

Workshop on Middle & Low Income Housing in China
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Development Research Center of the State Council (DRC)
World Bank (WB)
International Finance Corporation (IFC)

Affordable housing: the supply side

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Beijing, July 19, 2007

Housing supply issues

- Housing supply and demand are city specific, it is not possible to solve housing affordability issues at the national level, although many national regulations and practices may have an impact on local markets.

Supply issues

- availability of developed land
- constraints imposed by land and building regulations
- productivity of the construction industry
- direct involvement of government in building housing
- Current housing stock and new housing flow (stock & flow)
- indirect involvement of government in subsidizing developers to build specific types of housing

Demand issues (which will not be addressed in this presentation)

- the distribution of households' income
- availability and terms of housing finance
- Government programs providing direct subsidies to households

Housing Affordability: defined by establishing the relationships between households' income and households' housing consumption

Definition of affordability through market survey

- a survey establishing the correlation between households' income and housing standards is the best way to identify affordability issues
- One of the easiest housing characteristics to measure is floor space per household in relation with households' income. In addition other units and neighborhoods characteristics must be used such as access to safe water supply, sanitation, public transport, etc.
- some relationships such as income- floor area are simple , other might be more complex and may be related to specific socioeconomic groups (migrant workers, for instance)

Designing a consumption survey

- Each city should update at least every year a housing consumption survey
- The survey should include:
 - A sizable sample of all the type of housing on the market (new and existing)
 - Characteristics of the dwelling: type, size, location
 - Price, rental, mortgage terms
 - Relationship between households' income and housing cost (price to income ratio) for various income groups
 - Households' income distribution as supplied by statistical bureau
- The image on the left shows the information displayed by a real estate broker in Suining (Sichuan) that could be used for part of the survey

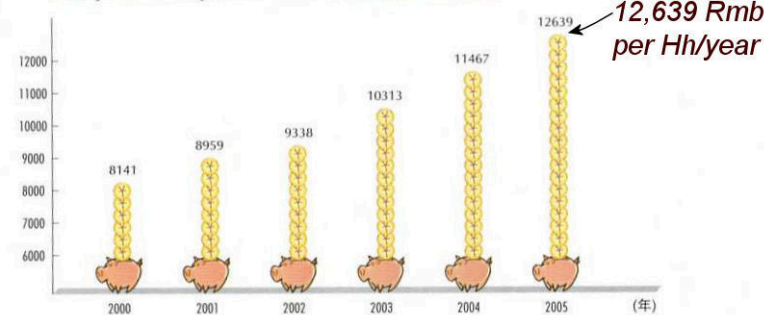
2楼 二室二厅 简装 81.4平方米 9.5万 编号:632 99年建成 两证已办	2楼 三室二厅一卫 未装 90平方米 9.8万 编号:599 99年建成 两证已办	2楼 二室一厅一卫 精装 78平方米 10万 编号:461 99年建成 两证已办	2楼 二室一厅一卫 简装 72平方米 10万 编号:412 2004年建成 两证已办 可更名
	3楼 三室二厅一卫 精装 136平方米 13万 编号:713 2003年建成 两证已办	3楼 三室二厅二卫 简装 110平方米 13.86万 编号:795 2005年建成 两证未办	
	3楼 四室二厅一卫 简装 135平方米 13万 编号:781 89年建成 两证已办	3楼 四室二厅 清水 117平方米 13.8万 编号:834 2005年建成 两证未办	
	3楼 四室二厅一卫 简装 146平方米 13.5万 编号:508 2000年建成 两证已办		3楼 三室二厅二卫 精装 131平方米 17.5万 编号:138 2003年建成 两证已办 含家具
	3楼 二室二厅一卫 简装 99.7平方米 13.6万 编号:455 2002年建成 两证已办		3楼 三室二厅二卫 新房 124平方米 17.8万 编号:346 2004年建成 两证未办 可更名
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The statistical yearbook in Tianjin (2006) provides in aggregated form some of the information needed for the consumption survey:

- Average disposable households' income (to be disaggregated into income distribution)
- % of income spent on housing (to be disaggregated into % spent on housing for different income groups)
- Average residential floor space per person (to be disaggregated into floor per household for different income group)

> 城市居民人均可支配收入(元)

Per Capita Annual Disposable Income of Urban Households (RMB)



> 2005年城市居民人均消费性支出构成(%)

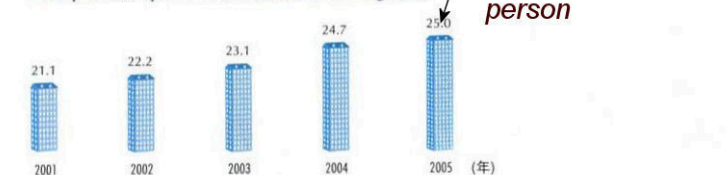
Composition of Per Capita Annual Expenditure for Consumption of Urban Households in 2005 (%)

13.3% of disposable income for housing



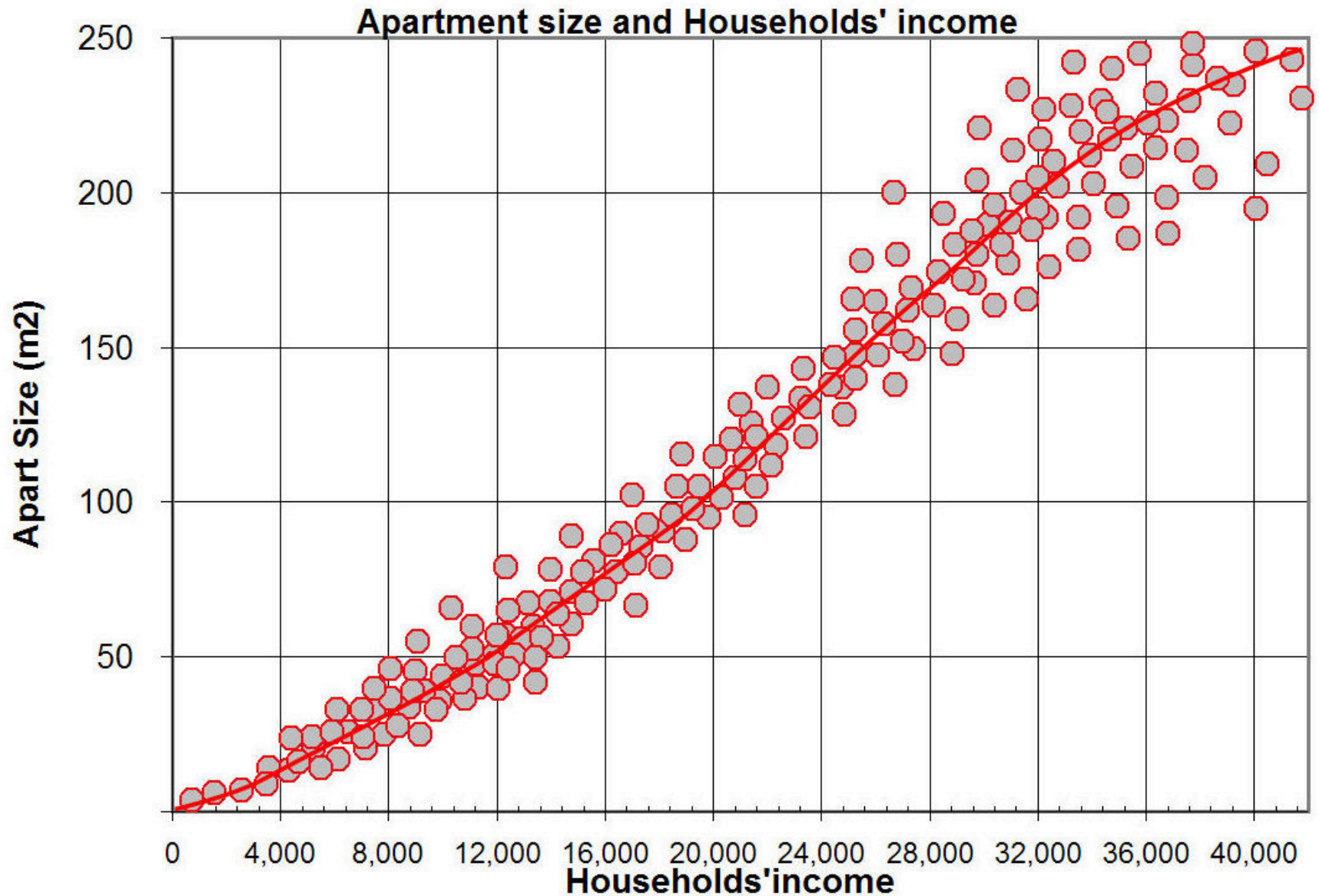
> 城市居民人均住宅建筑面积(平方米)

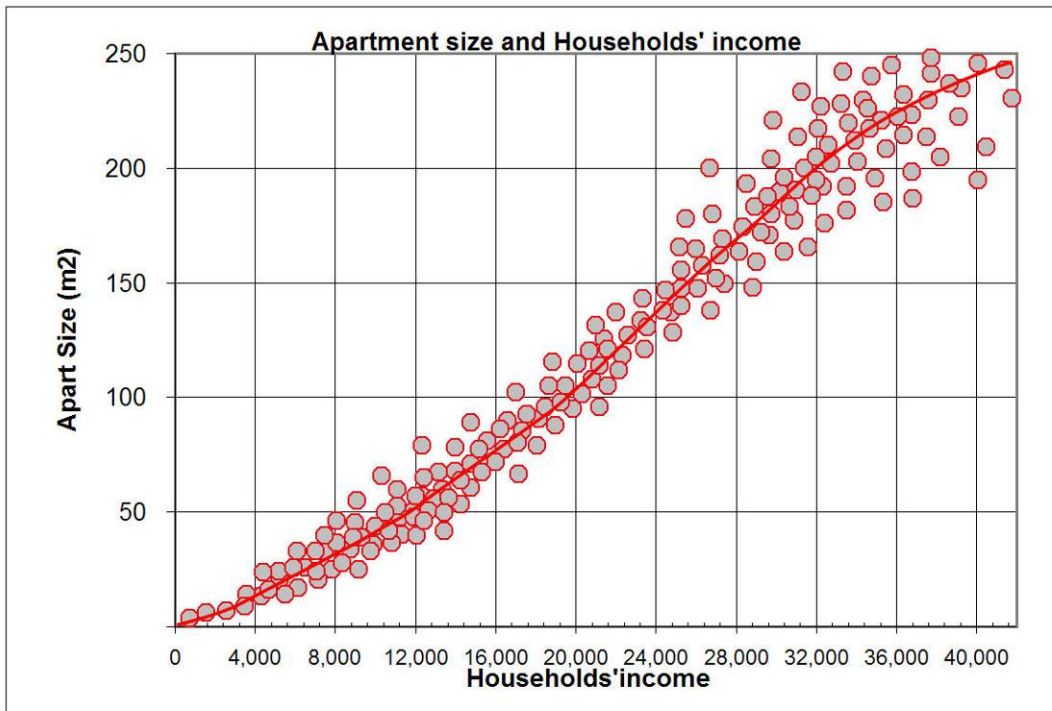
Per-capita Floor Space of Urban Residential Buildings (m²)



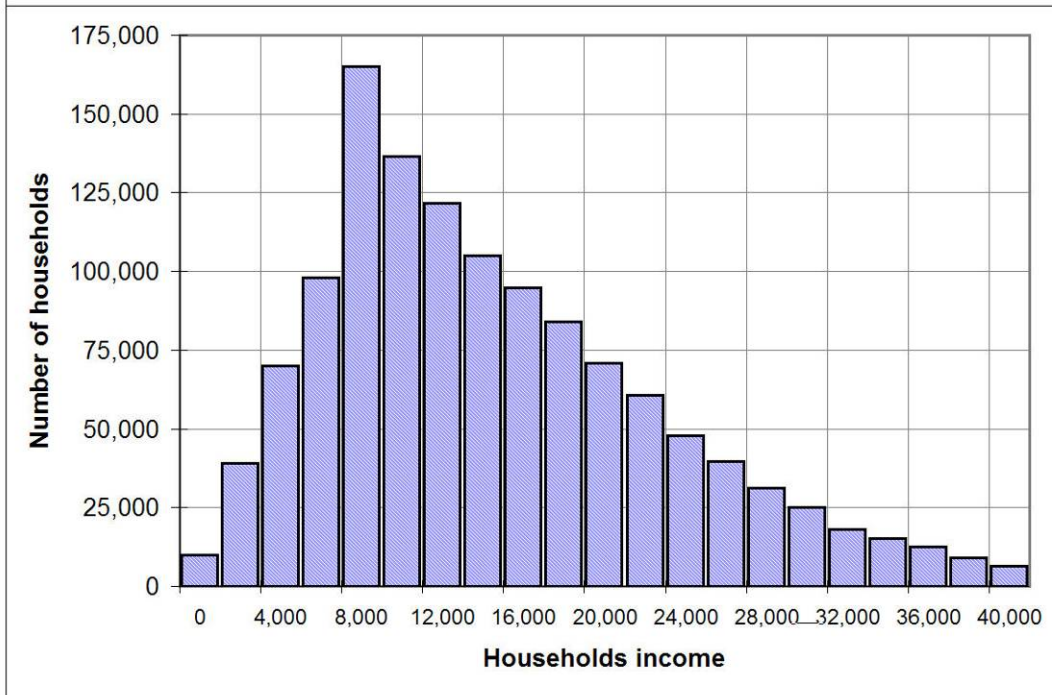
Source: Tianjin Facts and Figures, Municipality of Tianjin 2006

An example of survey results establishing the correlation between households' income and housing standards in a market economy



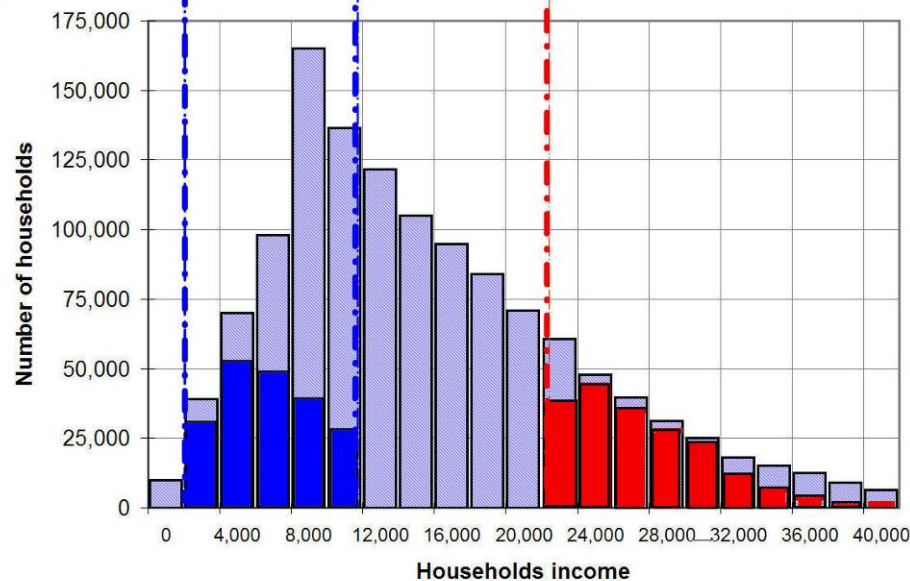
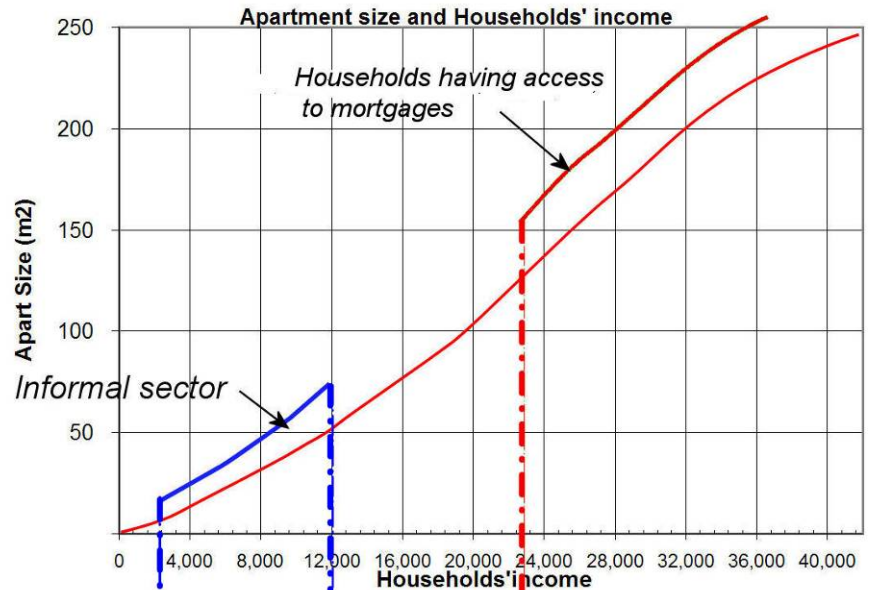


It is necessary to relate the “consumption curve” to households’ income distribution to have a complete view of housing supply under market conditions



Under local market conditions without government intervention poor households can afford to live in cities by consuming less land and less floor space than more affluent households, and by living in less desirable area where land is cheaper.

submarkets within the main housing market



Existence of 3 mains submarkets within the housing sector

Most of the time the existence of submarkets need to be identified.

For instance,

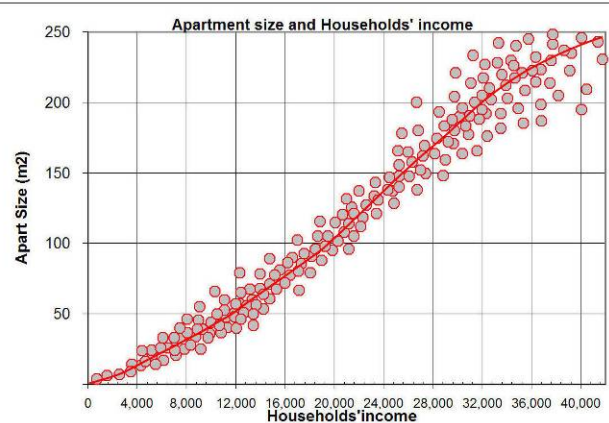
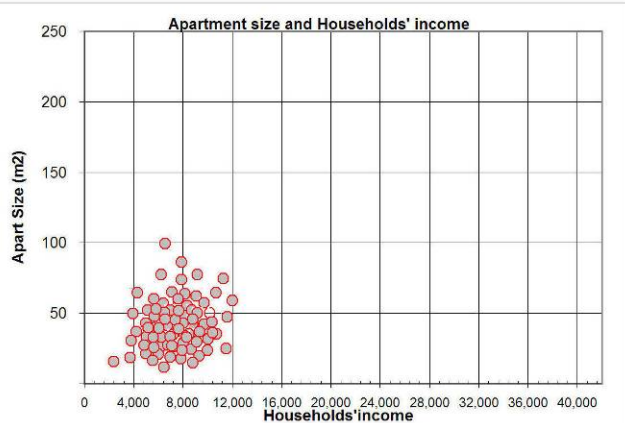
in China the housing units produced by village collectives within municipal boundaries constitute a submarket. Although infrastructure standards are poor in farmers housing, floor space per person is typically higher than in formal apartments in the same location (28 m2 per person in Tianjin in farmers' housing vs. 25 m2 in formal urban housing)

Housing units financed by mortgages constitute another submarket.

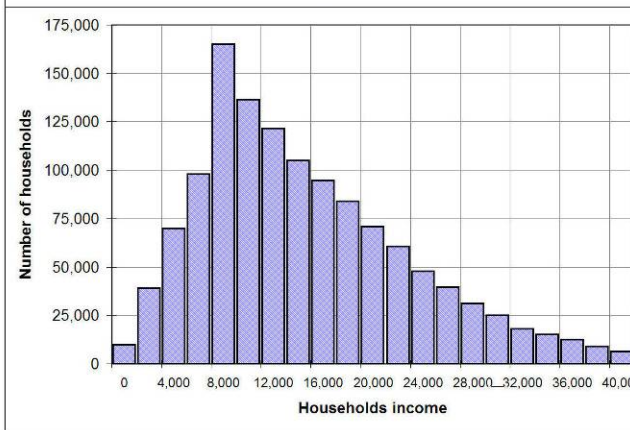
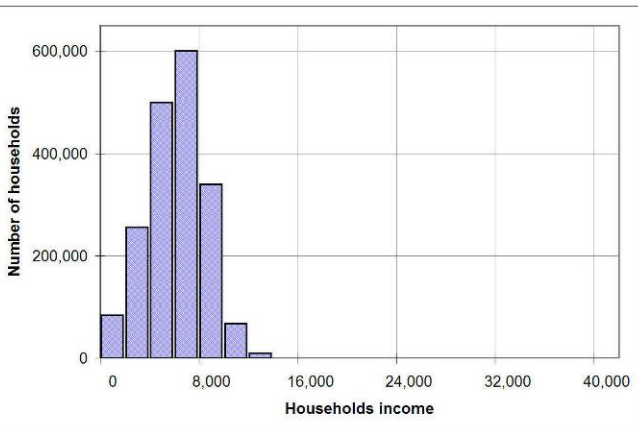
In many countries the informal sector constitutes also a submarket which need to be identified and analyzed separately but is part of the overall supply.

Other submarkets may need to be identified depending on city history and characteristics – for instance the historical housing stock to be protected is also a submarket

Housing consumption comparison between markets economies and command economies



- **In a command economy** housing supply and consumption depends on government budget allocations. there is no direct connection between households' cash income and housing consumption (size of apartment)
- **In a market economy** households' housing consumption is closely correlated with households' income, although there might be submarkets with different characteristics



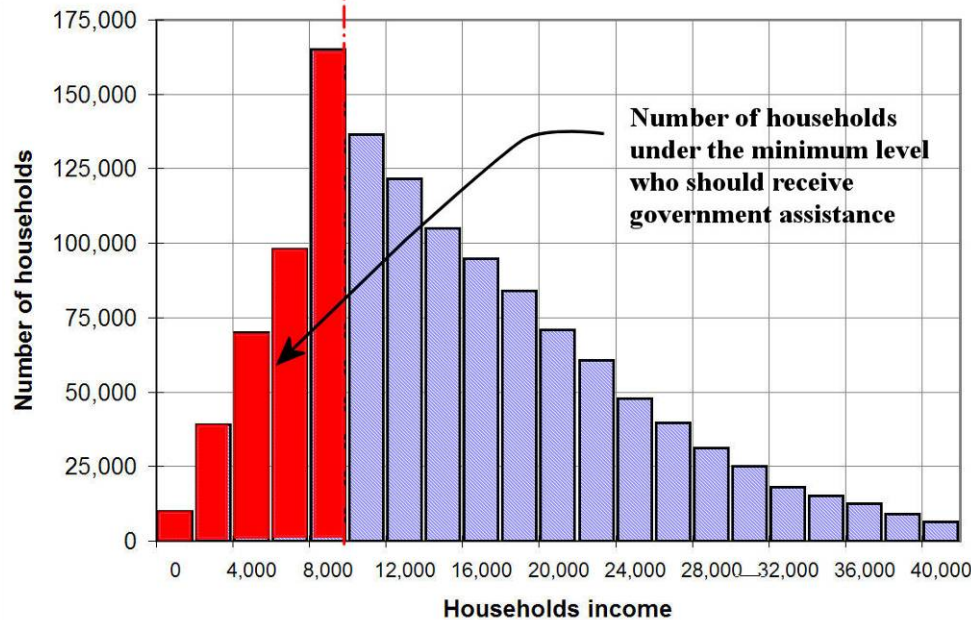
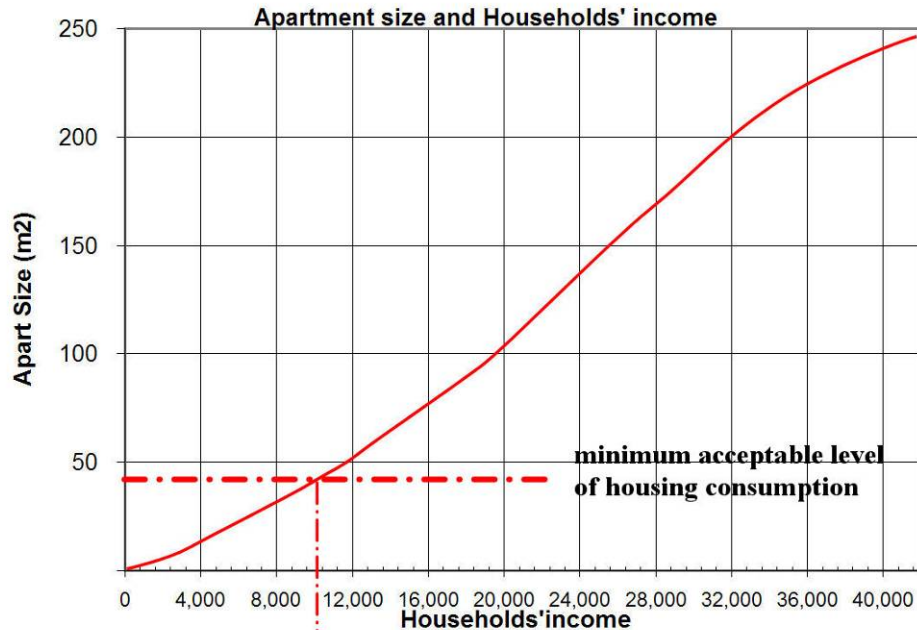
Typical consumption and income in a command economy

Typical consumption and income in a market economy

Housing consumption comparison between markets economies and command economies

- In China, a part of the existing housing stock was build under a command economy (Danwei housing). The pattern of housing consumption in 2007 might therefore partially reflect the past command economy.
- However, the buoyant housing market for new and existing units should contribute to shift the consumption curve toward the market pattern.

Definition of magnitude of affordability problem



- An affordability problem arises when lower income groups reach a housing consumption level which is considered too low by government.
- The “**acceptable level of minimum housing consumption**” varies greatly from country to country and depends on political judgment not on a “scientific” norm.
- to detect an affordability problem it is therefore necessary to define (i) the relationship between income and consumption in a specific city and (ii), the number of households who consume less than the minimum.
- No solution to affordable housing can be found when the number of households under the minimum threshold of consumption is not known.

Many typical government response to correct an affordability problem have negative effects.

New regulations to prevent the construction of “substandard housing”

The definition of minimum consumption for housing is complex and may include all the minimum standards included in land use and building regulations.

For instance:

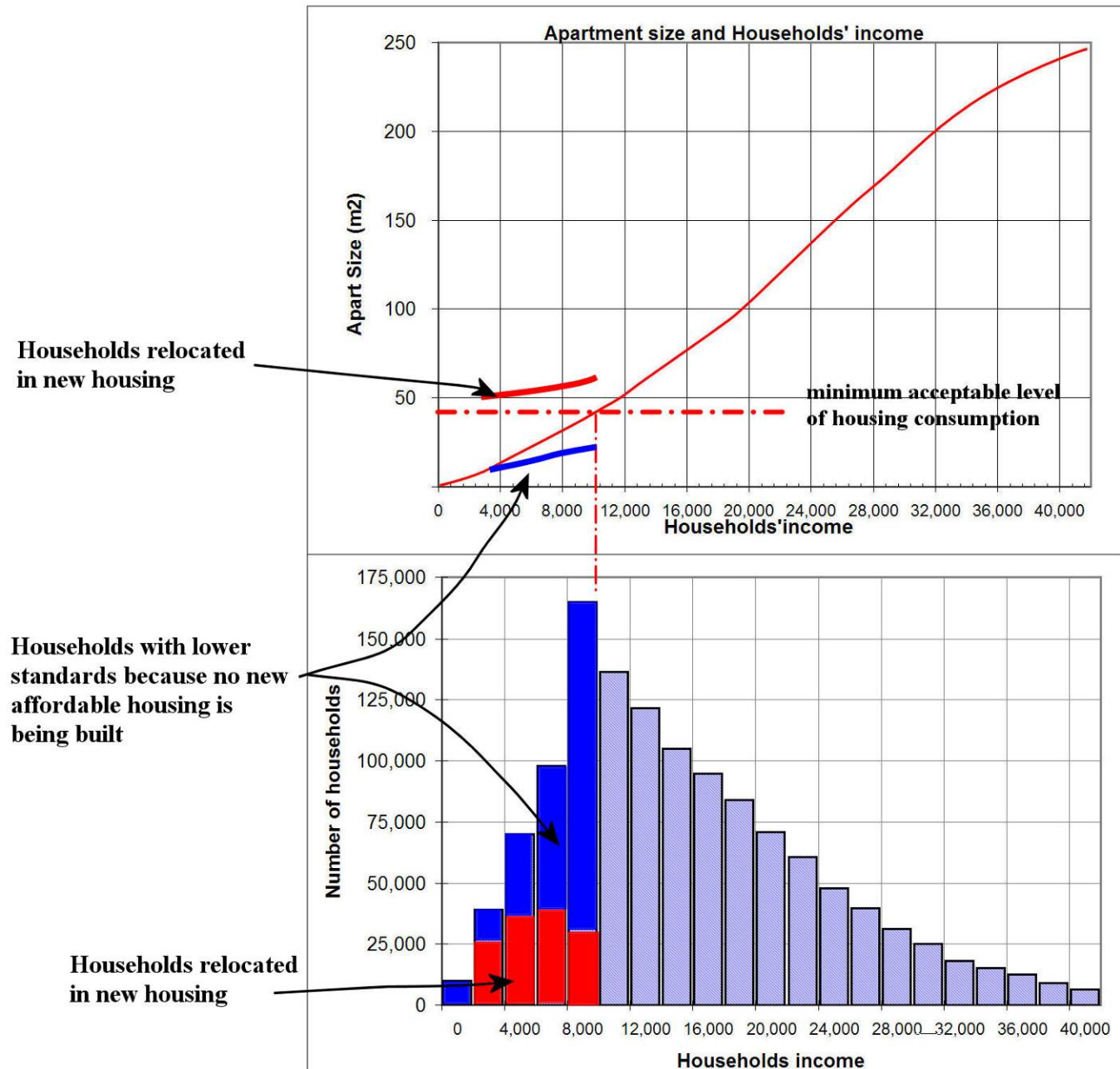
- no dwelling should have a floor area of less than 40 m²
- all dwellings should have an independent bathroom and kitchen
- a maximum floor area ratio of, say, 1.5, combined with a minimum floor area per household of 40 m² implies a minimum land consumption per household at 25.66 m².
- If the minimum standards for road, open space and community facilities is 50% in residential area, the resulting minimum standard for land is 53.33 m² ($M_{land} = \frac{\text{Min floor space}}{\text{max FAR} \times \text{Min \% road \& open space}}$)

Demolition of the existing stock that is below the minimum standard

- The demolition relocation process provide a false impression that the low income stock is being renewed. In reality during most urban renewal project most of the lowest income rental housing stock is lost and not renewed.

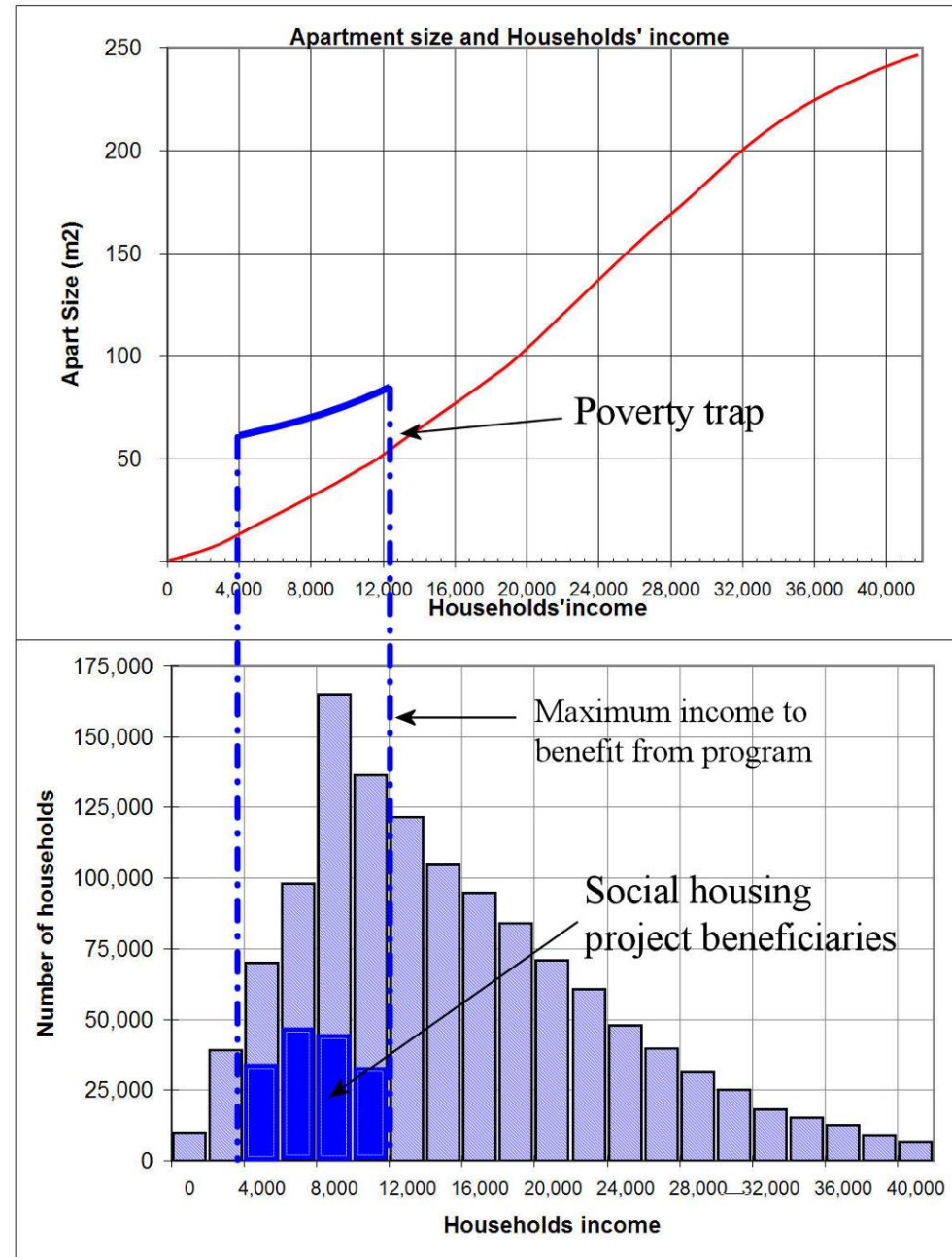
Most of these measures have a negative effects on affordability. The poorer households have more problems finding affordable housing after new more stringent regulations and demolition of “slums” have taken place.

Impact of higher housing standard regulations and demolition of substandard housing on the housing affordability



Possible “poverty trap” created by direct subsidies to housing

- The housing consumption curve allows to identify the possible creation of “poverty trap”.
- A poverty trap would be created when subsidy depends on an maximum income threshold and allow a housing consumption much higher than the market would allow beyond the income threshold



Impact on housing supply of typical government efforts to correct an affordability problem:

impact on existing housing stock and flow of new housing

We have to distinguish between the impact of government action on the existing housing stock and on the flow of new units being built each year (Stock and Flow).

Impact on existing housing stock

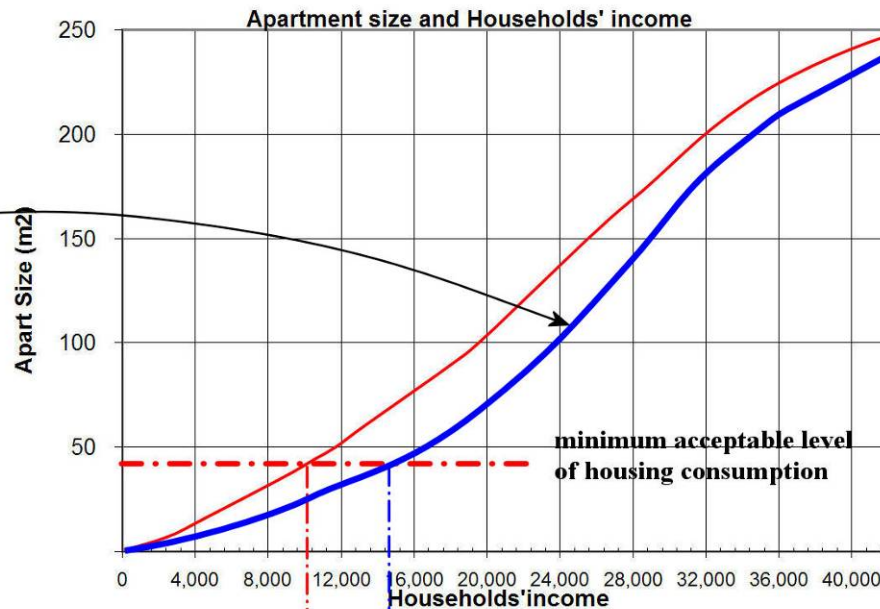
- New regulations with higher standards have no direct impact on the existing housing stock, however:
- by preventing new units to be built at the low standards affordable to low income groups, existing substandard units become more crowded and dilapidated, housing standards become even lower for low income groups
- governments often demolish substandard residential areas, decreasing the stock of substandard housing, the only one affordable to the poor.

Impact on flow of new units

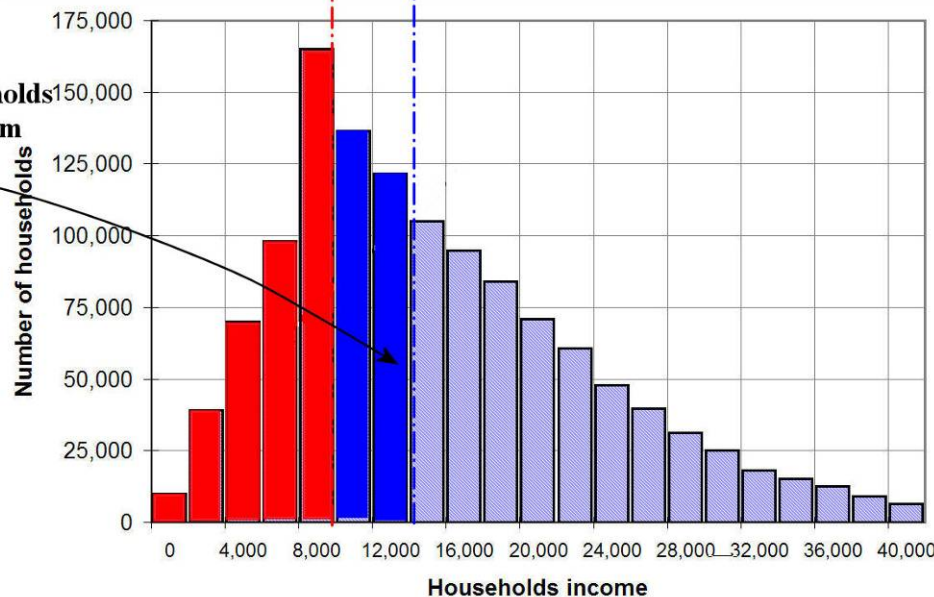
- Standards below the legal minimum cannot be constructed legally anymore.
- New low income households have to crowd the existing substandard stock, as the affordable stock is not increasing.
- implicitly the government by establishing minimum standard take responsibility for the housing of households who cannot afford the minimum housing standards with their own resources.
- In reality in most cases, the government sponsored “affordable housing” covers only a small fraction of the yearly housing needs of low income households. A typical queuing time to benefit from government assisted housing is more than 10 years!

Impact of higher land development standards and regulatory constraints on housing affordability

new consumption curve as a result of higher land prices per housing unit



Increase in number of households not able to afford the minimum standards



- Increasing minimum land development and housing standards usually results in increased prices and therefore in an increase in the number of households who will need government assistance to afford the minimum housing standard.
- The minimum acceptable housing standard varies with level of urbanization and income level

Housing supply in China

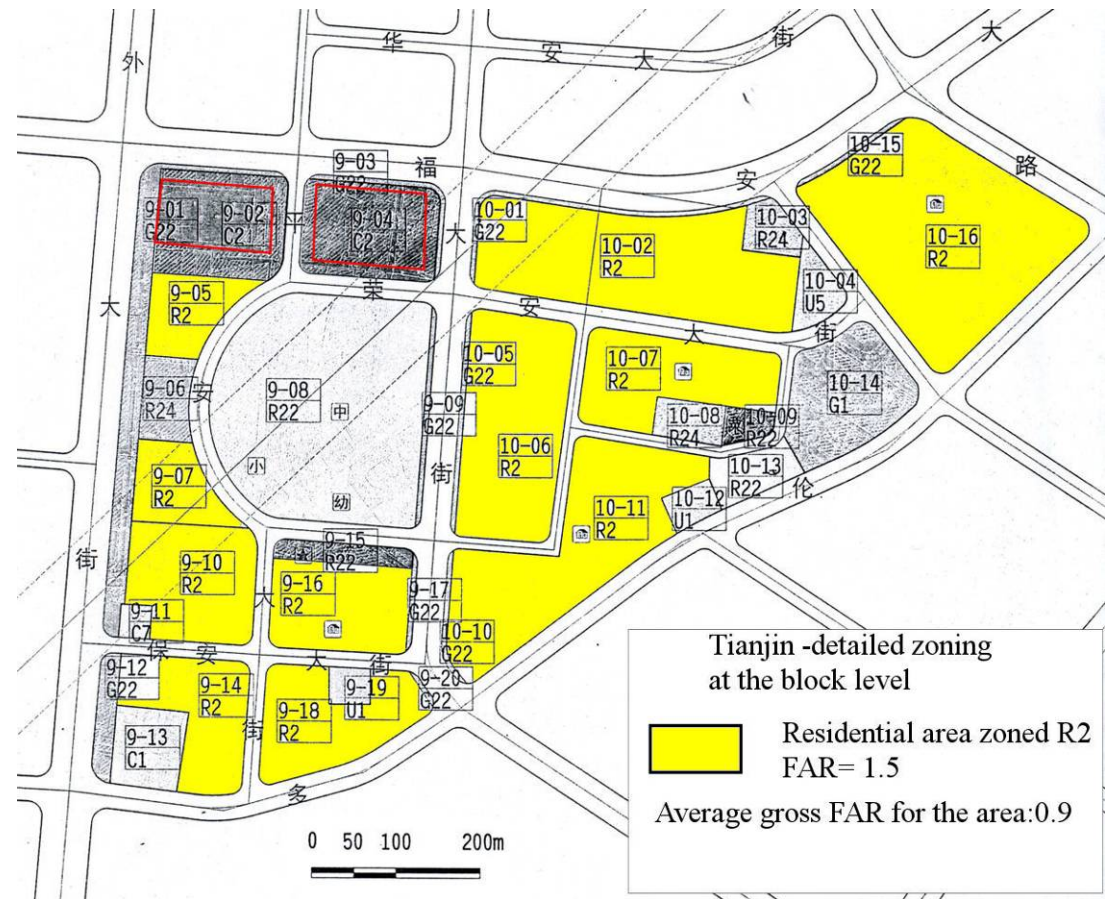
Three main issues have an impact housing affordability in China:

- Land availability in suburban areas
- Land use regulations, in particular the lack of spatial policy for floor area ratios
- The disappearance of low cost housing rental units through the demolition and subsequent redevelopment of urban villages

The regulation of the floor area ratio has a very large impact on land supply and housing cost

容积率

- The Floor Area Ratio (FAR) is the ratio between the floor area built on a plot and the land area of this plot
- The regulation of floor area ratio restricts the amount of floor space built on a piece of land and therefore increases demand for land and increases the cost of land per m² of floor space
 - The example on the left shows a detailed zoning plan in downtown Tianjin next to a subway line restricting the floor area ratio (FAR) in residential areas to 1.5
 - As an example, here are the values of residential FAR in similar locations in 3 other cities of the world:
 - Paris, FAR= 3
 - Washington DC, FAR= 6
 - New York, FAR=10
 - There is no overall plan of FAR in Chinese cities, only detailed block by block maps are provided, making it impossible to know the average conversion potential of land into floor space.



Housing supply in China:

the supply of low cost rental units

- In China the low end of the housing supply is provided by “village urban enclaves” still under collective ownership.
- For example, a room would be rented for 200 Rmb per month in urban villages in Tianjin suburban areas
- Housing standards in “urban villages” might be low but new housing rental units are still being built at prices and standards responsive to demand from low income households
- There is no “housing product” on the market equivalent to the rooms and houses rented from farmers at the immediate periphery of cities.
- The demolition of villages at the fringe of Chinese cities decreases the number of affordable housing, as cheap rental units are being replaced with higher standards more expensive units

- The progressive replacement of urban villages by formal housing estates in a northern suburb of Tianjin





Affordable housing
inside an urban village
enclave in Zhengzhou.



Conclusions and recommendations

- Affordability problems should be solved by addressing simultaneously supply and demand issues
- Concentrating on the demand side when supply side issues are not resolved, could result in more expensive housing instead of more housing
- The relation between the market price of housing and apartment size is not fixed. It depends on:
 - land use regulations and building standards
 - productivity in the building industry
 - availability of land
- When demolishing older dilapidated stock, make sure that the new units built in its place are affordable to the same people, including renters.

Recommendations concerning housing supply

- develop an analytical method based on constant monitoring of real current market conditions, linking price, income and standards in annual housing surveys
- audit land use regulations (including FAR) to identify their impact on the price of developed land and on housing.

In China, to lower the cost of housing it would be necessary to monitor the following:

Impact on residential land price of:

- uniform floor area ratios
- high land use development standards
- Subsidies to non residential land use

Impact on affordability of lower income groups of:

- minimum size regulations
- The demolition of the urban villages and their replacement by formal residential areas