A Tale of Two Cities: The Impact of Cross-Border Migration on Hong Kong's Housing Market

Yi Fan[1]   Maggie Rong Hu[2]   Wayne Xinwei Wan[3]

[1]Department of Real Estate
National University of Singapore

[2]School of Hotel and Tourism Management and Department of Finance
The Chinese University of Hong Kong

[3]Department of Land Economy
The University of Cambridge

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Trend in Global Immigration over Last Decades

- **Global:** The direction of migration flow has become more diverse (Abel & Sander, 2014; Czaika & De Haas, 2014).

- **China:** From mainly internal migration to more cross-border/ international migration (Mallee & Pieke, 2014; Nyri, 2011).
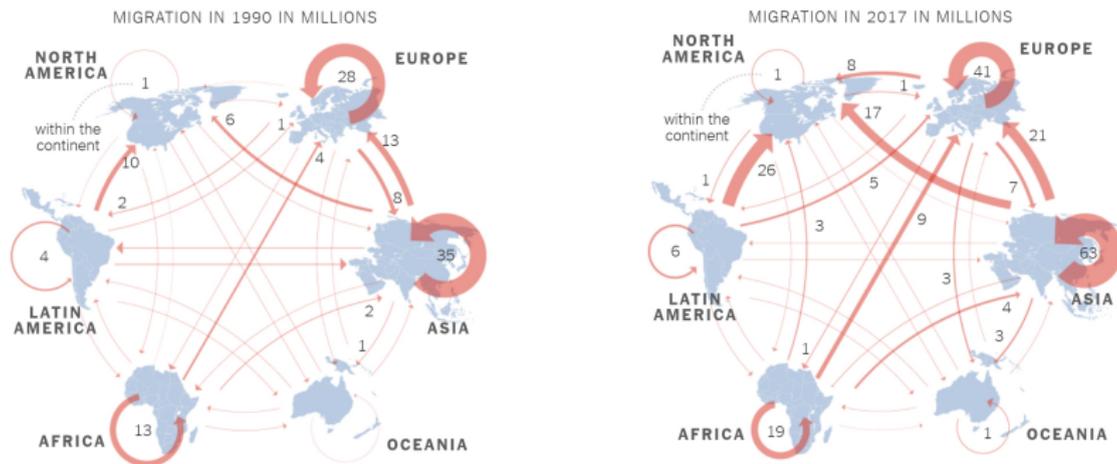
(Source: The New York Times, 2018)

Literature Review: Immigration and Housing Market

- **City Level:**
  - Migrant residents increase local housing price in US, Switzerland and Spain (Saiz, 2007; Ottaviano & Peri, 2007; Gonzalez & Ortega, 2013).

  - Migrant residents have limited impact on local housing price in Canada and New Zealand (Akbari & Aydede, 2012; Stillman & Mare, 2008).

- **District Level:**
  - Migrant residents decrease housing price of neighborhood in US, UK and Italy (Saiz & Wachter, 2011; Sá, 2015; Accetturo, 2014).

Research Gap

- **Migrant Residents v.s. Migrant Home-buyers**
    - Majority of past studies use census data of migrant resident number (Saiz & Wachter, 2011; Sá, 2015).
    - Migrant residents may not all participate in housing purchases.

- **Aggregate Level v.s. Individual Level**
    - Most past studies use averaged housing price in city/district (Saiz, 2007; Gonzalez & Ortega, 2013).
    - There lacks empirical evidence at transaction level and close neighbourhood level.

- **Current Effect v.s. Spill-Over Effect**
    - Literature focuses on evaluation of immediate migration policy impact on housing (2.3% from Pavlov & Somerville (2017)).
    - We extend to investigating the impact of migration on sequential transactions.

Research Questions

Question 1

How do migrant buyers influence the residential property market in destination country/region?

Question 2

How does the economy outlook of migration origins impact the migration destination's housing market?

Question 3

What are the channels? Does the effect differ across market sectors and regions?

Hong Kong: The World's Least Affordable City

- **Institutional Setting:**
  - Cross-broader immigration from Mainland China to Hong Kong during 2001 to 2017.
  - Mixed opinions are presented on the impact of China's economic outlook on Hong Kong's housing market (Li, 2016; Shane, 2019).

Cost of living

Ten least affordable major housing markets

Rank	Nation	Housing market	Median multiple of pre-tax household income
1	China	**Hong Kong**	**18.1**
2	Australia	**Sydney**	**12.2**
3	Canada	**Vancouver**	**11.8**
4	New Zealand	**Auckland**	**10**
5	US	**San Jose**	**9.6**
6	Australia	**Melbourne**	**9.5**
7	US	**Honolulu**	**9.4**
8	US	**Los Angeles**	**9.3**
9	US	**San Francisco**	**9.2**
10	Britain	**Bournemouth and Dorset**	**8.9**

Source: Demographia

SCMP

Hong Kong's Housing Market

- Hong Kong's residential housing price has been continuously increasing over the past decade.

Property Price Index (Private) versus Important Social-economic Events in Hong Kong
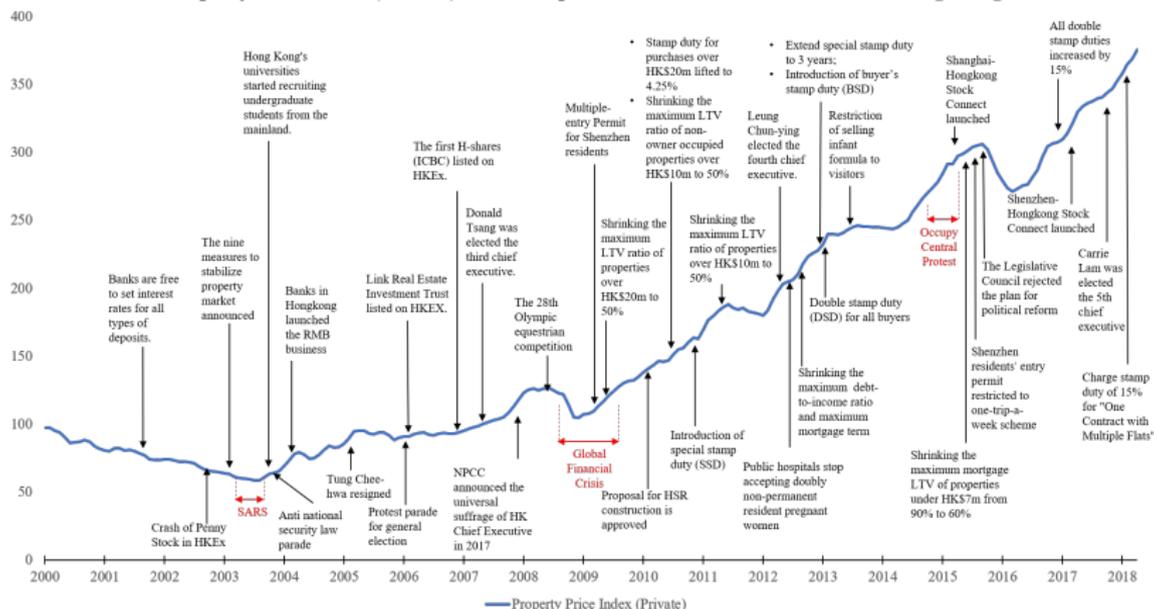
Data and Method

- Full records of housing transactions in 2001-2017 (677,222 obs)
- Scope: resale transactions by local and mainland buyers
  - Mainland and local buyers/sellers are identified by the spelling of names.
  - With Full Information on Sellers: 652,583 (96.4%)
  - Repeated Sales: 386,465 (57.1%)
- Combined with **HK Census data** in 2006, 2011 and 2016.
- **Housing Attributes**: Detailed address, housing type, size, number of bedrooms and living rooms, building age, remaining lease years.
- **Bartik IV:** Predicted migrant buyers based on historical migrant stock in each building (Chang, 2018; Saiz & Wachter, 2011; Sá, 2015).

Data and Method

- **Immigration Background**
  - Identification: Spelling of buyer/seller's names.
  - Distribution of Buyers: Hong Kong (94.5%), Mainland China (3.7%), Taiwanese (0.2%), Others (1.62%).

- **Individual Market Experience**
  - Identification: Prior transaction times under the same name in our sample.

- **Data Filter Rules**
  - No institutional buyers/sellers by screening names.
  - Exclude same name spellings in Hong Kong and P.R.China (0.7%).
  - Exclude transaction records with incomplete information on physical features or transaction price.

Key Findings

- Mainland homebuyers pay 4.4% higher price than locals in housing purchase. This price disparity is greater for larger units at central locations. Home sellers enjoy 6.6% higher gross return when they sell to migrant buyers.

- One percent increase of the lagged proportion of migrant buyers in same building leads to 1.7% higher price and 3.7% higher return in subsequent transactions. This spillover effect is prominent for both local and migrant buyers in subsequent transactions, and it is stronger in higher-end market.

- The safe haven effect explains for 34% of the price premium, which dominates other channels such as residential segregation and weak bargaining power of migrant buyers.

Contributions

- This paper contributes to the literature by providing direct evidence on migrant homebuyers and houisng market.

- It estimates the spillover effect of migrant buyers on housing price at close neighborhood (building) levels.

- It also aims to bridge the literature gap in exploring channels through which migrant buyers can affect the housing market in the destination regions.

- It provides additional empirical evidence of the safe haven effect on real estate assets associated with cross-broader migration and foreign capital risk.

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Current Cross-Broader Immigration Policy in HK (1)

- **Hong Kong: A typical Chinese immigration society**
  - Only about 60% of current population is born locally.
  - Many residents have family ties in Mainland China.

- **Permit-Quota System**
  - **Chinese government:**
    - Decide quota of permitted entrants.
    - Process individual applications.
  - **HK government:**
    - Accept all entrants permitted by China.

Current Cross-Broader Immigration Policy in HK (2)

- **Types of Long-Term Permits: One-Way Permit (OWP)**
  - **Purpose:** family reunion
  - **Validity:** indefinite stay period
  - **Quota:** 150 permits per day
  - **Impact:** The major constitute of migration from China - Any Chinese long-term permit holders living in HK for consecutive 7 years will be granted permanent residency (PR).

- **Short-Term Visiting Permits: Two-Way Permit (TWP)**
  - **Purpose:** Tourism, business visit, etc.
  - **Validity:** 7 days
  - **Quota:** Unlimited
  - **Impact:** A major cause of conflicts between local residents and Chinese migrants/visitors.

Number of Annual Mainland TWP Holders

Number of Two-Way Permit (TWP) Holders Entering Hong Kong
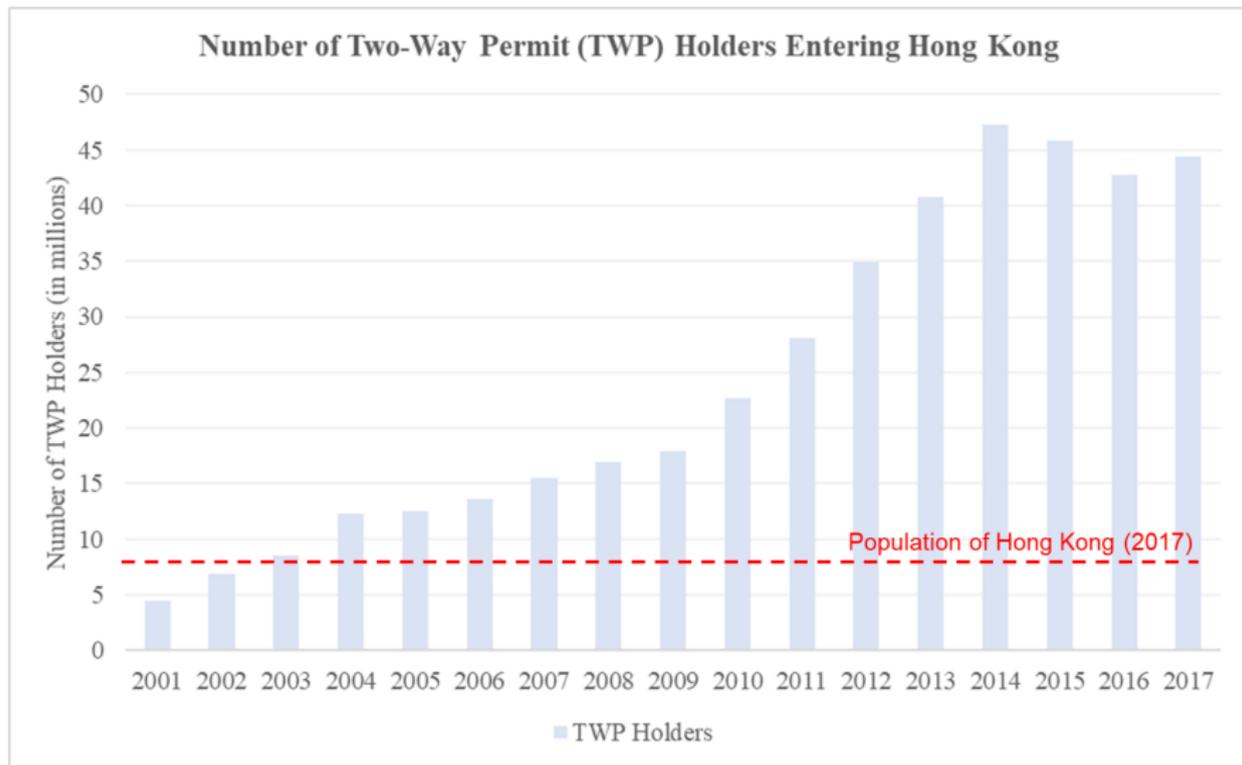
HK Government's Cooling Measures

- **Buyer's Stamp Duty (BSD):**
  - **Target:** All non-PR (permanent resident) buyers.
  - **Rate:** 15% (Oct 2012).

- **Double Stamp Duty (DSD):**
  - **Target:**
    - All buyer purchasing 2nd flats;
    - Non-PR buyers purchasing 1st flats.
  - **Rate:** Additional 15% (Nov 2016).

- **Special Stamp Duty (SSD):**
  - **Target:** Flippers who resale within a certain period.
  - **Rate:**
    - 5% - 15% within 24 months (Nov 2010).
    - 10% - 20% within 36 months (Oct 2012).

Future Demand of Mainland Buyer

- **Growing housing demand from Chinese migrants is expected.**
  - Around 21,000 working professionals from mainland China could become Hong Kong PR by 2019.
  - This number is likely to even increase in future years, as government's visa program attracts more high-earning young professionals.

"To prevent the overheating of the property market, tighter restrictions may be imposed on non-local home-buyers if necessary."

— Chief Executive Carrie Lam, July 2018

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Summary Statistics

- Mainland Chinese buyers prefer larger flats at central locations in Hong Kong (Gopalan, 2018).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		Local Buyer			Mainland Buyer		t-test	
	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.	Diff((2)-(5))	Std. Err.
total price (million HKD)	651,896	3.142	2.831	25,326	5.001	5.170	-1.8587***	0.0327
unit price (thousand HKD psf)	651,896	4.584	2.671	25,326	6.227	3.511	-1.6432***	0.0223
gross area (hundred sq.ft.)	651,896	6.580	2.245	25,326	7.376	3.053	-0.7961***	0.0194
number of bed rooms	651,896	1.994	0.946	25,326	2.088	0.958	-0.0945***	0.0061
number of living rooms	651,896	1.601	0.716	25,326	1.669	0.678	-0.0681***	0.0043
remaining lease years	651,896	84.879	176.953	25,326	96.450	203.423	-11.5715***	1.2969
floor	651,896	18.438	11.993	25,326	20.285	13.884	-1.8475***	0.0885
building age	651,896	16.942	9.166	25,326	15.044	9.468	1.8978***	0.0606
building type	651,896	1.096	0.296	25,326	1.120	0.325	-0.0242***	0.0019
region	651,896	2.433	0.779	25,326	2.310	0.806	0.1229***	0.0052

Notes: Building type in the transaction records is encoded as: 1 = block in estate; 2 = single building; 3 = village house.
Region is encoded as: 1 = Hong Kong Island; 2 = Kowloon; 3 = New Territories.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Housing Price by Homebuyers' Origin

- Migrant buyers consistently pay higher total price than local buyers.

Total Transaction Price by Origin of Buyers
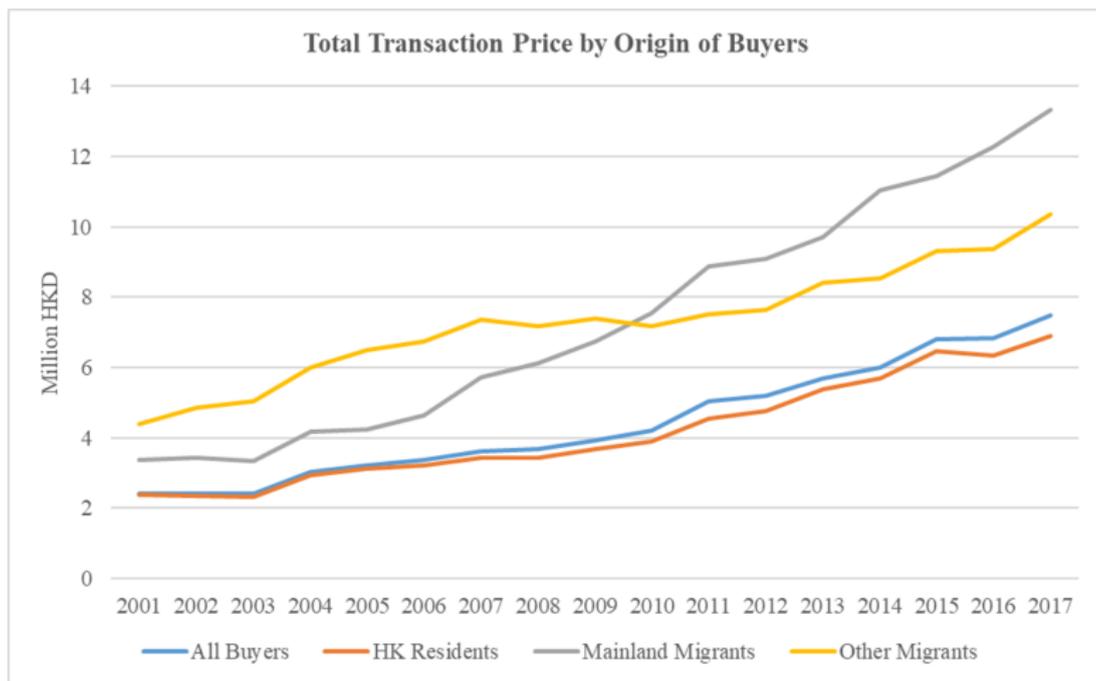
Note: Price adjusted by CPI of the month.

Transaction Amount and Percentage of Mainland Buyers

Transaction Amont versus Percentage of Mainland Buyer
(Correlation Coefficient = 0.8486)
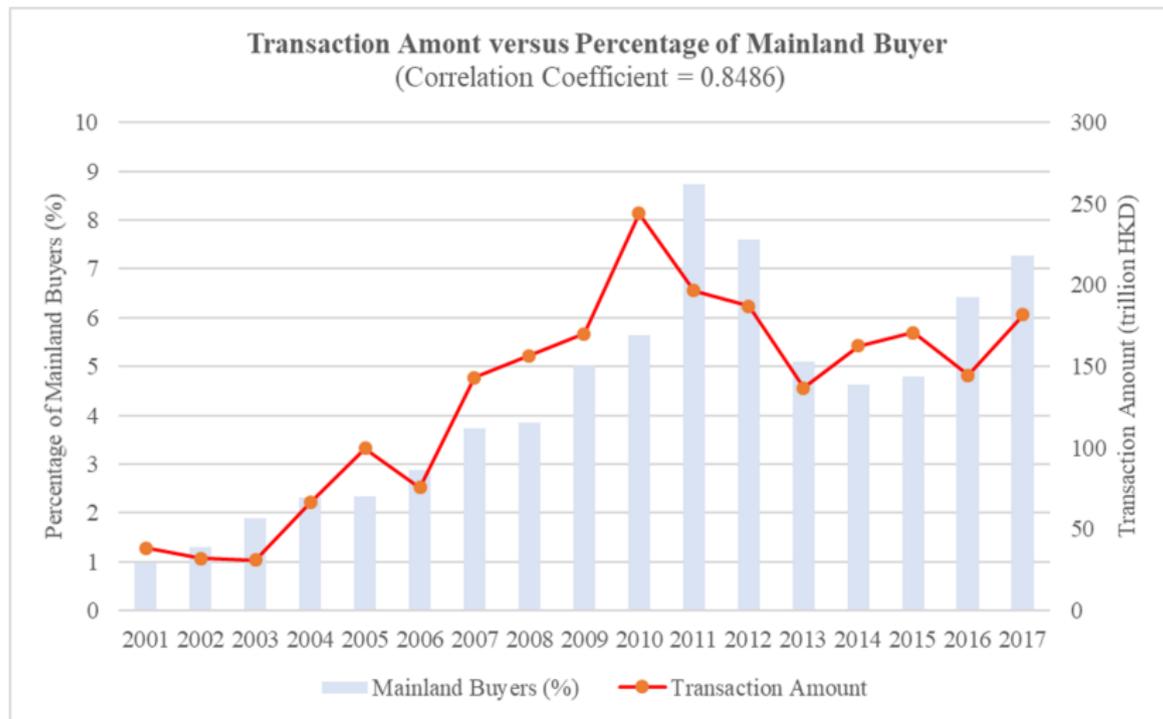
Note: Price adjusted by CPI of the month.

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Baseline Specification of Mainland Buyers on Housing

Empirical specification for the effect of migrant buyers on transaction price and holding period return:

$$Y_{it} = \beta_1 MB_{it} + X'_{it}\lambda + \phi_t + \rho_i + \epsilon_{it} \tag{1}$$

where:

- MB_{it} is a dummy variable which equals 1 if the buyer is classified as mainland buyer, and 0 otherwise.
- Y_{it} is a set of dependent variables including price and gross holding period return for unit i transacted at time t.
- X_{it} is a set of variables controlling for the physical features of housing unit i at time t. In the model of gross return, we include additional control for the initial purchase price and log holding days.
- ϕ_t is year*quarter fixed effect,
- ρ_i is the district fixed effect.
- ϵ_{it} is the error term.
- Standard errors are all clustered at level of district.

Baseline Results: Effect of Mainland Buyer on Housing

	(1)	(2)
		2001 - 2017
	log (price)	gross return
Mainland Buyer (Yes = 1)	0.0442***	0.0661***
	(0.0069)	(0.0101)
Unit Price of Last Purchase/1000		-0.2644***
		(0.0183)
log (Holding Days)		0.3450***
		(0.0213)
Physical Features	Y	Y
District Fixed Effect	Y	Y
Year & Quarter Fixed Effect	Y	Y
Observations	677,222	278,923
R-squared	0.836	0.643

Notes: Column (1)-(2) include all samples during 2001-2017. Column (3)-(4) include repeated sales during 2001-2017, with holding period longer than 2 years. Unreported control variables include unit size, number of rooms, remaining lease years, building age, floor and building types. District and time fixed effect included. Standard errors clustered by district. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Heterogeneity in Estimates by Year
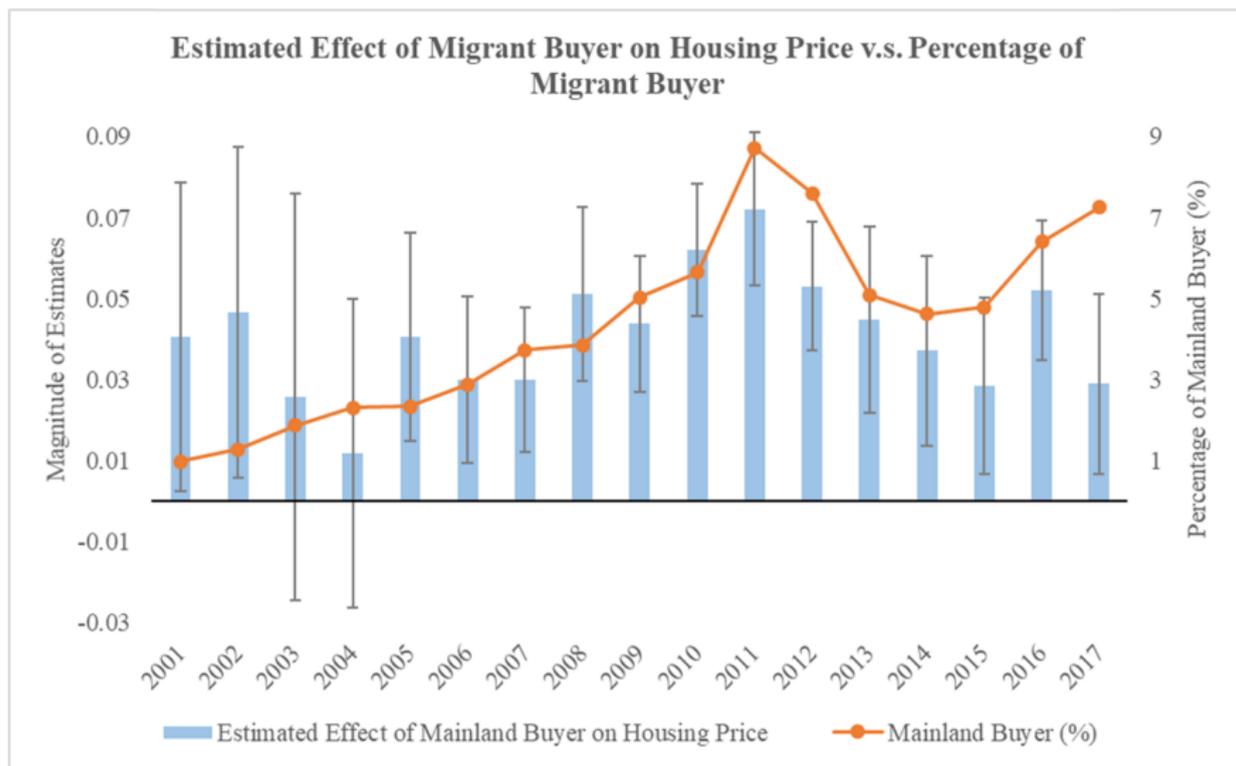
Note: 95% confidence intervals are plotted with error bars.

Heterogeneity in Estimates by Unit Size
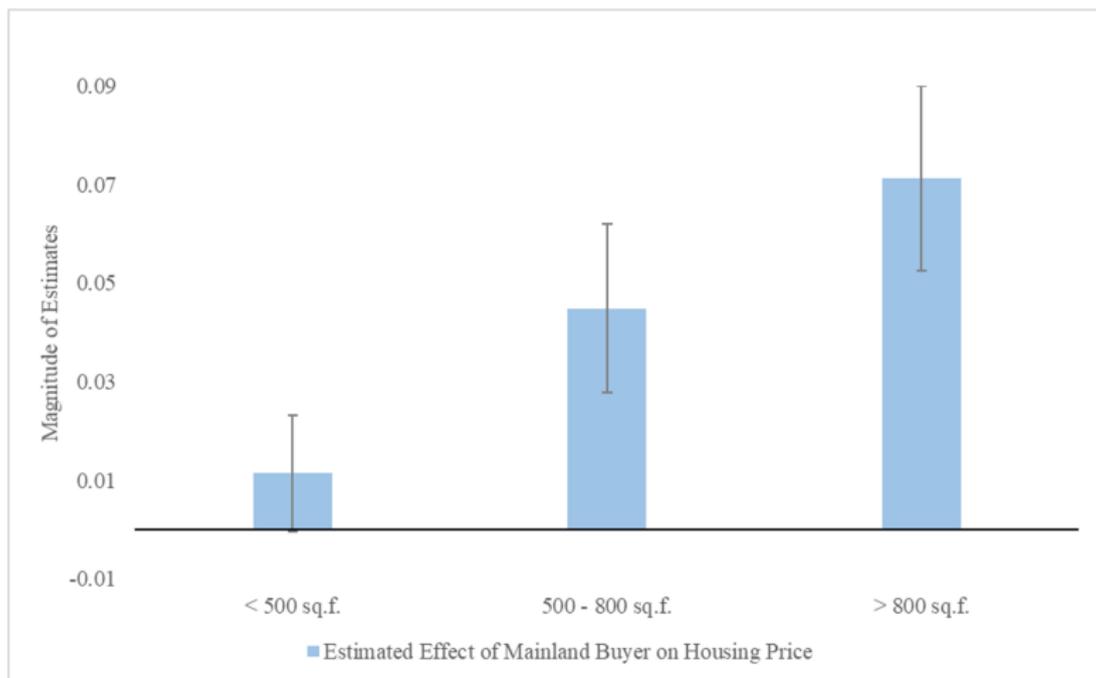
Note: 95% confidence intervals are plotted with error bars.

Heterogeneity in Estimates by Region
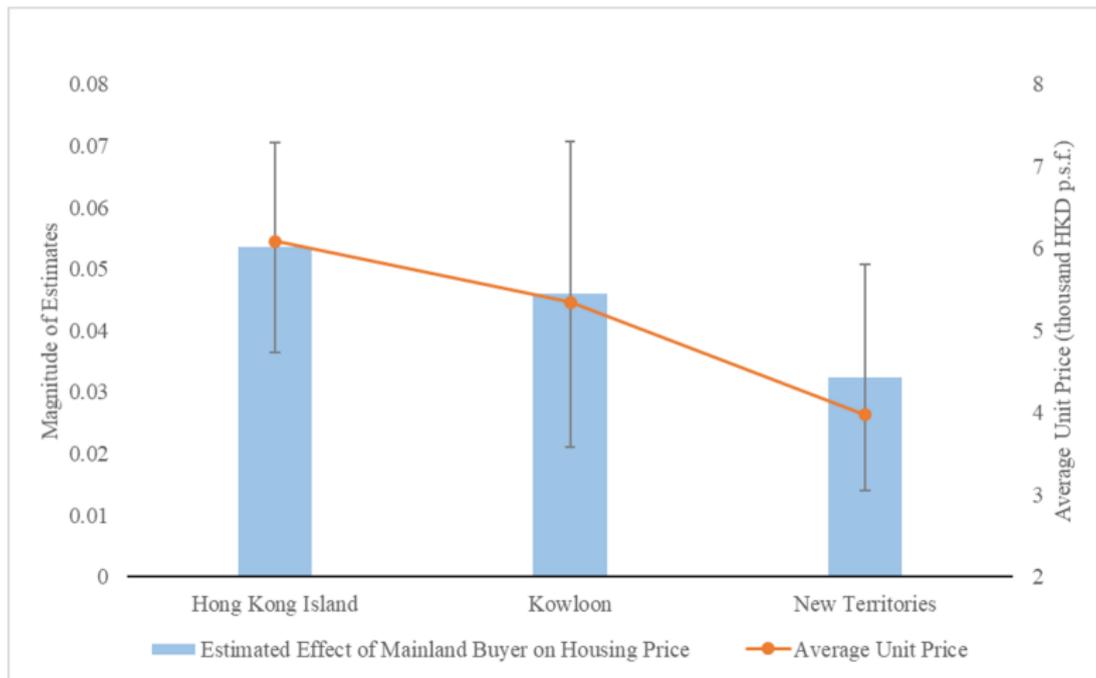
Note: 95% confidence intervals are plotted with error bars.

Effect of Mainland Buyers (%) on Housing Price

Empirical specification for the effect from 1-year lagged proportion of migrant buyers (Campbell et al., 2011 AER) but at same building level:

$$Y_{it} = \beta_2 P_{i,t-1} + X'_{it}\lambda + \phi_t + \rho_i + \epsilon_{it} \tag{2}$$

where:

- $P_{i,t-1}$ is the percentage of mainland buyers in building i during 1 year before transaction time t.
- Y_{it} is a set of dependent variables including price and gross holding period return for unit i transacted at time t.
- X_{it} is a set of variables controlling for the physical features of housing unit i at time t. In the model of gross return, we include additional control for the initial purchase price and log holding days.
- ϕ_t is year*quarter fixed effect,
- ρ_i is the district fixed effect.
- ϵ_{it} is the error term.
- Standard errors are all clustered at level of district.

Predicted Mainland Buyers (%) as Instrument Variable (IV)

- **Endogeneity from Unobservables**

- We use historical settlement pattern to construct a predicted proportion of migrant buyers (Chang, 2018; Saiz & Wachter, 2011; Sá, 2015):
    - Construct stock with samples from 2001 to 2010.
    - Include samples from 2011 to 2017 in IV estimation.

- **Assumption:**
    - Historical settlement pattern of migrants is uncorrelated with recent changes of the building, i.e. it correlates with changes in year t's price only through migrant flow in year $t - 1$.

Predicted Migrant Buyers (%) as Instrument Variable (IV)

- **Predicted Number of Migrant Buyers in t-1**

$$\widehat{N}_{i,t-1} = \frac{MBStock_{i,t-2}}{MBStock_{t-2}} \times MBFlow_{t-1} \tag{3}$$

where:

- $MBFlow_{t-1}$ is the flow number of migrant buyers in Hong Kong in $t-1$ period.
- $MBStock_{i,t-2}$ is the total stock of migrant buyers in building i before time $t-1$.
- $MBStock_{t-2}$ is the total stock of migrant buyers in Hong Kong before time $t-1$.

- **Predicted Lagged Proportion of Migrant Buyers**

$$\widehat{P}_{i,t-1} = \frac{\widehat{N}_{i,t-1}}{BFlow_{i,t-1}} \tag{4}$$

where:

- $BFlow_{t-1}$ is the flow number of all buyers in building i in $t-1$ period.

Effect of Lagged Mainland Buyer (%): IV Results

Instrument Variable: Predicted Proportion of Migrant Buyers

	(1)	(2)	(3)	(4)
			2011 - 2017	
	all samples log (price)	$P_{i,t-1} > 0$ log (price)	all samples gross return	$P_{i,t-1} > 0$ gross return
Lagged Proportion of Mainland Buyers	1.7046***	0.7706***	3.7054***	1.3494***
	(0.2225)	(0.1197)	(0.6237)	(0.2455)
Unit Price of Purchase (thousand HKD psf)			-0.2547***	-0.2236***
			(0.0174)	(0.0201)
log (Holding Days)			0.5249***	0.4424***
			(0.0340)	(0.0343)
Property Features	Y	Y	Y	Y
District Fixed Effect	Y	Y	Y	Y
Year * Quarter Fixed Effect	Y	Y	Y	Y
First Stage F-Stats	59.84	162.42	104.45	145.38
Observations	240,094	95,318	152,023	61,560
R-squared	0.686	0.777	0.491	0.582

Notes: Column (1)-(2) include all samples during 2011-2017. Column (3)-(4) include repeated sales during 2011-2017, with holding period longer than 2 years. Column (2) and (4) exclude samples with no lagged migrant buyers. Lagged period is 1 year. Unreported control variables include unit size, number of rooms, remaining lease years, building age, floor and building types. District and time fixed effect included. Standard errors clustered by district. Robust standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.)

Robustness Check: Lagged Number of Mainland Buyers

Instrument Variable: Predicted Number of Mainland Buyers

	(1)	(2)
		2011 -2017
	log (price)	gross return
Lagged Number of Migrant Buyers	0.0406**	0.0310***
	(0.0168)	(0.0118)
Unit Price of Last Purchase/1000		-0.2341***
		(0.0170)
log (Holding Days)		0.5550***
		(0.0347)
Property Features	Y	Y
District Fixed Effect	Y	Y
Year & Quarter Fixed Effect	Y	Y
First Stage F-statistics	27.30	114.83
Observations	244,327	154,666
R-squared	0.731	0.623

Notes: Column (1)-(2) include all samples during 2011-2017. Column (3)-(4) include repeated sales during 2011-2017, with holding period longer than 2 years. Lagged period is 1 year. Unreported control variables include unit size, number of rooms, remaining lease years, building age, floor and building types. District and time fixed effect included. Standard errors clustered by district. Robust standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Heterogeneity Across Unit Size: IV Results

Outcome variable: log(price)

	(1)	(2) 2011 - 2017	(3)
	0-500 sq.f.	500-800 sq.f.	over 800 s.q.f.
Lagged Proportion of Mainland Buyer	0.8519** (0.4083)	1.6233*** (0.4072)	1.8953*** (0.3588)
Property Features	Y	Y	Y
District Fixed Effect	Y	Y	Y
Year * Quarter Fixed Effect	Y	Y	Y
First Stage F-Statistics	17.51	41.97	24.97
Observations	53,749	139,742	46,603
R-squared	0.653	0.556	0.598

Notes: Lagged period is 1 year. Unreported control variables include unit size, number of rooms, remaining lease years, building age, floor and building types. District and time fixed effect included. Standard errors clustered by district. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Heterogeneity Across Regions: IV Results

Outcome variable: log(price)

	(1)	(2) 2011 - 2017	(3)
	Hong Kong	Kowloon	New Territories
Lagged Proportion of Mainland Buyer	2.1700***	1.2382***	1.2759**
	(0.4880)	(0.1945)	(0.5674)
Property Features	Y	Y	Y
District Fixed Effect	Y	Y	Y
Year * Quarter Fixed Effect	Y	Y	Y
First Stage F-Statistics	34.01	42.65	25.98
Observations	37,901	49,671	152,522
R-squared	0.615	0.718	0.669

Notes: Lagged period is 1 year. Unreported control variables include unit size, number of rooms, remaining lease years, building age, floor and building types. District and time fixed effect included. Standard errors clustered by district. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Channel Discussion

- **Regional Level**
  - Safe Haven Effect

- **Neighborhood Level**
  - Residential Sorting

- **Individual Level - Bargaining Power**
  - Asymmetric Market Information
  - Statistical Discrimination

Regional Level: Safe Haven Effect

- Effect of international and institutional buyers/investors (Badarinza & Ramadorai, 2018; Cvijanovic & Spaenjers, 2015; Allen et al., 2017)
- **Measurement 1:** CNY/HKD Exchange Rate (floating since 2006)
- **Measurement 2:** Economic Policy Uncertainty (EPU) Index (Baker et al., 2015)
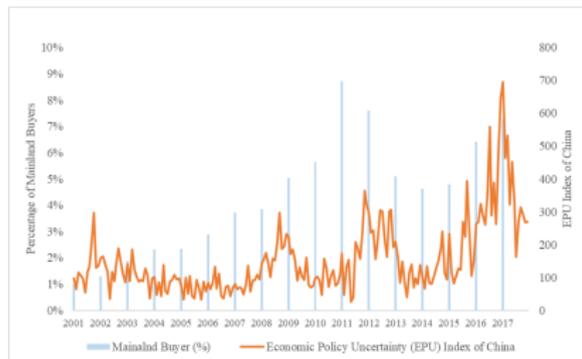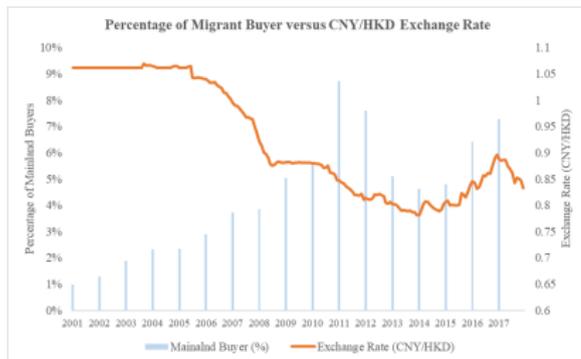
Regional Level: Safe Haven Effect

	(1) 2006 - 2017	(2) 2001 - 2017
	Mainland Buyer (Yes = 1)	
	Logit	Logit
Lagged CNY/HKD Exchange Rate	0.1203*** (0.0223)	
Lagged EPU Index /100		0.0010** (0.0005)
Property Features	Y	Y
District Fixed Effect	Y	Y
Year & Quarter Fixed Effect	Y	Y
Observations	538,505	677,222
Pseudo R-squared	0.068	0.077

Notes: The lagged period of exchange rate and EPU index is 1 month. Column (1) include only samples from 2006 onwards, when China started to implement the floating exchange rate policy. Column (2) include full samples during 2001 to 2017. Unreported control variables include unit size, number of rooms, remaining lease years, building age, floor and building types. District and time fixed effect included. Standard errors clustered by district. Robust standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Neighborhood Level: Residential Sorting

| | (1) | (2) |
| | Mainland Buyer (Yes = 1) | |
	Logit	Logit
Lagged Proportion of Mainland Buyer	0.0572***	
	(0.0071)	
Lagged Number of Mainland Buyer		0.0014***
		(0.0001)
Property Features	Y	Y
District Fixed Effect	Y	Y
Year & Quarter Fixed Effect	Y	Y
Observations	667,595	677,222
Pseudo R-squared	0.080	0.079

Notes: The lag period is 1 year. Logit estimation of marginal effect at mean is reported. Unreported control variables include unit size, number of rooms, remaining lease years, building age, floor and building types. District and time fixed effect included. Standard errors clustered by district. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Individual Level: Asymmetric Market Information

	(1) local buyer	(2) mainland buyer
	log (price)	
(base: first-time buyer)		
Buyer with 1 Prior Purchase (Yes = 1)	-0.0151***	0.0056
	(0.0011)	(0.0045)
Buyer with 2 Prior Purchases (Yes =1)	-0.0219***	-0.0112
	(0.0022)	(0.0073)
Buyer with 3 or More Prior Purchases (Yes =1)	-0.0362***	-0.0146*
	(0.0056)	(0.0083)
Property Features	Y	Y
Year * Quarter Fixed Effect	Y	Y
District Fixed Effect	Y	Y
Observations	651,896	25,326
R-squared	0.833	0.873

Notes: Unreported control variables include unit size, number of rooms, remaining lease years, building age, floor and building types. District and time fixed effect included. Standard errors clustered by district. Robust standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Individual Level: Statistical Discrimination

	(1)	(2)	(3)	(4)
	local seller		migrant seller	
	local buyer	mainland buyer	local buyer	mainland buyer
	log (price)	log (price)	log (price)	log (price)
Seller's Prior Transactions with Mainlander	0.0056	0.0156**	-0.0077	-0.0716
	(0.0037)	(0.0070)	(0.0300)	(0.0473)
Property Features	Y	Y	Y	Y
District Fixed Effect	Y	Y	Y	Y
Year * Quarter Fixed Effect	Y	Y	Y	Y
Observations	611,815	22,257	16,392	2,119
R-squared	0.835	0.886	0.822	0.788

Notes: Unreported control variables include unit size, number of rooms, remaining lease years, building age, floor and building types. District and time fixed effect included. Standard errors clustered by district. Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Horse Racing Analysis

- **Empirical Specification**

$$log(price)_{it} = Channel'_{it}\alpha + X'_{it}\lambda + \phi_t + \rho_i + \epsilon_{it} \tag{5}$$

$$log(price)_{it} = MB_{it} * Channel'_{it}\delta + Channel'_{it}\alpha + \beta MB_{it} + X'_{it}\lambda + \phi_t + \rho_i + \epsilon_{it} \tag{6}$$

where:

- $Channel_{it}$ is a set of standardized variables measuring the impact from the investigated channels, including: 1-month lagged CNY/HKD exchange rate; 1-year lagged proportion of mainland buyers in building i; a continuous variable equal to buyer's prior transactions times; a dummy variable indicating if the seller is local.
- MB_{it} is a dummy variable indicating if the buyer is a migrant. It equals to 1 if the buyer is classified as migrant, and is 0 if the buyer is considered local.
- X_{it} is a set of variables controlling for the physical features of housing unit i at time t. In the model of gross return, we include additional control for the initial purchase price and log holding days.
- ϕ_t is year * quarter fixed effect,
- ρ_i is the district fixed effect.
- ϵ_{it} is the error term.
- Standard errors are all clustered at level of district.

Horse Racing Analysis: Results

	(1)	(2) 2006 - 2017	(3)
	Mainland Buyer log (price)	Local Buyer log (price)	Diff (Mainland - Local) log (price)
SD_lagged CNY/HKD exchange rate	-0.0875**	-0.1108***	0.0151*
	(0.0341)	(0.0135)	(0.0073)
SD_lagged proportion of mainland buyer	0.0189***	0.0112***	0.0143*
	(0.0057)	(0.0034)	(0.0068)
SD_buyer's prior transaction times	-0.0038	-0.0096***	-0.0022
	(0.0067)	(0.0019)	(0.0081)
SD_local seller	0.0095**	-0.0018	0.0124***
	(0.0037)	(0.0022)	(0.0025)
Property Features	Y	Y	Y
District Fixed Effect	Y	Y	Y
Year * Quarter Fixed Effect	Y	Y	Y
Observations	22,203	496,470	518,673
R-squared	0.874	0.827	0.831

Notes: The lag period for exchange rate is 1 month. The lag period for proportion of mainland buyer is 1 year. The lagged proportion of mainland buyer is calculated within the same building. Column (1)-(2) reports the estimations results from Equation (5). Column (3) reports the estimates of interaction between each channel and a standardized dummy for mainland buyer (δ) in Equation (6). These estimates therefore represent the difference in each channel's impact between mainland and local buyers. Unreported control variables include unit size, number of rooms, log(remaining lease years), log(building age), floor and building types. Standard errors clustered by districts. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

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Conclusion

- **Mainland Buyers and HK Housing Market**
  - Mainland buyers pay 4.4% higher price than locals in housing purchase.
  - Home sellers enjoy 6.6% higher gross holding period return when they sell to mainland buyers.

- **Spillover Effect in the Same Building**
  - Increasing lagged proportion of mainland buyers by 1 percentage point leads to 1.7% higher price and 3.7% higher holding period return in subsequent transactions.
  - The spillover effect is prominent for both subsequent local and migrant homebuyers.
  - The impact is stronger on higher-end market segments, classified by either total price, unit size, or location.

Conclusion

- **Channels for the Impact**
  - **Regional Level: Safe Haven Effect**
    - Demand from mainland buyers increases when they forecast weak performance of Chinese currency and higher economic political uncertainty.
  - **Neighborhood Level: Residential Sorting**
    - Mainland buyers tend to live in culturally similar neighborhood, which drives up the demand at building level.
  - **Individual Level: Bargaining Power**
    - **Asymmetric Market Information:** Mainland homebuyers have less market information and are less benefited from prior transaction experience.
    - **Statistical Discrimination:** Local sellers impose price discrimination on mainland homebuyers, especially after they have previously transacted with mainland buyers.

Thank you!

Q & A