He, Z., Hu, M., Wang, Z., & Yao, V. (2024). Valuing long-term property rights with anticipated political regime shifts. *American Economic Review*, 114(9), 2701-2747.

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Outline of today's discussion

Motivation

- Political uncertainty affects asset valuations as well as economic activity(Pástor and Veronesi, 2013; Baker et al., 2016; Hassan et al., 2019).
* Developed economies with stable established political system
- This research fills the gap: study Hong Kong's property market & identify a causal link between political uncertainty and housing prices.
* A political battleground, unprecedented political experiment "One Country, Two Systems"
* Well-functioning financial market allowing to study valuations
* Land granted by the government for a fixed term, but subject to renewal by another different government

Quick Check of The Main Story

- At the time of Hong Kong's reunification with China in 1997, there was a "50-year" pledge, which meant that Hong Kong would maintain "one country, two systems" until 2047. This is not just a verbal promise, it is also enshrined in the Basic Law and has a profound impact on the relevant property rights system in Hong Kong, such as land.
- Leases expiring after July 1, 2047, without a legally guaranteed extension were discounted by an average of 14.1 percent compared to those expiring on June 30, 2047, with the prospect of a 50-year extension. The discounts for British colonial leases were even greater, with an additional reduction of about 8%, reflecting landlords' concerns about the "risk of reversal" of these legacy leases by future governments.
- The structural estimates show that after 2047, homeowners expect to pay an additional 21% of the net rental value when renewing their leases.

Related Literature

- The literature on property rights dates back to Coase (1960), and it has been shown that property rights, law, and institutions have a significant impact on long-term economic growth,investment, financial development, management of natural resources, and household welfare.
- This paper connects to the literature on the impact of political connections during political regime transitions, such as Fisman (2001), Martinez-Bravo (2014), and Fisman et al. (2018).
- Moreover, in the context of the land market in mainland China, Chen&Kung (2019) study political rents by estimating price differentials between princeling firms (connected to Politburomembers) and other firms without such connections for land parcels of similar quality.
- This paper is also related to the finance literature that studies asset pricing implications of political uncertainty/risk, such as stock prices (Pastor& Veronesi, 2012), risk premia (Pastor & Veronesi, 2013), equity options prices (Kelly et al., 2016), and idiosyncratic volatility and firm investment (Hassan et al., 2019).

Main Contribution

- Pricing political risk in empirical evidence is a challenging exercise because political risk is often accompanied by economic volatility, making it difficult to identify causal effects. For the first time, the risk of "political regime change" is empirically valued and priced.
- Both reduced-form and structural estimates are included in a complete framework.
- Most of the existing literature focuses on financial markets in countries with developed economies and stable political environments.This paper is perhaps more relevant in the context of the impact of political factors on asset pricing in emerging markets with protracted political indeterminacy.

Outline of today's discussion

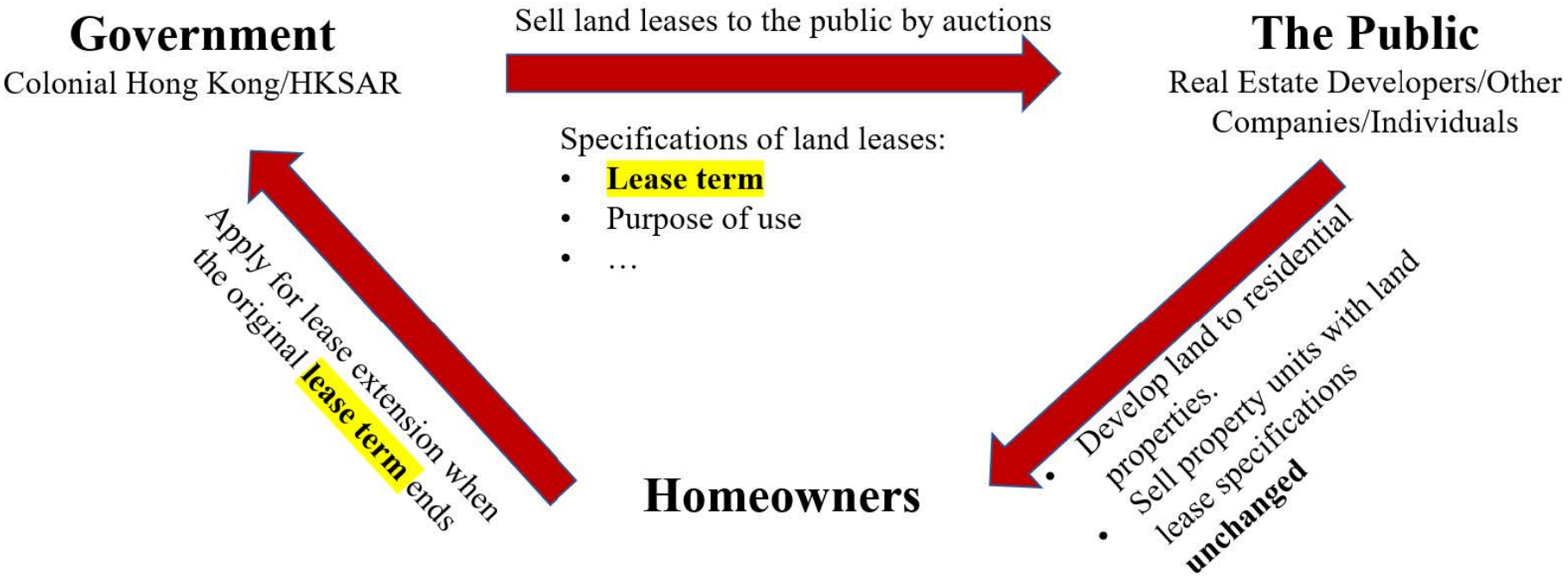
Before the Handover

- British forced the Second Convention of Peking (1898), leasing New Territories to Britain for 99 years until June 30th, 1997
- The Sino-British Joint Declaration (JD), ratified on May 27th, 1985, lays out the groundwork for the handover
- The Basic Law, as the de facto constitution, established in 1990

After the Handover

- Hong Kong has experienced significant changes in all aspects of society
- While the Basic Law guarantees a high degree of autonomy, concerns over Beijing's interference have been present and intensified over the years
- Two political alignments, pro-establishment camp and pro-democracy camp, after the 2004 Legislative Council (LegCo) election

Land Leases in Hong Kong

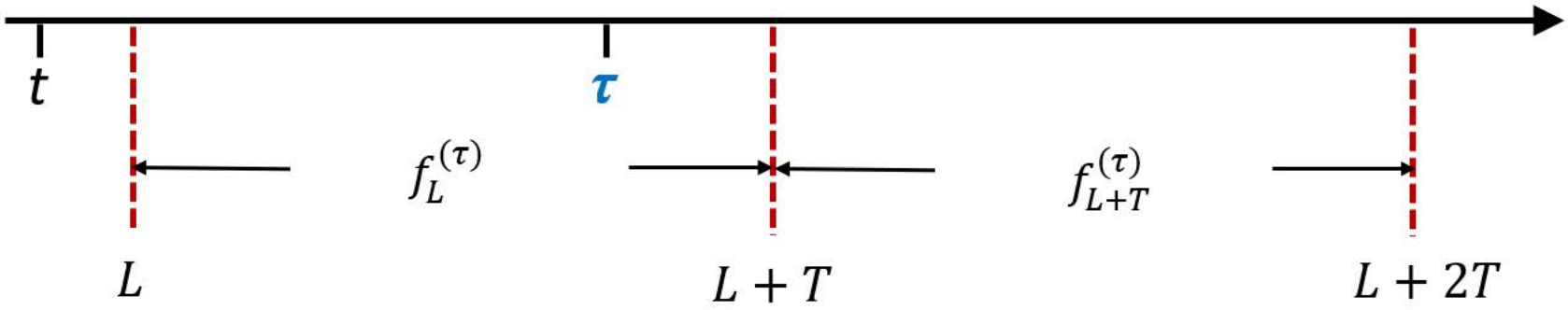


Land Leases in Hong Kong

- A house generates a "natural" cash-flow $\hat{R}_t$ growing at g, $\hat{R}_t = \frac{e^{gt}}{1-\omega}$.
- ω is the percentage of repairing costs and tax, including 3% current baseline ground rent (like tax), so the current effective cash-flow $R_t = e^{gt}$.
- But, possible extra ground rent $f_s^{(\tau)}$ imposed by the government on the renewal date, e.g.

$$f_s^{(\tau)} = \gamma \mathbf{1}_{\{s \geq \tau\}}, \text{ with } \tau = 7/1/2047$$

- Renewal date L, lease extension term $T = 50$ (T exogenous).



Government Renewal Decisions

- Regrant or extend non-renewable leases upon their expiry
- So far, the HKSAR has kept offering extension with a ground rent of 3%;Unless the land is needed for public purposes
- The ground rent can be increased, and the lessee is subject to pay additional premium (a lump sum payment) at extension

* This statement is explicitly mentioned in all official documents
* Summarized by potential increase of ground rent in the model

Political Uncertainty Regarding the Renewal/Regrants

- The Basic Law and the HKSAR are set to expire in July 1^{st} , 2047
- What about the land leases that have been renewed/extended by the HKSAR beyond this official expiration date?

* Say, leases on January 1^{st} , 2000 expiring on January 1^{st} , 2050

- On July 15^{th} , 1997, the HKSAR affirmed its constitutional authority to grant land leases beyond July 1^{st} , 2047 by another 50 years

* "There is no provision in the Basic Law that restrict the otherwise unlimited power of the HKSAR to grant land leases beyond 2047." Neither clarity nor guarantee to leases expiring after June 30^{th} , 2047

* Ground rent could be raised to 25% for leases expiring on Jan. 1^{st} , 2050 We first derive model implications based on the HKSAR's announcement, and later "let data speak"

Outline of today's discussion

Model

- A house generates a "natural" cash-flow $\hat{R}_t$ growing at g, $\hat{R}_t = \frac{e^{gt}}{1-\omega}$.

* ω : percentage of maintaining costs and tax, including 3% ground rent, 5% rates, and others, so current net cash flow after costs and taxes $R_t = e^{gt}$

* But, (expected) extra ground rent $f_s^{(\tau)}$ imposed by government, e.g.

$$f_s^{(\tau)} = \gamma \mathbf{1}_{\{s \geq \tau\}}, \text{ with } \tau = 7/1/2047$$

- Renewal date L and lease extension term $T = 50$. At any future date $s > L$,

* Looking back at s, $L + T \cdot N(s)$ is the most recent date of lease renewal.

* $N(s) \equiv \left\lfloor \frac{s-L}{T} \right\rfloor$ is the largest integer that is below $\frac{s-L}{T}$.

Model-Continue

- House owner's cash flows at future date s then are

$$R_S = e^{gt} \cdot (1 - \gamma \mathbf{1}_{L+T} \cdot N(s) \geq \tau)$$

- e.g., $L = 1/1/2000 < \tau$, ground rent jumps up to $\gamma > 0$ only after $1/1/2050$
- House price P_t equals discounted future cash-flows (discount rate r)
- One can calculate the current house price P_t at time t to be

$$P_t = \mathbb{E}_t \left[\int_t^\infty e^{-r(s-t)} e^{gs} \left(1 - \mathbf{1}_{s>L} \cdot f^{(\tau)}_{L+T \cdot N(s)} \right) ds \right].$$

Model-Continue

- Denote $\kappa \equiv r - g$. The value of a house with a land lease expiring at L is

$$P(L;\tau) = \int_0^L e^{-\kappa s} ds + \int_L^\infty e^{-\kappa s} \left(1 - f^{(\tau)}_{L+T\cdot N(s)}\right) ds$$

- Consider two examples. If $L < \tau$ and $L + T \geq \tau$, the homeowner can extend the land lease to $L + T$ before the uncertainty resolution date τ, implying that

$$P(L;\tau) = \int_0^{L+T} e^{-\kappa s} ds + \int_{L+T}^\infty e^{-\kappa s}(1-\gamma) ds = \frac{1 - \gamma e^{-\kappa(L+T)}}{\kappa}$$

- In contrast, if $L \geq \tau$, then the house value is

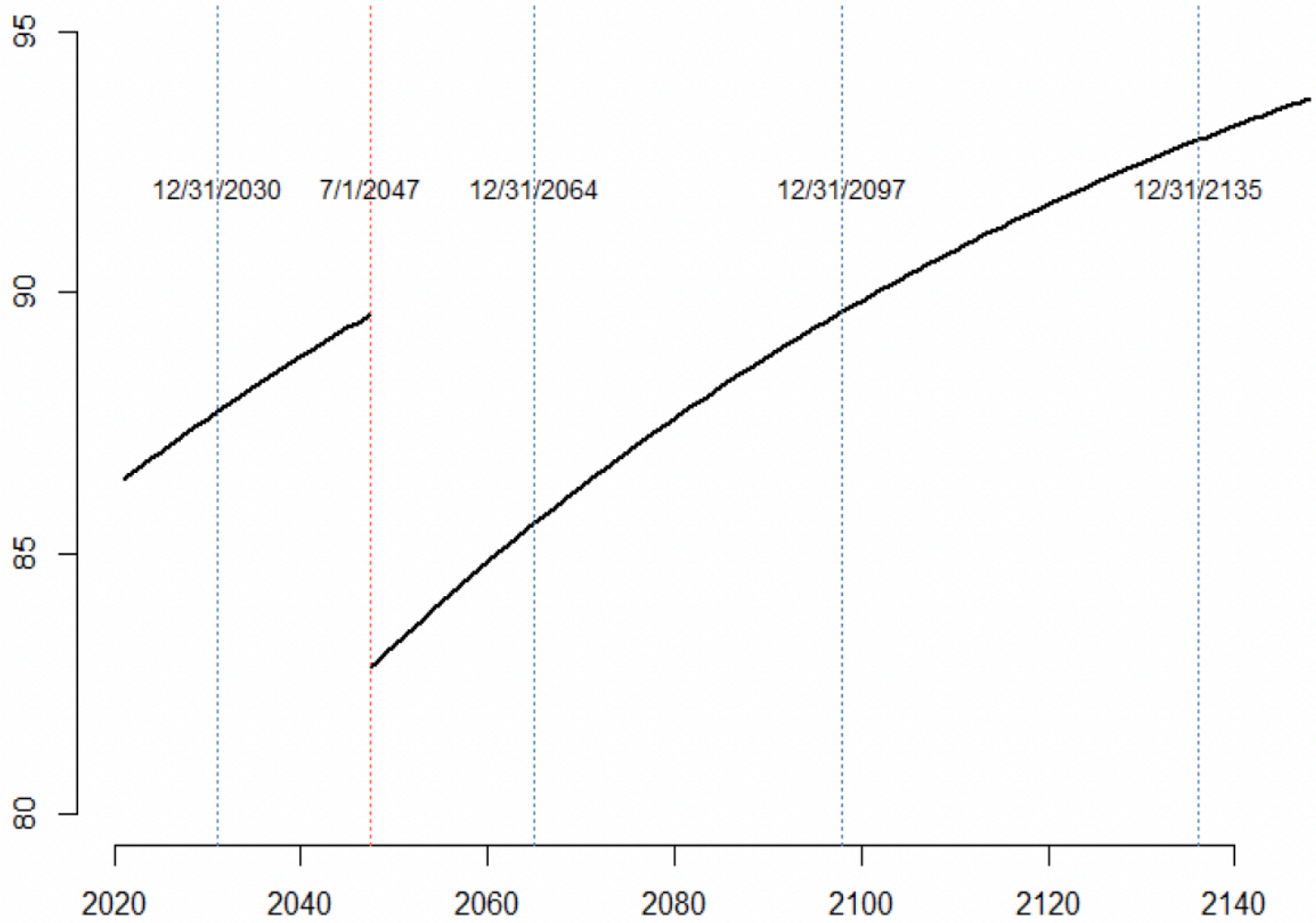
$$P(L;\tau) = \int_0^L e^{-\kappa s} ds + \int_L^\infty e^{-\kappa s}(1-\gamma) ds = \frac{1 - \gamma e^{-\kappa L}}{\kappa}.$$

Discussion of Key Model Assumptions

- We assume the extension decisions made by the HKSAR before 2047 at year n but in effect beyond 2047 (up to n + 50) will be honored by the new government in Hong Kong, despite the expiration of the HKSAR government on July 1st, 2047
- It is uncertain whether the leases granted by HKSAR will be respected in the event of the failure of the Country, Two Systems". However, the analyses remain valid in such a scenario.
- The key prediction of a price discount at $\mathrm{L} = \tau$ only requires a differential treatment by the new regime (in power after 2047) with respect to the land leases that have already been promised by HKSAR versus those that have not.

Stylized Intuition of the Model

Figure 1. Model-Implied House Values Count across Leases



Outline of today's discussion

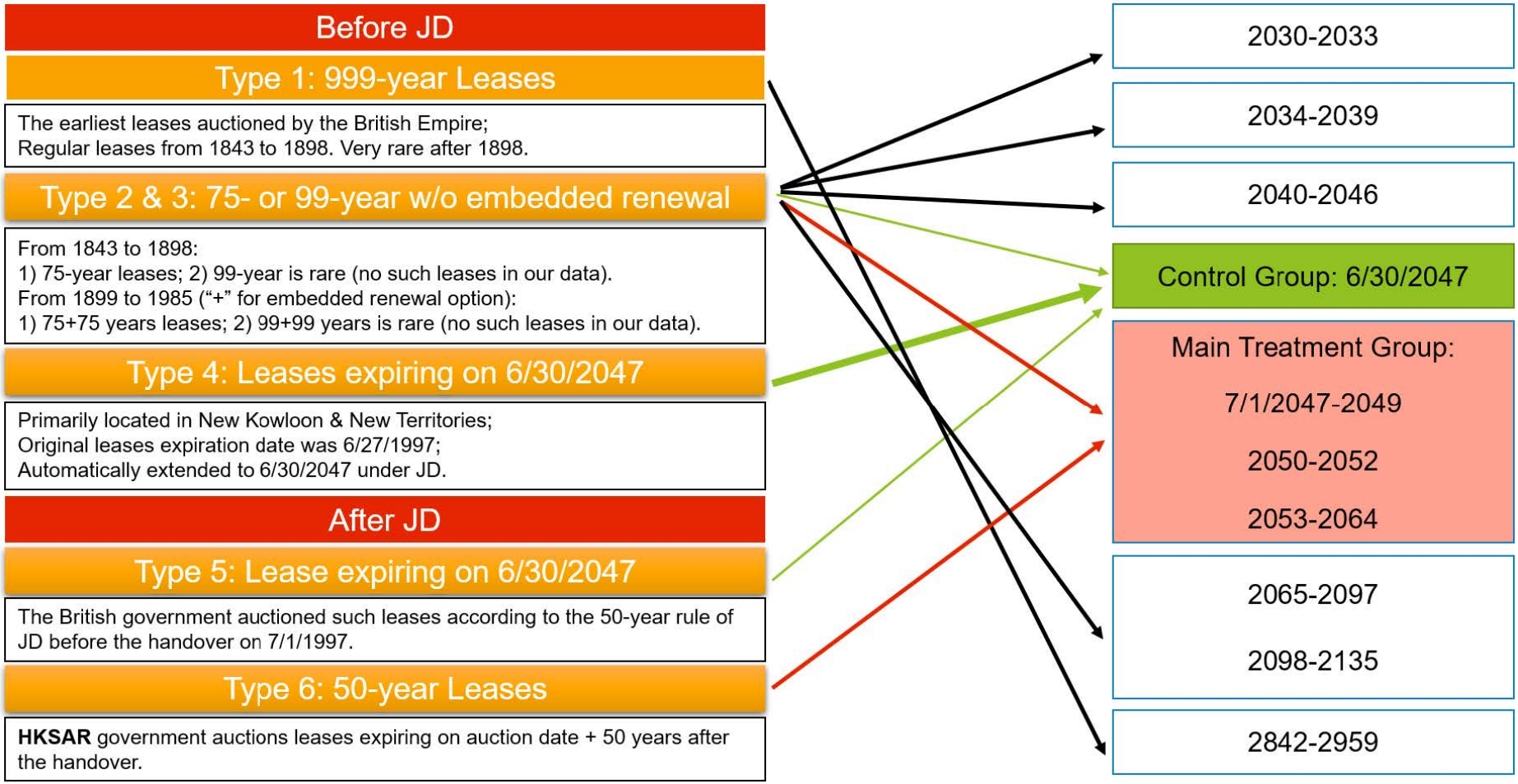
Data

- Residential transactions and amenities in Hong Kong starting from 1992and updated through February 2020
* Transaction data contains only the year of lease expiration, not the date
* Separate leases expiring before& after 07/01/2047: land auction data
- Hong Kong Quinquennial Census Data and Local Elections
- Final sample: 551,790 residential housing transactions sold from 1998 to February 2020
* After excluding obs missing data on characteristics, government projects and non-arm's length transactions
* Land grant year≠building age. Mean (median) of building age in HK at the time of sale: 16(15) years

Summary Statistics

Variable	N	Mean	SD	Min	1st	5th	Median	95th	99th	Max
Log(Price)	551,790	1.03	0.65	−0.41	−0.24	0.00	0.99	2.13	2.53	2.82
Log(Unit Price)	551,790	8.62	0.54	7.44	7.57	7.78	8.57	9.56	9.77	9.90
Building Age	551,790	16.01	9.03	2	2	3	15	32	38	40
Building Completion Year	551,790	1992	8.98	1959	1972	1978	1992	2006	2012	2018
Net Living Area Area	551,790	528.57	163.80	258	277	306	504	852	1,043	1,157
Floor	551,790	18	12	0	1	3	16	41	56	80
No of Bedrooms	526,155	2	1	0	0	0	2	3	3	4
No of Living Rooms	530,719	2	1	0	0	0	2	2	2	4
Bay Window Size	551,790	20.32	15.37	0	0	0	22	44	54	250
Distance To MRT	551,790	702	886	8	24	59	423	2,462	4,708	10,633
Distance To Bus Stop	551,790	314	276	8	12	48	258	711	1,312	3,365
Distance To Hospital	551,790	1,644	1,268	80	251	394	1,359	3,978	6,565	10,589
Distance To School	551,790	138	196	0	5	22	101	303	946	2,526
Distance To University	551,790	3,564	2,466	85	309	611	3,022	8,348	10,311	10,311
Distance To Coastal Line	551,790	1,358	1,635	17	31	72	732	5,441	7,338	8,227

Identification:Treat Vs. Control

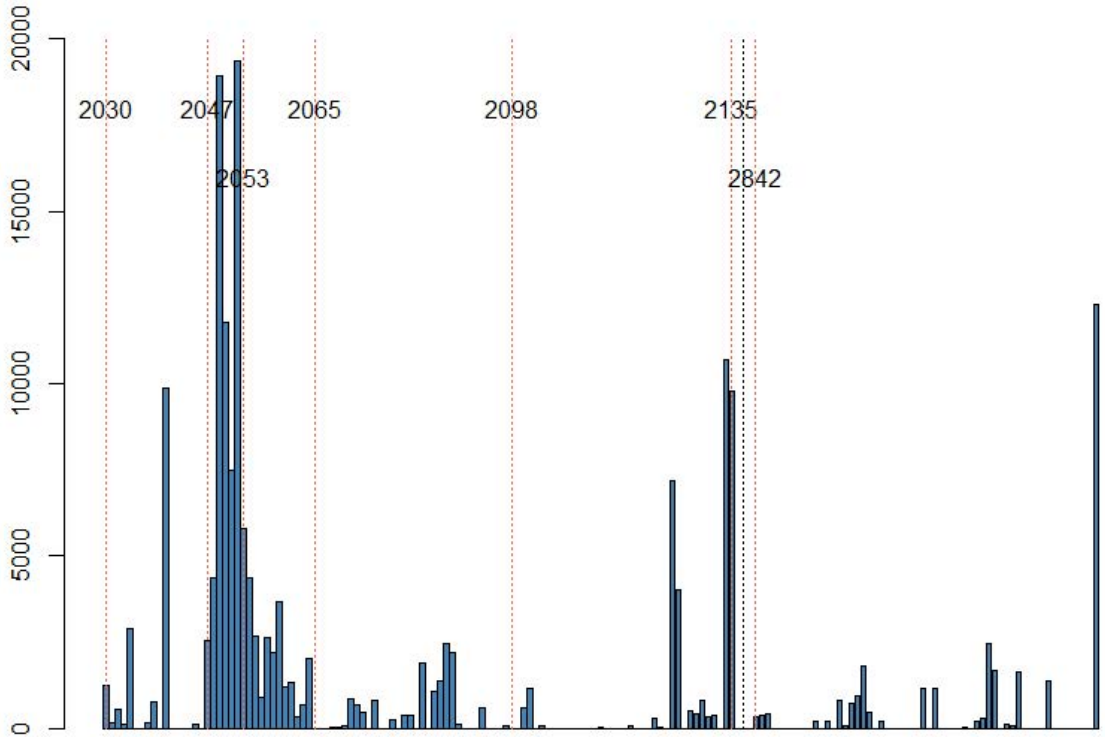


Specification

- **Baseline**: hedonic regression (Rosen, 1974), relative price discounts of all other leasehold groups compared to main control lease group: $\ln(P_{i,t}) = \sum_{n=1}^{n=9} \beta_n \cdot \text{Lease}_n + \eta \cdot X_{i,t} + \alpha_{d \times m(t)} + \varepsilon_{i,t}$
- $X_{i,t}$ is a full set of housing characteristics
- $\alpha_{d \times m(t)}$ represents the district $\times$ year-month fixed effects
- Standard errors are two-way clustered by estate and year-month

Number of Transactions: by Lease Expiration Years

- This figure plots the number of transactions by lease expiration year from 2030 to 2135, and from 2842 to 2959.
- Lease groups constructed so that all have sufficient observations in regressions.



Baseline Results

	Dep Var: Log(Unit Price)				
	(1)	(2)	(3)	(4)	(5)
I(2030 ≤ Lease ≤ 2033)	−0.067	0.032	−0.057	−0.054	0.056
	(0.041)	(0.036)	(0.043)	(0.053)	(0.034)
I(2034 ≤ Lease ≤ 2039)	−0.057	−0.076**	−0.038	0.002	−0.058**
	(0.038)	(0.030)	(0.038)	(0.038)	(0.029)
I(2040 ≤ Lease ≤ 2046)	−0.054	−0.088**	−0.024	−0.009	−0.051
	(0.053)	(0.042)	(0.057)	(0.056)	(0.047)
I(7/1/2047 ≤ Lease ≤ 2049)	−0.146***	−0.123***	−0.141***	−0.124***	−0.116***
	(0.028)	(0.025)	(0.028)	(0.026)	(0.023)
I(2050 ≤ Lease ≤ 2052)	−0.134***	−0.102***	−0.127***	−0.121***	−0.092***
	(0.028)	(0.025)	(0.028)	(0.027)	(0.024)
I(2053 ≤ Lease ≤ 2064)	−0.139***	−0.099***	−0.127***	−0.090***	−0.089***
	(0.033)	(0.030)	(0.032)	(0.028)	(0.028)
I(2065 ≤ Lease ≤ 2097)	−0.123***	−0.095***	−0.105***	−0.090***	−0.082***
	(0.035)	(0.031)	(0.035)	(0.034)	(0.030)
I(2098 ≤ Lease ≤ 2135)	−0.039	−0.007	−0.022	−0.014	0.014
	(0.038)	(0.028)	(0.038)	(0.037)	(0.027)
I(2842 ≤ Lease ≤ 2959)	−0.075**	−0.087***	−0.052	−0.034	−0.061**
	(0.035)	(0.026)	(0.035)	(0.035)	(0.026)
Property Attributes	Yes	Yes	Yes		Yes
Property Attributes × Year				Yes	
District + Month FE	Yes				
Subdistrict + Month FE		Yes			
District × Month FE			Yes	Yes	
Subdistrict × Month FE					Yes
N	551,790	551,790	551,790	551,790	551,790
Adjusted R^2	0.919	0.930	0.929	0.941	0.943

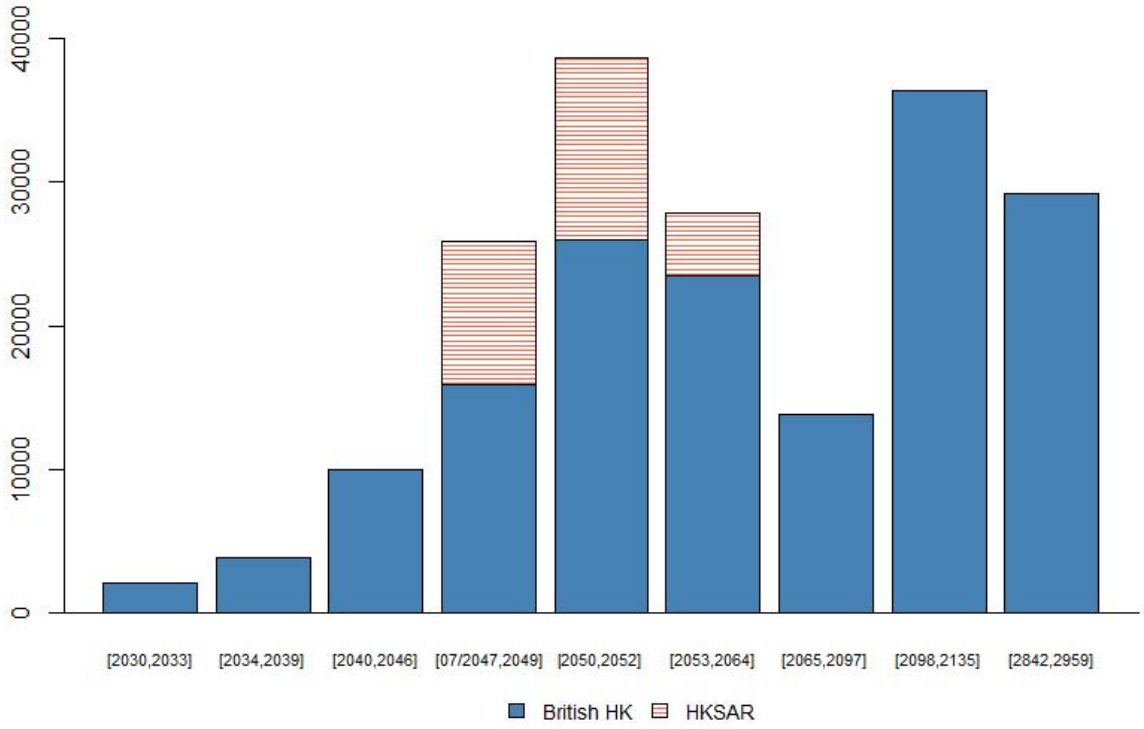
Colonial British versus Noncolonial HKSAR Leases

Table 5: Leases Granted by British Hong Kong versus HKSAR

Dep Var	Log(Unit Price)				
Sample	All Sales				
	(1)	(2)	(3)	(4)	(5)
I(2030 ≤ Lease ≤ 2033)	−0.053	0.046	−0.042	−0.043	0.070*
	(0.041)	(0.038)	(0.042)	(0.052)	(0.036)
I(2034 ≤ Lease ≤ 2039)	−0.057	−0.077**	−0.039	0.001	−0.059**
	(0.038)	(0.030)	(0.038)	(0.038)	(0.030)
I(2040 ≤ Lease ≤ 2046)	−0.060	−0.090**	−0.030	−0.015	−0.053
	(0.055)	(0.042)	(0.058)	(0.057)	(0.046)
I(7/1/2047 ≤ Lease ≤ 2049)	−0.172***	−0.147***	−0.168***	−0.148***	−0.139***
	(0.028)	(0.024)	(0.028)	(0.026)	(0.023)
I(2050 ≤ Lease ≤ 2052)	−0.156***	−0.123***	−0.150***	−0.141***	−0.113***
	(0.031)	(0.027)	(0.030)	(0.028)	(0.026)
I(2053 ≤ Lease ≤ 2064)	−0.146***	−0.109***	−0.135***	−0.097***	−0.099***
	(0.032)	(0.029)	(0.031)	(0.028)	(0.027)
I(2065 ≤ Lease ≤ 2097)	−0.117***	−0.095***	−0.099***	−0.085**	−0.082***
	(0.035)	(0.031)	(0.035)	(0.034)	(0.029)
I(2098 ≤ Lease ≤ 2135)	−0.037	−0.004	−0.020	−0.012	0.016
	(0.038)	(0.028)	(0.038)	(0.037)	(0.028)
I(2842 ≤ Lease ≤ 2959)	−0.072**	−0.081***	−0.049	−0.032	−0.056**
	(0.035)	(0.027)	(0.035)	(0.035)	(0.027)
I(Main Treatment Group) × I(HKSAR Lease)	0.080***	0.075***	0.085***	0.074***	0.076***
	(0.027)	(0.022)	(0.027)	(0.025)	(0.021)
Property Attributes	Yes	Yes	Yes		Yes
Property Attributes × Year				Yes	
District + Month FE	Yes				
Subdistrict + Month FE		Yes			
District × Month FE			Yes	Yes	
Subdistrict × Month FE					Yes
N	551,790	551,790	551,790	551,790	551,790
Adjusted R^2	0.920	0.931	0.929	0.941	0.943

Transactions by Lease Groups: HKSAR vs British

- This figure plots the number of transactions by lease groups and lease types (colonial British leases or HKSAR leases).
- Treatment groups only. HKSAR leases only show up in groups ranging 2047-2064.



Reneging Risk: Model Extension

- No official arrangements beyond 2047 regarding colonial leases
* e.g., those 999 -year ones
* Land Resumption Ordinance: land requisition for public purposes
- Reneging shock is i.i.d. across all properties with colonial British leases:
* Reneging intensity: $\lambda^{pre}\mathbf{1}_{s<\tau} + \lambda^{post}\mathbf{1}_{s\geq\tau}$
* Extra land premium charge: $\delta^{pre}\mathbf{1}_{s<\tau} + \delta^{post}\mathbf{1}_{s\geq\tau}$
- House value with a British land leases $(\kappa = r - g)$:

$$P(L;\tau,\text{ Brit }) = \mathbb{E}\left[\int_0^{L\wedge\mathcal{T}} e^{-\kappa s}ds + e^{-\kappa(L\wedge\mathcal{T})}\cdot\left(1-\delta^{\text{pre}}\,\mathbf{1}_{s<\tau}-\delta^{\text{post}}\,\mathbf{1}_{s\geq\tau}\right)\cdot P(L\wedge\mathcal{T}+50;HK)\right]$$

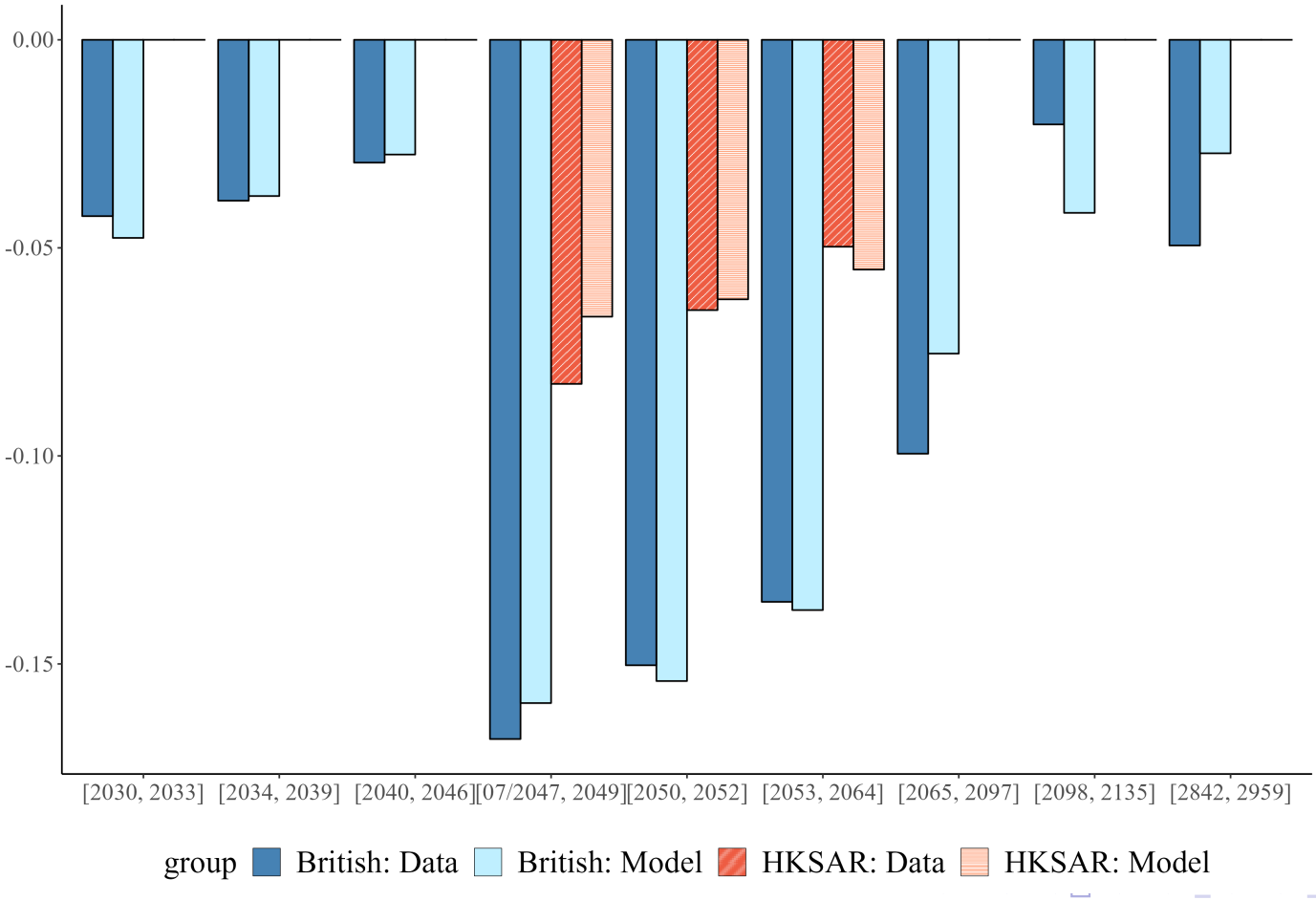
- Reneging event $\mathcal{T}$ (Poisson arrival) with intensity $\lambda^{pre}\mathbf{1}_{s<\tau}+\lambda^{\text{post}}\,\mathbf{1}_{s\geq\tau}$;
- $P(L\wedge\mathcal{T}+50;HK)$: value of a standard 50-year HKSAR leases standing at $L\wedge\mathcal{T}\equiv\min(L,\mathcal{T})$

2-Step GMM Estimation of Model Parameters

- Denote the set of remaining parameters as $\Theta \equiv \{\gamma, \lambda^{\text{pre}}, \lambda^{\text{post}}, \delta^{\text{pre}}, \delta^{\text{post}}\}$ and $\beta_n(\Theta)$ is then the model-implied average discount for each leasehold group $n \in \{1, 2, \ldots, N\}$ as follows:
$$\beta_n(\Theta) = \frac{\sum_{L_i \in n} \left\{ \ln P_{t_i}(L_i; \Theta) - \ln P_{t_i}(L = \tau; \Theta) \right\}}{\#\text{ of transactions in group } n}$$
- In other words, conditional on a set of parameters Θ, the expression
$$\ln P_{t_i}(L_i; \Theta) - \ln P_{t_i}(L = \tau; \Theta)$$
- In the estimation, we have $N = 12$ moments for each treatment leasehold group $n \in \{1, 2, \ldots, N\}$. For leasehold group n, its corresponding sample moment is
$$\frac{1}{\sum_{i=1}^{I} D_{i \in n}} \sum_{i=1}^{I} \left\{ \beta_{L_i, t_i}(\Theta) - \left(\hat{\beta}_n + \hat{\varepsilon}_{i,t} \right) \right\} D_{i \in n} = 0$$

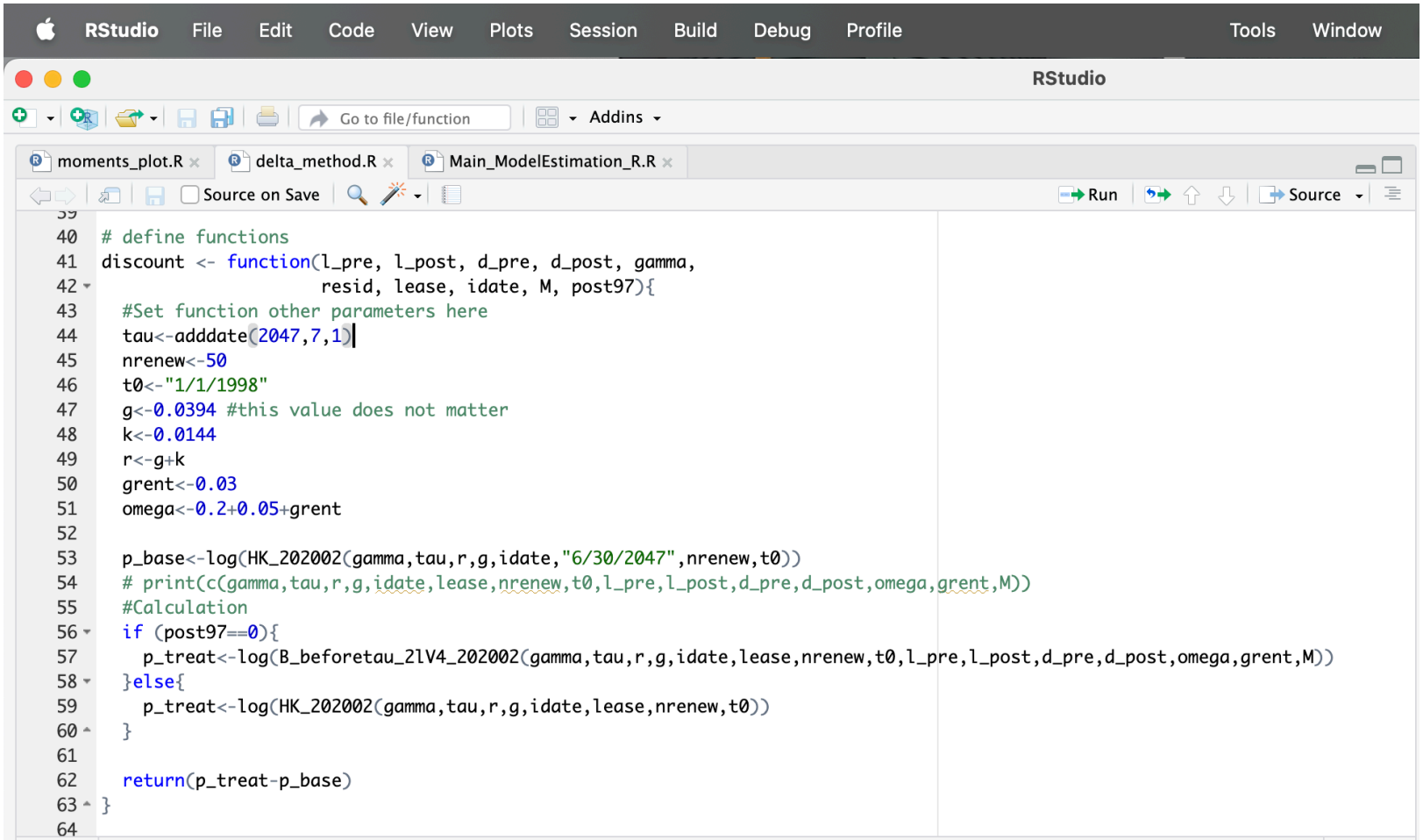
2-Step GMM Estimation of Model Parameters

- Calibrate $\kappa = r - g = (1 -$ Expense Ratio $) \times$ Gross Rental Yield $= 72\% \times 2\% = 1.44\%$, estimate $\{\gamma, \lambda^{\text{pre}}, \lambda^{\text{post}}, \delta^{\text{pre}}, \delta^{\text{post}}\}$ that minimize the difference between model & data



2-Step GMM Estimation of Model Parameters

- It is highly recommended to replicate the code for this structure estimation




```r
# define functions
discount <- function(l_pre, l_post, d_pre, d_post, gamma,
                     resid, lease, idate, M, post97){
  #Set function other parameters here
  tau<-adddate(2047,7,1)
  nrenew<-50
  t0<-"1/1/1998"
  g<-0.0394 #this value does not matter
  k<-0.0144
  r<-g+k
  grent<-0.03
  omega<-0.2+0.05+grent

  p_base<-log(HK_202002(gamma,tau,r,g,idate,"6/30/2047",nrenew,t0))
  # print(c(gamma,tau,r,g,idate,lease,nrenew,t0,l_pre,l_post,d_pre,d_post,omega,grent,M))
  #Calculation
  if (post97==0){
    p_treat<-log(B_beforetau_2lV4_202002(gamma,tau,r,g,idate,lease,nrenew,t0,l_pre,l_post,d_pre,d_post,omega,grent,M))
  }else{
    p_treat<-log(HK_202002(gamma,tau,r,g,idate,lease,nrenew,t0))
  }

  return(p_treat-p_base)
}
```

2-Step GMM Estimation of Model Parameters

TABLE 6—PARAMETER ESTIMATIONS

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Base	Extension	Base: Alternative κ				Estimated κ
Gross Rental Yield	2.00%	2.00%	1.00%	3.00%	4.00%	5.00%	2.69%
Net Rental Yield (κ)	1.44%	1.44%	0.72%	2.16%	2.88%	3.60%	1.94%***
							[0.006]
Reneging Risk							
λ^{Pre}	0.000	0.000	0.000	0.000	0.004	0.009**	0.000
	[0.004]	[0.019]	[0.003]	[0.004]	[0.004]	[0.005]	[0.008]
λ^{Post}	0.016***	0.019***	0.015***	0.020***	0.019***	0.017***	0.018***
	[0.003]	[0.003]	[0.002]	[0.004]	[0.004]	[0.004]	[0.005]
Extra Land Premium							
δ_{HK}^{Pre}		0.017					
		[0.047]					
δ^{Pre}	0.062***	0.075***	0.040***	0.088***	0.106***	0.119***	0.080***
	[0.007]	[0.026]	[0.005]	[0.011]	[0.014]	[0.018]	[0.011]
δ^{Post}	0.208***	0.217**	0.127***	0.312***	0.504***	0.835***	0.277**
	[0.022]	[0.104]	[0.012]	[0.029]	[0.056]	[0.116]	[0.140]
Additional Ground Rent Rate							
γ	0.210***	0.237	0.272***	0.214***	0.245***	0.296***	0.209***
	[0.008]	[0.197]	[0.008]	[0.008]	[0.010]	[0.012]	[0.015]
N	551,790	551,790	551,790	551,790	551,790	551,790	551,790

Model Implications

- $\hat{\gamma} = 21\%$: HK homeowners expect an about 21% of penalty in order to extend their land leases after 2047.
- British HK leases, if expiry date is:

* Before 2047: no reneging risk $\left(\hat{\lambda}^{\text{pre}} = 0\right)$ but need to pay a penalty (called premium) of about $\hat{\delta}_{\text{pre}} = 6.2\%$ of house value upon lease renewal;
* After 2047: $\hat{\lambda}^{\text{post}} = 1.6\%$ (renege every $62 (= 1/1.6\%)$ years after 2047), $\hat{\delta}_{\text{post}} = 20.8\%$

- Suppose there are two identical 50-year British vs. HKSAR leases Standing at Jan $1^{\text{st}}, 2023$, a property with a British lease is traded at an effective price discount of 9.83% relative to the HKSAR one.

Economic Magnitude of γ : What does It Capture?

- $\hat{\gamma} \approx 21\%$ captures the overall effect of regime change, relatively clean identification
- Though, estimated discount, and hence γ, might reflect both

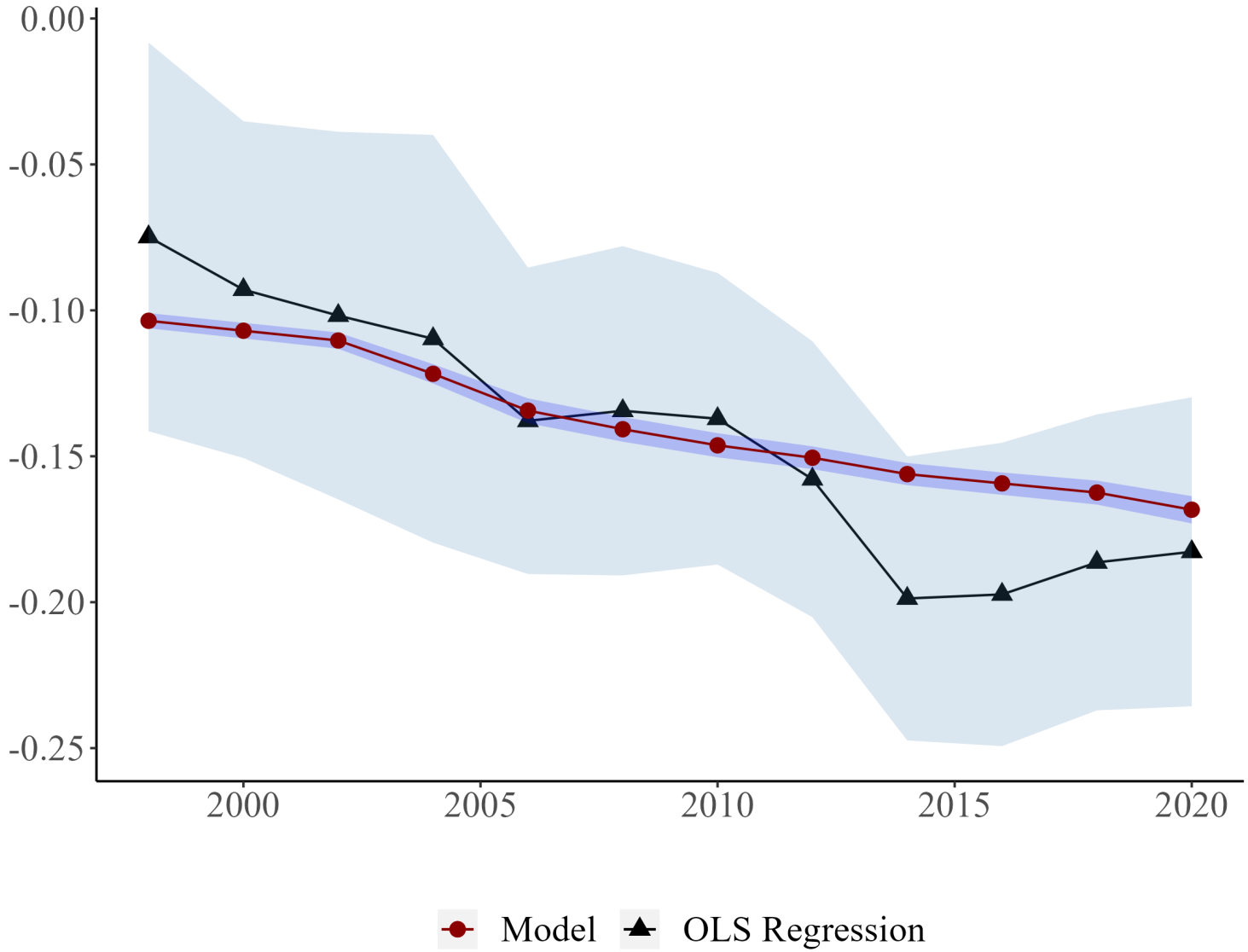
* **Increasing ground rent/premium;**
* **Endogenous reaction from homeowners** (say, lack of maintenance): Homeowners may choose to do less maintenance due to expected tax hikes following the new political regime.

Colonial British Leases and Maintenance

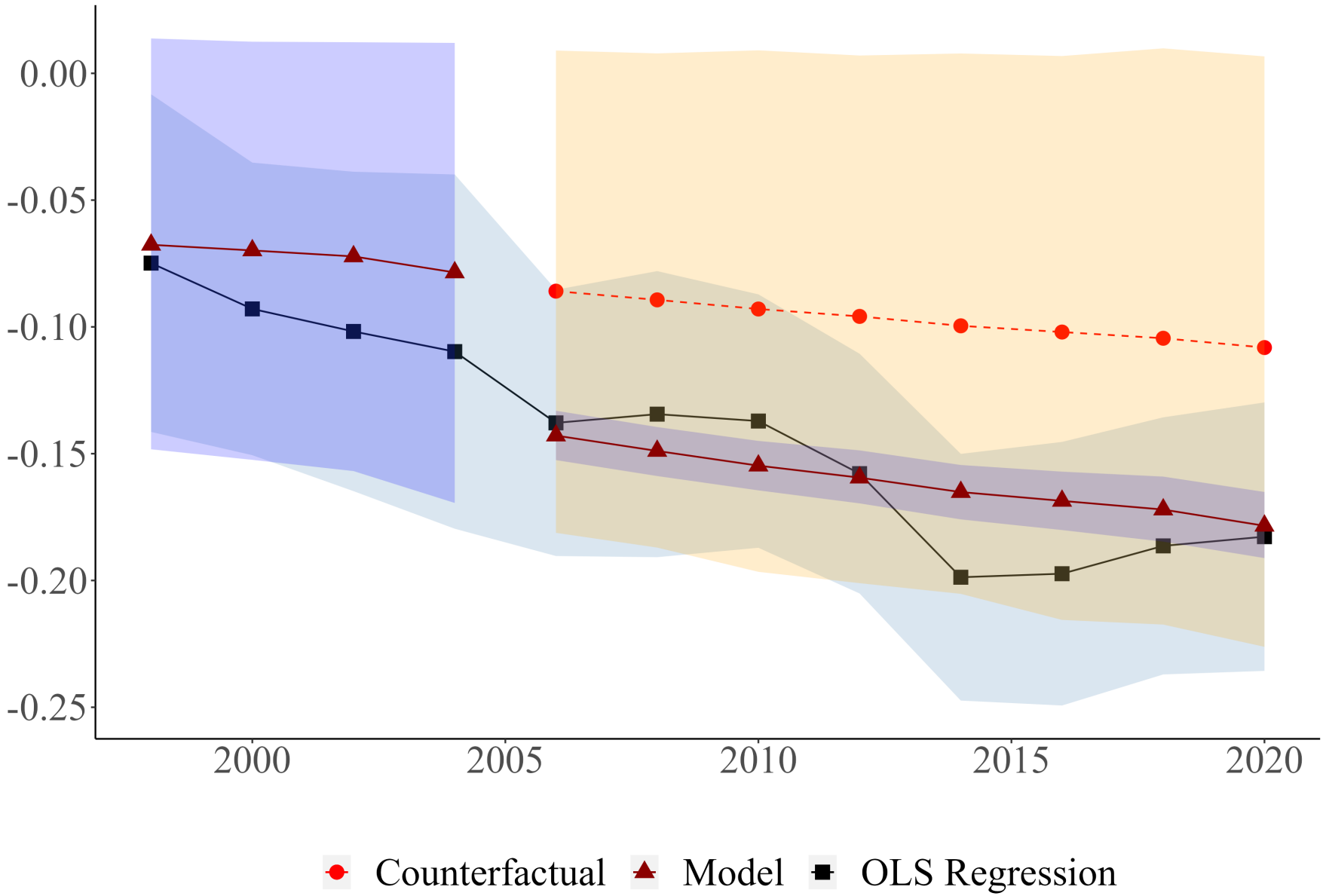
Table 7: Colonial British Leases and Maintenance

Dep Var	Log(Unit Price)			Log(Unit Rent)		
Sample	All Sales			Rentals		
	(1)	(2)	(3)	(4)	(5)	(6)
I(Main Treatment Group)	−0.105***	−0.072**	−0.053	0.003	0.001	−0.006
	(0.025)	(0.029)	(0.034)	(0.017)	(0.020)	(0.022)
× I(Age ≥ 6)	−0.036**			−0.009		
	(0.015)			(0.016)		
× I(British Leases)		−0.082***			−0.015	
		(0.026)			(0.011)	
× I(HKSAR Lease & Age ≥ 6)			−0.026			0.020
			(0.020)			(0.023)
× I(British Lease & Age < 6)			-0.078**			0.008
			[0.031]			[0.018]
× I(British Lease & Age ≥ 6)			−0.107***			−0.009
			(0.031)			(0.020)
Property Attributes	Yes	Yes	Yes	Yes	Yes	Yes
District × Month FE	Yes	Yes	Yes	Yes	Yes	Yes
N	551,790	551,790	551,790	19,435	19,435	19,435
Adjusted R^2	0.929	0.929	0.929	0.803	0.803	0.804

Natural "Appreciation" Effect vs Time-Varying Uncertainty



Natural "Appreciation" Effect vs Time-Varying Uncertainty



The Role of Mortgage Access

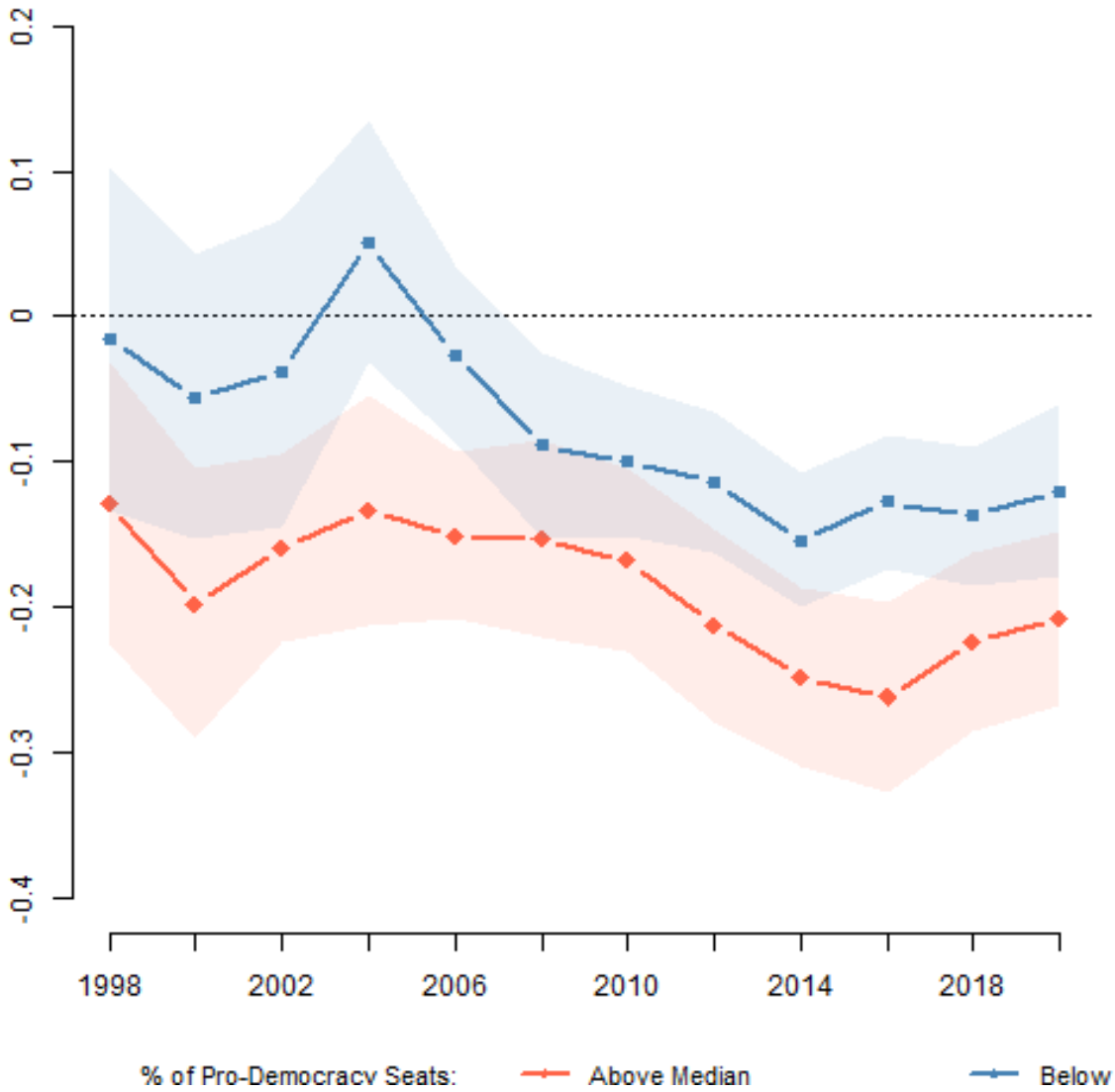
- Collateral values underlying properties in the treatment group sold after July 1st, 2017, will be exposed to significant risk (given common mortgage term of 30 years).
- Lenders may discriminate, via mortgage access, and hence affect the property equilibrium market price.
- Heated discussion on this issue in 2016 as the 2017 deadline approached, prompting the HKSAR government to grant land leases with terms extending beyond June 30th, 2047.
- Lenders, with the support of the HKSAR government, continue to approve mortgages on properties with land leases expiring after July 1st, 2047.
- The HKSAR's decisive actions around 2016 could explain the stabilization of the estimated price discount after 2015.

Local Political Sentiments

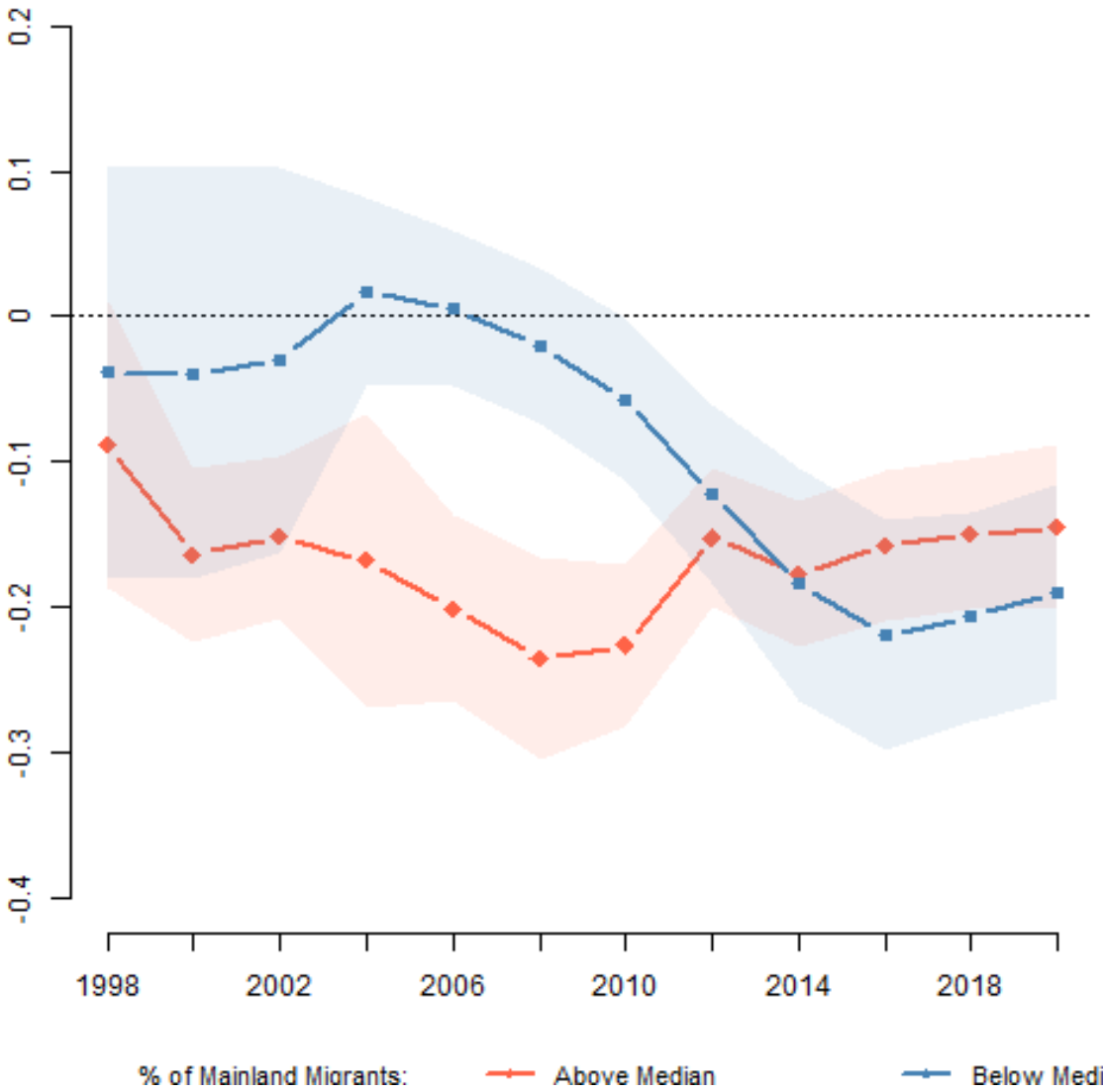
Table 8: Local Political Sentiments and Price Discount

Dep Var	Log(Unit Price)					
Sample	All Sales					
	(1)	(2)	(3)	(4)	(5)	(6)
I(Main Treatment Group)	−0.133***	−0.146***	−0.132***	−0.128***	−0.113***	−0.091***
	(0.021)	(0.020)	(0.021)	(0.021)	(0.023)	(0.025)
× % of Pro-Democracy Seats		−0.050***		−0.047***		
		(0.012)		(0.012)		
× % of Mainland Migrants			−0.082***	−0.077***		
			(0.024)	(0.024)		
× I(High % Pro-Democracy Seats)					−0.083***	
					(0.021)	
× I(High % Mainland Migrants)						−0.103***
						(0.025)
× Median Age		−0.018	−0.042***	−0.020	−0.028*	−0.050***
		(0.015)	(0.014)	(0.015)	(0.015)	(0.014)
× Median Income		−0.004	−0.040	−0.032	−0.001	−0.047
		(0.027)	(0.030)	(0.028)	(0.026)	(0.029)
× % of College Above		0.018	0.029	0.031	0.015	0.046
		(0.031)	(0.030)	(0.029)	(0.030)	(0.030)
× % of Home Owners		0.021	−0.002	−0.010	0.026	0.015
		(0.023)	(0.025)	(0.023)	(0.023)	(0.023)
Property Attributes	Yes	Yes	Yes	Yes	Yes	Yes
District × Month FE	Yes	Yes	Yes	Yes	Yes	Yes
N	551,790	551,790	551,790	551,790	551,790	551,790
Adjusted R^2	0.929	0.930	0.930	0.931	0.930	0.930

Districts with High Versus Low % of Pro-Democracy Seats



Districts with High Versus Low % of Mainland Migrants



The Effect of Individual Beliefs

- Explore the perspectives of buyers and sellers from the mainland China, who are identified through their names in the transaction data.
- Our premise is that relative to Hong Kongers, mainlanders may have different beliefs on HK's political uncertainty.
- Mainland buyers, due to their experience in China, tend to be more optimistic about the future of "One Country, Two Systems" and thus maybe willing to pay higher prices.
- However, mainlanders who have lived in Hong Kong but have decided to sell their houses might be those who are more pessimistic about Hong Kong's future.

Mainlander Transactions and Price Discount

- Mainland buyers more optimistic compared to their local counterparts (Price difference of -0.017 is statistically significant at the 5% level).
- Mainland sellers more pessimistic than their local counterparts (though statistically insignificant).

Dep Var	Log(Unit Price)		
	(1)	(2)	(3)
I(Main Treatment Group)	−0.128***	−0.125***	−0.086***
	(0.021)	(0.020)	(0.025)
× I(Mainland Buyer) × I(Local Seller)	0.008	0.012*	0.011
	(0.006)	(0.007)	(0.009)
× I(Mainland Buyer) × I(Mainland Seller)	−0.005	−0.003	−0.036*
	(0.012)	(0.012)	(0.018)
× I(Local Buyer) × I(Mainland Seller)	−0.017**	−0.018**	−0.048***
	(0.007)	(0.008)	(0.017)
.....			
Property Attributes	Yes	Yes	Yes
District × Month FE	Yes	Yes	Yes
N	551,790	551,790	551,790
Adjusted R^2	0.931	0.930	0.929

Outline of today's discussion

Conclusion

- Study long-term property rights under political uncertainty, as the housing value depends on the continuity of land ownership in the far future.
- A reduced-form regression guided by a pricing model of housing assets with future political uncertainty.
  * Extended to incorporate a reneging risk to colonial land contracts
  * Implies a price discount of 9.83% from today's viewpoint in a hypothetical 50-year British Hong Kong lease standing at Jan 1st, 2023.
- Analysis using district-level political uncertainty measures provides further empirical support to the mechanism.
  * No significant difference b/w rentals across control and treatment groups
  * Mainland buyers (sellers) more optimistic (pessimistic) than local