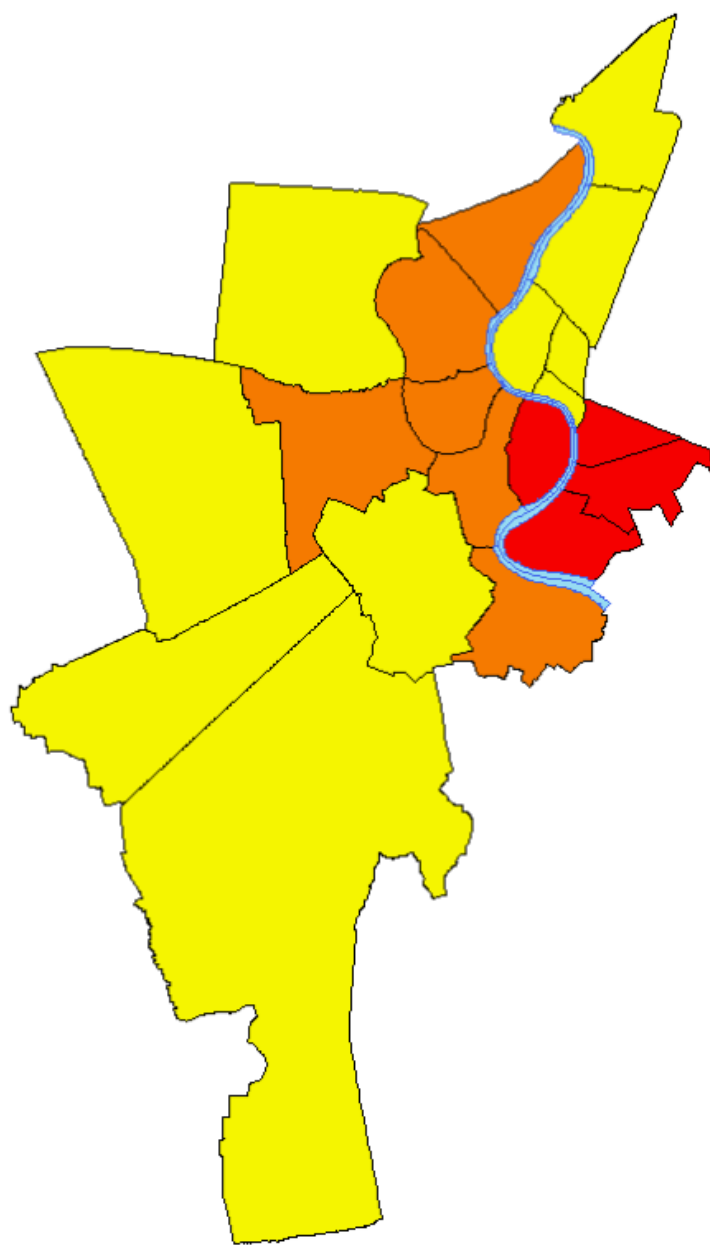
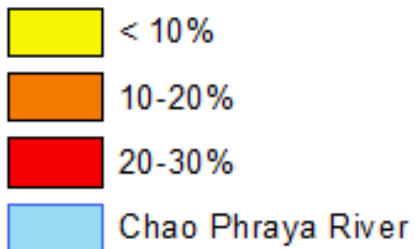
Summary Statistics (N=9,934)

Variable	Measurement	Mean	Std. Dev.
Transfer	0/1	0.13	0.33
District on East Bank of Chao Phraya River	0/1	0.27	0.45
District on West Bank of Chao Phraya River	0/1	0.40	0.49
District in Western Frontier	0/1	0.33	0.47
Tax per Rai	Baht	1.59	2.04
Total Rai	Rai	4.66	6.60
Borders Transportation Network	0/1	0.50	0.50
Borders Canal	0/1	0.45	0.50
Borders River	0/1	0.02	0.13
Borders Road	0/1	0.06	0.24
Borders Village or Temple	0/1	0.06	0.25
Borders Irrigation Ditch	0/1	0.08	0.27
Ordinary Thai Owner	0/1	0.85	0.36
Chinese/Foreign Owner	0/1	0.06	0.23
Elite Thai Owner	0/1	0.10	0.30
Single Listed Owner	0/1	0.27	0.45

Geographical Distribution of Properties and Transfers

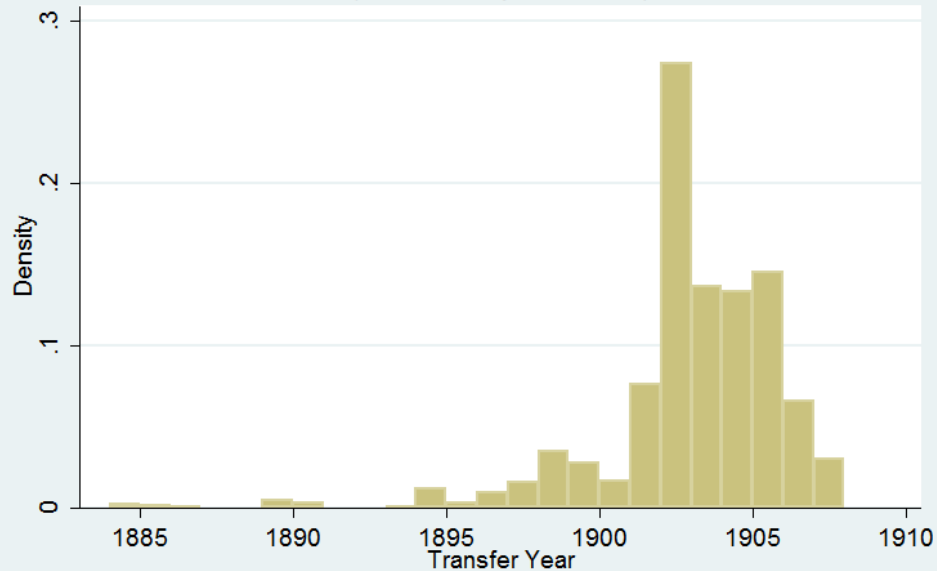
Area	Total Number of Deeds	% of Properties Transferred	% Transferred before 1901	% Transferred after 1901
<i>East Bank of Chao Phraya River</i>				
Bang Rak and Sathorn	319	28.4	3.8	24.8
Phra Nakorn, Dusit, Pom Prap Sattru Phai, and Samphanthawong	457	8.8	2.8	5.9
Koh Laem	458	20.1	4.4	15.7
Bang Sue	1,483	6.5	1.1	5.4
<i>West Bank of Chao Phraya River</i>				
Bang Phlat	262	13.0	2.3	10.7
Klongsan	279	20.8	11.8	9.0
Rat Burana	623	13.3	5.0	8.3
Thonburi	1,027	18.8	6.1	12.7
Bangkok Noi and Bangkok Yai	1,767	15.9	3.6	12.3
<i>West Frontier</i>				
Bang Khae	110	8.2	2.7	5.5
Chom Thong	510	9.8	3.3	6.5
Bang Khunthian and Bang Bon	634	8.2	3.3	4.9
Phasi Charoen	764	11.5	5.0	6.5
Talingchan	1,241	8.5	2.7	5.8

Proportion of Properties Transferred, 1884-1908

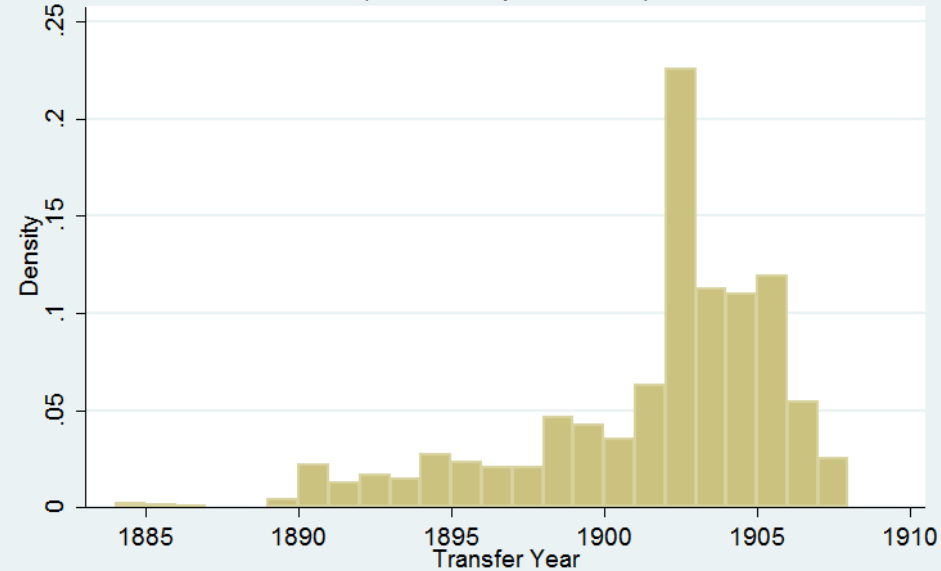


Timing of Property Transfers

Distribution of Transfer Dates
(Excludes imputed dates)



Distribution of Transfer Dates
(Includes imputed dates)



Methodology

Cox Proportional Hazards Model

$$h(t|x_j) = h_0(t)\exp(x_j\beta_x)$$

- Measures the instantaneous hazard rate of a transfer of plot j at time t
- x_j is a vector of variables containing the prevailing land policy (=1 after 1901), plot characteristics, owner characteristics, and proxies for macroeconomic conditions
- β_x is a vector of coefficients estimated from the data.

Data Construction

- 9,934 deeds (subjects) and 1,272 transfers (failures)
- Each property is observed annually from the registration date until either:
 1. the property is transferred (single failure); or
 2. the property falls out of observation and is censored in 1908.
- Time-varying covariates:
 - Policy variable
 - Dummy variable that equals 1 in all periods after the enactment of the 1901 Land Title Deed Act
 - Macroeconomic variables (annual)
 - rice exports in 10,000s of tons (Feeny 1982)
 - terms of trade index (Huff and Caggiano 2008)

Relative Risk of Property Transfer: Cox Proportional Hazard Model

VARIABLES	(1)	(2)
Policy (period after enactment of 1901 Land Title Deed Act)	2.35***	2.76***
<i>Macroeconomic Variables</i>		
Rice Exports (per 10,000 metric tons)	1.01***	
Terms of Trade (1882=100)		1.01**
<i>District-level Variables</i>		
District on east bank of Chao Phraya River	0.67***	0.67***
Policy*District on east bank of Chao Phraya River	2.43***	2.43***
District on west bank of Chao Phraya River	1.33**	1.33**
Policy*District on west bank of Chao Phraya River	1.43**	1.43**
<i>Plot-level Variables</i>		
Tax Per Rai (baht)	1.09***	1.09***
Policy*Tax per Rai	0.98	0.98
Borders Village or Temple	0.62**	0.62**
Policy*Borders Temple of Village	2.12***	2.13***
Number of Subjects	9,934	9,934
Number of Failures	1,272	1,272
Observations	207,415	207,415

Coefficients reported as hazard ratios; *** p<0.01, ** p<0.05, * p<0.1

Other controls: total rai, policy*total rai, borders transportation network, policy*transportation, borders irrigation canal, policy*irrigation, chinese owner, elite

Summary of Results

- Properties are associated with a 2.35 times higher relative risk of transfer in the period after the land policy is enacted in 1901.
- Relative to western frontier properties:
 - Land transactions on the urban east side of the Chao Phraya River accelerate significantly after 1901
 - The risk of land transfers in west bank districts is higher in both periods, but accelerates further after 1901.
- Properties adjacent to population centers (temples and villages) are at a higher relative risk of transfer after 1901.

Sensitivity Analysis

- While the results suggest that the 1901 Land Title Deed Act vitalized Bangkok's urban land market, there is concern that there is anticipation of the change in land policy or that the policy variable is capturing some other change in the economy.
 - ▣ Several similar policies were discussed but not enacted between 1888 and 1901 (Larsson 2012, 32).
 - ▣ Cadastral surveys in preparation for issuing new land deeds under the Torrens System commenced in 1896 (Feeny 1982, 95)
- Sensitivity analysis performed using 6-year intervals around alternative “policy” dates, 1896, 1901, and 1905

Sensitivity Analysis Using Alternative Policy Years

VARIABLES	Policy Year Year Range	1896 1893-1899	1901 1898-1904	1905 1902-1908
Policy		1.40	2.79***	0.20***
District on east bank of Chao Phraya River		0.35***	0.76	1.47**
Policy*District on east bank of Chao Phraya River		2.54**	1.63*	3.55***
District on west bank of Chao Phraya River		1.08	1.77***	1.88***
Policy*District on west bank of Chao Phraya River		1.53	0.97	1.28
Tax Per Rai (baht)		0.96	1.10***	1.08***
Policy*Tax Per Rai (baht)		1.14*	0.95**	1.06
Borders Village or Temple		0.98	0.46*	1.71***
Policy*Borders Village or Temple		0.42	2.65**	0.66
Number of Subjects		9781	9650	9055
Number of Failures		242	749	393
Observations		58,284	56,442	44,059

Coefficients reported as hazard ratios; *** p<0.01, ** p<0.05, * p<0.1

Other controls: rice exports, total rai, policy*total rai, borders transportation network, policy*transportation, borders irrigation canal, policy*irrigation, chinese owner, elite owner, and single listed owner.

Was there Land Use Change?

- I argue that the increase in land market activity, especially on the east side of the River, is due to lifting land use restrictions from land rights, thus opening the door for alternative economic activities in a rapidly urbanizing city.
- Is there evidence of land use change from orchards to other economic activities?
 - From the deeds: at least 25 properties requested a change in land use from orchard to mill through official channels (i.e. tax jurisdiction). All of these were located in Thonburi, Klongsan, and Koh Laem.
 - Maps of Bangkok land use show rapid change between 1896 and 1909, especially on the east side of the river.

Documented Land Use Change in the Deeds

Example

13 November 1905

Land deeds 1005-1006, dated 8 November 1905, along with land deeds 126-128 are issued to Bukkalo Temple and Mr.____ (Chinese). Mr.____ entered into an agreement to transfer ownership of plots 126-128 to the Ministry of Religious Affairs in exchange for the ownership of plots 123-124.

5 March 1906

We have been informed that a sawmill has been established [on this property] by Mr.____ according to Revenue Department document number 311/1355, written on 28 February 1906.

Map of Bangkok Land Use, 1896



Source: Royal Survey Department

Map of Bangkok Land Use, 1909



Source: Royal Survey Department

Conclusions

- The enactment of the 1901 Land Title Deed Act is associated with an acceleration of property transactions in Bangkok.
- Although property rights in land were secure in most dimensions before 1901, the divorce of agricultural land use from land rights increased the potential economic uses for land located in rapidly urbanizing areas of Bangkok.
- The enactment of the 1901 Land Title Deed Act likely facilitated the redistribution and efficient use of urban land in Bangkok's center.

