AMRO
ASEAN +3 MACROECONOMIC RESEARCH OFFICE

Analytical Note

China Economic Insights

Understanding China's low inflation challenge[1]

January 8, 2025

I. Introduction

1. Inflation in China has been persistently low even after the economy reopened, raising widespread concerns about deflation risks. Headline CPI in China fell into negative territory in the second half of 2023 and has remained comparatively low in 2024. The low inflation in China, alongside a significant downturn in the property market, bears some resemblance to the deflation episode of Japan in the 1990s. This has sparked speculations and discussions on whether China is heading towards or is already experiencing deflation similar to the case of Japan.

2. While deflationary risks may be lingering, whether China is already trapped in deflation is still under debate. Strong recovery in production amid weak domestic demand has resulted in persistent downward pressure on producer prices and low inflation. Meanwhile, escalating trade tensions may also have constrained growth in external demand, limiting China's ability to export its excess goods. Understanding inflation dynamics and drivers in China has important policy implications. If the low inflation in China is driven by cyclical factors in the economy, then policymakers can take measures to stimulate near term growth while balancing the efforts needed to tackle longer-term structural issues in the economy for high-quality and sustainable growth. On the other hand, if China is already in a deflationary trap as in the case of Japan, then authorities should take prompt and forceful policy actions to escape from the deflationary spiral and get the economy back on track.

3. This Analytical Note seeks to provide a deep dive into the issue of low inflation in China. We examine recent inflation dynamics along with the key drivers and draw comparisons with past deflation episodes in Japan. Subsequently, this note also analyzes the impact of the current property market correction and its influence on inflation. We also assess

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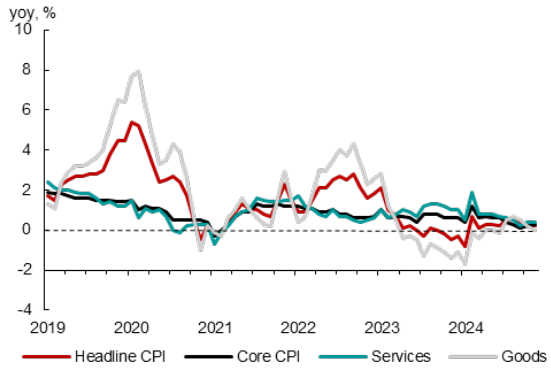
deflation risks in China and discuss the inflation outlook. Our analysis suggests that deflationary risks are rising but not as severe as Japan's case in 1990s. The low inflation in China reflects a disinflation process, primarily driven by a stronger recovery on the supply side than on the demand side, coupled with intense competition in industries such as EVs and other consumer products. The property market downturn remains a significant factor that must be managed carefully to prevent deflationary risks from materializing. In the near term, strong policy responses are crucial for China to keep deflation at bay. Stabilizing the property market is essential to restore consumer confidence. Monetary and especially fiscal policies should provide more support to stimulate domestic demand. Over the medium term, structural reforms should continue to enhance social safety nets, income growth, technological advancement, as well as the quality and efficiency of production.

II. Understanding recent inflation dynamics in China

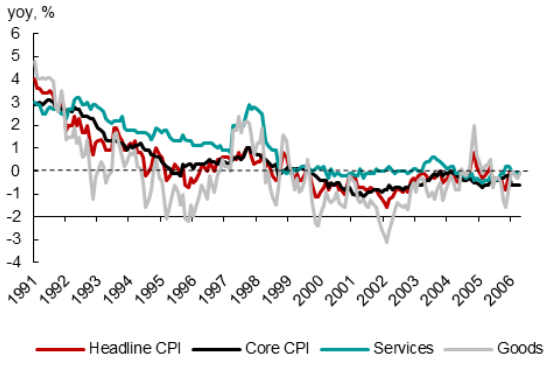
4. China has not exhibited widespread and entrenched deflation symptoms like those seen in Japan. CPI deflation started in the 1990s following the bursting of asset bubbles and became more entrenched in the 2000s. The inflation dynamics in China, however, are notably different from those observed when deflation became rooted in Japan from the early 2000s. Core inflation in China has continued to show positive growth, although the headline CPI turned negative for a few months in 2023. Moreover, service inflation has also remained in the positive range in China despite goods inflation dipping into negative numbers. Overall, deflation in goods prices has not been as severe and persistent as that experienced in Japan (Figure 1 and 2). In addition, there is no clear evidence of a deflationary spiral occurring in China at this stage. If a typical deflationary spiral is characterized as a vicious cycle where declining demand leads to lower prices, reduced investment, decreased output and income, and eventually a decline in aggregate demand, then China does not match this description because both demand and supply are currently on the rise whereas the deflation is concentrated in the manufacturing goods sector.

Figure 1. Inflation in China



Source: CEIC; AMRO staff calculations.

Figure 2. Deflation episodes in Japan

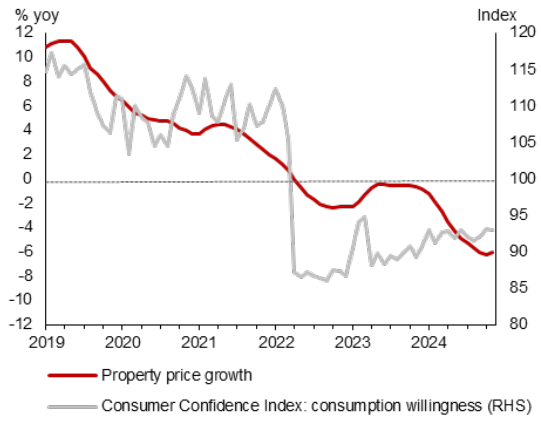


Source: Japan MIC, CEIC; AMRO staff calculations.
Note: Headline and core CPI are consumption tax adjusted series from the Statistics Bureau of the Ministry of Internal Affairs and Communications (MIC).

5. The recent period of low inflation in China is largely attributed to a pronounced imbalance between demand and supply dynamics. Such imbalances between supply and demand date back to the COVID years when support measures focused more on the supply side. Unlike many countries, China avoided upward price pressure from supply shocks and instead was able to maintain the operation of its domestic supply chain and production due to effective COVID-control measures in 2020-22. Consumption, on the other hand, fell behind that of production because of strict lockdown and containment measures across cities. Also, China did not implement extensive cash handouts to households to boost household spending during the COVID years. Following China's reopening in 2023, these demand-supply dynamics persisted, resulting in a decline in prices.

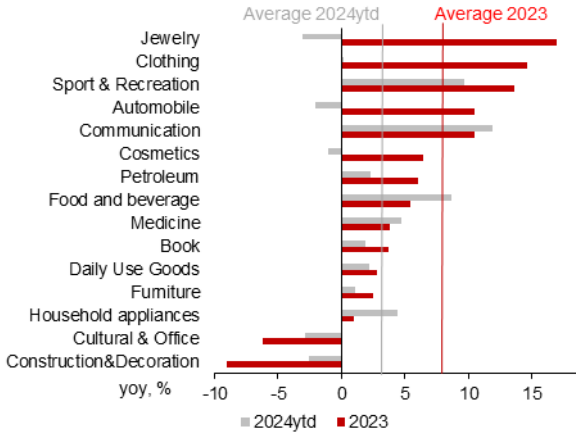
6. Recovery in demand remains significantly weaker, reflecting the ongoing property market distress and sluggish wage growth. Consumer confidence continues to weaken, in part dragged by the continued distress in the property market including the negative wealth effect from declining property prices (Figure 3). Moreover, the labor market improvement has been modest, with youth unemployment remaining higher than pre-COVID levels.[2] Wage growth has been slower than pre-pandemic levels across the board, and certain sectors have experienced wage reductions. As a result, post-reopening revenge spending proved to be short-lived in China, and the recovery in consumption has lagged behind production. The recovery in retail sales has been patchy as well. While some high-value products, such as automobiles and cellphones, have experienced stronger growth, the demand for household appliances, furniture and other durable goods has been weak, likely associated with sluggish home sales amid the ongoing property market distress (Figure 4). In addition, the ongoing property market distress has also dampened private investment at large. Real estate investment fell by 8.1% in 2023 and 10.6% in Jan-Nov in 2024, with developers hesitant to commit to new projects amidst declining property prices and subdued home sales. The decrease in property investment coupled with its knock-on effects continues to weigh on investment demand.

Figure 3. Consumer confidence linked to the property market



Source: China NBS, CEIC; AMRO staff calculations.
Note: Consumer Confidence Index readings above 100 indicate that consumers are optimistic while readings below 100 suggest that consumers are pessimistic. Property price growth is the average of new residential housing in 70 cities.

Figure 4. Retails sales growth

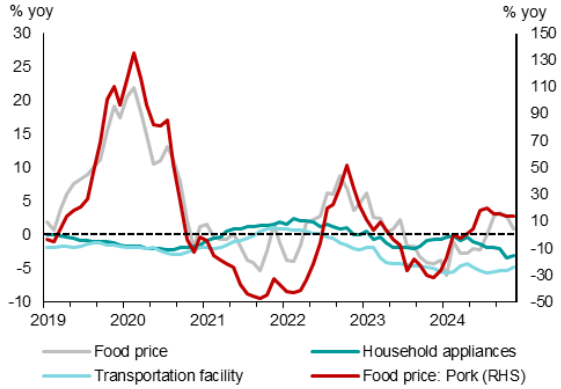


Source: CEIC; AMRO staff calculations.
Note: Data 2024ytd is up to September 2024.

[2] The youth unemployment rate (aged between 16-24) was 16.1 percent as of November 2024, much higher than the average level of 11.4 percent between 2018-2019.

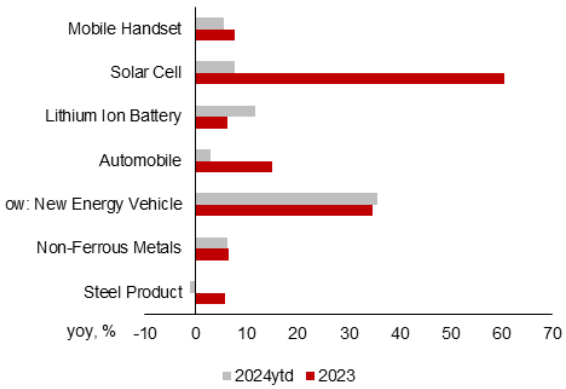
7. On the other hand, the strong recovery in production has led to a surplus of goods and services, creating disinflationary pressure. A closer examination of the CPI components reveals that the recent low inflation rates in China following its reopening are primarily due to falling prices of food and goods. In particular, food prices fell by 0.3 percent in 2023 and by 2.7 percent y-o-y in H1 2024. Pork prices have been a major driver, which experienced a significant decrease amid the hog cycle before rebounding since mid-2024 (Figure 5). In addition, consumer goods contributed to reducing headline CPI by 0.15 percent in 2023 and by 0.22 percent in H1 2024, before showing signs of a mild recovery from July this year. Notably, the prices of transportation facilities and household appliances have declined significantly since 2023. Indeed, the production of a wide range of products has surged over the past year. For instance, the "new three" manufactured products in China—namely solar cells, EVs, and batteries—achieved extraordinary growth in production volume at 61 percent, 35 percent, and 6 percent respectively in 2023 (Figure 6). This rapid production expansion has intensified competition and triggered price reductions in those industries.

Figure 5. Food and selected consumer goods prices



Source: CEIC; AMRO staff calculations.

Figure 6. Industrial production growth: selected products

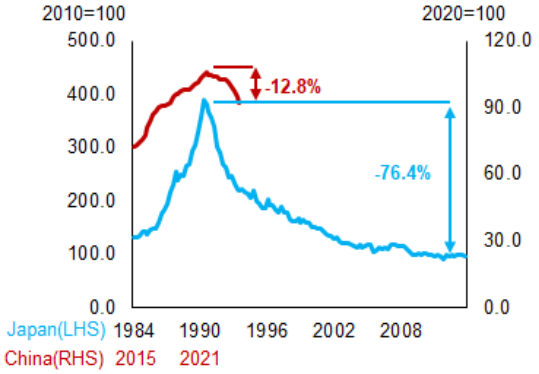


Source: CEIC; AMRO staff calculations.
Note: Data 2024ytd is up to September 2024.

III. The Property Sector Downturn and Its Impact on Inflation

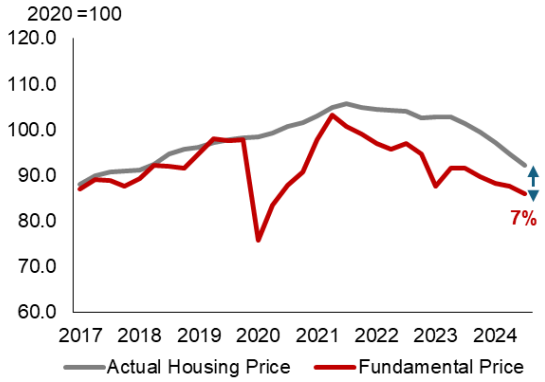
8. While housing market distress is a key driver of disinflation dynamics in China and bears similarities to Japan's experience in the 1990s preceding deflation episodes, the extent of the housing market correction in China is less severe. The decline in real estate prices in China has been smaller than the decline seen in Japan in the past (Figure 7). In China, real estate prices fell by about 13 percent as of September 2024 from the previous peak in August 2021, while in Japan, prices fell by about 76 percent over two decades from their peak in 1990. Additionally, the housing price over-valuations in China are not excessive. Estimates of fundamental housing prices, taking into account household income, housing supply, and financial conditions, suggest that Chinese real estate was overvalued by approximately 7 percent as of the same period (Figure 8). This suggests that the extent of any further price decline in real estate might not be as severe in China, although further declines may continue for some time.

Figure 7. Extent of Decline in Real Estate Prices



Source: CEIC, Haver; AMRO staff calculations
Note: 1) Land price is used for Japan. 2) Latest data for China is as of September 2024.

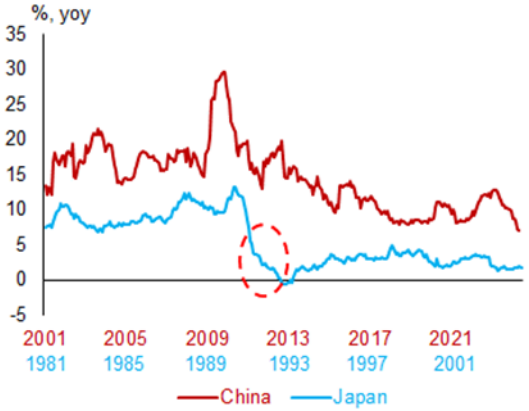
Figure 8. Fundamental and Actual Residential Real Estate Price in China[3]



Source: OCED, CEIC; AMRO staff estimates
Note: 1) Fundamental price is estimated using long run relationship from the Cointegration model. 2) 70 cities' residential prices are used for the actual housing price.

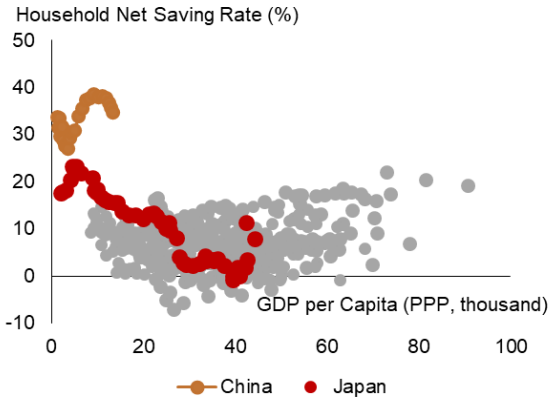
9. Moreover, the housing market correction in China has not resulted in credit tightening, and household balance sheets remain sound. One measure of overall liquidity, M2 growth, exceeds economic growth, reaching 11 percent in 2023 (Figure 9), and it has continued to remain relatively high in 2024. The savings rate of Chinese households is also higher than that observed in Japan during the 1980s. This indicates that housing demand among Chinese households may remain robust due to their ample financial resources[4] (Figure 10).

Figure 9. M2 Growth in China and Japan



Source: CEIC, Bank of Japan; AMRO staff calculations
Note: 1) The red dotted circle represents M2 growth in Japan when the property price started to decline.

Figure 10. Household Saving Rate across Countries (1985-2022)



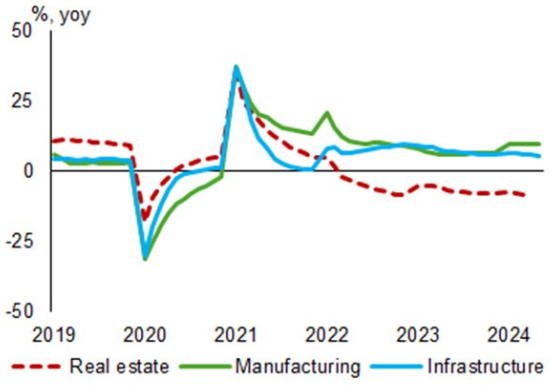
Source: World Bank, OECD; AMRO staff calculations
Note: 1) Data covers 20 countries including OECD member countries, 2) Latest data for China is as of 2019, 3) Data starts from 1970 for Japan.

[3] The fundamental price is estimated by utilizing a cointegration model based on quarterly data since 2010. The cointegration analysis revealed a long-term cointegration relationship among housing prices, household income, housing supply, and financial conditions (loan interest rates). Consequently, a long-term equilibrium equation is formulated to estimate the fundamental housing price. For reference on fundamental housing price estimation, referred the study "Asset Pricing Theory Based on the Study on the Determinants of Housing Prices by VECM" (Chun, 2013).

[4] Rising house prices, a low dependency ratio, and a weak social safety net are the main drivers for China's high savings rate. Hung and Qian (2010) found low old-age dependency ratio and weak social safety nets are the predominant drives of the high savings ratio in China. Also, Chen et al. (2016) argued housing prices affect household saving significantly.

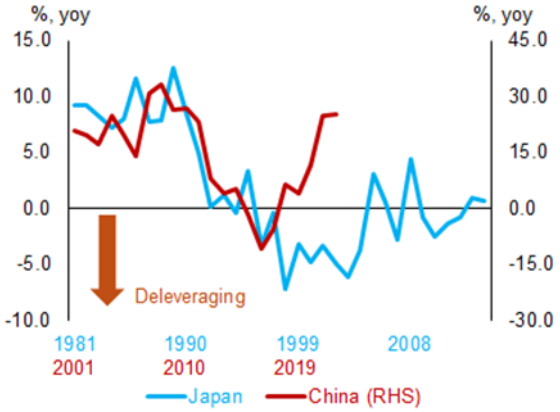
10. The downturn in the real estate market has not led to widespread deleveraging among corporates as well as households. Although real estate investment has turned negative since 2022 due to the sluggish real estate market, investment in other sectors, including overall manufacturing particularly in innovative sectors including computer equipment, has remained strong (Figure 11). Japan experienced rapid debt deleveraging in the corporate sector following its asset bubble, which has not been observed in China so far (Figure 12). Factors identified as contributing to the bubble in Japanese asset prices include aggressive lending by financial institutions, accommodative monetary policy [5], and overconfidence in the economy (Shiratsuka, 2003). According to the Price-to-Income Ratio (PIR) provided by the OECD, the PIR for Japanese real estate just before the bubble burst was considerably higher than that of other OECD member countries (Figure 13).

Figure 11. Fixed Asset Investment in China



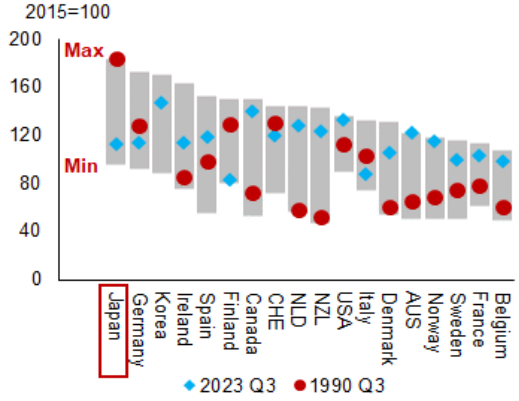
Source: CEIC; AMRO staff calculations.

Figure 12. Outstanding loans among Corporates



Source: Haver, Bank of Japan; AMRO staff calculations.

Figure 13. PIR in Japan and Other OECD Countries (1980-2023)



Source: OCED; AMRO staff calculations.
Note: 1) Price to Income ratio is calculated by housing price divided by disposable income per capita. 2) The countries where data have been available since 1980 are selected for comparison. 3) PIR for metropolitan area from KB Bank is used for Korea.

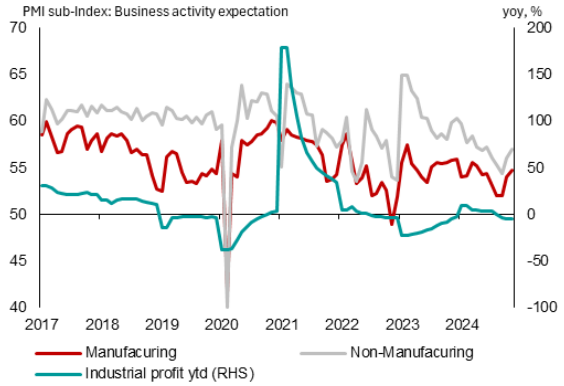
[5] Following the Plaza Accord, Japanese authorities maintained a relaxed financial stance for an extended period in response to the economic slowdown caused by the strengthening of the yen. The Bank of Japan reduced the policy rate from 5 percent (December 1985) to 2.5 percent (February 1987) and maintained it until April 1989.

IV. Deflation risks and Inflation outlook

11. As the disinflation forces continue to drive down prices, the Chinese economy is grappling with ongoing deflationary pressures. For instance, persistent weakness in demand has dampened business sentiment notably in 2024, as indicated by the decline in the PMI business activity expectation sub-index of both manufacturing and non-manufacturing sectors. Meanwhile, industrial firms' profits have also decelerated significantly in 2024 (Figure 13). These developments imply that businesses are increasingly reluctant to hike prices given the weakness in demand, and the influence of disinflation could endure longer. Prolonged sluggishness in business outlook and reduced profitability can subsequently affect wages and employment, thereby increasing deflationary pressures on the overall economy. Furthermore, China's external demand also faces stiff challenges from the looming tariff hike from the US, which can adversely affect the imbalance between demand and supply, and in turn, delay the reflation process in China.

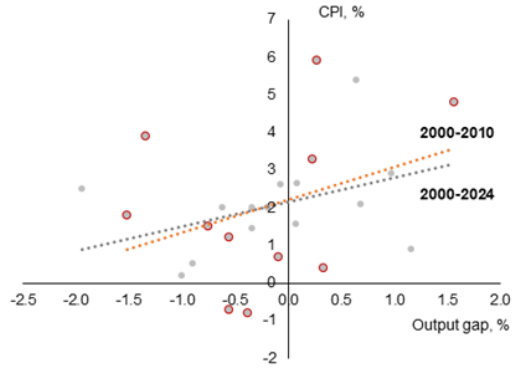
12. That said, steady growth and sound macroeconomic fundamentals in China suggest that deflation risks are likely to be moderate. Unlike other countries that have long struggled with low growth and deflation, China's current growth potential remains strong at around 5 percent. In the medium term, despite a trend slowdown, China's growth potential will remain significantly higher than that of Japan during periods of deflation and stagnation. According to AMRO staff projections, China's growth potential is expected to average around 4.5 percent until 2030 (Zhai and Lee, 2023). Robust GDP growth will result in the expansion of domestic activities, leading to higher wage growth and a rise in demand that will drive prices higher. Entrenched deflation would normally be reflected in a flattening of the Philips curve. In particular, research on Japan found that the Philips curve has fattened significantly including in the lead-up to the deflation episodes, which signals settled low inflation expectations coupled with structural changes in macro-fundamentals. [6] On the contrary, the Philips curve in China does not show substantial flattening, and it remains much steeper than Japan in the 1990s[7], suggesting that inflation will be arguably more responsive to economic business cycles (Figure 14).

Figure 13. Business activity expectations and profits weakened



Source: China NBS, CEIC; AMRO staff calculations.

Figure 14. Slope of Philips curve flattened only marginally in China



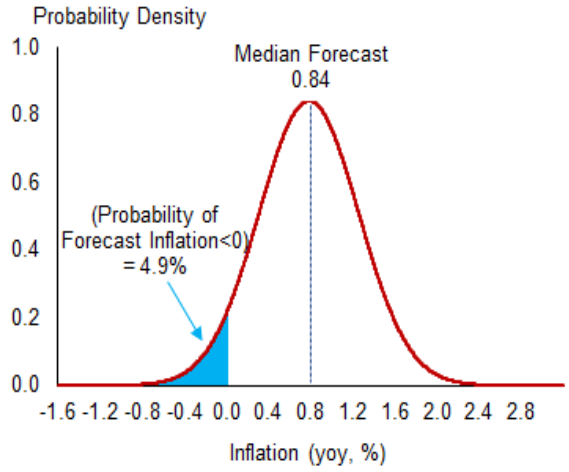
Source: Wind, CEIC; AMRO staff calculations.
Note: Here we use the linear trend line fitting the plot of CPI and Output gap of China.

[6] For instance, Nishizaki and Watanabe (2000) found that the slope of the Phillips curve in Japan flattened significantly in the 1990s. Gemma et al. (2017) also showed the flattening of the slope of the Phillips curve during the low inflation period from 1998 to 2012.

[7] The slope in Chart 14 was 0.8 and 0.6 for the period 2000-2010 and 2000-2024 respectively. The Philips curve in China was also found to be steeper, with a slope around 1.1 for 2000-2022 (PBoC, 2023). But the slope of Philips curve in Japan was found to be 0.3-0.4 for 1985-1999, and then flattened further (Kishiba and Okuda, 2023).

13. Despite the ongoing concerns about deflation, our analysis shows that the likelihood of deflation occurring in China in the short term remains low. We employ Bayesian Variable Selection (BVS), proposed by George and McCulloch (1993), to predict future inflation, utilizing variables such as GDP growth rate, interest rates, exchange rates, and oil prices, among a total of 22 variables[8]. The BVS model selects the most relevant explanatory variables for each forecast horizon and uses Gibbs sampling to depict the forecast density of future inflation. As of August 2024, the forecast indicates an average inflation of 0.84% for the 1 year-ahead horizon. A notable detail from the forecast density using BVS is that the probability of recording negative inflation over the 1 year ahead is less than 5% (Figure 15), implying that the risk of negative inflation is negligible. The inflation forecast, segmented quarterly from one quarter to four quarters ahead, suggests rates of 0.63%, 0.84%, 0.67%, and 1.21%, respectively. Hence while inflation is expected to be low, based on these BVS model forecasts, the likelihood of a significant decline into deflation for China is low in the coming periods.

Figure 15. Forecast Density for Inflation over 1 year ahead horizon



Forecasting Horizon	Forecasted Inflation (%, yoy)
1q ahead	0.63
2q ahead	0.84
3q ahead	0.67
4q ahead	1.21
Average	0.84

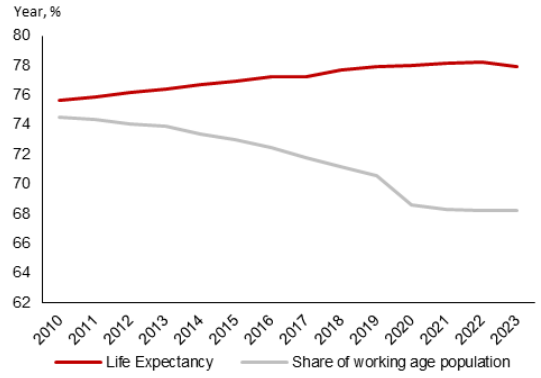
Source: AMRO staff estimates

14. Over the medium-to-long term, persistent demographic headwinds are likely to generate deflationary pressures. Population aging in China poses a substantial structural challenge to income and consumption growth. China's working-age population has been declining since 2014, and its share of the total population declined from its peak of 74.5 percent in 2010 to 68.3 percent in 2023. Moreover, China's total population began shrinking in 2022 due to low and falling fertility rates (Figure 16). These trends will weigh on labor supply in China and increase the fiscal burden, putting downward pressure on output growth (Zhai and Lee, 2023). Additionally, longer life expectancy, along with the still insufficient social safety provisions, is likely to encourage greater precautionary savings by households, further restraining consumption growth over the medium term.

[8] The data used for analysis covers from domestic to global indicators. They are GDP, Fixed Asset Investment, Construction investment, Business cycle, Consumer confidence, PMI for China, Existing housing price, new housing price, Industrial production, Electricity consumption, Retail sales, Inventory, Loan interest rate, Exchange rate, M2, Stock price, Disposable income, Exports of goods, Supply chain pressure index, Global PMI, World trade volume, and oil price. All data are used from 1Q 2010 to 2Q 2024.

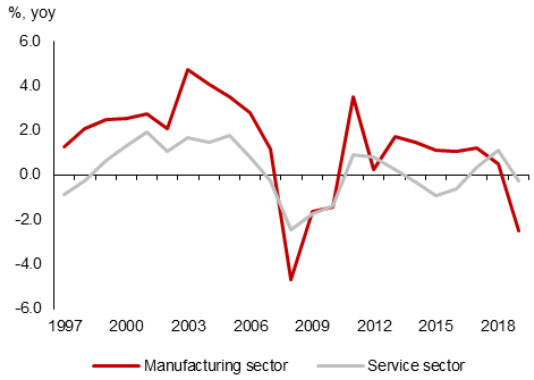
15. Sluggish wage growth, combined with declining labor productivity, may further constrain the growth of domestic demand. Following the bursting of the asset bubble in Japan, the decline in labor productivity in non-manufacturing sectors resulted in a prolonged period of modest wage growth (Figure 17). Furthermore, the expansion of irregular employment during the period of structural reforms[9] contributed to a deceleration in household income growth.[10] The resulting prolonged slump in domestic demand is recognized as one of the main causes for Japan's long-term economic stagnation (Hamada et al., 2010). In China, recent trends in slowing household income growth resemble this pattern observed in Japan. This slowdown can be primarily attributed to increases in low-value-added employment and the corresponding decline in labor productivity, along with slower wage growth (Figure 18). Should household income in China continue to decelerate, the risk of prolonged domestic demand weakness, akin to Japan's experience, may increase.

Figure 16. Population aging in China



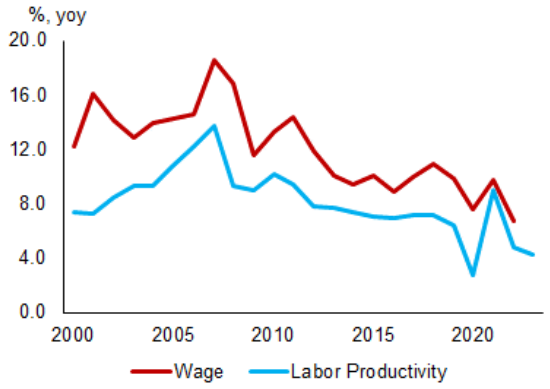
Source: CEIC; AMRO staff calculations.

Figure 17. Labor Productivity in Japan



Source: Japan Productivity Center, Haver; AMRO staff calculations.
Note: 1) Productivity is 3-year moving average. 2)Service sector labor productivity before 2011 is the average of electricity, gas and water, wholesale trade, retail trade, real estate, and accommodations service.

Figure 18. Wage and Labor Productivity in China



Source: Ministry of Labor and Social Security, NBS; AMRO staff calculations.
Note: 1) Wage represents average wage across industries.
2) Labor productivity represents output per employed person

[9] Notable examples include the liberalization of temporary employment except in five key industries in 1999, and the extension of the permissible duration of temporary assignments from one year to three years in 2004.
[10] According to the OECD, the proportion of irregular workers receiving lower wages than regular employees in Japan rose from 16.4 percent in 1985 to 37.9 percent in 2014, marking a continuous increase over 20 years.

V. Conclusion and policy implications

16. While China does not yet exhibit symptoms of significant deflation, disinflationary forces do persist, and the authorities must act to prevent these from evolving into a prolonged deflationary spiral. We assess that China's inflation dynamics do not resemble Japan's deflationary experience. The property market downturn so far has not been as severe as in the case of Japan, and it has not resulted in broad deleveraging of the household and corporate sector, and financial tightening. Our study shows that the likelihood of deflation occurring in China in the short term remains low. That said, disinflationary forces–such as sluggish domestic demand, strong production and excess capacity, and fragile business and household confidence–persist and are likely to intensify deflationary pressures. Addressing these challenges will require proactive policy measures to revive domestic demand, restore confidence, and sustain China's economic growth momentum.

17. Monetary and fiscal policies should stay supportive to boost confidence and bolster domestic demand. The reduction in existing mortgage rates will reduce interest burdens for households and free up resources for consumption growth. The easing of monetary stance announced in December 2024 sets the stage for further credit support to the economy. However, monetary policy alone may not be sufficient to decisively boost demand[11]. The authorities should consider enhancing fiscal stimulus to effectively reinvigorate domestic demand and restore sentiment among households and businesses. Existing measures, such as the equipment-upgrading program for firms and the reduction of taxes and fees, should continue. Incentives for equipment renewals and consumer appliances trade-ins, which aim to drive investment and consumption should also be maintained. Additional measures, including targeted consumption vouchers or cash transfers, could be explored to further boost private consumption.

18. Stabilizing the property market remains crucial to restore consumer confidence. Given the strong link between property market development and household sentiment, key focus should be on ensuring the completion of existing projects and expediting the delivery of housing units to buyers. The authorities should also carefully manage risks in the property market to prevent their escalation into broader financial stability risks. This underscores the importance of continuing to employ comprehensive measures to address risks, as the authorities have already rolled out various support measures. Additional fiscal policies aimed at reducing excess housing stock and encouraging property transactions should also help to stabilize the housing market and boost consumer confidence. In this context, AMRO (2024) proposed various measures aimed at strengthening property market sentiment and expanding demand.

19. In the medium term, to mitigate the deflationary pressures stemming from demographic challenges such as an aging population, authorities need to implement targeted structural reform measures. To boost household spending and strengthen the economy in the medium term, it is essential to enhance growth potential and improve labor

[11] PBoC Governor Pan also highlighted the need to raise household income, optimize the structure of fiscal expenditures, and enhance the social security system, to promote consumption growth. In addition, He noted that PBoC will strike a balance between supporting near-term growth and longer-term high-quality development. also See Pan 2024, Keynote speech at the Annual Conference of the Financial Street Forum 2024.

income. Key strategies include increasing investment and trade, harnessing technological advancements to enhance productivity and quality of products, and take measures to facilitate the recovery of the real estate sector, and continue to optimize domestic production capacity[12] and to expand the global supply chains through trade and investments with more countries. Authorities will also need to address the adverse impact from offshoring of production capacity on domestic jobs, particular for the youth. At the same time, expanding social welfare programs, especially for the lower income population, is critical. By providing more comprehensive benefits and coverage, these programs can reduce the need for precautionary savings among households, and thereby increasing disposable income and stimulating consumption.

[12] These include market-led consolidation of production capacity in some industries such as solar panels and EVs.

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