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China Market Strategy

Property Bubble, Aging Demographics & Common Prosperity

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- Urbanization has been a pillar of China's growth model. But it is also a process of contradiction between urban and rural – as the rural population urbanizes and supplies the manufacturing sector with labor, the rapid urban income growth has indeed increased income inequality. After China arrived at its "Lewis Turning Point" in 2010 when rural surplus labor was exhausting, inequality started to stabilize, but China's GINI index remains high.

  To continue to build on rapid urbanization and hence property investment for growth is unlikely to bridge the gap between urban and rural further, contradicting the goal of "Common Prosperity". Recent internal speech by China's top leader published in the "QiuShi" magazine emphasized rural economic development in the overall scheme of "Common Prosperity". After a country passes its Lewis Turning Point, growth model rebalancing is one of the macro policy implications.

- Consensus considers Chinese demand for property "inelastic", driven by its unscrupulous estimate of "potential demand" of 16bn-22bn sqm. Yet, by applying some sensible constraints on second-hand transactions, mortgage income test and lower income strata for the newly-urbanized cohort, we arrive at "effective demand" of just over 1bn sqm above supply, or less than one year of national sales.

  Chinese demographics portend that the home-buying cohort is peaking, and so will property price growth, as confirmed by international experiences. Yet, Chinese households' asset allocation to property is more than double that of the US and Japan, and China's ratio of property value to GDP is also elevated. At a time when property demand is significantly smaller than thought, and property price growth is peaking, property allocation is too high for comfort. Common prosperity aside, it would be difficult to argue for a growth model that continues to be property dependent.

- 2010 is a watershed year for China's macroeconomy in terms of demographics, investment, monetary policy, inequality, and capital market, as China passed its Lewis Turning Point. If we stop treating demographics as numbers but as people, we can see that such demographic shift is the consequence of economic development, income growth, urbanization and educational progress, as well as the resultant sociological and cultural shift. It is not necessarily doom and gloom.

  The real challenge for China is how it adapts its growth model going forward despite near-term costs. Aging demographics and slowing investment suggest higher consumption going forward; high asset allocation to property at peak price portends re-allocation toward other assets such as equity; slowing urbanization means a re-balance between urban and rural and eventually toward common prosperity. Of course, challenges remain, but we will cross the river as we feel the stones.

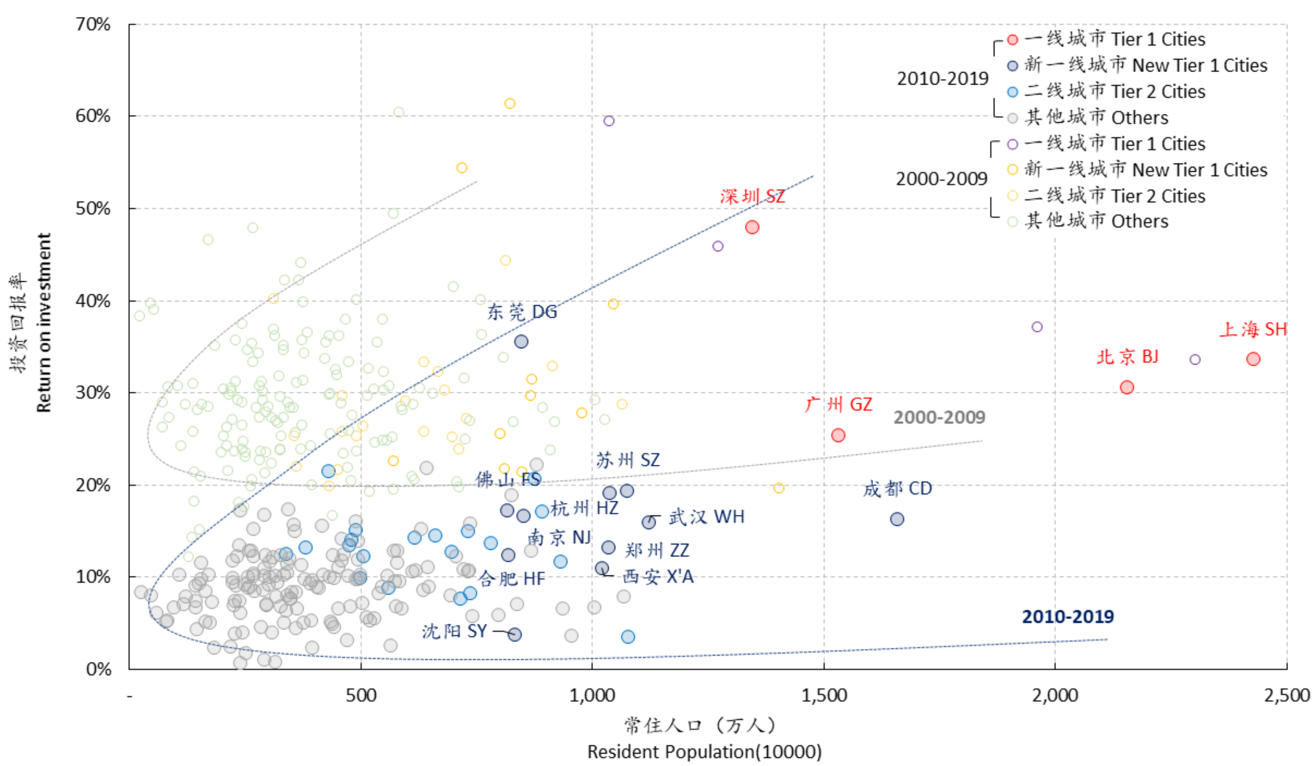
Going for Broke? Falling Return, Rising Costs

Economists have been calling China's property a bubble for years. Yet, for years, Chinese property prices continue to surge with record sales volume. In some of the tier-one cities, prices have climbed to a level unfathomable to observers well trained in Western economics. In almost all major cities, the ratio of property price to income is the highest globally. It is baffling – is Chinese property a bubble, or are economists simply wrong?

Recently, Evergrande's default, as well as the predicament of some of China's property developers, has been grabbing global headlines. In our view, while Evergrande is symptomatic of the plight in China's property, it would be hasty to conclude that it is systemic.

In this report, we analyze public data and information published by official entities. With some reasonable assumptions, we attempt to answer this question that has been haunting the field of economics for years and has been so divisive that it constantly arouses heated debates and even disputes amongst friends and families. The opinion of the debate is seldom objective. With or without home ownership, it will provoke entirely different stance on this question during the debate.

Figure 1: Investment return from urbanization is falling across cities

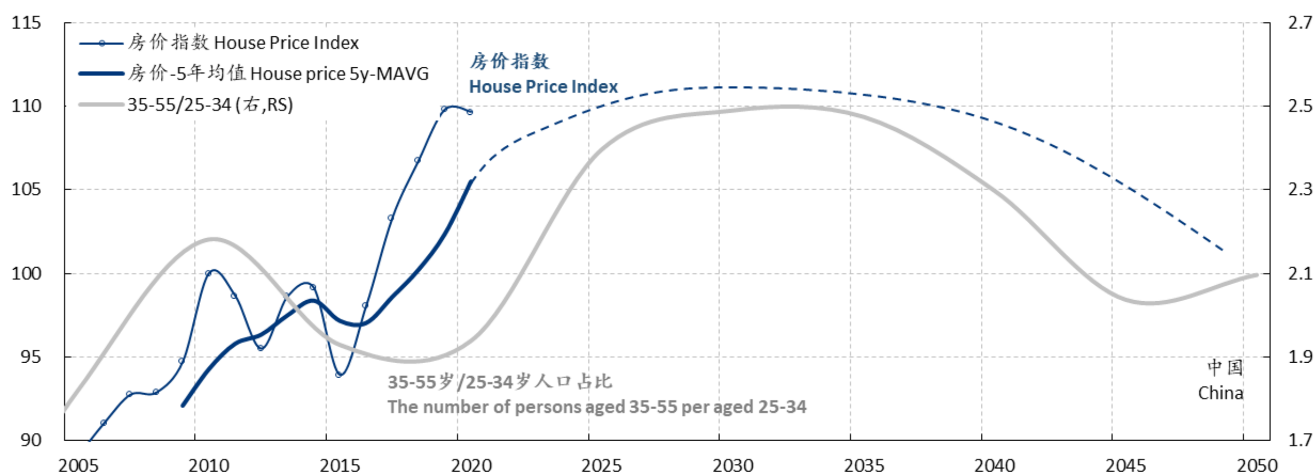


Source: China City Statistical Yearbook, China Statistical Yearbook, Wind, BOCOM Int'l (Return on Investment = Incremental GDP/Fixed Asset Investment)

To us, it is not surprising to see China's property price surge since the housing reform in 1998 ("Fang Gai" 98 年房改). After all, rising productivity and economic growth have all translated to strong income growth, and thus the performance in the property sector. In such milieu, adding leverage on top of an underlying asset with surging prices can benefit the most. As long as the underlying price rises faster than the financing costs on leverage, everything will be fine – till the process of rising price stops, and then the leveraged setup starts to unravel.

The question is not why property prices have surged so strongly in China, but when is the inflection point where developers should slow down and even unwind their leverage? Our data analysis shows that we are now at or near such an inflection point. In **Figure 1**, we show that average return on investment in urbanization has roughly halved between 2000-09 and 2010-19, although to a lesser extent among the tier-one cities. Meanwhile, developers' financing costs have not budged, and may have risen substantially due to the recent policies such as the "three red lines" to curb developers' indebtedness. For instance, Evergrande had issued volumes of high-yield bonds in the past few years. As such, property investment return during urbanization is falling while financing costs are rising - a recipe for leveraged fallout.

Figure 2: China's 35-55 y.o./25-34 y.o. vs. property price – seems to be peaking

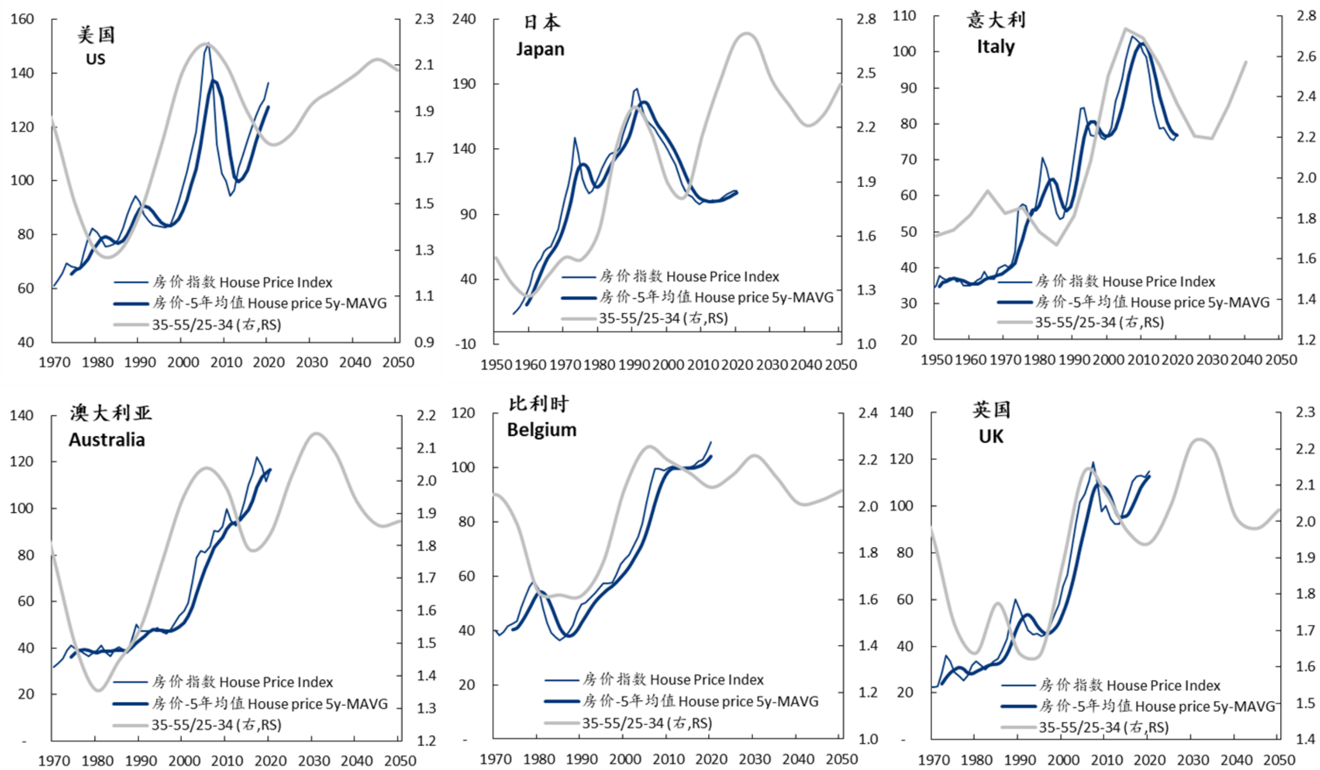


Source: BIS, Fed, OECD, United Nations, Bloomberg, Wind, BOCOM Int'l

Further, we can show that property price is highly correlated with China's demographics. Specifically, it is the ratio of the population aged 35-55 vs. those aged 25-34. The 35-55 year-olds are at the prime age to purchase property, while the 25-34 group is still working hard to save up for down payment (**Figure 2**). We can call the 35-55 year-olds the home-buying cohort.

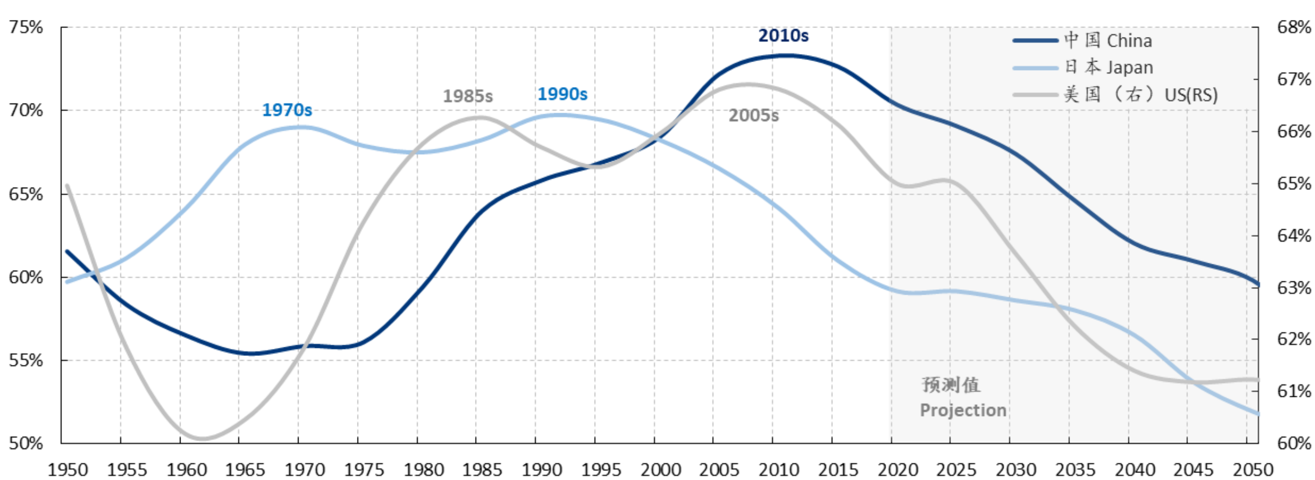
Observations in other countries across the globe show a similar correlation – the higher the percentage of the home-buying cohort, the higher the property price, and vice versa (**Figure 3**). As China's underlying demographics portend that this home-buying cohort percentage will be peaking soon, probably in the next 5-10 years, the most rapid phase of property price surge is likely behind us.

Figure 3: 35-55 y.o./25-34 y.o. vs. property price – US, Japan, Italy, Australia, Belgium, UK



Source: BIS, Fed, OECD, United Nations, Bloomberg, BOCOM Int'l

Figure 4: China's 15-64 y.o. percentage of population vs. US and Japan



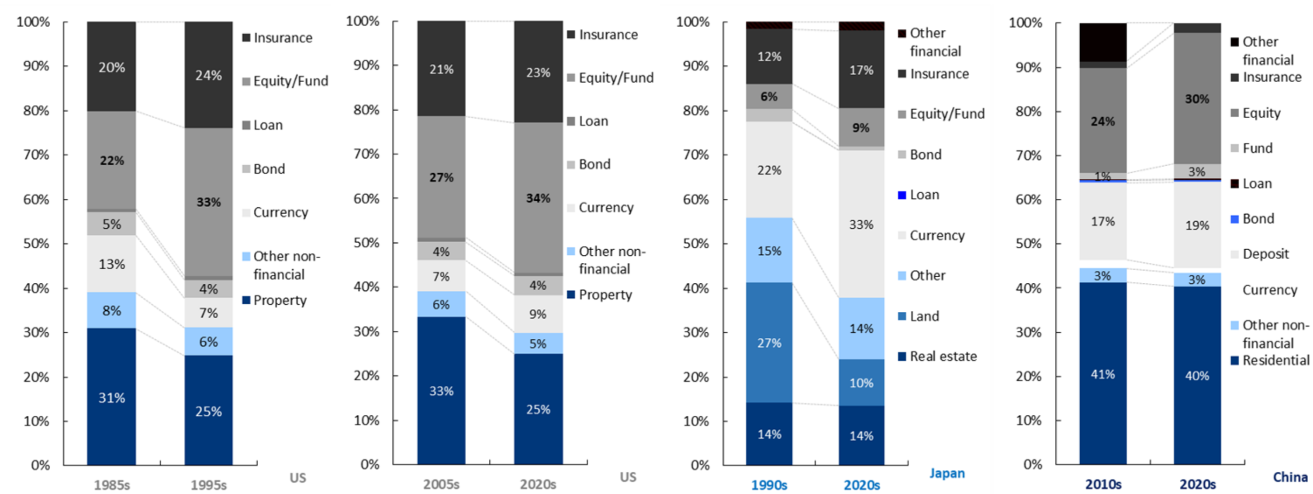
Source: United Nations, Wind, BOCOM Int'l

We note one important distinction between China's demographic structure and that of the West. Because of the "one-child" policy, China's demographic shift suggests that the country's working-age population may have peaked around 2010, a year some scholars consider to be China's Lewis Turning Point. This is different from the working-age population in Japan and the US, where it has two humps, as the offsprings from the first peak mature into child-bearing age and start reproducing (**Figure 4**). As such, China is facing a more significant demographic challenge than the aging West, and a second peak is unlikely in China's property price. We will discuss China's demographics in further details in a later section of this report.

Compared with other countries such as the US and Japan with aging demographics, Chinese households' asset allocation to property is indeed the highest (**Figure 5**). More importantly, such a high property allocation is occuring at a time when the country's home-buying cohort is peaking.

We can run a rough estimate to see how high the asset allocation toward property is in China relative to the US. At an average of around RMB10,000 per sqm at a national level, and ~63% of the 1.4bn population living in the urban areas with close to 40sqm in living space per person, it is not difficult to figure out that the total value of China's residential property is at ~RMB400trn. It is a gigantic number, representing four times China's GDP, compared with well below two times GDP for the US and around three times for Japan.

Figure 5: Household asset allocation – US, Japan and China; China has the highest property allocation



Source: United Nations, Wind, BOCOM Int'l

In sum, China's demographics suggest that its home-buying cohort has likely peaked. And such a peak tends to augur peaking or peaked property prices for a period to come. Further, unlike the experiences in the Western countries where demographic structures have two peaks in their proportion of working population, China's working population will have only one peak seen in around 2010 due to the country's one-child policy. As such, the torrid pace of property price surge may have peaked. Meanwhile, Chinese household property allocation at times of peaking property price is double that of the US, and triple that of Japan.

Further, peaking property price is likely one of the reasons behind the falling investment return on China's urbanization. Adding leverage to developers' operation is no longer beneficial, and can indeed be precarious – as some developers now find out.

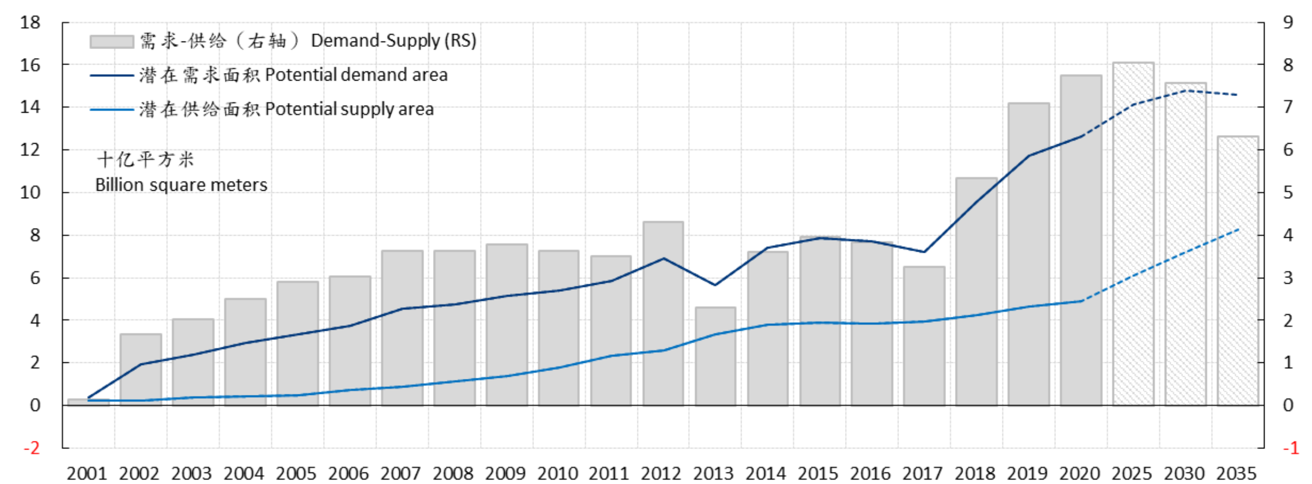
A Property Bubble?

So how much demand for property is there in China? There has been a much cited term called "inelastic demand" ("Gang Xu", "刚需") for property. "Gang" in Chinese means "strong", "indomitable" and "unyielding". It means a lot more than "inelastic".

Common portrait of the property demand has been bullish forever. It is not difficult to understand where such bullish sentiment toward Chinese property comes from. In the 1990s till 2010, before China arrived at its Lewis Turning Point, the country has experienced rapid urbanization at a pace unseen in other parts of the world. During this period, China's urbanization rate had risen from 26% to 50%. Rapid urbanization, coupled with population and economic growth, augured well for property demand.

That said, demand must be analyzed in tandem with supply to see the potential imbalance. Analysis on either side of the equation will yield only an incomplete picture of demand and thus lead to a wrong conclusion. Previously, consensus unscrupulously multiplied average living area per capita by the newly-urbanized population to get the potential demand for property (潜在需求). For a country with vast population and land mass, such simplistic calculation would no doubt yield some gigantic outcome.

Figure 6: Consensus estimate of potential housing demand is enormous, without the constraints of demographics, income and home ownership

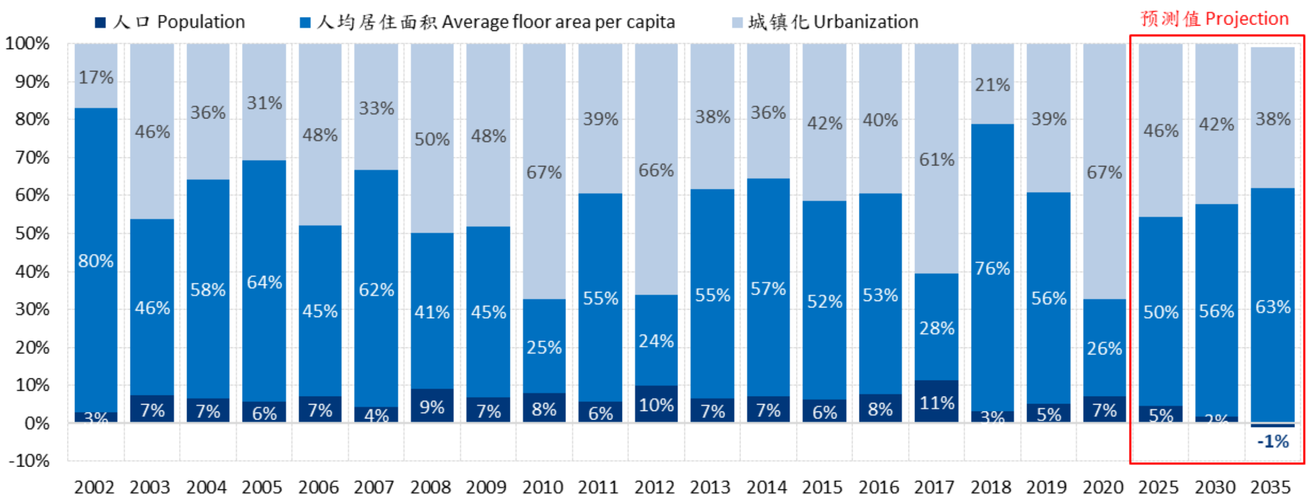


Source: United Nations, OECD, World Bank, Fed, CEIC, Wind, BOCOM Int'l

It is not hard to imagine that such calculation yields significant demand for property, in the vicinity of 15bn sqm cumulatively for 20 years up to 2020. It is impressive. Compared with the residential area under construction of 5bn sqm, the excess potential demand of 10bn sqm (equal to 15bn sqm of potential demand minus 5bn sqm of residential area under construction) is significantly less than the 16bn-22bn sqm cited by market pundits (**Figure 6**).

This calculation by consensus suggests that urbanization and living quality improvement (by larger living area per capita) are the key driver of potential demand for property. But even with such generous assumptions, contribution to potential demand from urbanization will start to slow in the coming decade, as the most rapid phase of urbanization is complete (**Figure 7**).

Figure 7: Consensus believes that urbanization is the key driver of housing demand



Source: United Nations, OECD, World Bank, Fed, CEIC, Wind, BOCOM Int'l

Further, does this potential property demand exist? Is there really 10bn sqm of excess demand for Chinese property?

Of course not. Intuitively, as long as the urbanization growth plus living area growth is faster than residential construction growth, then cumulative excess demand will continue to build and rise further above supply as measured by area under construction. Under such unrealistic assumptions, Chinese property frenzy will go on forever. But China's urbanization is slowing down, as the economy matures and passes the Lewis Turning Point.

By laying out a few reasonable constraints on potential demand, which is the theoretical ceiling for Chinese property demand, we can have a better estimate of effective demand (有效需求). We can then compare the results with the residential area under construction published by the NBS. We have laid out the following assumptions:

(1) ***40% demand for property from the newly-urbanized population to be met by existing second-hand housing inventory***. Some housing demand of the newly-urbanized population will be satisfied by the existing housing stock. Currently, second-hand transactions are ~40% of total transaction area (new + second hand). The new demand will be met by the first and second-hand markets,

instead of only by the first-hand market as assumed by consensus. Immediately, the potential demand for new construction will be lowered by 40%;

(2) ***The income of the newly-urbanized population will be at the lower percentile of the existing urban population***. The income of the newly-urbanized population will be substantially less than the existing urban population. The difference between rural and urban income is well known in public stats. It would be difficult to argue that simply changing their residential geography will change their income strata in the new urban population. We have assumed that the newly-urbanized population will be at the lower 25^{th} percentile of the urban income. Obviously, we don't know the accurate picture of the income of the newly-urbanized population. But it will be precisely wrong not to make an income adjustment to accommodate the newly-urbanized population with lower rural income previously.

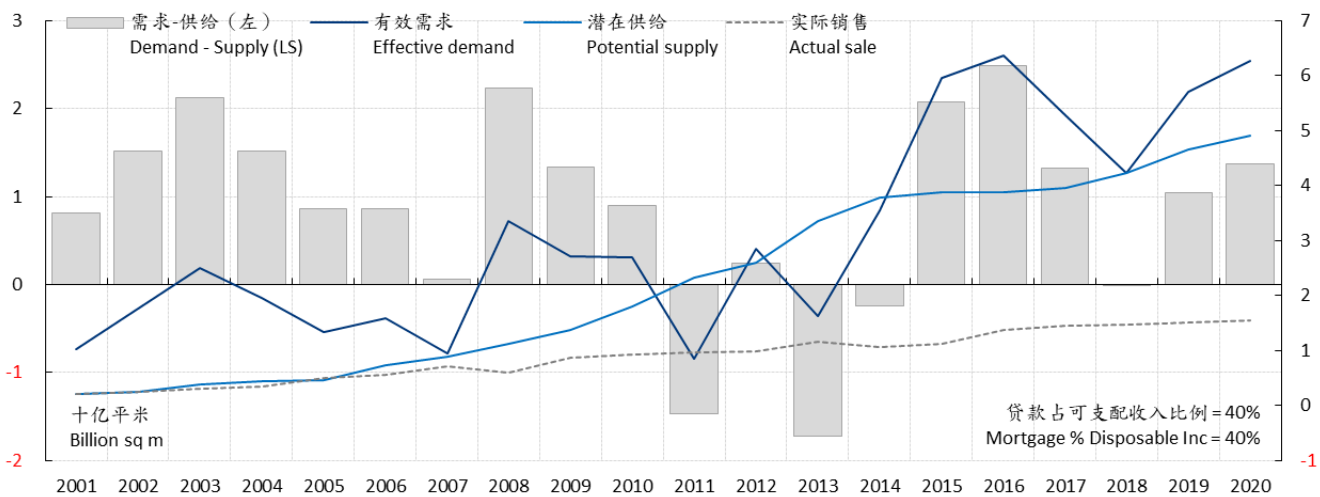
In some extreme scenario, we could even argue that the newly-urbanized rural population will not be able to purchase a property for a while. And if property price, already very expensive, continues to surge at its current torrid pace in many of the Chinese cities faster than income growth, this part of the population will never be able to afford a place of their own. If so, the so-called potential demand would all but evaporate.

(3) ***40% of income is used for mortgage payment***. Banks' lending practice dictates that it would not lend to someone whose mortgage payment is a large percentage of his/her current income. Currently, our data analysis shows that this percentage is ~40% on average in many Chinese cities, although some tier-one cities such as Shenzhen are seeing a much higher percentage of income being used as mortgage payment. (We have given detailed, city-by-city breakdown of mortgage to income ratio in the appendix.)

Fixing the assumption of the amount of mortgage payment, we can back solve the average size of mortgage that this newly-urbanized population can afford to take on. And divided by the average selling price per sqm, we arrive at the area size that the newly-urbanized population can really afford to buy. We call this number the "effective demand".

We acknowledge that we have relied on several assumptions to perform this estimate, and our estimate is sensitive to its assumptions. As such, it is bound to be vaguely right. But not to put on these constraints to estimate the underlying demand really is just being precisely wrong.

Figure 8: With constraints on demongraphics, income and existing home ownerhsip, effective housing demand is substantially smaller than consensus estimates



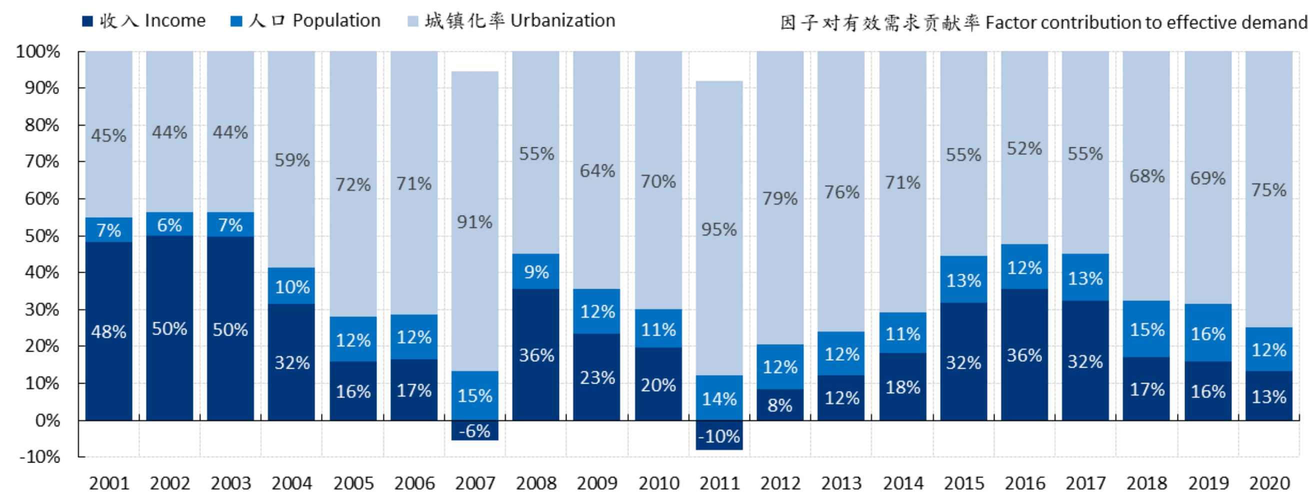
Source: United Nations, CEIC, Wind, BOCOM Int'l

We estimate that the effective demand to be just over 6bn sqm, substantially less than the 16bn-22bn sqm estimated by consensus (**Figure 8**). This demand is compared with around 5bn sqm residential area under construction. As such, our estimate of excess demand is slightly higher than 1bn sqm – still very high. But note that, in 2020, the total first-hand residential sales were 1.5bn sqm at ~RMB10,000 per sqm, or RMB15trn in total sales. Our estimate of excess demand of 1bn sqm is roughly one year of sales – a dramatically different picture from the one painted by consensus. (We have given detailed, city-by-city breakdown of "effective demand" in the appendix.)

Note that, in our estimates, we can see a bump-up in effective demand around 2016 (**Figure 8**). This is the year when the China Development Bank expanded its balance sheet by well over RMB1trn supporting the initiative of shanty town construction – understandably after the stock market crash in 2015. Such policy spurred an expansion of effective demand by propping up the income effect, but not so much the urbanization factor as it is slow moving, and demographics even more so and thus not easily changed by short-term factors (**Figure 9**).

Such policy also reversed the deficiency in demand experienced after 2010 when the four-trillion-yuan stimulus during the 2008 global financial crisis was unwound. Recall the years between 2010 and 2016 indeed saw lukewarm demand for property, and property prices were relatively tamed. And 2017 is the year Evergrande initiated its foray into national expansion, as demand recovered after the initiative of shanty town reconstruction.

Figure 9: But in this scenario, urbanziation is an even more important driver



Source: United Nations, CEIC, Wind, BOCOM Int'l

What Does Urbanization Mean for Common Prosperity?

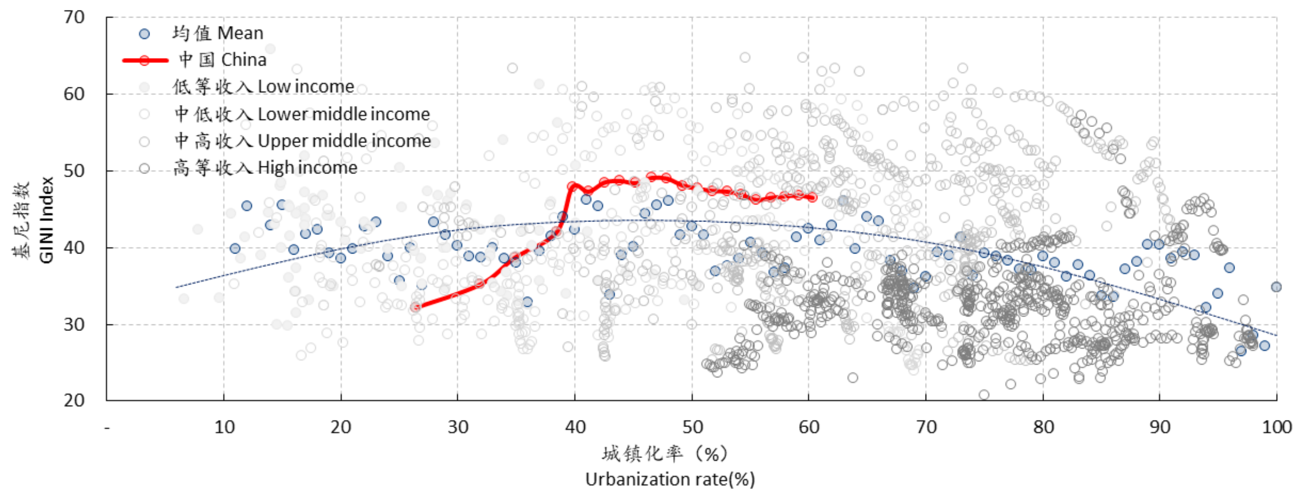
"To build socialism, it is necessary to develop the productive forces. Poverty is not socialism. To uphold socialism, a socialism that is to be superior to capitalism, it is imperative first and foremost to eliminate poverty." – Deng Xiaoping

If we believe that the premise of China's growth model is to eliminate poverty and eventually achieve "common prosperity", then the country's urbanization process and its effect on income inequality, as well as its policy implications must be discussed. Generally, it is believed that urbanization is one of the key drivers for economic growth. And by invoking the Kuznets Curve, scholars believe that urbanization induces rapid growth and thus initially contributes to income inequality.

But the urbanization effect is much more complicated than theory. For instance, rapid urbanization has led to different outcomes in east Asian countries. For instance, in South Korea, urbanization has helped reducing income inequality. But in Latin American countries such as Brazil, urbanization has indeed increased inequality.

In China, data have shown that the country's urbanization process has mixed effects on inequality – initially it increases income inequality, as suggested by the GINI index, and then the process stagnated. We can compare the change in China's GINI index along its development in urbanization rate, versus the other countries globally. We can demonstrate that the rise in China's GINI index is significantly sharper compared with international experiences, and then gradually stabilized after 2010 (**Figure 10**). China's breakneck speed of development may have accelerated the growth of its Kuznets curve.

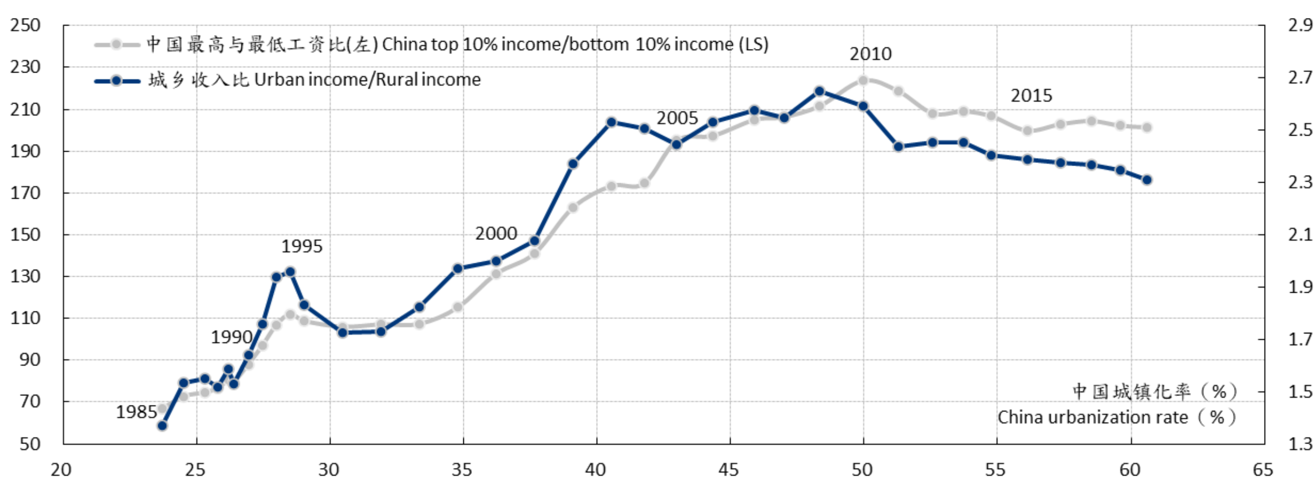
Figure 10: Globally, rapid urbanization tends to be concurrent with rising inequality



Source: United Nations, World bank, IMF, CEIC, Wind, BOCOM Int'l

Even though the sampling methods in the NBS household survey are believed to have under-sampled both the highest- and the lowest-income groups and thus have produced results with more equality, the stabilizing inequality trend after 2010 is consistent across various income inequality studies conducted by both domestic and international institutions (**Figure 11**). As such, something of significance must have happened around 2010, changing the trend of income inequality in China.

Figure 11: China's rapid urbanization correlates closely with rising inequality that seems to have peaked in 2010



Source: WDI, Wind, BOCOM Int'l

Scholars estimated that every 1 percentage point shift in the share of income from urban to rural population would reduce the overall national GINI by 0.007, or 1.5% (*Riskin and*

Kahn). If so, this estimate suggests that the urbanization process has contributed to a rise in inequality in China – the faster the urbanization, the higher the income inequality (**Figure 11**). This estimate also suggests that income inequality in China is also a contradiction between urban and rural. If so, any pro-rural policies, such as alleviating rural tax burden, land ownership reform and *hukou* reform, will help reduce income inequality stemming from the rural and urban divide.

Then, what really happened in 2010? Why is that after this year, China's income inequality has indeed improved albeit slightly?

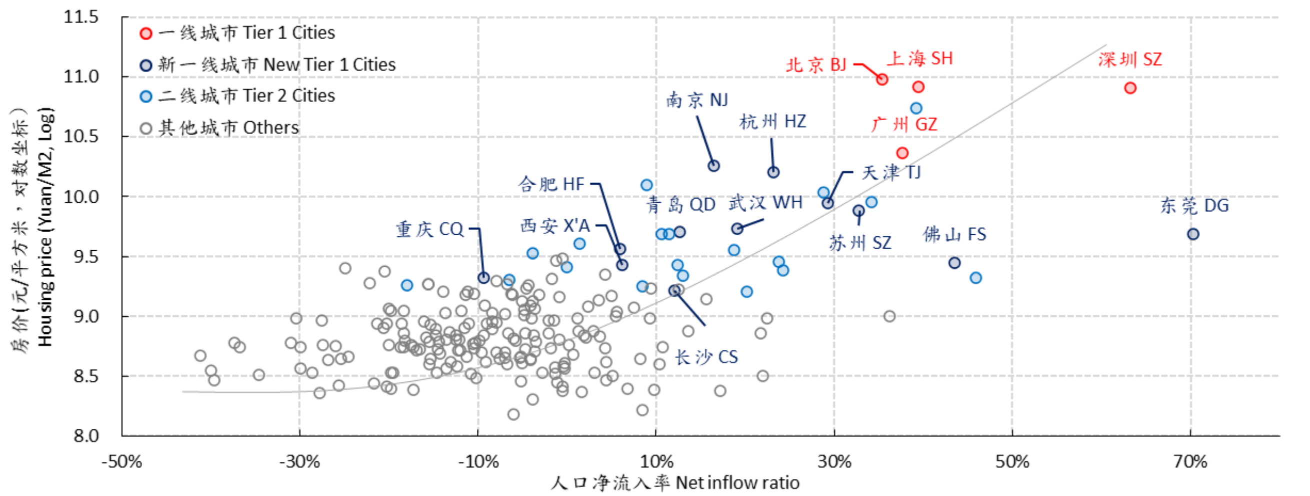
In our previous report titled "***A Definitive Guide to Forecasting China Market***" (published on 2019-09-20), we observed and discussed that 2010 is a watershed year for China's capital market. The 850-day moving average of the Shanghai Composite, a leading economic cycle indicator, has stopped rising after this year, and seems to be stuck at around 3,400. Is the year 2010 in this observation about China's capital market a peculiar coincidence? Or is China's stock market merely reflecting some underlying fundamental trend that is shifting?

Old China hands must remember the debate about the Lewis Turning Point back in around 2010. Back then, scholars discovered that China may have largely exhausted its rural surplus labor for the manufacturing sector, and therefore its lowest-cost growth model was set to change. Note that, in **Figure 11**, the ratio between urban and rural income, and that of the highest versus the lowest income both inflected around 2010. It is a sign that rural income is catching up, either due to the Lewis Turning Point after which the exhaustion of surplus rural labor drives up labor costs, or the deceleration of China's urbanization process that decreases urban and rural income imbalance, or China's entering the later stage of its integration into the global supply chain – a process known to have stalled the imbalance between urban and rural income. All in all, 2010 is clearly one of the most important years in China's macro economy.

Academic studies have further shown that, within urban and within rural groups, the source of income plays differently in income inequality. For rural inequality, monetary income from non-farm activities is the main source of income inequality, while for urban inequality, income imputed from housing is the key driver (*Gustaffson and Li*).

Our own data analysis shows that demographic movements as measured by net inflow of population, a proxy of urbanization, is one of the important drivers of property price in cities (**Figure 12**). The larger the net population inflow, the higher the urbanization rate, the higher the property price. And such higher property price in cities intuitively translates into higher imputed rental income for urban homeowners, exacerbating the urban income inequality.

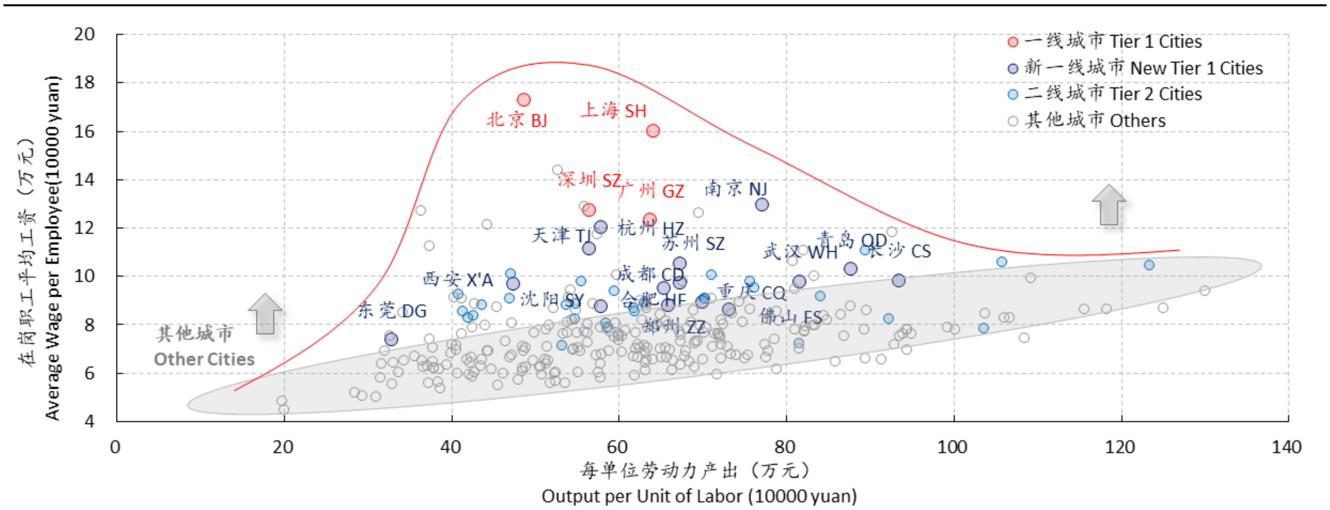
Figure 12: Demographic movement is a driver for rising property price



Source: Anjuke, China Urban Construction Statistical Yearbook, Wind, BOCOM Int'l

In sum, academic studies show that a transfer of urban income to rural helps decrease inequality. As China reached its Lewis Turning Point in 2010 when surplus rural labor for manufacturing started to exhaust, urbanization has decelerated, rural income growth has started to catch up, and income inequality has since improved (**Figure 13**).

Figure 13: Salary is higher at higher-tier cities with advanced urbanization



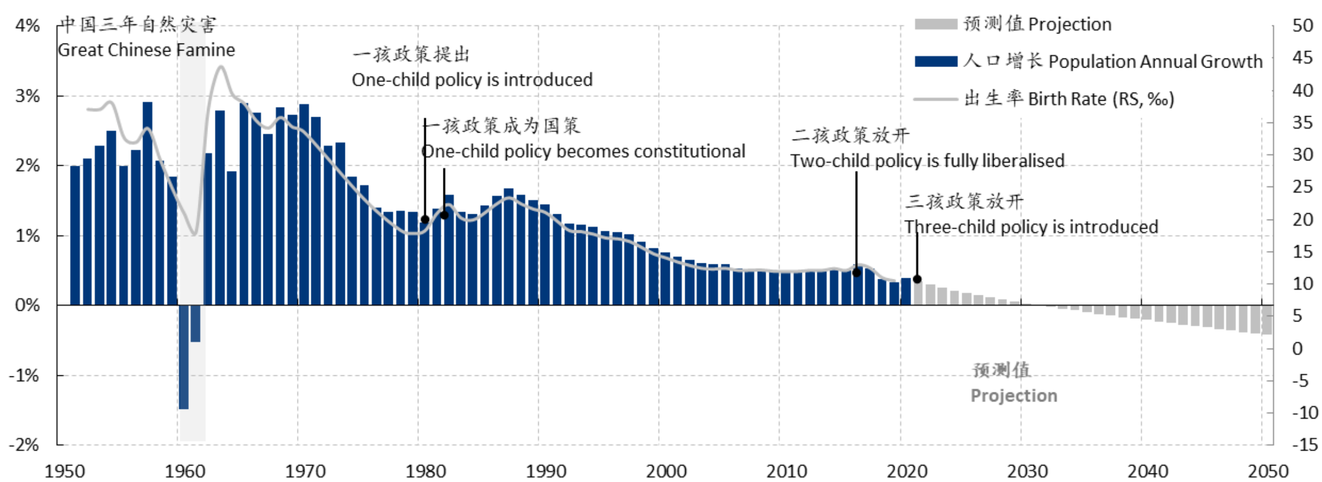
Source: China Urban Construction Statistical Yearbook, Wind, BOCOM Int'l

China's growth model is premised upon "common prosperity" that needs to balance urban and rural developments. While urbanization still has some room to grow, further relentless push towards rapid urbanization like in the 1990s will actually increase urban and rural imbalance, and work against the goal of "common prosperity". It is not surprising to see the speech by top leadership published by the "Qiushi" magazine emphasizing how the economic improvement in rural areas fits in the overall scheme of "common prosperity". China's own stats of urbanization vs. rising inequality, as well as the LatAm urbanization experience, are confirming evidence. As urbanization slows, housing demand and property price should slow in tandem.

China's Demographic Challenge

The seventh China National Population Census in early April received much attention from the media. The delay in its release had prompted rampant speculation about whether the results were too daunting to show. While the final release quelled the rumors, the results indeed revealed some disquieting trends. The census data show that, with the current demographic structure and birth rate, the absolute size of the Chinese population is set to decline in the coming decade. In **Figure 14**, we plot the projection of China's demographics by the United Nations as it is.

Figure 14: China's birth rate had been declining long before the "One-Child Policy"

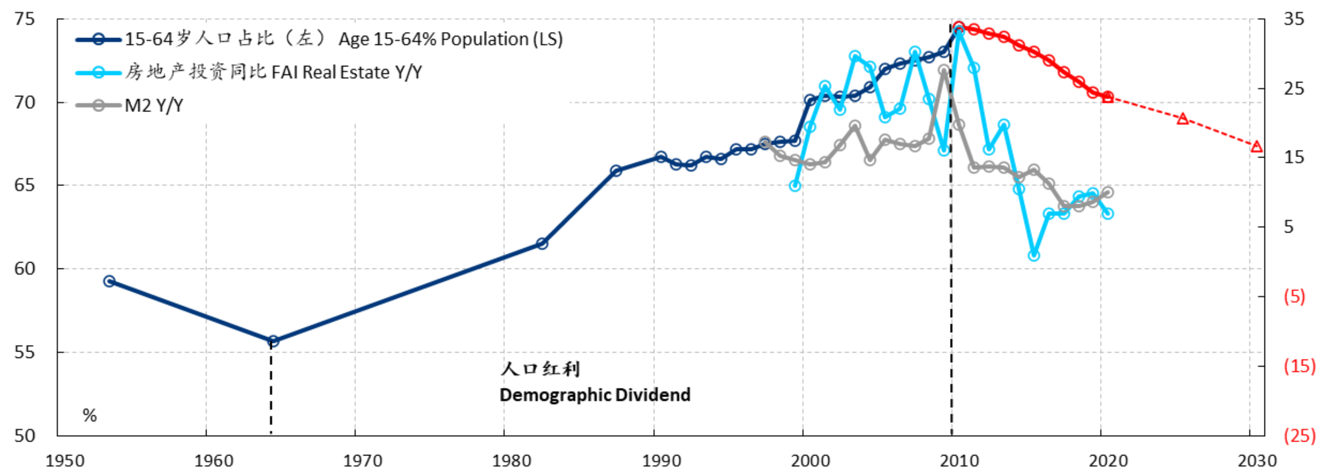


Source: United Nations, Wind, BOCOM Int'l

While many blame China's one-child policy as the cause of the current predicament, the public stats show that China's birth rate indeed started to decline well before the policy became constitutional. The small increase in the birth rate in the 1980s was due to the cohort born in the 1960s maturing to child-bearing age, and thus is not a surprise. Indeed, the demographic data are so public, and the changes are so glacial yet definite that it is not too difficult to make predictions by making sensible assumptions based on existing observations.

Demographics have profound macro implications. As the proportion of China's working age population peaked around 2010, we observe that property investment growth and broad money supply growth also peaked (**Figure 15**). And as this proportion passed its inflection point in 2010 and continued to decline, so did investment and money growth. In the previous section, we have discussed how China arrived at its Lewis Turning Point in 2010, and its repercussions for surplus rural labor and China's growth model. In **Figure 15**, the implications from demographic shifts become more evident.

Figure 15: China's 15-64 year-olds as % of population vs. property investment and M2 growth; 2010 seems to be an inflection point

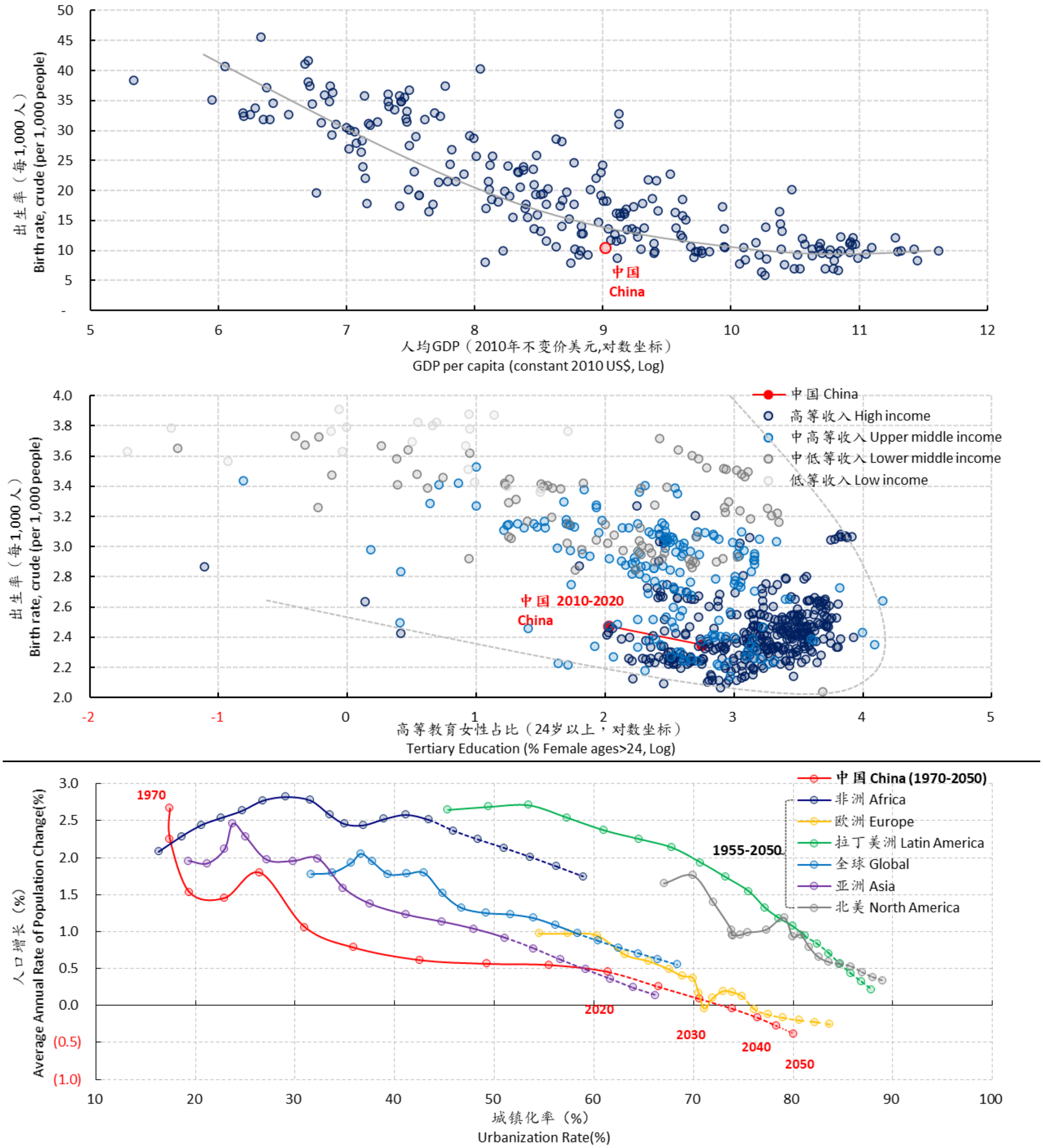


Source: United Nations, Wind, BOCOM Int'l

As China's income and female educational level continue to rise, birth rate is unlikely to recover, and is likely to be stuck at low levels for a prolonged period (**Figure 16**). Given that the one-child policy didn't really initiate the trend of falling birth rate, although it may have magnified it, the reversal in child-birth policy to give the freedom of child-bearing is unlikely to change the trend, either. It may help to slow, but not arrest the declining trend.

Studies in the US show that giving policy support to child-bearing in order to increase the birth rate has seen discouraging results – childbirth rate continues to slide, and it doesn't appear to be income related, as birth rate slides across all income groups, races and ethnicity and educational levels. Scholars have not been able to identify a definitive factor for such a fall in birth rate, be it economic, social or policy. In the end, scholars conjecture that the "shifting priorities" of the more recent cohorts at child-bearing age reflect changes in preferences for having children, aspirations for life and parenting norms (*Kearney, Levine & Pardue*). Our own analysis of China's demographics suggests similar social influences at play that are contributing to the falling birth rate.

Figure 16: Birth rate inversely correlated with econ. development, female education & urbanization

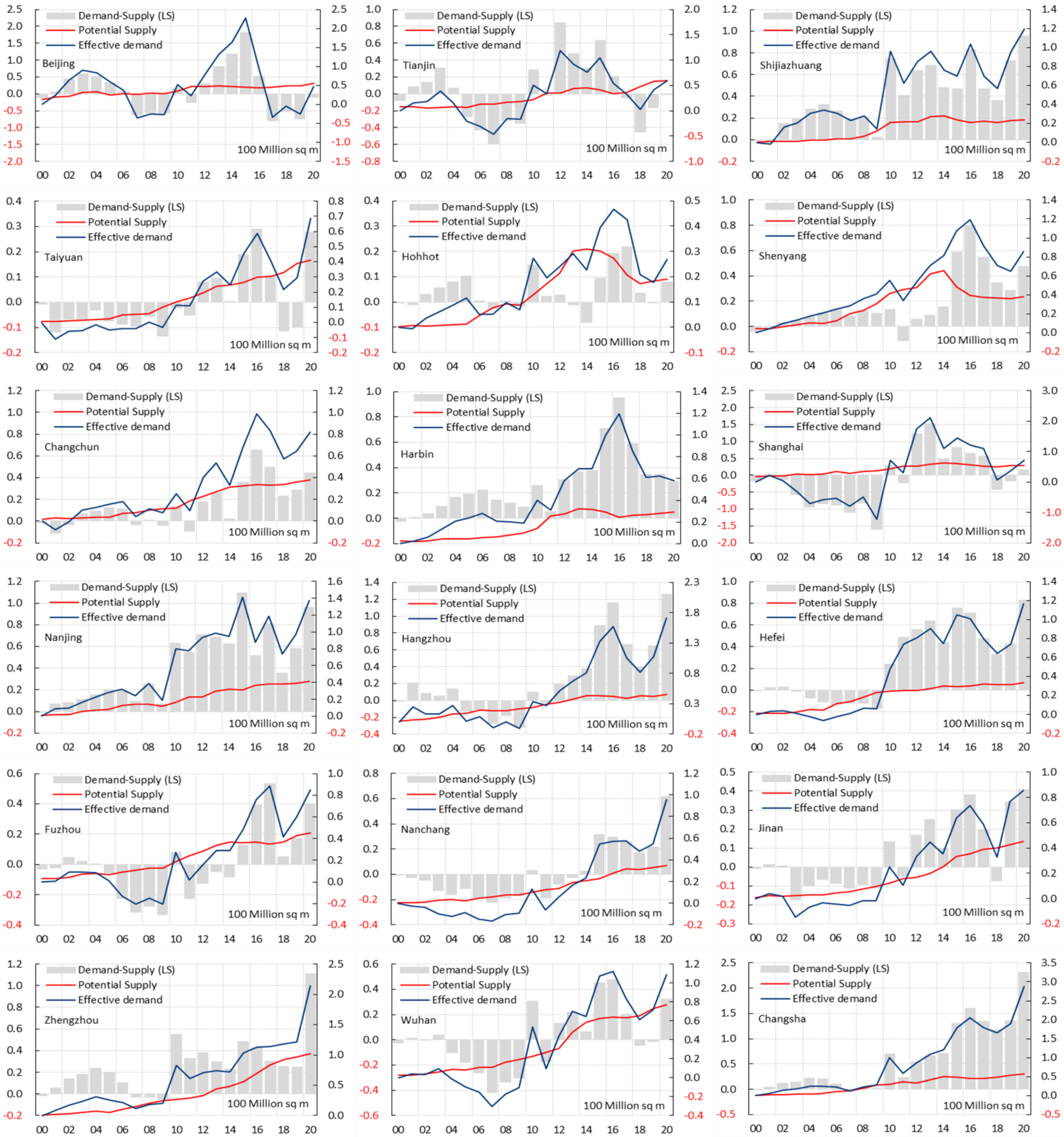


Source: United Nations, NBS, World Bank, Wind, BOCOM Int'l

In sum, China's demographic challenge is not that it will face a decline in the absolute size of its population at some point in the future. It is already written in its existing demographics that may not have enough time to rejuvenate. Other countries are confronted with a similar fate. There is no denial that the Chinese people are enjoying a substantial improvement in their quality of life. If we stop treating demographics as numbers and see them as people, such demographic destiny is the consequence of economic development, income growth, urbanization and educational progress, and the consequent sociological and cultural shift. It is not necessarily a bad outcome. It is the fruit of social advancement.

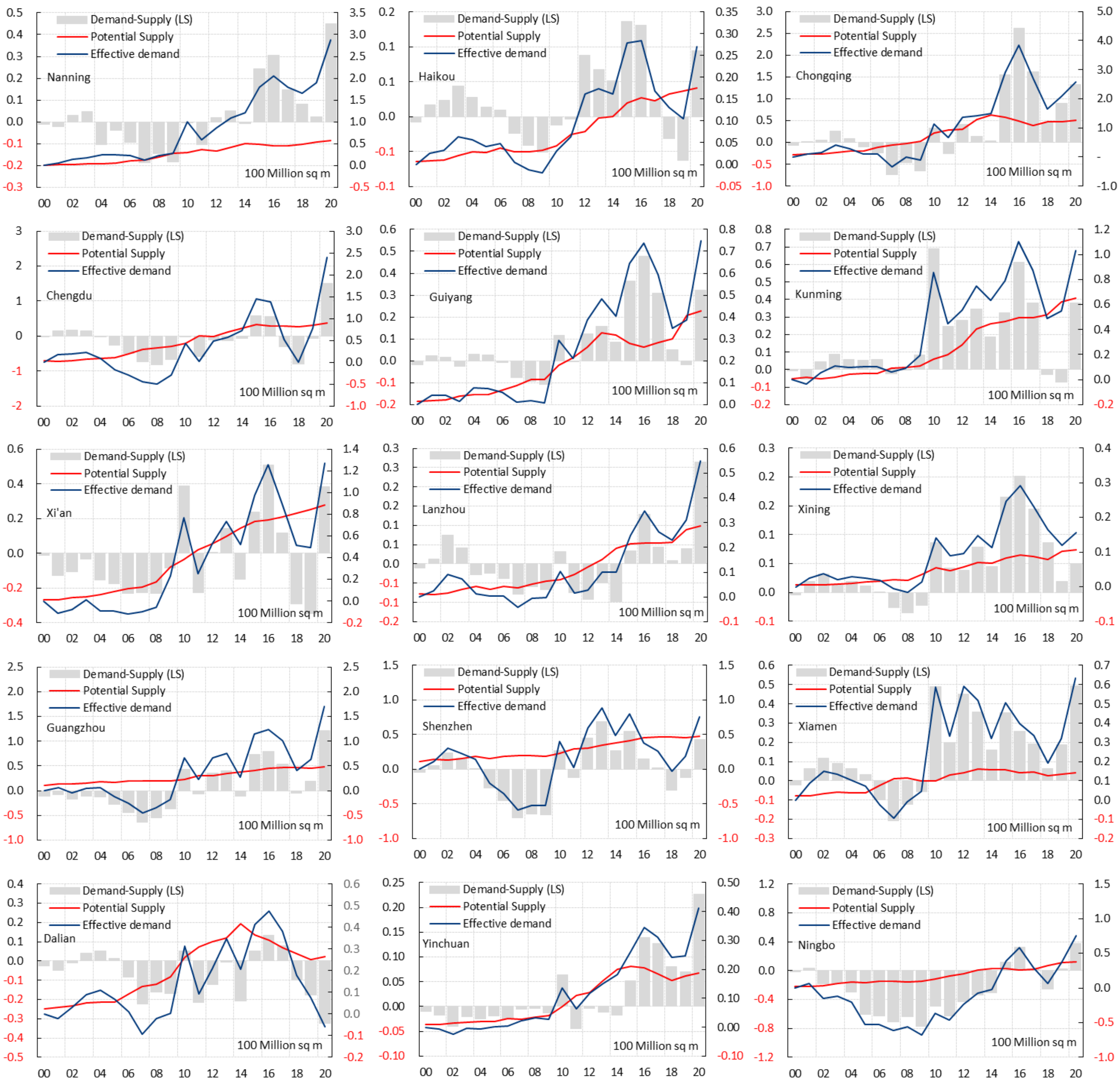
The real challenge China is confronting is that: given such demographic outlook, what is the best development model it must adopt to face the future? Clearly, the old model of relying on rapid urbanization and property investment to drive growth is passé. And properties are already expensive in many big cities, while demand from urbanization, income growth and living quality improvement is set to slow. The most torrid pace of property price surge may be behind us, yet asset allocation toward property in China is too high, and the property inventory valuation is too expensive. At this stage, rebalancing between rural and urban will be necessary to reach the goal of "common prosperity". This paper has made some observations and suggestions that will be tested in time. We don't have a definitive answer. Nevertheless, we must "cross the river by feeling the stones".

Appendix 1: Re-calibrated effective demand for housing by city



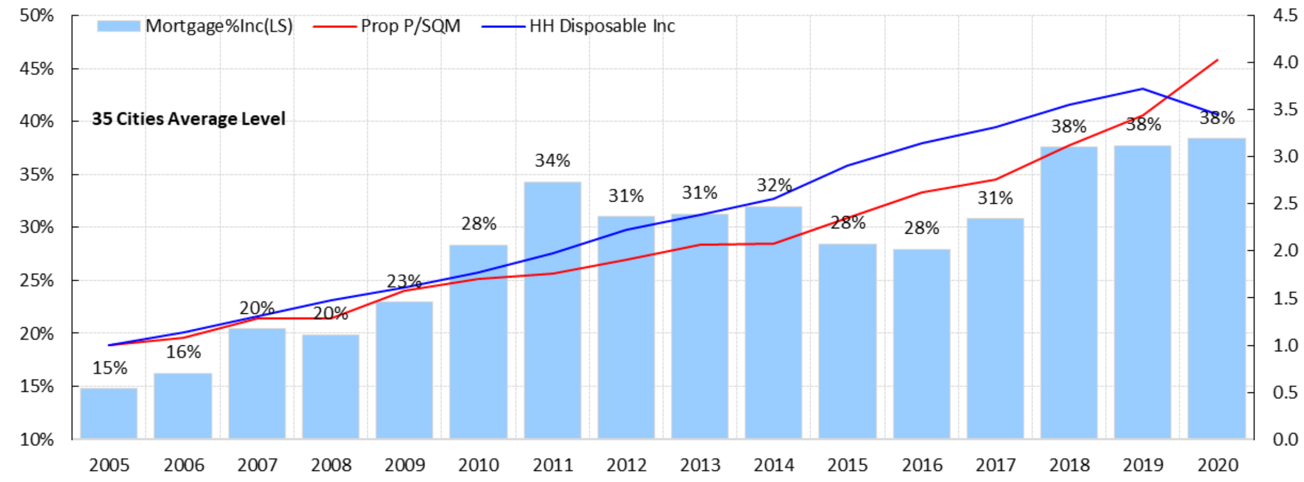
Source: United Nations, CEIC, Wind, BOCOM Int'l

Appendix 1: (cont'd) Re-calibrated effective demand for housing by city



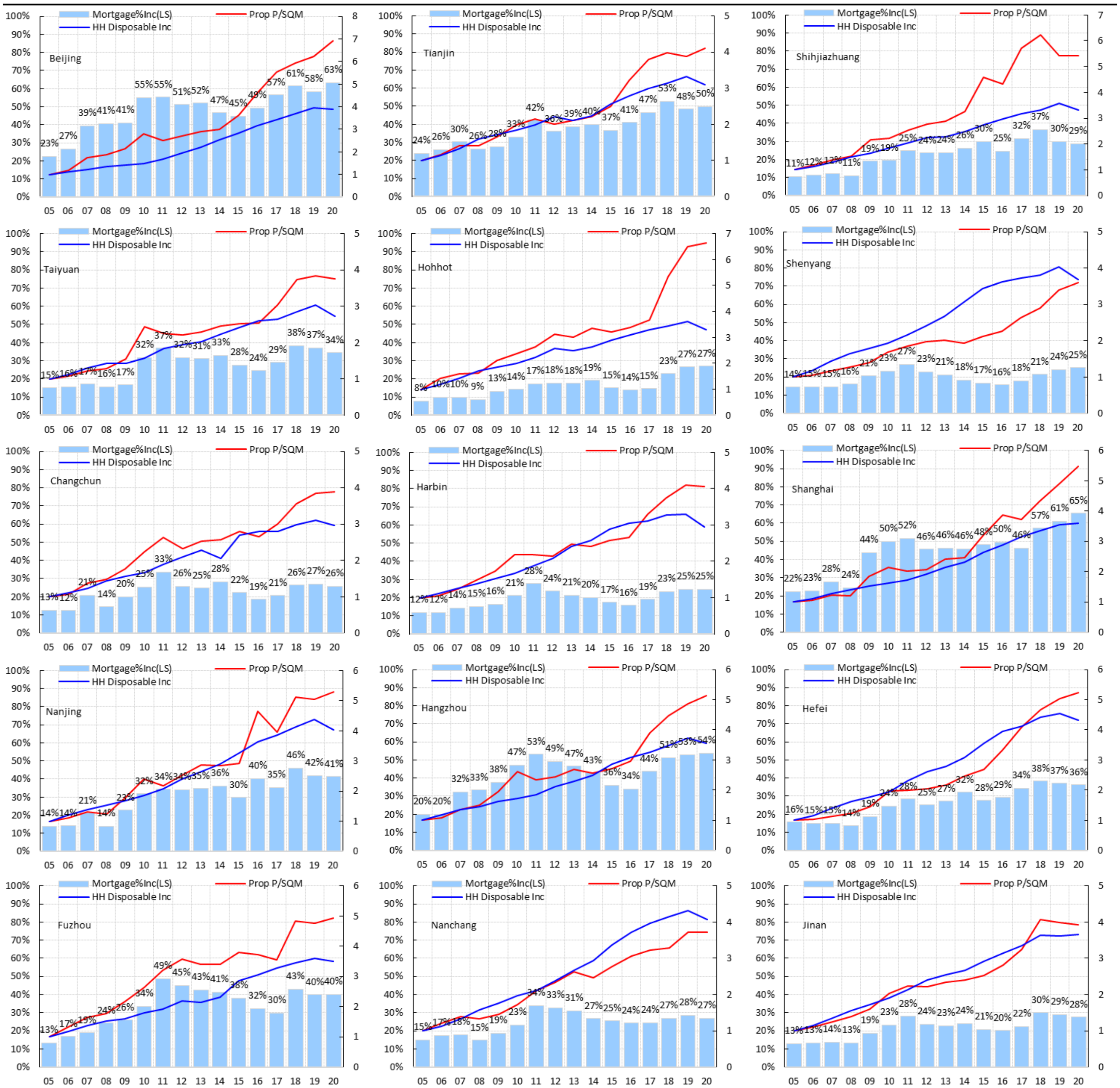
Source: United Nations, CEIC, Wind, BOCOM Int'l

Appendix 2: 35 cities' estimated average mortgage payment as % of disposable income



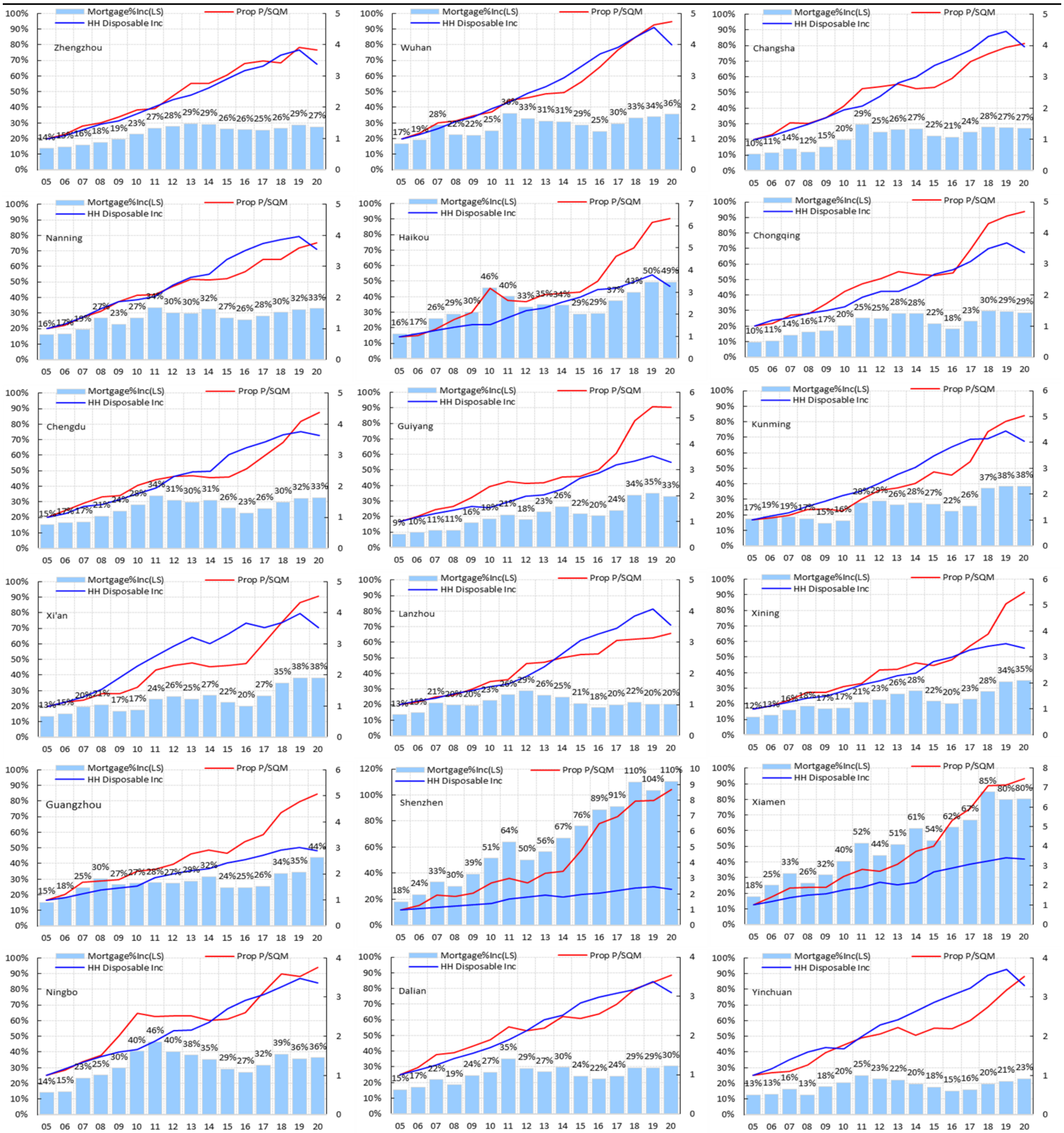
Source ： CEIC, Wind, BOCOM Int'l

Appendix 3: Estimated mortgage payment as % of disposable income by city



Source: CEIC, Wind, BOCOM Int'l

Appendix 3: (cont'd) Estimated mortgage payment as % of disposable income by city



Source: CEIC, Wind, BOCOM Int'l

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