

Going Back to the Basic of Consumption in Demographic Changes: with Special Reference to the Rural-Urban Gap in China

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Abstract: Population aging is the dominant demographic trend of the 21st century—a reflection of increasing longevity and declining fertility. The purpose of this paper is to provide a basic economic interpretation of how demographic changes affect consumption. Special reference is given to consumption in China under its characteristic background of the rapid population aging, the large rural-urban gap, and the real estate bubble in the past two decades. Arguments are based on some classical consumption theories and results of quantitative studies.

Key Words: consumption, demographic changes, the rural-urban gap in China, the real estate bubble

1. Introduction

China has been entering an aging society. With the increase in life expectancy at birth from 74.83 in 2010 to 77.93 in 2020, the percentage of people aged 65 and over (65 is often thought of as the threshold of the elderly) expanded from 8.9% in 2010 to 13.5% in 2020 and will exceed 20% in 2032. On the other hand, the birth rate reduced sharply from 14.0‰ in 2000 to 11.9‰ in 2010 and 6.8‰ in 2022. Because of China's specific "One Couple, One Child" policy which was started in 1979 and ended in 2015, the population aging is coming very rapidly.¹⁾

Needless to say, demographic changes have a significant impact on labor markets, product markets, pension and health care systems as well as the economic growth, and social and political implications. There is no doubt that consumers' age profiles can make a difference in consuming behavior and thus affect the quantity, quality, and structure of consumption.

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At the macro level, consumption (C), investment (I), government purchases (G), and Net export (NX) are the four spending components of GDP (Y). In China, I, G, and NX have been the main drivers for boosting GDP, while C has been recording a prolonged downturn. With the diminishing returns on the real estate and infrastructural investments, heavy debts of local governments, and the decoupling with the United States and its allies, it is urgent to promote C to maintain the growth rate of GDP. The development of the health care and pension industry is supposed to be an opportunity to increase C with the population aging.

At the micro (individuals/households) level, the main determinants of consumption include disposable incomes (wage, familial and public transfers, property income), assets, expected incomes and wealth, consuming behavior and preference, prices of goods and services, interest rates, inflation rates and so on. Older individuals, whether by taste or need, do not consume the same things as when they were young; the prices of products and services for the elderly tend to be more expensive with the population aging and the demand expanding.

There are many theoretical and empirical studies on consumption in demographic changes, having provided quite a few valuable suggestions for policymakers. However, some studies are too confusing to be understood and results of empirical studies are often contradictory.²⁾

This paper gives basic and explicit economic interpretations of how demographic changes affect consumption, at both macro and micro levels. Special reference is given to consumption in China under its characteristic background of the rapid population aging, the large rural-urban gap, and the housing bubble in the past two decades.

2. Demographic changes in China

At the end of 2022, China's population was 1,412 million, a decrease of 0.85 million compared with the end of 2021, the natural growth rate was -0.60%, which was the first population decline since the Great Disaster of 1959-61. The number of newborns exceeded 20 million a year between 1962 and 1997 and has been gradually reduced to 15 million under the "One Couple, One Child" policy. After rebounding to 17 million in 2016 and 2017 with the policy change of having a second child, it sharply dropped to 12.01 million in 2020, 10.62 million in 2021, and 9.56 million in 2022 (Figure 1). The sudden decline may be due to the economic slowdown caused by the COVID-19 epidemic, cold wars and hot wars, supply-chain breakages, and uncertainties in the domestic and global markets.

According to the statistical data, both mortality rates and fertility rates have been diminishing in most countries, so population aging is inevitable with economic growth. The demographic changes are endogenous, caused by medical progress, technological innovations, relief of housework, women's empowerment and economic independence, the decline in marriage, the establishment of the social security system, and so on.

China has a rigid dual structure of urban versus rural areas, which is reflected in the unique *Hukou* (household registration) system. There are large rural-urban gaps in terms of income, wealth, medical care, and pension system. The share of rural *Hukou* population reduced from 80.6% in 1980 to 34.8% in 2022. The total labor force has been stable in the recent two decades but will drop after 20~30 years with

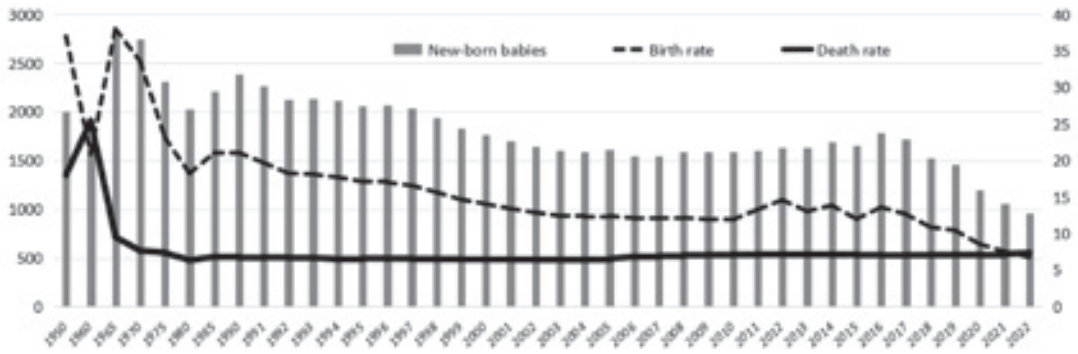


Figure 1 Birth rate, Death rate, and New-born babies
(10 thousand people, %)

Table 1 Population and labor force, Urban *Hukou* and Rural *Hukou*
(million people)

	1980	1990	2000	2005	2010	2015	2016	2017	2018	2019	2020	2021	2022
Total population ①	987	1,143	1,267	1,308	1,341	1,383	1,392	1,400	1,405	1,410	1,412	1,413	1,412
Rural <i>Hukou</i> population ②	796	841	808	746	671	604	590	577	564	552	538	498	491
② / ①	80.6%	73.6%	63.8%	57.0%	50.1%	43.6%	42.4%	41.2%	40.1%	39.1%	38.1%	35.3%	34.8%
Total labor force			712	779	784	801	793	790	787	790	787	780	777
Total rural <i>Hukou</i> labor force ③ = ④ + ⑤					521	492	491	490	483	478	463	466	466
Farmers ④			356	340	279	215	209	203	195	187	177	173	170
Migrant workers ⑤ = ⑥ + ⑦					242	277	282	287	288	291	286	293	296
local ⑥					89	108	112	115	116	117	116	121	124
nonlocal ⑦					153	169	170	172	172	174	170	172	172

the retirement of people born in the baby boom eras of 1960s-1990s³⁾.

Rural migrant workers, who engage in the secondary and tertiary industries in rural *Hukou*, are the main force of rural laborers. About 60% of them leave home and live in cities. The average wage of rural migrant workers is only half that of urban *Hukou* employees⁴⁾.

Figure 2 shows the population structure of ages 0-14, age 15-64, and age 65+. The elderly dependency ratio (number of 65+ people/number of 15-64 people) has been increasing to more than 20% and will increase rapidly in the next 30 years. On the other hand, the children dependency ratio (number of 0-14 people/number of 15-64 people) has an accelerated decline trend from 2020. The gross dependency ratio has reduced from over 60% and maintains at a little less than 50% in recent years.

Furthermore, there are large urban-rural disparities among provinces (Table 2). Generally, the elderly dependency ratios and gross dependency ratios are higher in rural areas; Mega-cities (Beijing and Shanghai) and three northeast provinces (Liaoning, Jilin, and Heilongjiang) are suffering from fewer Children.

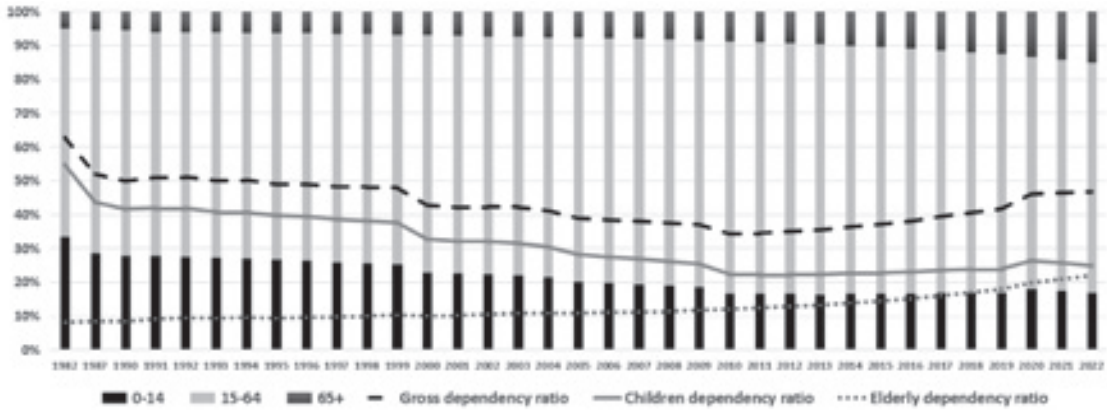


Figure 2 Population structure, Children and elderly dependency ratio

Table 2 Comparison of urban-rural dependency ratios (2020)

	Urban			Rural		
	Gross	Children	Elderly	Gross	Children	Elderly
Beijing	33.8%	16.2%	17.6%	35.1%	14.1%	21.0%
Shanghai	36.1%	14.0%	22.1%	32.8%	7.5%	25.4%
Jiangsu	37.4%	20.4%	17.0%	62.6%	22.7%	39.9%
zhejiang	30.9%	18.1%	12.8%	49.0%	17.9%	31.1%
Guangdong	29.1%	20.8%	8.3%	57.0%	36.6%	20.4%
Anhui	38.5%	23.4%	15.1%	67.1%	33.7%	33.5%
Henan	42.4%	27.9%	14.5%	74.8%	44.5%	30.4%
Hubei	35.9%	20.2%	15.7%	55.6%	26.0%	29.7%
Henan	39.1%	24.3%	14.9%	64.7%	33.7%	31.1%
Liaoning	37.0%	15.7%	21.2%	47.1%	14.7%	32.4%
Jilin	35.4%	16.0%	19.4%	41.2%	15.4%	25.8%
Heilongjiang	33.1%	13.5%	19.6%	37.2%	13.6%	23.6%

3. The effect of demographic changes on consumption at the macro level

3.1 Consumption, investment in real estate, and household mortgage loans

Figure 3 shows the four components of GDP. Consumption (C), which includes rural consumption (Crural) and urban consumption (Curban), shares no more than 40% since 2005, the lowest in the world. Correspondingly, Investment (I) shares around 40%, the highest in the world. In the case of the US, C shares over 70% while I shares around 10%.

China has experienced a big boom in the real estate market, especially in the first-tier cities of Beijing, Shanghai, Guangzhou, and Shenzhen which recorded over 10 times the increase in housing price. The amount of investment in real estate shared about 20% of GDP with the fundraising from domestic bank loans, foreign loans, bonds and stocks, and mortgage loans. Capital input from household mortgage loans has been increasing, reaching around 15% in these years. Meanwhile, the balance of household mortgage loans jumped to 38.8 trillion yuan at the end of 2022, which will restrain C in the coming decades. However, considering the large sum of time deposit balance of households, there will be no serious crisis of house-

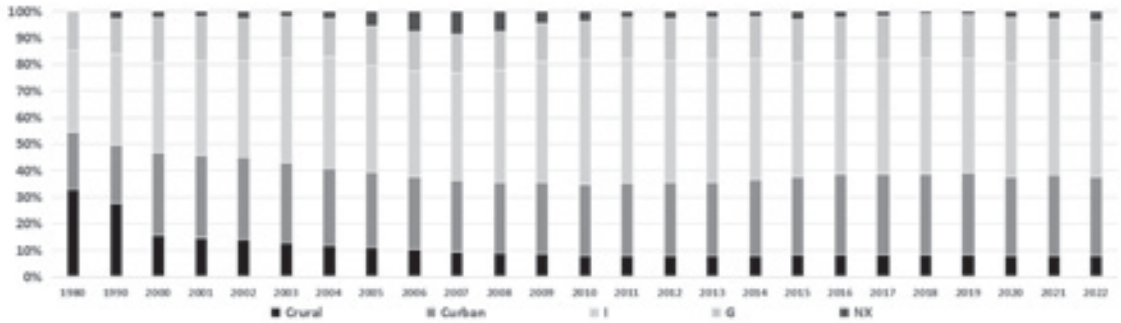


Figure 3 Components of GDP, $Y = C (C_{rural} + C_{urban}) + I + G + NX$

Table 3 Investment in the real estate and household mortgage loans
(nominal, trillion yuan)

	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
GDP ①	10.0	18.8	22.0	27.0	31.8	34.8	40.9	48.4	53.9	59.6	64.7	69.2	74.6	82.9	91.6	99.1	102.6	114.5	120.5
investment in the real estate ②	0.6	2.1	2.7	3.7	4.0	5.8	7.3	8.6	9.7	12.2	12.2	12.5	14.4	15.6	16.6	17.9	19.3	20.1	14.9
capital input from household mortgage loans ③		0.1	0.3	0.5	0.4	0.9	1.0	0.9	1.1	1.4	1.4	1.7	2.4	2.4	2.4	2.7	3.0	3.2	2.4
②/①	6.0%	11.4%	12.4%	13.9%	12.5%	16.6%	17.9%	17.7%	17.9%	20.5%	18.9%	18.1%	19.3%	18.8%	18.2%	18.0%	18.8%	17.6%	12.4%
③/②		6.3%	9.5%	13.6%	9.8%	14.8%	13.1%	10.1%	10.9%	11.5%	11.2%	13.3%	16.9%	15.3%	14.2%	15.3%	15.5%	16.1%	16.0%
time deposit balance of households ④	4.6	9.2	10.3	6.7	14.4	16.5	18.4	21.0	24.8	28.3	32.0	34.3	36.6	39.6	44.9	51.8	59.9	68.2	82.0
the growth rate of deposit			11.6%	-34.5%	113.0%	14.7%	11.7%	14.4%	17.8%	14.3%	12.9%	7.3%	6.7%	8.0%	13.5%	15.5%	15.6%	13.8%	20.1%
mortgage loan balance of households ⑤		1.8	2.3	3.0	3.0	4.8	6.2	7.1	7.5	9.0	10.6	13.1	18.0	21.9	25.8	30.1	34.4	38.3	38.8
the growth rate of mortgage loans			23.4%	32.2%	-0.7%	59.7%	30.3%	15.2%	5.0%	20.0%	17.8%	23.6%	37.4%	21.7%	17.6%	16.8%	14.5%	11.3%	1.3%
⑤/④		19.9%	22.0%	44.5%	20.7%	28.9%	33.7%	33.9%	30.3%	31.8%	33.1%	38.2%	49.2%	55.4%	57.4%	58.0%	57.5%	56.2%	47.3%

hold debts (Table 3).

The amount of investment in real estate sharply reduced to 12.4% of GDP in 2022 with the sharp fall in housing prices across the county. Many real estate companies are caught in a huge debt crisis. Real estate is no longer a driver for boosting GDP. As income declines, unemployment increases, and wealth shrinks, it becomes very difficult to expand C. If the real estate crisis cannot be carried out a soft-landing, China's economy will fall into a long-term recession and sluggish C.

3.2 Demographic changes, productivity, and APC (average propensity to consume)

As shown in the simple equations of (1) and (2), C is determined by APC, Y/L (labor productivity), and L (number of labor force) at the macro level.

$$C = \frac{C}{Y} * Y = APC * Y \quad (1) \quad Y = \frac{Y}{L} * L \quad (2)$$

Letting gr represent the growth rate, the equations (1) and (2) can also be expressed as:

$$gr(C) = gr(APC) + gr(Y/L) + gr(L) \quad (3)$$

With regard to L, L has been stable since 2000 (Table 2), but China will face a shortage of laborers 20~30 years later because of the sharp decrease in newborns and increase in retired people and thus will strangle C.

Table 3 shows the labor productivity in the constant price of primary industry (Y_1/L_1), secondary indus-

Table 4 Labor productivity (constant price, 1980=100)

yuan/per worker

	1980	1990	2000	2005	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Y/L	1083	1475	3510	5922	11061	12411	13341	14307	15213	16065	17083	18790	20407	21376	21589	24202	25550
Y1/L1	467	652	1030	1539	2810	3279	3631	4095	4488	4801	5019	5256	5581	6177	7001	7421	7734
Y2/L2	2861	2828	7103	11700	17920	19522	19896	20838	21705	22114	23123	26171	28739	29308	28450	32847	35483
Y3/L3	1850	2582	5078	7796	14122	15408	16823	17454	18133	19298	20640	22145	23598	24612	24678	26846	28607

Table 5 Innovations and increase in human capital

	2000	2005	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
R & D expenditure (billion yuan)	90	245	706	869	1030	1185	1302	1417	1568	1761	1968	2214	2439	2796	3078
share in GDP (%)	1.00%	1.34%	1.76%	1.78%	1.91%	1.99%	2.02%	2.07%	2.10%	2.12%	2.14%	2.24%	2.40%	2.40%	2.60%
Patent licensing (thousand)		214	815	961	1255	1313	1303	1718	1754	1836	2447	2592	3639	4602	4323
increase rate (%)				17.91%	30.59%	4.62%	-0.76%	31.85%	2.10%	4.68%	33.28%	5.93%	40.39%	26.46%	-6.06%
Undergraduate students (thousand)	950	3068	5754	6082	6247	6387	6594	6809	7042	7358	7533	7585	7627	8265	9673
increase rate (%)				5.70%	2.71%	2.24%	3.24%	3.26%	3.42%	4.49%	2.38%	0.69%	0.55%	8.37%	17.04%
Graduate students (thousand)	59	190	384	430	486	514	536	552	564	578	604	640	729	773	862
increase rate (%)				11.98%	13.02%	5.76%	4.28%	2.99%	2.17%	2.48%	4.50%	5.96%	13.91%	6.04%	11.51%
go abroad to study (thousand) ①	390	119	285	340	400	414	460	524	545	608	662	704			
return from abroad (thousand) ②	9	35	135	186	273	354	365	409	433	481	519	580			
②/①	2.3%	29.4%	47.4%	54.7%	68.3%	85.5%	79.3%	78.1%	79.4%	79.1%	78.4%	82.4%			

try (Y2/L2), tertiary industry (Y3/L3), and the whole (Y/L, $Y=Y1+Y2+Y3$; $L=L1+L2+L3$)⁵). It is a miracle that productivity has increased by more than 20 times since 1980, having been pushed by tremendous technological advances.

China has become a major innovative country in terms of R&D fiscal expenditure, patent licensing, number of graduates from colleges, universities, and graduate schools as well as those who study abroad and return (Table 5). There is no doubt that China can compete with the United States in the field of cutting-edge technologies such as semiconductors, aerospace, AI and quantum computers, and so on. Therefore, it is expected that the improvement of labor productivity can make up for the shortage of labor force in the future aging society.

If we take the economy as a whole and neglect public and inter-generational transfers, the elderly and children have no income but have to consume, so a higher dependency ratio results in higher APC (C/Y). In China's case, the market for health and pension goods and services is supposed to expand with the increase in retirees, which has a positive effect on APC. However, the number of newborns has decreased sharply in the past three years, which has a negative effect on APC and C.

It is worth noting that the negative effect of fewer children on consumption is far greater than the positive effect of aging on consumption, for the reason that Chinese people spare no effort and money to invest in their children and grandchildren, while the elderly are always economical. In some poor rural areas, old people seldom go to the hospital to see a doctor even if they are seriously ill.

4. The effect of demographic changes on consumption at the micro level

4.1 Review of the Classical Consumption Theories

Concerning the classical consumption theories, John Maynard Keynes’s Absolute Income Hypothesis, James Stemble Duesenberry’s Relative Income Hypothesis, and Milton Friedman’s Permanent Income Hypothesis have all pointed out that income is the decisive factor of consumption, and stable income has a greater impact. Here, income includes the labor income from wages and salaries, self-employment net profits, transfers from governments, and donations, as well as the property income from real estate and financial assets.

There is the famous Franco Modigliani’s Life Cycle Hypothesis which is related to inter-generational consumption and demographic changes. It indicates that rational consumers are supposed to arrange their consumption in a lifetime—their lifetime consumption expenditure is equal to the total labor income and property income. To stabilize consumption in all periods of their life, they save during working ages and prepare funds for consumption after retirement.

The pension system has been established in all modern societies, which can be regarded as a kind of compulsory savings. In addition to pensions, people also save more for unexpected expenses such as serious illness and nursing care caused by greater longevity. Chinese, like other Asians, always like saving to reduce uncertainties and gain security, in case money has been used up but they are still alive. However, pension is still the main source of income after retirement in China. In contrast, 70% of Americans’ spending after retirement comes from property income because Americans are good at managing money and making full use of the financial system.

4.2 Quantitative analyses

There is still a large income gap between the urban *Hukou* people and the rural *Hukou* people. The per capita rural disposable income is only 40.9% of that of urban people in 2022, although the gap has been narrowing gradually and slightly since 2007 (Figure 4). Because a large number of rural young people have moved to cities with rapid economic growth, the proportion of the elderly in rural areas has been increasing, thus resulting in a bottleneck of rural income growth.

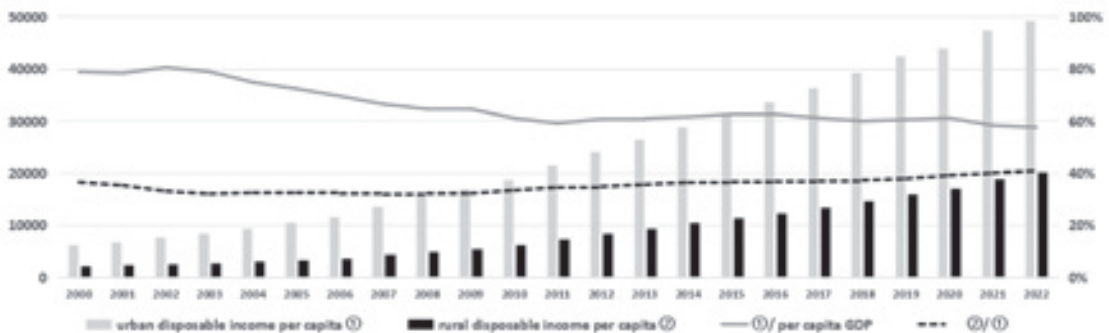


Figure 4 Rural and urban disposable income per capita (nominal, yuan, %)

The ratio of per capita urban disposable income to per capita GDP has reduced from 80% in 2000 to less than 60% in 2022. It seems that the government has got a bigger share of the national income to play more leading roles in the economy, especially in terms of selling lands to invest in infrastructure and reconstruction that caused the upsurge of housing prices⁶⁾.

Statistically, per capita disposable income consists of four parts: wages and salaries, business (self-employment net profits), property (rents, interests, dividends, profits from buying and selling financial assets and real estate), and transfers (mainly pension, unemployment insurance, and so on). The income structure is quite different between rural residents and urban residents (Figure 5 and Figure 6).

Firstly, income from wages and salaries is the main source for urban residents, while the main income of rural residents is from self-employment, but this structural gap has been narrowed in the last two decades. Secondly, property income accounts for an increasing share of urban residents. It stabilized at 10% of their income in recent years, which means that a considerable number of urban residents benefited from the real estate transactions accompanied by the housing bubble. On the other hand, rural residents generally have little accumulation of assets and get just a small extra income from interest on deposits. Thirdly, the share of urban pensions remains around 19%, although the number of retirees has been increasing. It can be explained that working-age laborers' income increases faster than the pension income. Compared with the urban pension, the share of rural pension in the rural disposable income has been increasing after the rural elderly insurance system was introduced in 2009⁷⁾. In total, although the rural-urban income gap is

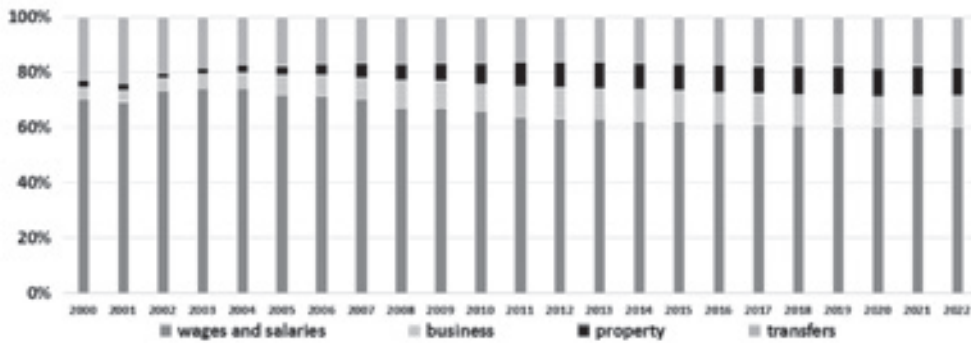


Figure 5 Composition of per capita urban disposable income

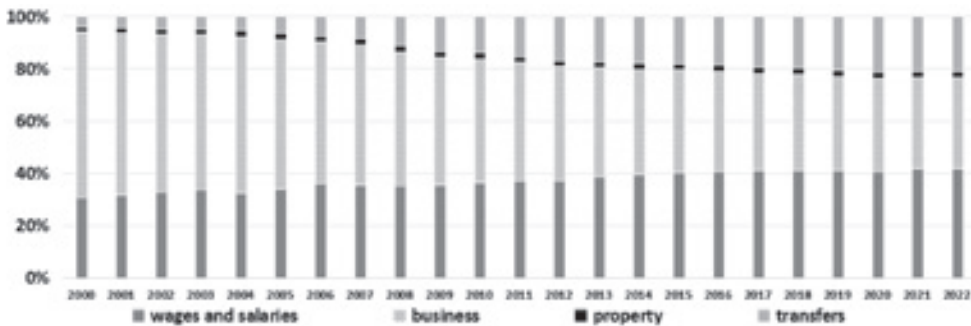


Figure 6 Composition of per capita rural disposable income

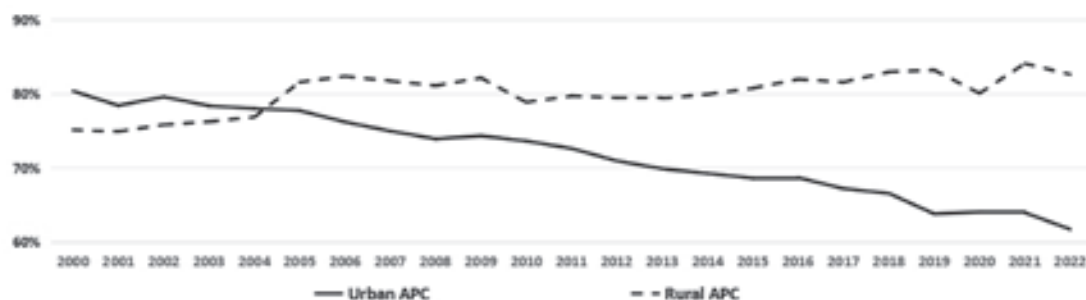


Figure 7 Urban APC and Rural APC

still large, the government has been committed to increasing pension transfers to rural residents.

APC (c/y) is the ratio of per capita consumption expenditure to per capita disposable income. The urban APC has been declining with the housing bubble, and the rising balance of mortgage loans has seriously curbed the consumption of urban residents. On the other hand, rural APC has been maintained at around 80%, because the consumption of rural residents is not affected by paying mortgage loans.

Table 6 Shares of major categories of consumption expenditure

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Engle Coefficient	rural	48.4%	46.6%	44.9%	43.9%	45.4%	43.3%	40.7%	40.5%	40.9%	38.0%	37.9%	37.1%	35.9%	34.1%	33.6%	33.0%	32.2%	31.2%	30.1%	29.2%	27.6%	28.6%	29.5%
	urban	38.6%	37.0%	36.4%	35.5%	35.8%	34.5%	33.3%	33.6%	34.5%	32.9%	31.9%	32.3%	32.0%	30.1%	30.0%	29.7%	29.3%	28.6%	27.7%	29.2%	27.6%	28.6%	29.5%
health care and medical services	rural	5.2%	5.5%	5.6%	5.9%	5.9%	6.4%	6.6%	6.4%	6.6%	7.0%	7.2%	8.1%	8.4%	8.9%	9.0%	9.2%	9.2%	9.7%	10.2%	10.7%	10.3%	9.9%	9.8%
	urban	6.4%	6.5%	7.2%	7.3%	7.4%	7.6%	7.2%	7.1%	7.0%	7.0%	6.5%	6.4%	6.4%	6.1%	6.5%	6.7%	7.1%	7.3%	7.8%	8.0%	8.1%	8.3%	8.2%
education, culture and recreation	rural	11.9%	12.0%	12.7%	13.7%	13.1%	13.6%	12.9%	11.6%	10.7%	10.8%	10.8%	10.0%	10.2%	10.1%	10.3%	10.5%	10.6%	10.7%	10.7%	11.1%	9.5%	10.3%	10.1%
	urban	13.0%	12.5%	14.2%	13.5%	13.5%	12.8%	12.7%	12.1%	10.8%	10.7%	10.6%	10.7%	10.6%	10.8%	10.7%	11.1%	11.4%	11.6%	11.4%	9.6%	11.9%	11.0%	10.0%
transport and communication	rural	5.5%	6.3%	6.9%	8.3%	8.7%	9.5%	10.1%	10.0%	9.7%	9.9%	10.3%	10.2%	10.8%	11.7%	12.1%	12.6%	13.4%	13.8%	13.9%	13.8%	13.4%	13.4%	13.4%
	urban	8.2%	8.3%	9.8%	10.4%	10.9%	11.5%	11.9%	12.2%	11.1%	12.0%	12.7%	12.1%	12.5%	13.2%	13.5%	13.8%	13.6%	13.3%	12.9%	13.1%	13.0%	12.9%	

Table 6 shows major categories of both rural and urban consumption expenditure. Surprisingly, the two consumption expenditure structures are very similar, although the rural-urban income gap is very large. One possible reason is that consumption markets in rural and urban areas are split and reach their respective equilibrium, that is to say, the urban consuming goods and services generally have higher equilibrium prices and thus possess better qualities. In addition, the price elasticity of both demand and supply is supposed to be relatively larger in urban consumption markets (Figure 8).

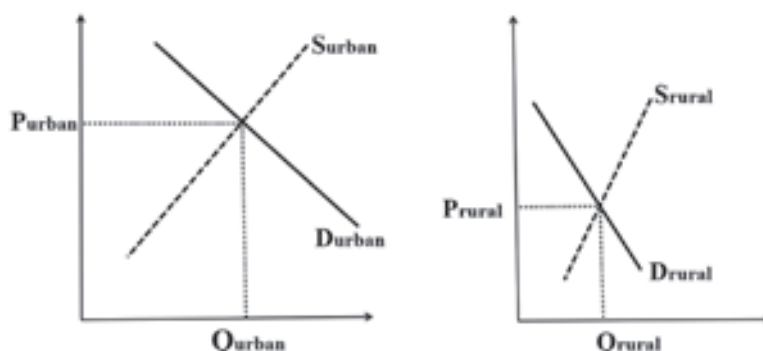


Figure 8 Rural-urban dual consumption markets in China

Source: Drawn by GAO.

Children's education and medical expenses have always been regarded as two burdens on Chinese people. However, there have been no obvious changes in the proportion of expenditure, whether in rural areas or urban areas. Because people pay more attention to a healthy lifestyle in terms of nutrition and exercise and thus have successfully prolonged their health, in other words, the healthy life expectancy has also been increasing along with the longer life span. Moreover, Chinese people can always figure out ways to spend less money to keep healthy or give up ineffective treatments, which has curbed the increase in health care and medical expenditure. On the other hand, the sharp decline in the number of newborn babies has just happened in the past three years, if the number does not rebound, spending on education, culture, and recreation will significantly decrease from now.

5. Conclusions

As mentioned above, consumption (C) is fundamentally determined by income (Y or y) and APC (C/Y, or c/y). Based on quantitative analyses, the following conclusions can be drawn.

First, population aging and fewer children mean a shortage of labor (L) nowadays or in the future, and thus Y is under downward pressure. However, promoting productivity (Y/L) can offset this negative effect, so promoting innovations and technological progress is the best long-term strategy for dealing with demographic changes.

Second, fewer children will cause a significant decrease in APC, so encouraging marriage and childbirth is the most effective means to promote consumption in China.

Third, Rural APC is more than urban APC, so increasing transfer payments such as pensions and living allowances to rural residents can improve consumption.

Fourth, promoting the development of the pension industry to increase APC. Considering the proportion of health care and medicine expenditure in the total is still relatively low, there is a great potential for expansion.

Fifth, the ultra-high housing price has greatly suppressed people's consumption and many elderly people have to reduce their expenses to help their children buy an apartment. Therefore, controlling housing prices is an effective way to increase consumption at present.

Sixth, retirees always rely heavily on property income for their livelihood. Considering that many people lost money in the financial market and the real estate market, Chinese people should learn more about knowledge of asset management to increase their income from years of savings. Moreover, the government has the responsibility to establish types of transparent, fair, efficient, and sound financial markets and real estate markets.

Notes

- 1) Calculations in this paper are based on these original data. Data in this paper are all from the website of the Chinese National Bureau of Statistics: Statistical Year Book of China, various years, <http://www.stats.gov.cn/sj/ndsj/>.
- 2) There are three large income/wealth gaps in China: the urban-rural gap, the gap between the rich and the poor, gap among regions. All the markets, including real estate, labor, and consumer goods are supposed to be split and divided. However,

they are assumed as unified markets for convenience in many studies because of the lack of good and sufficient data.

- 3) In China, the retirement age is 60 for men, 55 for female cadres, and 50 for female blue-collar workers.
- 4) With regard to rural migrant workers and wage inequality in China, please see details in Reference [1] and [2].
- 5) The following table shows the labor productivity at the current price, it reached 164,879 yuan per worker, equivalent to 22,900 \$ (1\$=7.2 yuan).

	1980	1990	2000	2005	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Y/L	1083	2915	13911	25094	54151	64038	70630	77714	84292	90259	97894	109395	121306	130756	135351	153102	164879
Y1/L1	467	1289	4083	6521	13759	16917	19222	22245	24864	26975	28764	30598	33177	37783	43892	46944	49915
Y2/Y2	2861	5589	28154	49579	87733	100730	105330	113193	120260	124244	132509	152367	170835	179274	178367	207788	228991
Y3/L3	1850	5102	20127	33034	69140	79501	89061	94807	100470	108421	118282	128924	140271	150550	154716	169827	184592

- 6) Strictly speaking, the government obtains large income through the transfer of land use rights. The term of use right of housing land is 70 years, and that of industrial and commercial land is 40 years.
- 7) Rural elderly insurance fund consists of individual payments and government subsidies. The standard of individual payment is set at 100 yuan, 200 yuan, 300 yuan, 400 yuan, or 500 yuan per year.

Acknowledgments: The authors gratefully acknowledge the research funds from “The research grants of Senshu University in 2022” and “The Japan Society for the Promotion of Science (BRIDGE Fellowship Program: BR231304)”.

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