
Analysis and Application of Housing Data Based on Population Census

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November, 2019

Main Content

- ☐ Introduction to Housing Indicators
- ☐ Analysis of Residential Housing Conditions

I Introduction to Housing Indicators

1. Residential Use

(long form)

❑ Function: answer “Where do people live?”

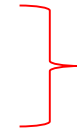
(2010 Census) 1. housing for living 2. housing also for production 3. no housing

(1% national population sample survey in 2015) 1. ordinary housing 2. dormitories and work sheds 3. workplace accommodation 4. no housing

- Ordinary housing: man-made houses or places designed for people to live in featuring structures of wall, roof, door, window and independent entrances. Traditional residences such as apartments, quadrangles, and tube-shaped apartments.
- Dormitories and work sheds: temporarily or permanently-built houses for employees in the factory area and on the construction site.
- Workplace accommodation: workplaces where people can live in like restaurants, hair salons, shops and office buildings.
- No housing: households without a fixed place (those who sleep under bridges, in parks, stations, or on vehicles for carrying goods).

2. Amount of Residential Housing

- ☐ Floor area (short form, long form)
- ☐ Number of rooms (short form, long form)



Answer to “the actual size of living space”

1. For any households living in hotels or rental houses, the number of rooms in the house shall be filled in light of real circumstance.
2. For those who live in shared houses, please fill in independently-used number of rooms .
3. The room for both living and production and operation should also be counted in the number of rooms, and the room only used for production and operation is not counted in the number of rooms.
4. If a household has two or more houses, if not rented or lent to other people, the number of rooms in houses and the area of the houses should be added separately. Other related items about housing are subject to the occupied one.
 - Number of rooms – all rooms except kitchens, toilets, aisles and halls (extended rooms included)
 - The total housing floor area or the total number of rooms in the country cannot be counted with the two indicators.

3. Housing Facilities

(long form)

- ☐ Number of floors
- ☐ Bearing structure
- ☐ Completion date
- ☐ Major fuels for cooking
- ☐ Tap water?
- ☐ Kitchen?
- ☐ Bathroom?
- ☐ Bathing facilities?



“residential housing conditions”

3. Housing Facilities

- ❑ There is no fixed indicator for housing facilities as countries differ in development stage, demographic structure, standard for energy efficiency of buildings.
- ❑ For example, indicator of “Is elevators available” is taken into consideration in aging countries like America and Japan. Such indicators are added accordingly in countries with high standard for energy efficiency of buildings. Some countries even set indicators for building fire prevention and earthquake proofing.

4. Housing Consumption

(long form)

□ Sources: “structure of housing property rights”

1. Low-renting housing
2. Other types of rental housing
3. Self-built housing
4. Commodity housing
5. Second-hand housing
6. Affordable housing
7. Former public housing
8. Others

1. The component of indicators correlates with housing supply
2. Structure of housing property rights: home ownership ratio, rental housing ratio
home ownership ratio: $(3+4+5+6+7)/\text{total}$
rental housing ratio: $(1+2)/\text{total}$
3. Housing insurance
ratio of housing insurance coverage: $(1+6)/\text{total}$
housing marketization ratio: $(2+4+5)/\text{total}$

4. Housing Consumption

(long form)

□ Monthly rent: indicating “housing burden”

- Related indicators like resident income, rent and housing mortgage are included in censuses by countries like America and Japan. Housing expense ratio, an accurate indicator of housing burden on residents, can be calculated by using related indicators.

4. Housing Consumption

- ❑ Related indicators of housing consumption can be established variously in light of different national conditions.
- ❑ For instance, countries like the United States and Japan have indicators reflecting multiple suites to analyze the allocation of housing resources, which, namely, reflect conditions of other housing (except occupied ones), including the area, number of suits, location, property rights, and use.
- ❑ For example, countries like the United States and Japan have indicators that reflect shared houses.
- ❑ For example, countries like the United States and Japan have indicators of housing mobility, namely the occupancy time of existing residences.

II Analysis of Residential Housing Conditions

Analysis of residential housing conditions

- ☐ Analysis of housing-related indicators
- ☐ Cross analysis of indicators (population, housing-related)
- ☐ Cross analysis of indicators (population, housing and time)
- ☐ Cross analysis of indicators (population, housing and regions)
- ☐ Cross analysis of indicators (population, housing, regions and time)

1. Analysis of housing-related indicators

- ☐ No calculation of the total amount of housing
- ☐ Housing ratio is commonly used for analysis of housing facilities

Example: ratio of complete residential housing (a house with kitchen and bathroom)

Structural proportion according to construction date

Structural proportion according to load-bearing types

Structural proportion according to number of floors

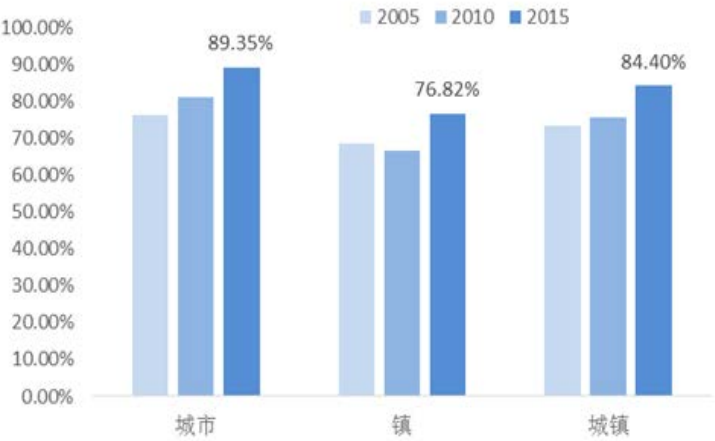


图 2005-2015 年城镇住房成套率变化

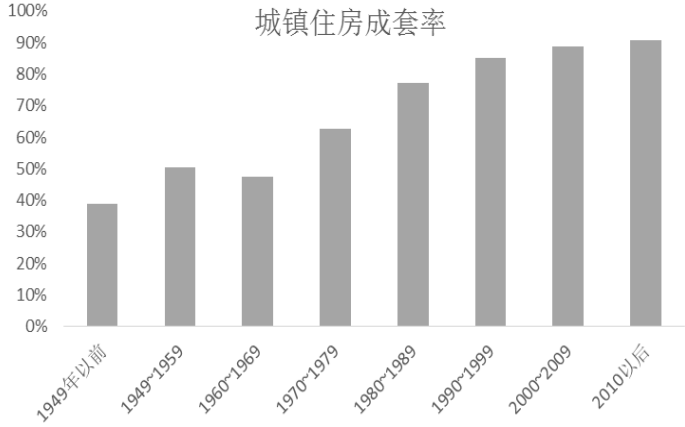


图 2015 年不同建筑年代城镇住房成套率

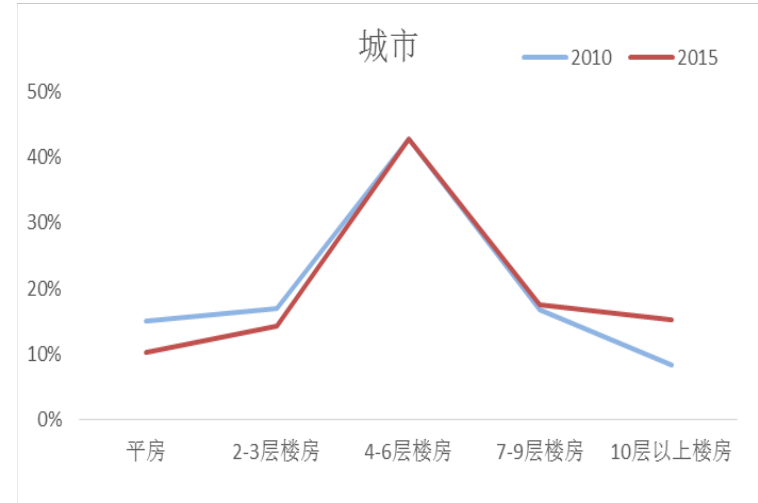


图 2010、2015 年城市住房层数分布

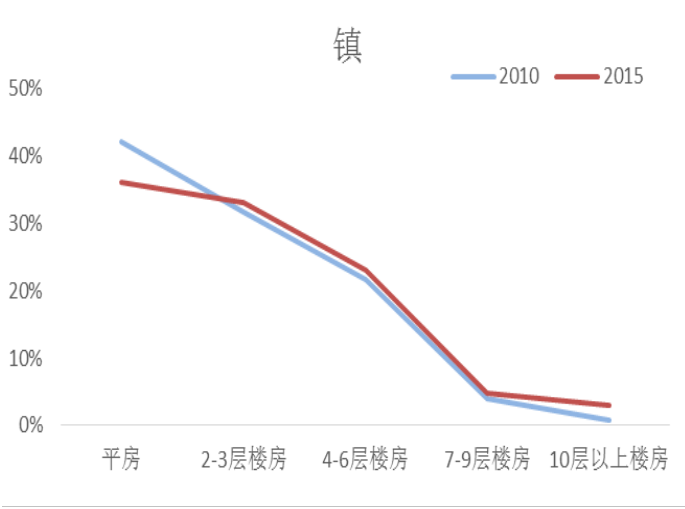
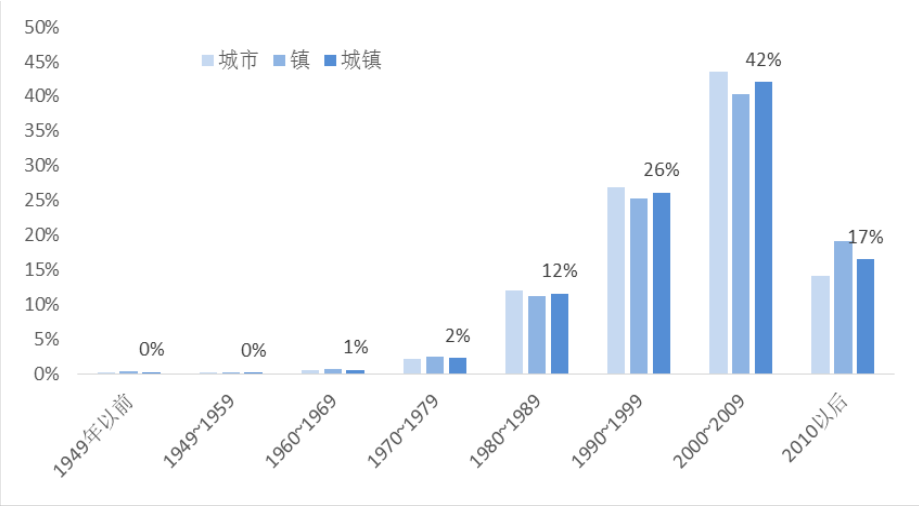


图 2010、2015 年镇住房层数分布



2015 年各年代城镇住房建筑面积占比分布

1. Analysis of Housing-related Indicators

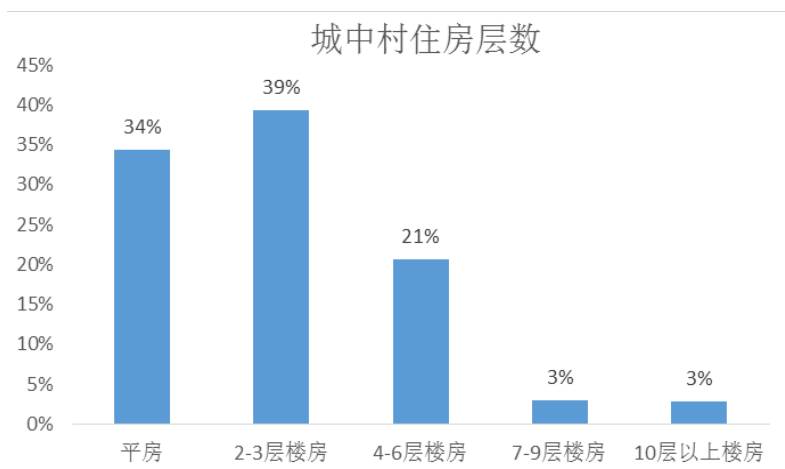


图 2015 年城中村住房建筑层数分布

- The proportion of urban village residents was 26%, 18% and 16.4% respectively in 2005, 2010 and 2015.
- The ratio of complete residential housing in urban villages was just 72.4% in 2015, 18 percentage points lower than in urban areas.
- Low-rise residential buildings are in the majority in urban villages. One-storey houses account for 34% and two or three-storey houses are 39%.
- The ratio of housing in urban villages was only 6% before 1980s, which increased to 15% in 1980s. Nearly 80% of houses was built after 1990s.

2. Cross Analysis of Indicators (Population, Housing-related)

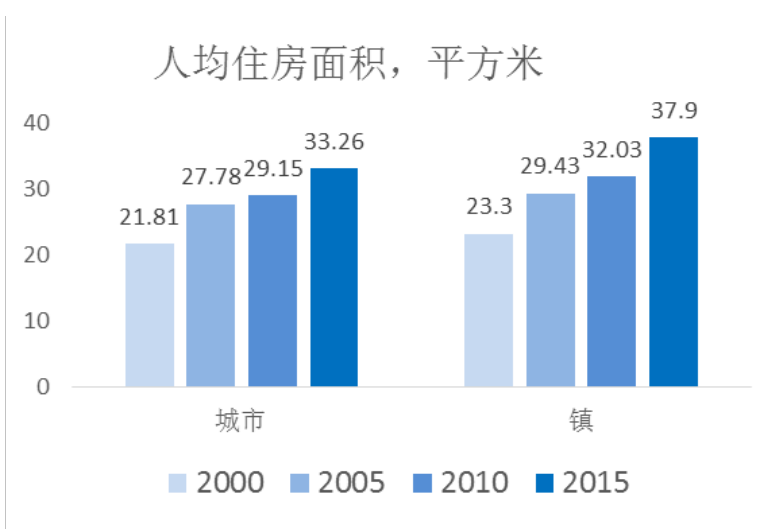
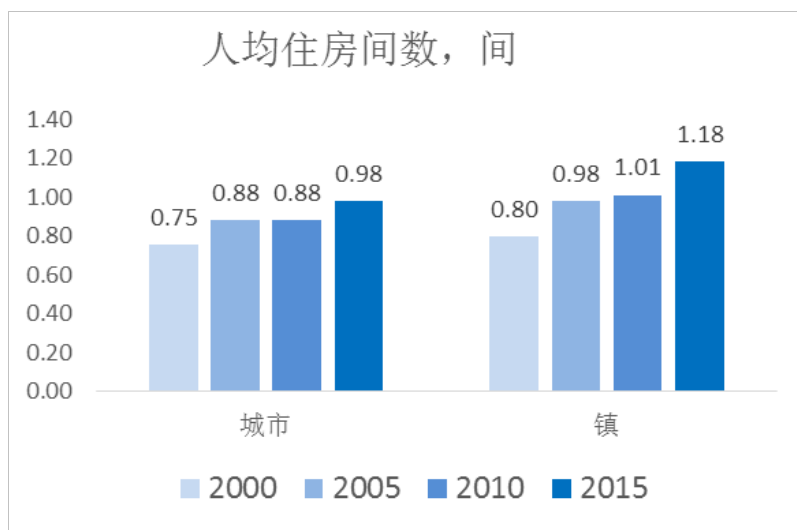
- ❑ Per household: the ratio of housing per household or the number of houses per household, **which indicates if the housing supply is in shortage.**

Housing units are independent housing that can be occupied or to be occupied, either as independent buildings, apartment-type buildings, a group of rooms, or a room. It means that the occupant has an independent living space in the building structure.

- According to the 6th census in 2010, it was estimated that the number of housing per urban household was 1.02. In 2015, the number was about 1.1. According to the international standard, the housing supply is adequate if the ratio of the number of houses to the number of households is around 1.1, namely, the total amount of housing exceeds 10% of the total number of households. For example, in Japan, the number of housing units per household exceeded 1.1 in the mid-1980s, and then remained stable. The ratio in South Korea exceeded 1 in 2002, and now is around 1.08. That in the United States was nearly 1.12 between 1965-2009; and the ratio in the UK surpassed 1 since 1960s and almost remained 1.08 since 1980s.

2. Cross Analysis of Indicators (Population, Housing-related)

- Per capita index: average floor area per person, number of rooms per person. The international standard is one room per person.



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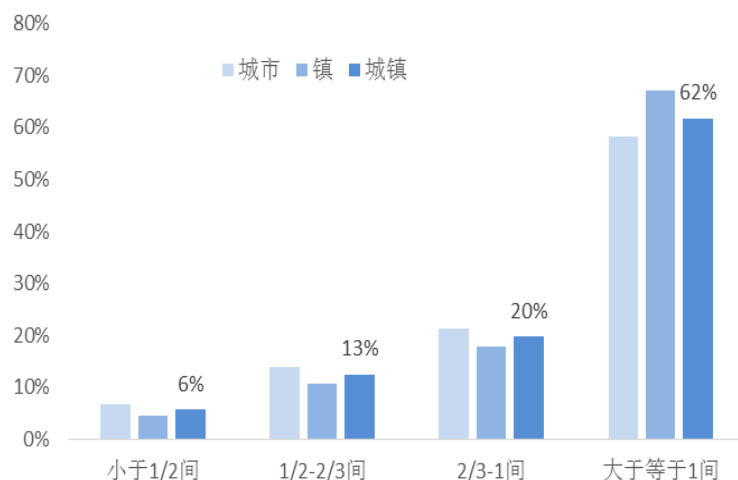


图 2015 年城镇人均住房房间数分布

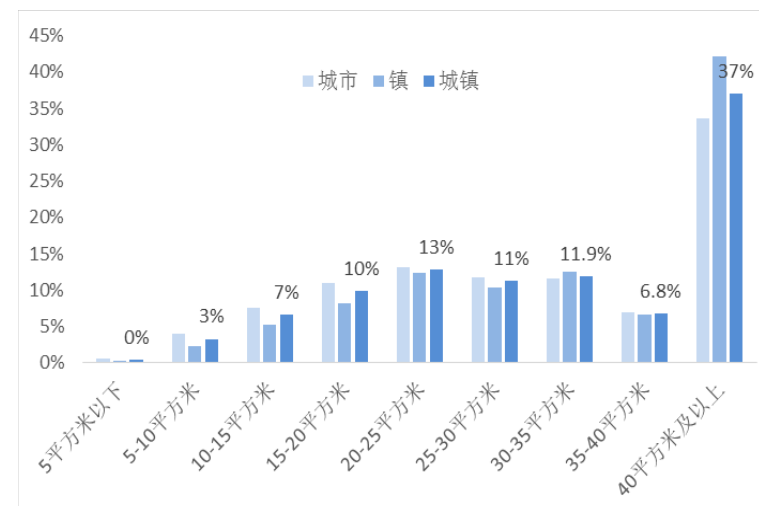


图 2015 年城镇人均住房面积分布

2. Cross Analysis of Indicators (Population, Housing-related)

□ Features of housing consumption

- Sources of housing
- Homeownership rate
- Housing marketization rate

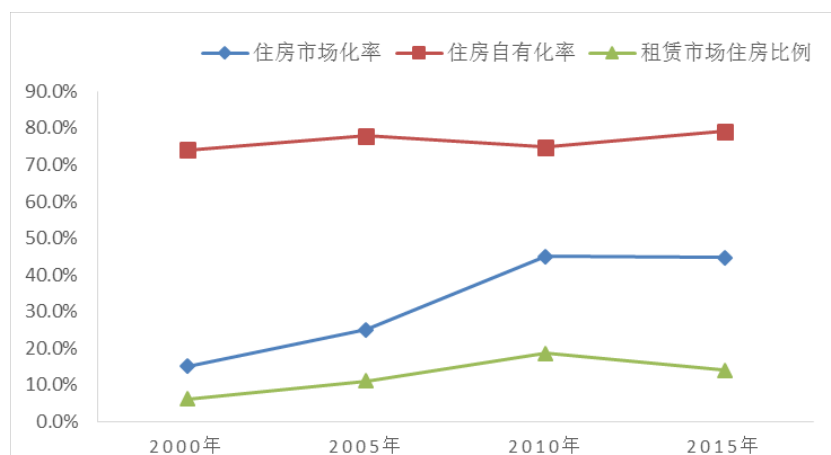
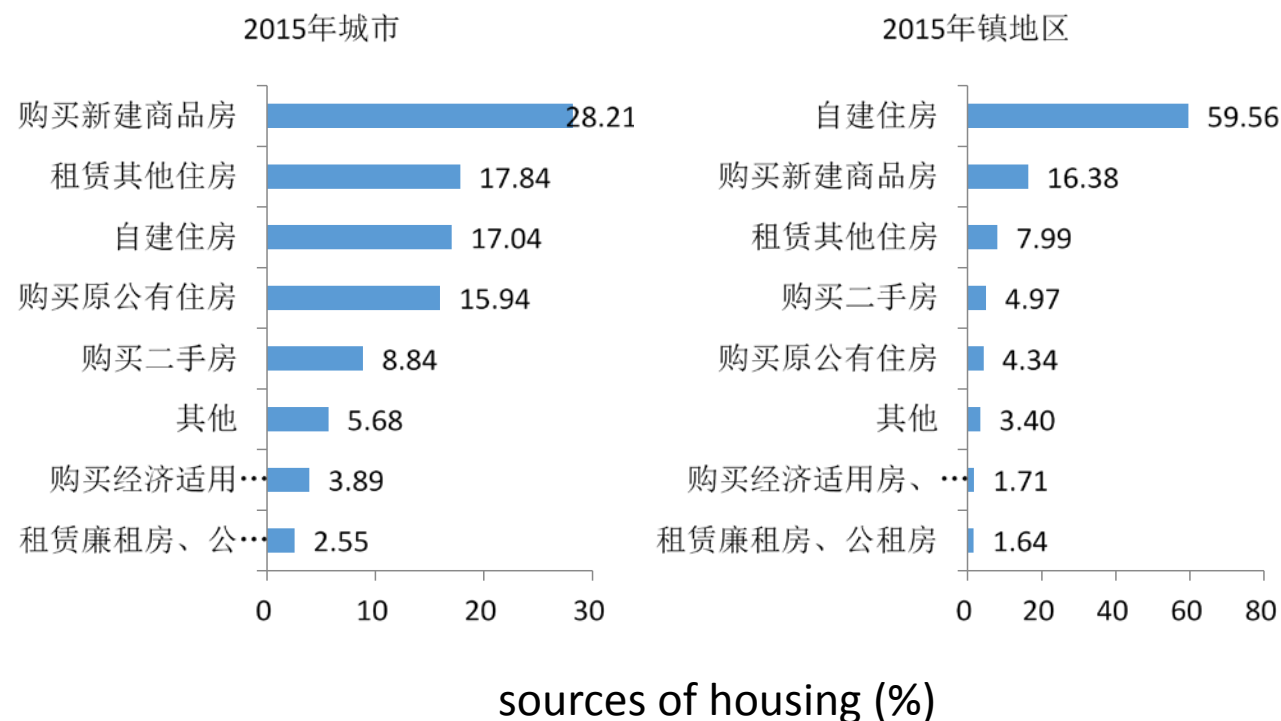


图 2000-2015 年城镇居民住房市场化程度和住房自有化率变化



2. Cross Analysis of Indicators (Population, Housing-related)

- Housing conditions for different groups
 - Groups with different household registration: local residents, migrants; urban village residents; local residents with agricultural hukou, local residents with non-agricultural hukou, migrants with agricultural hukou, migrants with non-agricultural hukou.
 - Different age groups
 - Groups with different educational background
 - Groups with different occupations
 - Special groups: households living in rental housing, households with housing problems, migrants and so on.

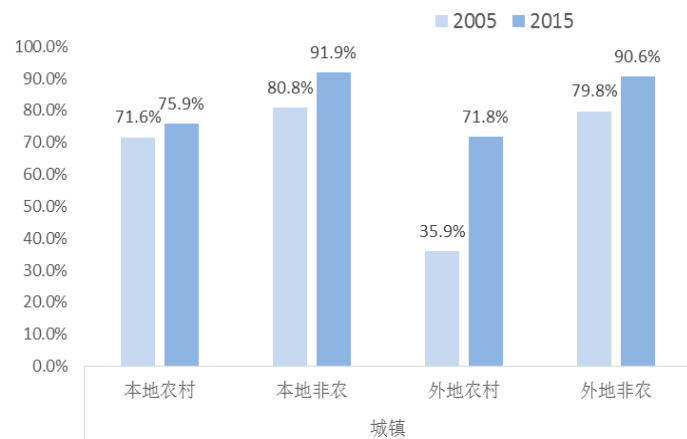


图 各户籍城镇家庭居住成套住房比例

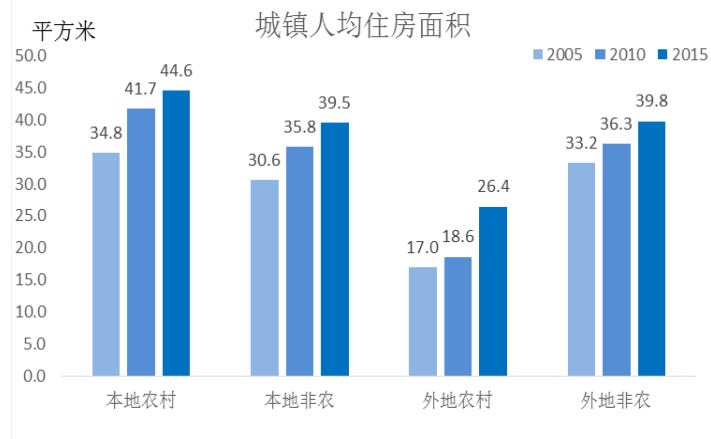


图 各户籍城镇人均住房面积变化

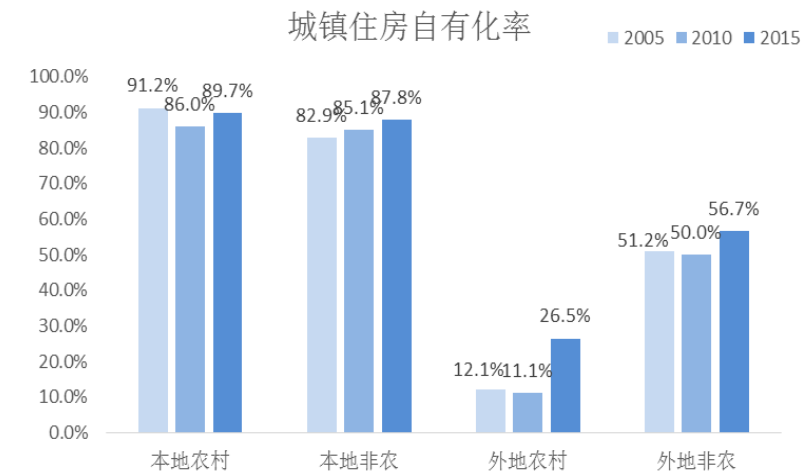


图 各户籍城镇家庭住房自有化率变化

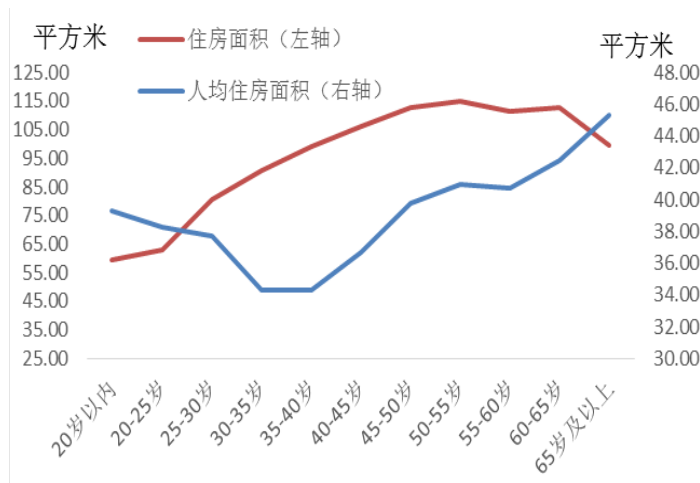


图 城镇家庭不同年龄结构住房条件

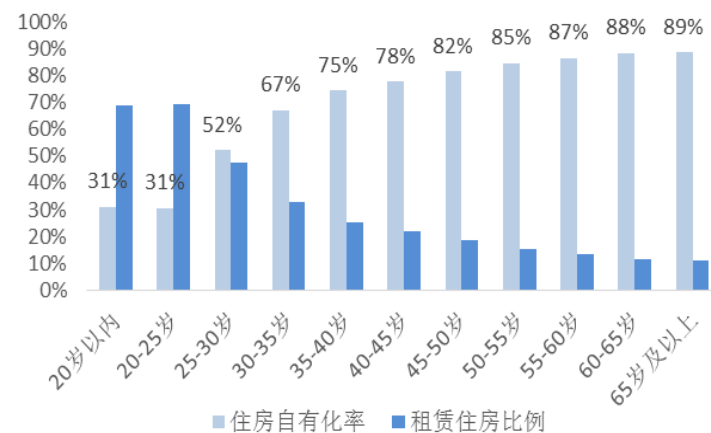


图 城镇家庭不同年龄结构住房自有率

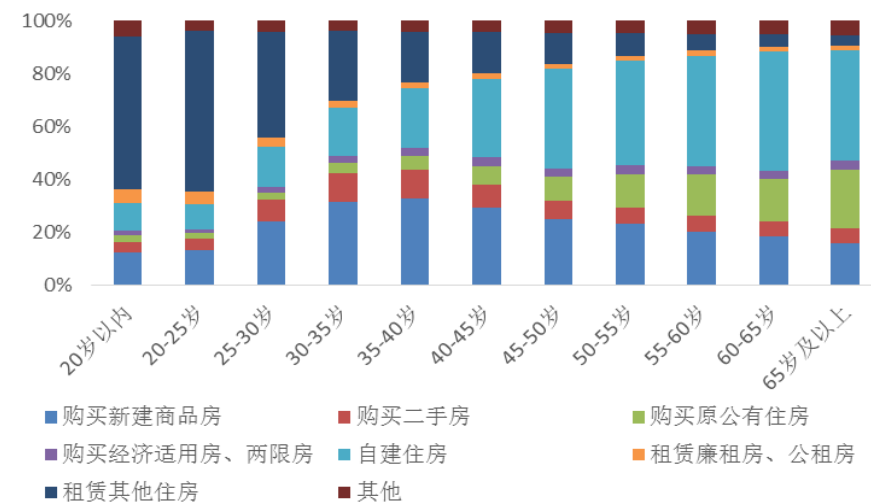


图 城镇家庭不同年龄结构的住房来源

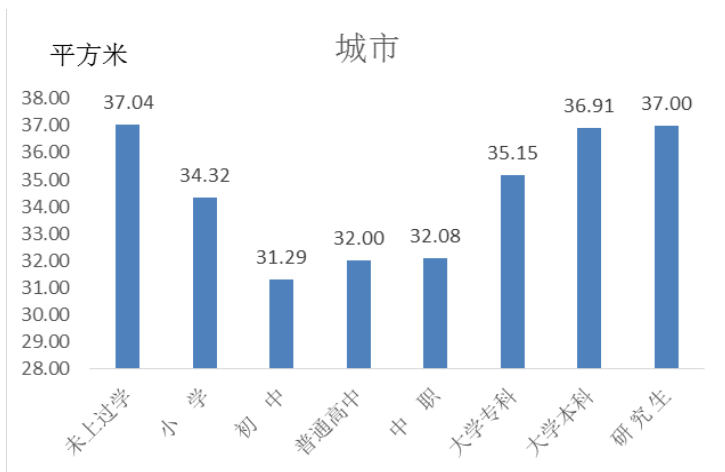


图 2015 年城市不同学历人均住房面积

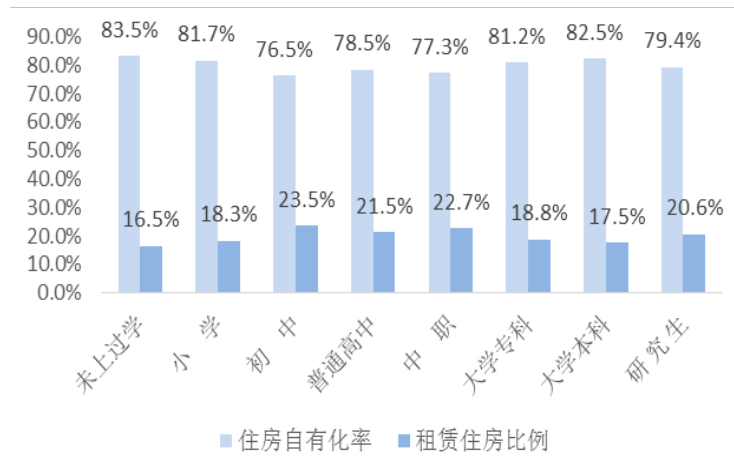


图 城镇家庭不同学历住房自有率

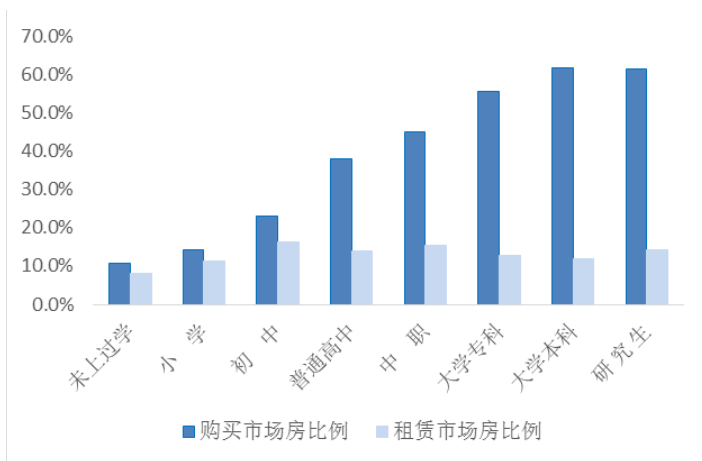


图 城镇不同学历家庭租购市场住房比例

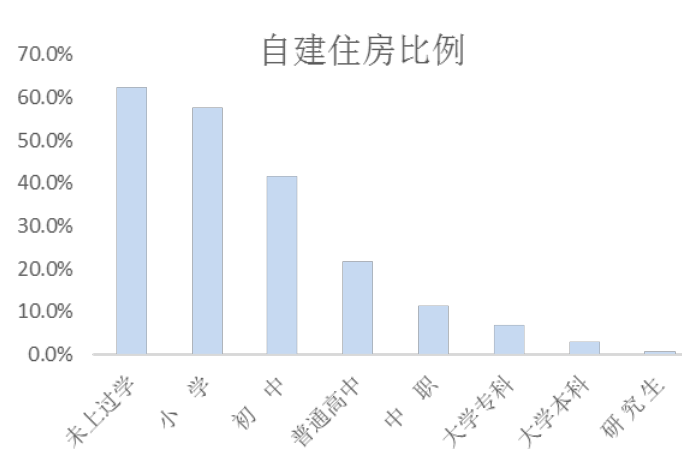


图 不同学历城镇家庭自建住房比例

2015 年城市和镇不同职业家庭住房条件

	城市		镇	
	人均住房面积（平方米）	人均住房间数（间）	人均住房面积（平方米）	人均住房间数（间）
党的机关、国家机关、群众团体和 社会组织、企事业单位负责人	37.64	0.97	43.15	1.18
专业技术人员	34.75	0.95	38.92	1.13
办事人员和有关人员	35.80	0.97	40.08	1.14
社会生产服务和生活服务人员	31.04	0.92	37.04	1.11
农、林、牧、渔业生产及辅助人员	39.55	1.22	35.82	1.20
生产制造及有关人员	29.74	0.91	36.12	1.12
不便分类的其他从业人员	31.24	0.93	37.49	1.12

2015 年不同职业家庭住房来源

	住房市场化率	购买市场 房比例	租赁市场 房比例	自建住房比例	租购保障 房比例	住房有化率
党的机关、国家机关、群众团体和 社会组织、企事业单位负责人	66.7%	52.0%	14.7%	20.0%	3.8%	80.5%
专业技术人员	65.9%	53.3%	12.6%	11.4%	5.9%	81.0%
办事人员和有关人员	62.8%	53.6%	9.2%	13.5%	5.9%	84.2%
社会生产服务和生活服务人员	58.4%	34.4%	24.0%	25.6%	5.0%	69.0%
农、林、牧、渔业生产及辅助人员	7.5%	5.9%	1.6%	89.2%	1.0%	96.4%
生产制造及有关人员	47.6%	22.7%	24.9%	37.2%	5.3%	68.8%
不便分类的其他从业人员	53.2%	37.7%	15.5%	29.0%	5.3%	76.5%

2. Cross Analysis of Indicators (Population, Housing-related)

□ Housing conditions and family characteristics of rental housing groups

2015 年全国城镇租赁住房家庭数

	租赁住房家庭数量 (万户)	租赁住房家庭数/ 全部家庭数	
		#租赁廉租公租房	租赁其他住房
城市	2768.8	346.0	2422.7
镇	877.5	149.7	727.8
城镇	3646.3	495.8	3150.5

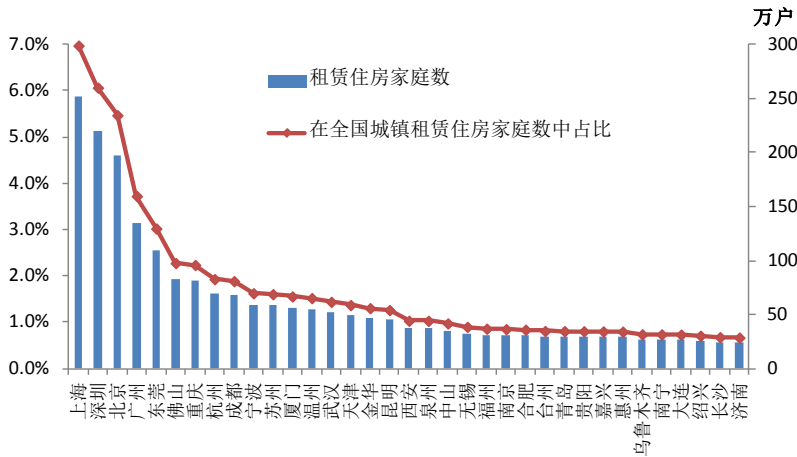


图 租赁住房家庭数最高的 35 个城市及其在全国中的占比

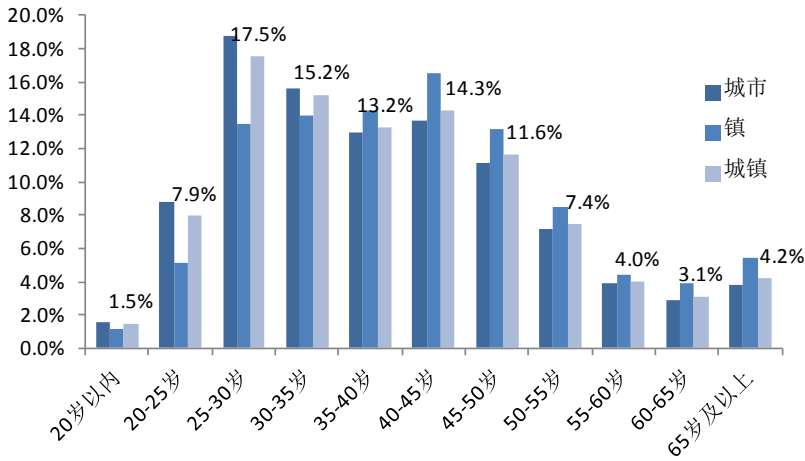


图 城镇租赁住房家庭的年龄结构

2. Cross Analysis of Indicators (Population, Housing-related)

□ Housing conditions and family characteristics of groups with housing difficulties

城镇住房困难群体

住房面积小：人均住房面积小于 15 平方米，
包括无住房

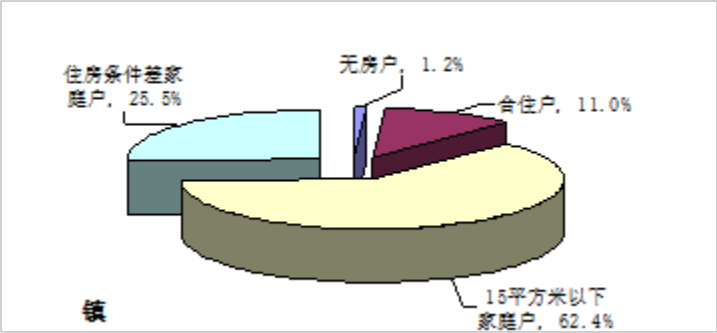
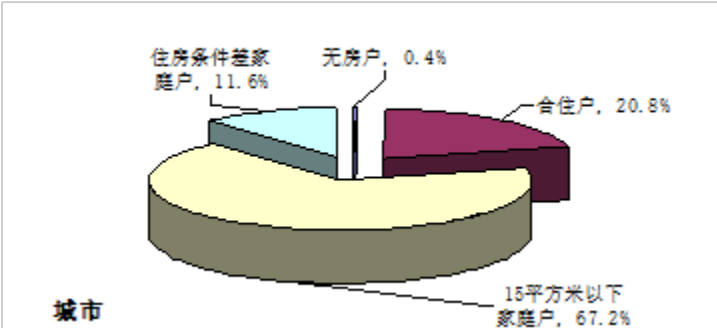
住房条件差：居住在 1980 年以前建设的非成套住房群体

合住户：扣除集体宿舍后的集体户

图 我国城镇住房困难界定标准

2010 年分地区城镇住房困难群体情况 单位：万户

	城镇户数占比	城镇住房困难群体占比	城镇住房困难群体数量	其中：无房户	合住户	住房条件差家庭户	15 平方米以下家庭户
东部地区	50%	57%	2466.4	8.9	541.3	268.1	1
中部地区	27%	22%	938.2	10.2	129.5	255.1	
西部地区	22%	22%	935.7	10.0	131.6	175.7	
35 大中城市	32%	42%	1816.1	13.5	400.0	180.5	1



	groups with housing problems in urban areas and housing consumption in 2010					
	household register	age	property rights	household size	newly-employed rate	income
households with poor living conditions	70% local residents, 30% migrants	(below 35 years old) 15%	55% homeownership, 45% rental housing	56% (2 to 3 people per household), 22% (household with 1 and over 4 people)	few	60% (middle and low-income group)
households living below 15 square meters	35% local resident, 65% migrants	(below 35 years old) 30%	35% homeownership, 65% rental housing	54% (2 to 3 people per household), 35% (household with over 4 people), 10%(one-people household)	25%	47% (middle and low-income group)
households living in shared housing	90% migrants, 10% local residents	(below 35 years old) 80%	6% homeownership, 94% rental housing	34%(household with 2 people), 15% (household with 3 people and 4 people), 30% (household with over 5 people)	50%	30% (middle and low-income group)
groups with housing difficulties in urban areas	<p>(1) the total number is 45.37 million households, 40% of which have their own homes, 60% of which rent houses and 300,000 of which have no house.</p> <p>(2) 50% are young people below 35 years old, 90% of which are migrants.</p> <p>(3) 40% (18.88 million households) are local residents, 80% of which (14.50 million households) have homes with people below 35 years accounting for 15%.</p> <p>(4) 60% (26.20 million households) are migrants, 90% of which (23.70 million households) rent houses with people below 35 years accounting for 80%.</p> <p>(5) 10% are one-people households, 55% are households with 2 or 3 people, and 35% are households with over 4 people.</p> <p>(6) 25% (11 million households) are newly-employed, 50% of which are groups with housing problems.</p>					

Cross Analysis of Indicators (population, housing and regions)

- Criteria for regional division
 - City clusters
 - Provinces
 - Cities
 - First, second, third and fourth-tier cities

各城市群外地农村份额

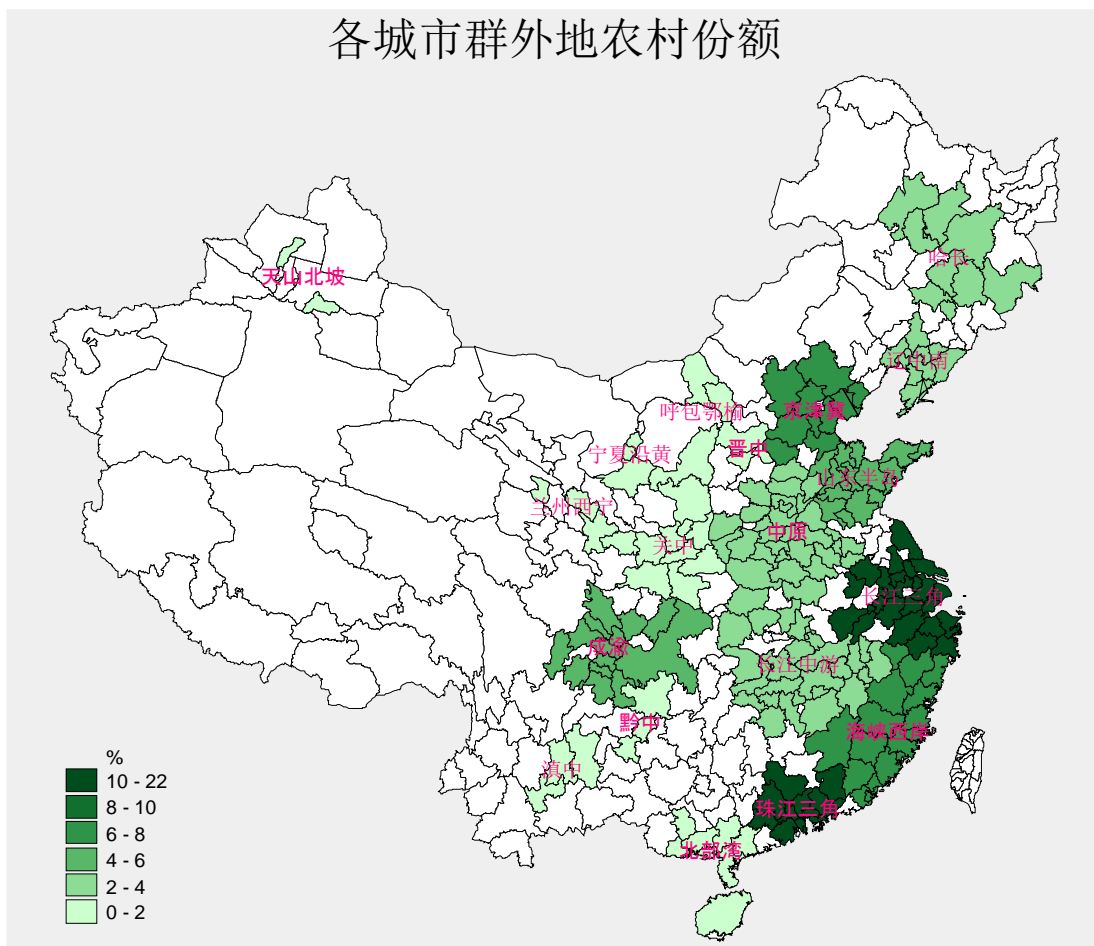


图 各城市群外地农村份额（2015 年）

各城市群外地非农份额

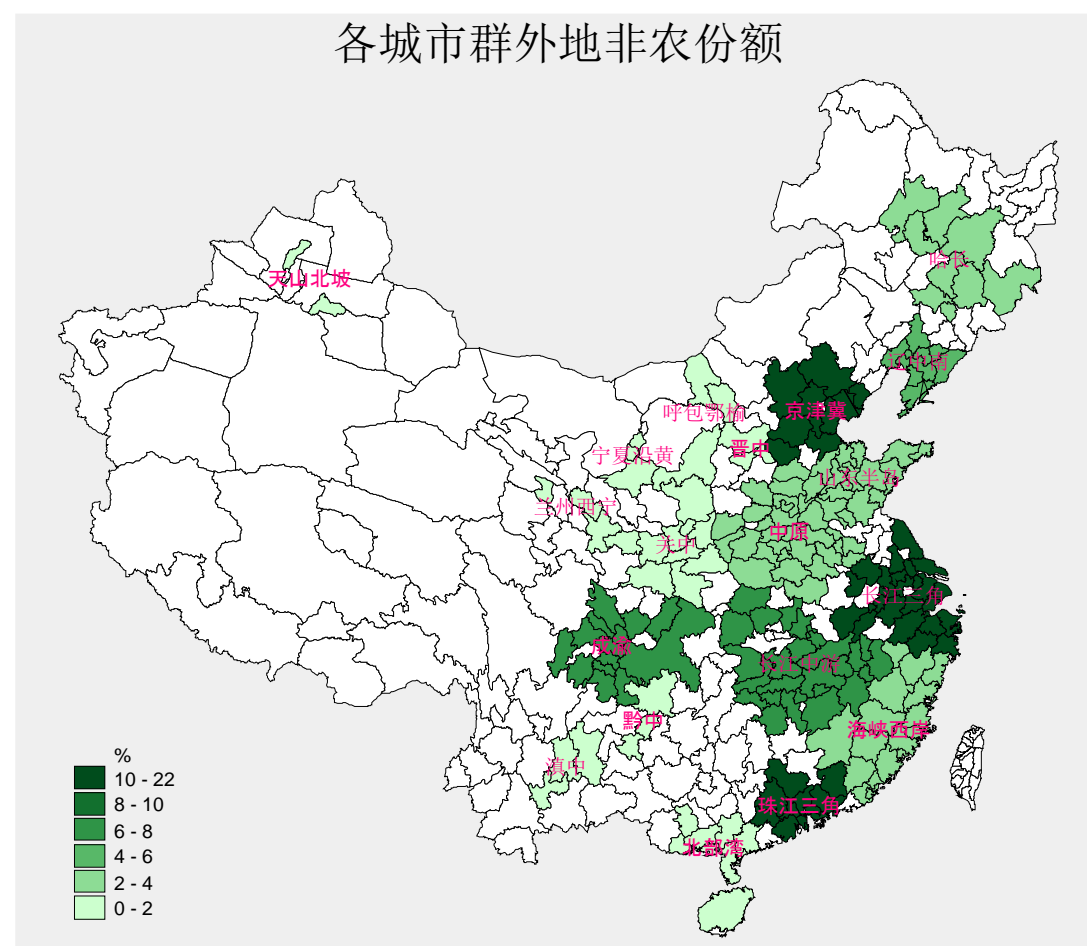


图 各城市群外地非农份额 (2015 年)

	2005		2015		2005-2015	
	Floor area per person (M ²)	Number of rooms per person	Floor area per person (M ²)	Number of rooms per person	Floor area per person (M ²)	Number of rooms per person
Average of 345 prefecture-level cities	31.09	1.04	40.56	1.27	9.47	0.23
Average of 35 large and medium-sized cities	30.41	0.99	41.51	1.27	11.10	0.28
Beijing	27.19	1.02	35.12	1.04	7.94	0.02
Tianjin	25.79	0.81	32.97	0.92	7.18	0.11
Shijiazhuang	32.70	1.10	44.01	1.36	11.30	0.26
Taiyuan	26.52	1.01	44.32	1.46	17.80	0.45
Hohhot	28.62	0.93	29.74	0.96	1.12	0.03
Shenyang	26.82	0.77	45.63	1.28	18.81	0.52
Dalian	27.19	0.89	35.86	0.97	8.66	0.08
Changchun	25.46	0.84	35.49	1.12	10.03	0.29
Harbin	25.50	0.81	34.60	1.12	9.10	0.32
Shanghai	25.99	0.82	27.75	1.04	1.76	0.22
Nanjing	30.56	0.97	45.82	1.52	15.26	0.56
Hangzhou	37.29	1.05	42.18	1.31	4.89	0.26
Ningbo	31.95	0.92	41.23	1.13	9.29	0.20
Hefei	29.46	1.13	50.39	1.56	20.93	0.43
Fuzhou	27.83	1.07	39.85	1.19	12.02	0.12
Xiamen	36.15	1.19	40.43	1.27	4.28	0.08
Nanchang	45.25	1.22	52.51	1.43	7.27	0.21
Jinan	37.95	1.17	48.56	1.44	10.61	0.27
Qingdao	30.14	0.97	40.90	1.09	10.76	0.12
Zhengzhou	28.95	1.04	45.65	1.62	16.70	0.57
Wuhan	30.92	0.91	51.03	1.46	20.11	0.55
Changsha	34.41	1.14	54.46	1.49	20.05	0.35
Guangzhou	28.39	0.94	49.99	1.71	21.60	0.77
Shenzhen	27.39	0.94	39.68	1.27	12.29	0.33
Nanning	33.36	1.08	44.75	1.61	11.40	0.53
Haikou	28.85	0.87	45.40	1.13	16.55	0.26
Chongqing	33.15	1.07	35.17	0.99	2.02	-0.08
Chengdu	38.27	1.13	42.90	1.27	4.62	0.13

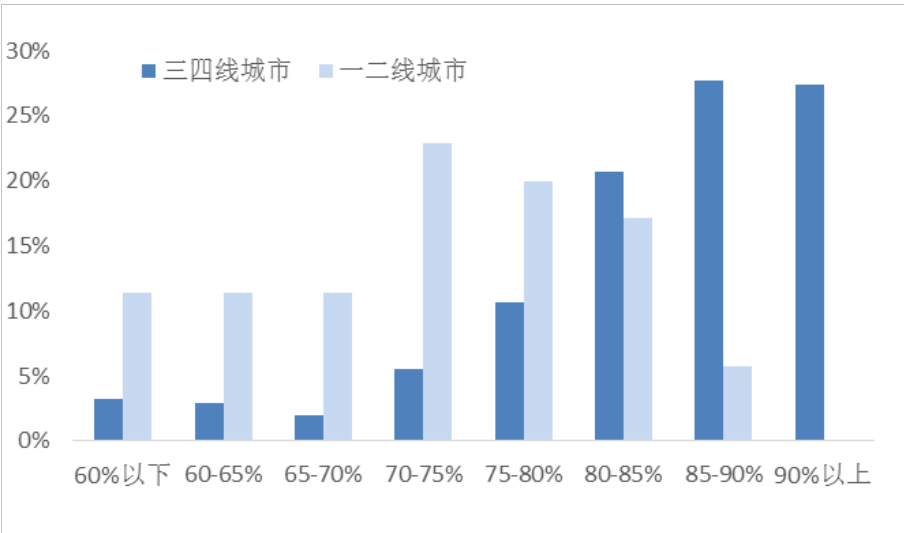


图 2015 年一二线、三四线城镇居民住房自有率分布

Thank You!