Discussion on China's Housing Market: What we know? What we don't

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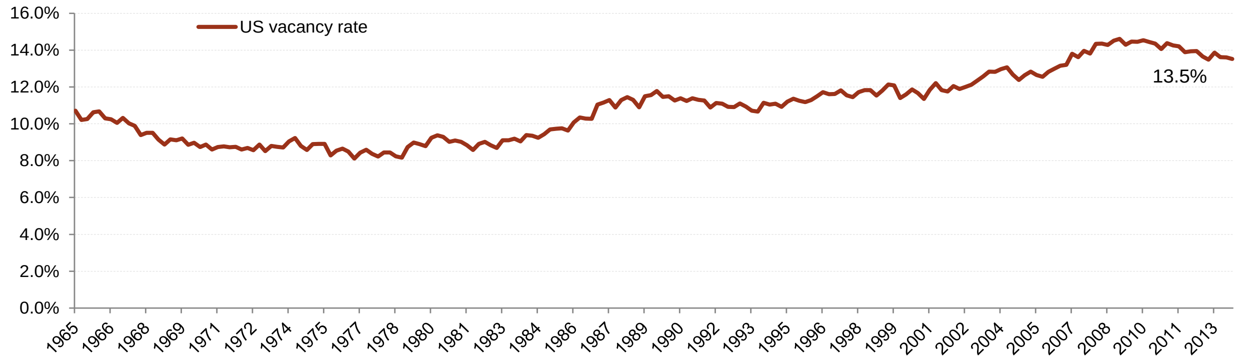
Vacancy rate too high? - Definition of the vacancy rate

Broad vacancy rate: All houses other than primary residences are considered vacant. Tend to overestimate the vacancy rate. Japan, Singapore, Hong Kong and most EU member states use this definition.

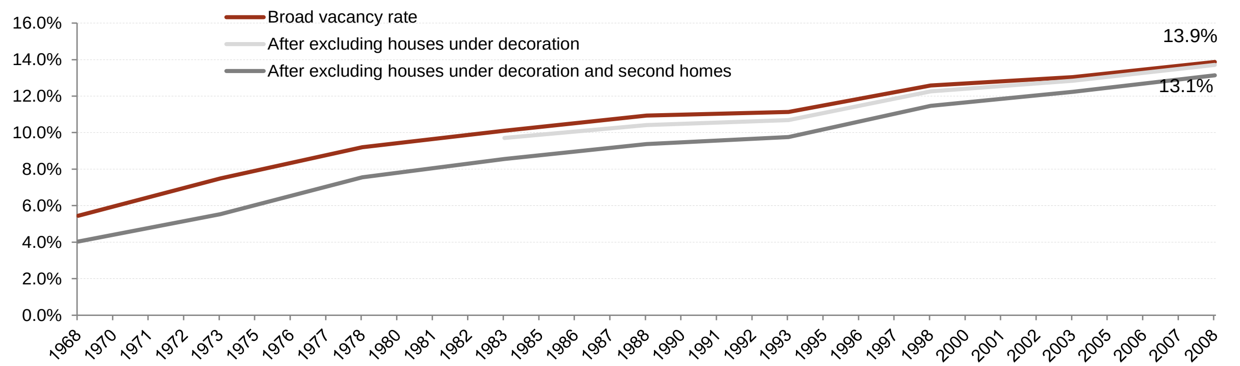
Narrow vacancy rate: Excludes: 1) houses under decoration or repair, which are not available for use; 2) run-down houses, which are unsafe and forbidden from being used; and, 3) old houses which are due to be demolished.

US vacancy rate (narrow sense)



Sources: CEIC, CICC Research

Japan vacancy rate (both broad and narrow sense)



Sources: CEIC, CICC Research

18% broad vacancy rate – not too high

International experience indicates a broad vacancy rate of 10%~15% is reasonable, while 15%~20% is an alarming level, >20% points to high risk, and <10% insufficient.

In a narrow sense, these figures should be lowered by 1~2ppt in well-developed markets or more in emerging markets.

In China, we believe a vacancy rate of 7~12% should be 'reasonable', 12~17% an 'alarming' level, >17% 'high risk' and <7% 'insufficient' given the current stage of China's housing market.

18% broad vacancy rate by end-2013

	Urban	City	Township
Total			
Total housing units (mn)	261	154	107
Occupied housing units (mn)	215	130	85
Vacant housing units (mn)	46	24	22
Vacancy rate	18%	16%	21%

Sources: NBS, CICC Research

13% narrow vacancy rate

- Excluding houses under decoration, vacancy rate should lower to 15%. 13mn housing units completed in 2013, assuming decoration of a house takes half a year, 6.5mn units were deemed empty.
- Vacancy rate declines further to 13% if run-down houses are excluded. Run-down houses are those built before 1969, around 2.1% of

Sources: NBS, CICC Research

Vacancy rate is 0% if houses without certificates of title are excluded

Calculation of total housing GFA without certificates of title:

mn sqm	Area	Calculation
Nationwide existing housing GFA during the Sixth Census	40,117	A
Nationwide existing housing GFA during the Fifth Census	27,739	B
Housing GFA increased during 2001~2010	12,378	C=A-B
Demolished housing GFA during 2001~2010	3,710	D
Nationwide completed housing GFA during 2001~2010	16,088	E=C+D
Percentage in urban areas	52%	F
Urban completed housing GFA during 2001~2010	8,361	G=E*F
Urban completed housing GFA during 2001~2010 released by NBS	6,721	H
Completed housing GFA without certificates of title during 2001~2010	1,640	I=G-H
Houses without certificates of title as % of total completed GFA	20%	J=I/G

mn sqm	Area	Calculation
Nationwide completed GFA during 2011~2013	5,888	K
Percentage in urban areas	55%	L
Urban completed housing GFA during 2011~2013	3,239	M=K*L
Houses without certificates of title as % of total completed GFA	30%	N
Completed housing GFA without certificates of title during 2011~2013	972	O=M*N
Total housing GFA without certificates of title	2,612	P=I+O

Sources: NBS, CICC Research

There is enough housing stock …

Total housing stock of 21bn sqm is basically sufficient

Total urban housing stock stands at 261mn units with a GFA of 21bn sqm.

- **City areas :** Housing stock of 154mn units with a GFA of 11.8bn sqm.
- **Township areas:** Housing stock of 107mn units and 278mn rooms, with a GFA of 9bn sqm.

	Urban	City	Township
Total			
Housing stock (mn sqm)	20,851	11,835	9,015
Total housing units (mn units)	261	154	107
Total rooms (mn)	622	344	278
Average			
Housing GFA per capita (sqm)	32.38	31.45	33.66
Housing units per family	1.14	1.09	1.22
Rooms per family generation	1.57	1.44	1.78
GFA per housing unit (sqm)	79.99	77.05	84.20
Rooms per housing unit	2.39	2.24	2.60
GFA per room (sqm)	33.51	34.40	32.40

Sources: NBS, CICC Research

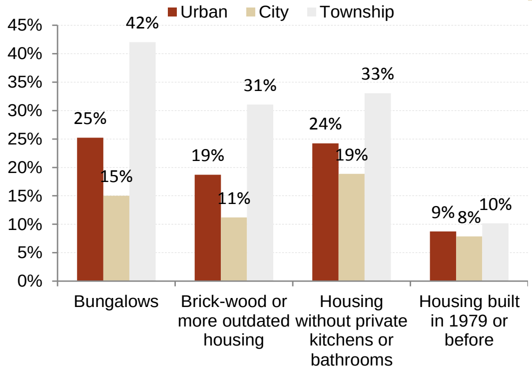
… but distribution is uneven and quality needs to be improved

Crowded on one hand, vacant on the other hand

	Urban	City	Township
Average			
Housing units per family	1.14	1.09	1.22
Occupied housing units per family	0.94	0.92	0.97
Vacant housing units per family	0.20	0.17	0.25

Sources: NBS, CICC Research

Portion of low quality houses

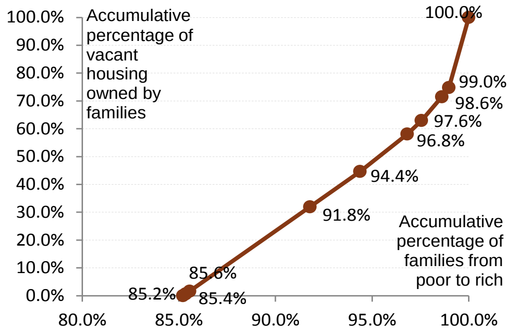


Sources: NBS, CICC Research

Bungalows

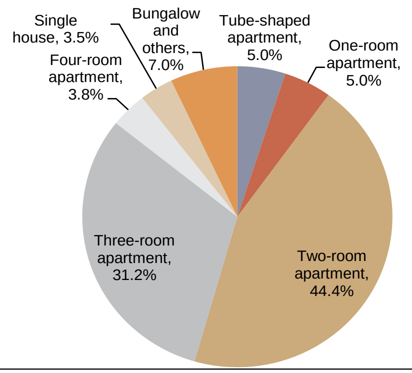
Sources: news picture on Baidu

1% richest family owns 25% vacant houses



Sources: NBS, CICC Research

Most units with only 2-3 rooms



Sources: NBS

Public washroom

Sources: news picture on Baidu

Four types of housing demand, three sources of supply

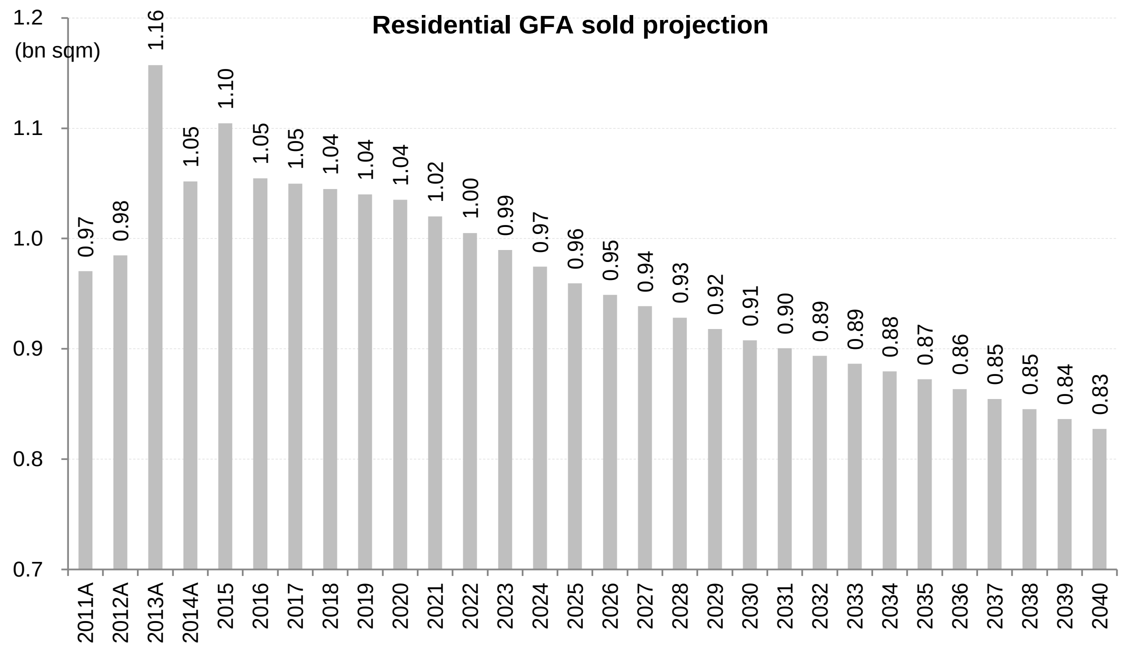
Matching supply and demand

Demand	Satisfied by which supply	Units	GFA per unit	Demand in GFA	Supply	To satisfy which demand	Units	GFA per unit	Supply in GFA
'000 units		'000 units	sqm/unit	mn sqm	'000 units		'000 units	sqm/unit	mn sqm
Newly-formed	Affordable housing	681	60	41					
families' demand	Non-affordable housing	635	112	71	Affordable	Newly-formed families	681	60	41
2,269	Second-hand housing	953	78	74	housing	Urbanization	2,457	60	147
	Subtotal	2,269	82	186	3,995	Demolition	857	60	51
						Upgrade demand	0		0
Urbanization	Affordable housing	2,457	60	147		Subtotal	3,995	60	240
demand	Non-affordable housing	0		0					
4,330	Second-hand housing	1,873	81	152	Non-	Newly-formed families	635	112	71
	Subtotal	4,330	69	299	affordable	Urbanization	0		0
					housing	Demolition	2,422	106	256
Demolition	Affordable housing	857	60	51	7,026	Upgrade demand	3,969	125	497
demand	Non-affordable housing	2,422	106	256		Subtotal	7,026	117	824
4,422	Second-hand housing	1,143	80	91					
	Subtotal	4,422	90	399	Second-	Newly-formed families	953	78	74
					hand	Urbanization	1,873	81	152
Upgrade	Affordable housing	0		0	housing	Demolition	1,143	80	91
demand	Non-affordable housing	3,969	125	497	3,969	Upgrade demand	0		0
3,969	Second-hand housing	0		0		Subtotal	3,969	80	317
	Subtotal	3,969	125	497					
Total		**14,990**	**92**	**1,380**			**14,990**	**92**	**1,380**
Demand for new housing		**11,021**	**96**	**1,063**			**11,021**	**96**	**1,063**

Sources: NBS, CICC Research

Annual demand 1bn sqm in silver age

Silver age would last till 2020, with 1bn sqm annual demand



Source: NBS, CICC Research

Four types of demand in detail

Demand from newly-formed urban families – 186mn sqm

	Urban	City	Township	Calculation
Family population by end-2013 (mn)	644	376	268	A
Families by end-2013 (mn)	229	142	88	B
Occupied housing units by end-2013 (mn)	215	130	85	C
Family population by end-2020 excl. urbanization	675	395	280	D
Family size by end-2020 (members/family)	2.74	2.57	3.01	E
Families by end-2020 excl. urbanization (mn)	246	153	93	F=D/E
Increased families excl. urbanization	17	12	5	G=F-B
Occupied housing units per family	0.93	0.92	0.97	H
Occupied housing units by end-2020 (mn)	230	140	90	I=F*H
Increased occupied housing units (mn)	16	11	5	J=I-C
Units provided by affordable housing (mn)	5	3	2	
GFA provided by affordable housing (mn sqm)	286	194	92	
Units provided by second-hand housing (mn)	7	6	1	
GFA provided by second-hand housing (mn sqm)	518	471	47	
Units provided by non-affordable housing (mn)	4	1	3	
GFA provided ny non-affordable housing (mn sqm)	496	135	361	
Total demand in GFA (mn sqm)	1,300	800	500	
Annual demand in GFA (mn sqm）	186	114	71	

Sources: NBS, CICC Research

Demand from urbanization – 299mn sqm

	Urban	City	Township	Calculation
Total population by end-2020 (mn)	852	499	352	A
Family population as % of total population	90%	88%	92%	B
Family population by end-2020 (mn)	764	441	323	C=A*B
Family population by end-2020 excl. urbanization	675	395	280	D
Population increase due to urbanization	89	46	43	E=C-D
Family size (members/family)	2.74	2.57	3.01	F
Family increase due to urbanization	32	18	14	G=E/F
Occupied housing units per family	0.94	0.92	0.97	H
Increase in occupied housing unit	30	17	14	I=G*H
Units provided by affordable housing (mn)	17	11	7	
GFA provided by affordable housing (mn sqm)	1,032	633	399	
Units provided by second-hand housing (mn)	13	6	7	
GFA provided by second-hand housing (mn sqm)	1,061	459	602	
Total demand in GFA (mn sqm)	2,093	1,092	1,001	
Annual demand in GFA (mn sqm）	299	156	143	

Sources: NBS, CICC Research

Demand from housing demolition – 399mn sqm

	Urban	City	Township	Calculation
Demolished housing GFA (mn sqm)	2,277	1,286	991	A
GFA per unit of demolished housing (sqm/unit)	73.56	66.19	85.95	B
Demolished housing units (mn unit)	31	19	12	C=A/B
Units provided by affordable housing (mn)	6	5	1	
GFA provided by affordable housing (mn sqm)	360	300	60	
Units provided by second-hand housing (mn)	8	5	3	
GFA provided by second-hand housing (mn sqm)	638	387	251	
Units provided by non-affordable housing (mn)	17	9	8	
GFA provided ny non-affordable housing (mn sqm)	1,794	890	904	
Total demand in GFA (mn sqm)	2,791	1,577	1,215	
Annual demand in GFA (mn sqm）	399	225	174	

Sources: NBS, CICC Research

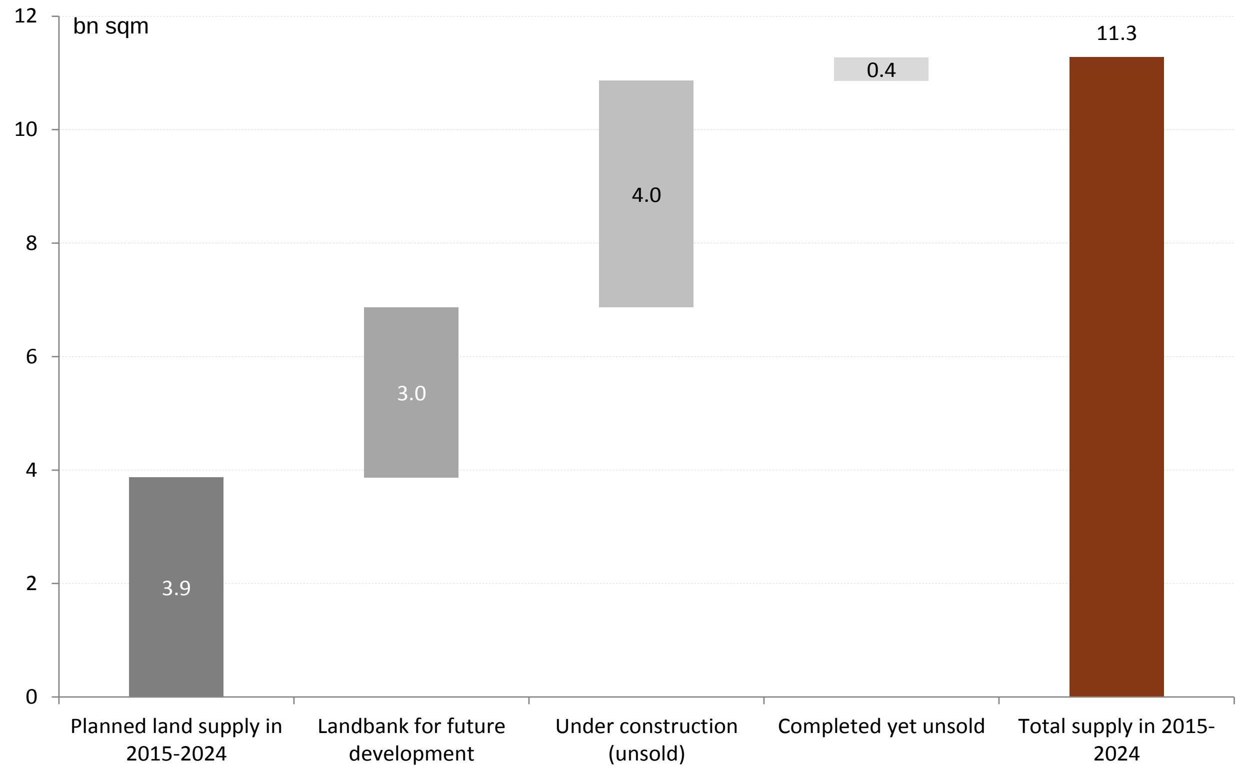
Demand from upgrade demand – 180mn sqm

	Urban	City	Township
Families by end-2020 (mn)	279	171	107
Families w ithout the above three types of demand (mn)	198	122	76
Annual percentage of upgrade demand families	2%	2%	2%
Upgrade demand families 2014 - 2020 (mn)	28	17	11
GFA per unit of second-hand housing	80	77	84
GFA per unit of upgraded non-affordable housing	125	114	144
Net GFA demand due to the upgrade (mn sqm)	1,259	625	634
Annual GFA demand (mn sqm)	180	89	91

Sources: NBS, CICC Research

Total supply of 11.3 bn sqm in 2015-2024

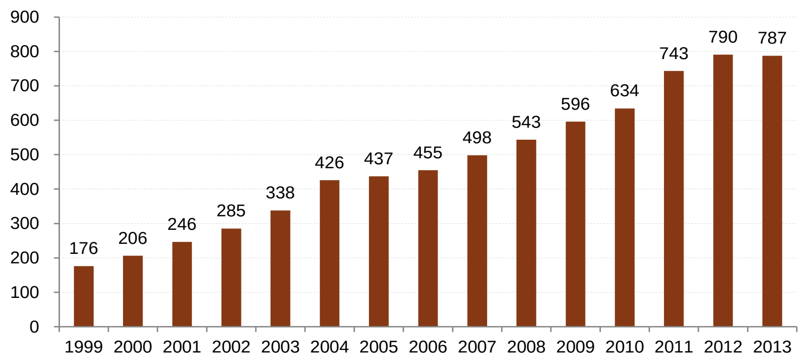
Total residential supply in next ten years is estimated at 11.3bn sqm



Source: MOHURD, NBS, CICC Research

2010~20 marks the silver age of China's housing market

GFA of residential commodity housing completed historically (in mn sqm)



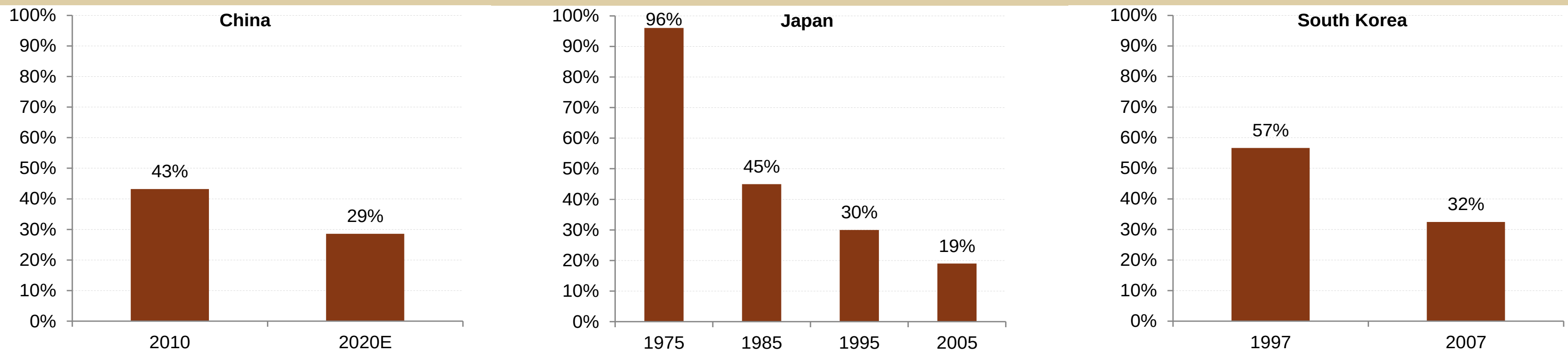
Sources: NBS, CICC Research

Baseline scenario in 2020(E)

	Urban	City	Township
Total			
Housing stock (mn sqm)	26,018	14,644	11,374
Total housing units (mn units)	307	181	126
Average			
Housing GFA per capita (sqm)	34.04	33.20	35.17
Housing units per family	1.10	1.06	1.17
GFA per housing unit (sqm)	84.78	80.96	90.28

Sources: NBS, CICC Research

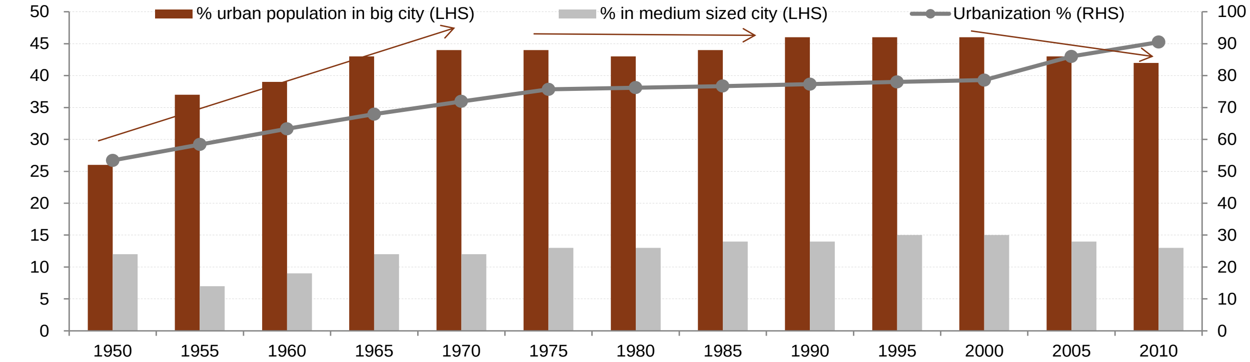
Proportion of housing built in the most recent decade in China, Japan and South Korea



Sources: Statistics Bureau of Japan and South Korea, NBS, CICC Research

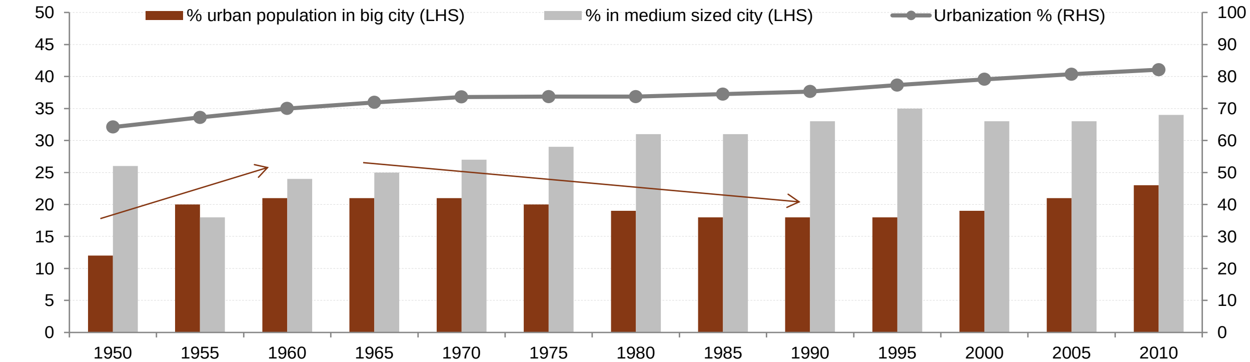
Population concentrates into big cities

Japan big cities concentration raise as urbanization rose from 50% to 70%



Source: United Nations - Department of Economic and Social Affairs, CICC Research

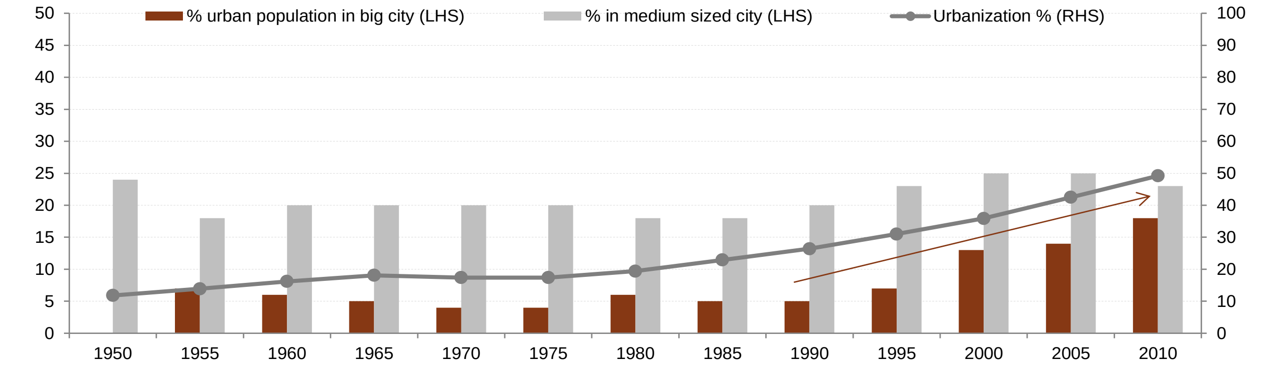
U.S. big cities concentration raise as urbanization rose from 60% to 70%



Source: United Nations - Department of Economic and Social Affairs, CICC Research

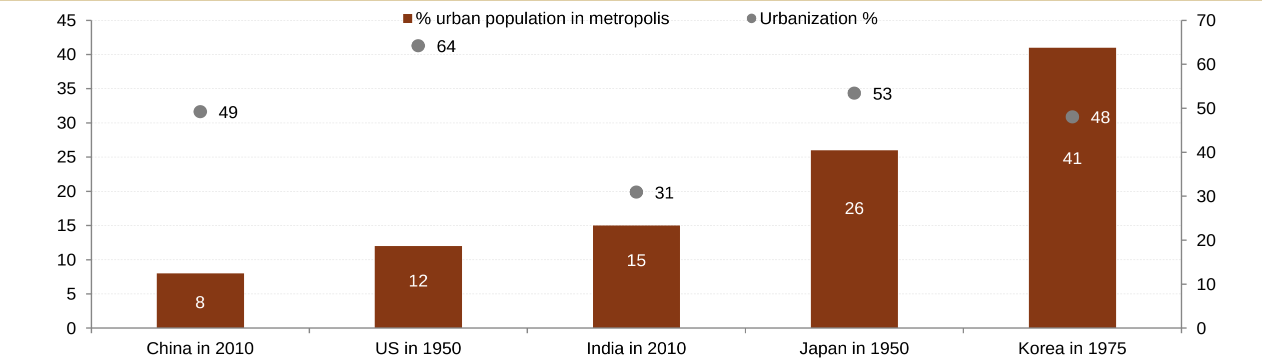
Population concentrates into big cities (Cont'd)

China big cities concentration will continue to rise



Source: United Nations - Department of Economic and Social Affairs, CICC Research

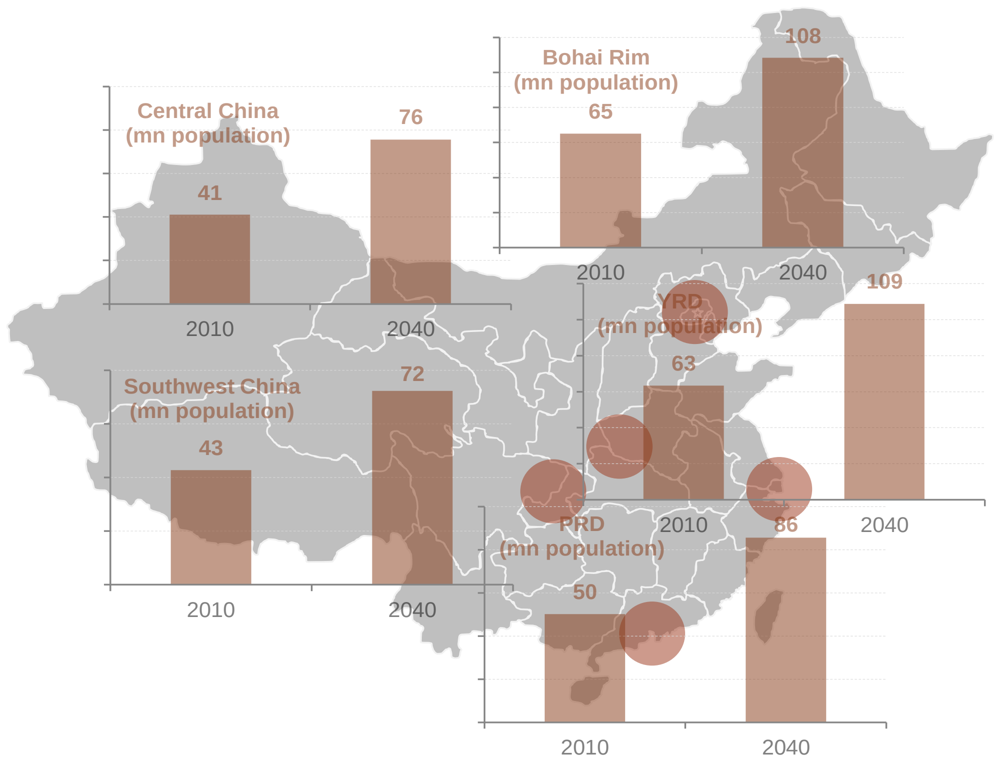
China mega cities (>10mn population) population concentration running low



Source: United Nations - Department of Economic and Social Affairs, CICC Research

Population keep flowing into the five metropolitan areas

Formation of the five metropolitan areas in China



Source: China Population Census 2010, CICC Research

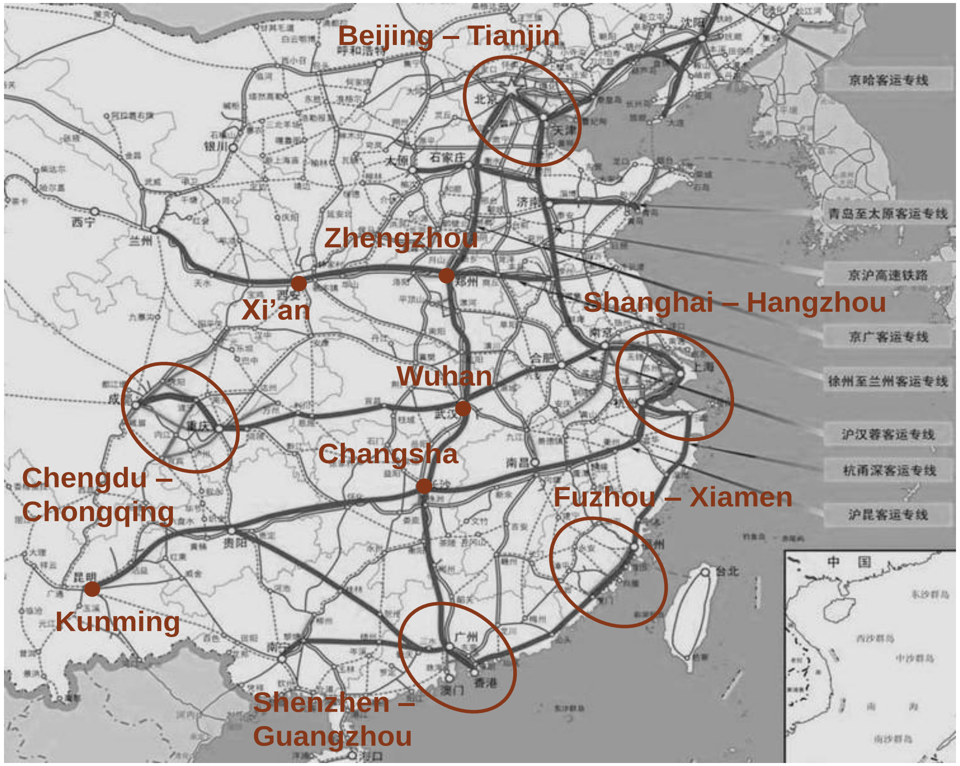
A snapshot of population flow

Flow of people back to metropolitan areas after 2015 Spring Festival

Source: Baidu

We like the hub cities of China's high-speed railways

Map of China's high-speed railways



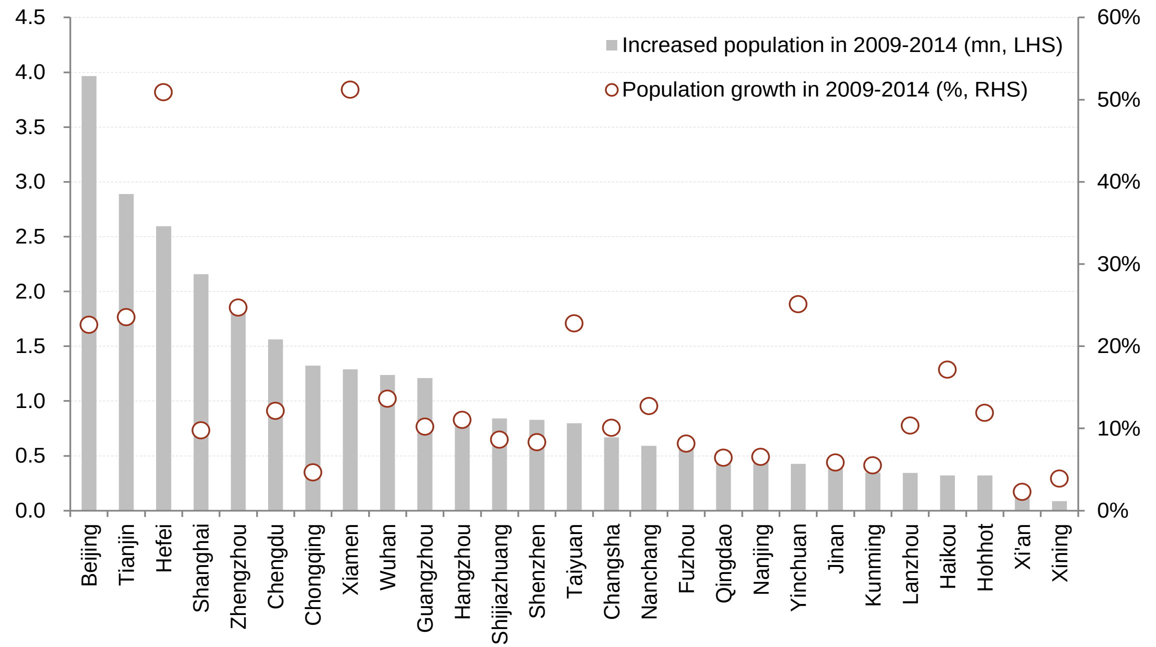
Source: The State Council, CICC Research

Hub cities to outperform in the long run

Property demand in hub cities is usually resilient in the long term, because agglomeration effect drives both economic upgrade and population inflow that lends continuing support to property demand and price.

The hub cities we mention here are located on the connection of high-speed railway network, and are economic centers of metropolitan areas, namely Beijing, Tianjin, Shijiazhuang, Shanghai, Hangzhou, Nanjing, Shenzhen, Guangzhou, Chengdu, Chongqing, Xiamen, Zhengzhou, Wuhan and Changsha.

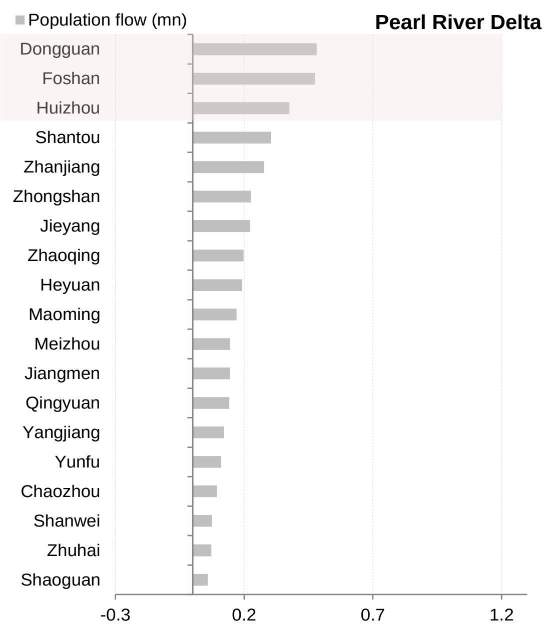
Hub cities saw strong population inflows in past five years

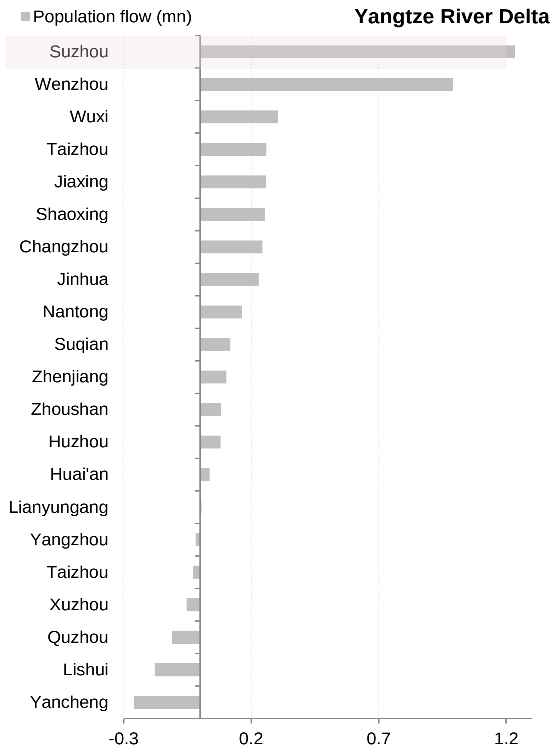


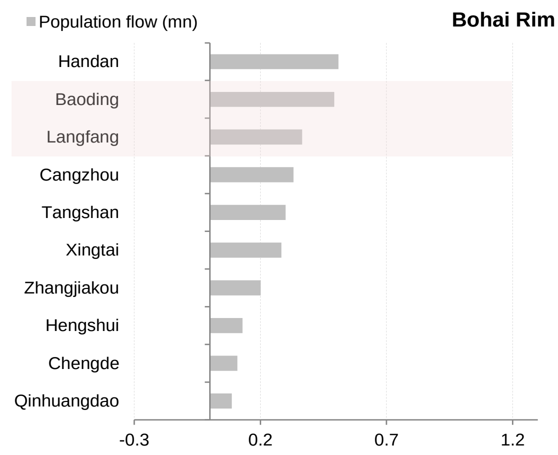
Source: Wind Info, CICC Research

Satellites of hub cities saw strongest population inflow among tier-3 cities

Satellites: Dongguan, Foshan, Huizhou, Suzhou, Baoding and Langfang



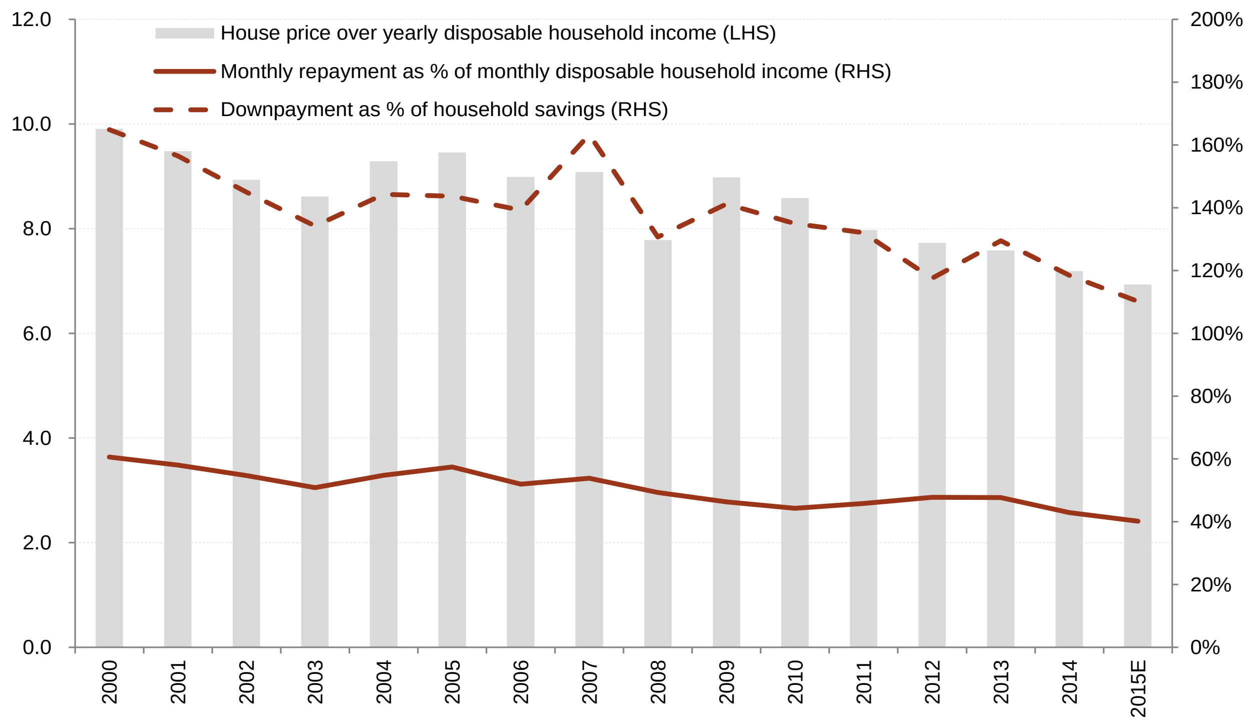




Source: Wind Info, CICC Research

Housing affordability keep improving

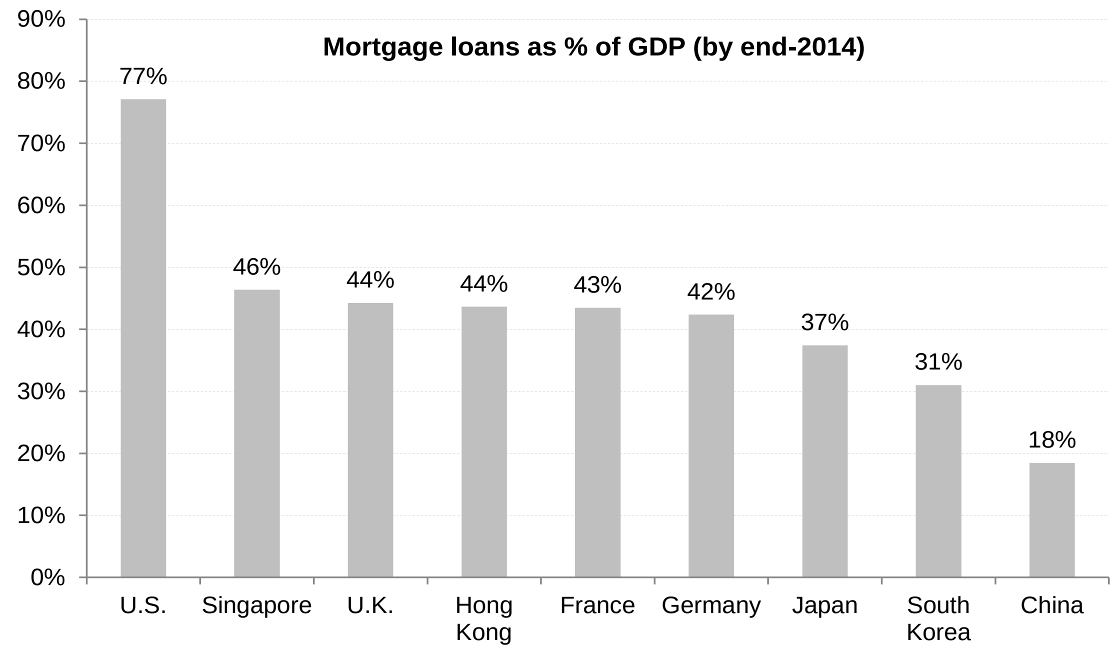
House price over disposable income trends down



Source: CEIC, CICC Research

Households' leverage on homes still very low

House price over disposable income trends down



Source: CEIC, CICC Research