Recent rice price volatility highlights supply capacity challenges posed by depopulating economy

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12 May 2025

Iakyara vol.399

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Executive Summary

Rice prices in Japan have recently soared, driven partly by resurgent demand for rice as a substitute for other foods that had become less affordable. From a long-term perspective, however, the spike in rice prices highlights a broader issue that needs to be addressed more urgently: how to ensure sufficient supply capacity and appropriate pricing in markets and industries that are essential to daily life or economic activity but expected to experience declining demand as Japan's population continues to shrink.

Recent spike in rice prices driven partly by resurgent demand for rice as substitute for other foods

With the Japanese economy transitioning from mild deflation to an inflationary regime, Japanese households have recently been hard hit by soaring rice prices. According to data published by the Ministry of Internal Affairs and Communications' Statistics Bureau, the nationwide CPI's rice price subindex was up 80.9% YoY in February 2025.

Why has the price of rice recently risen so sharply? The proximate cause according to one theory is that households have been stockpiling rice in response to the Japanese government's August 2024 updated assessment of the worst-case impact of a mega-earthquake off Japan's Pacific coast. The actual prevalence of such hoarding, however, is not clear. In fact, various data suggest that other factors also are at play.

One such factor is incremental demand for rice as a substitute for other foods that had increased in price more than rice. Japan's domestic rice consumption is in a long-term downtrend in the wake of population shrinkage and dietary changes. Even on a per-capita basis, rice consumption has long been decreasing according to the Ministry of Agriculture, Forestry and Fisheries (MAFF), which calculates per-capita consumption to set policies for keeping the rice market in balance and rice prices stable (Figure 1). Since around 2020, however, per-capita rice consumption's downtrend appears to have leveled off. In the year ended June 2024, Japan's per-capita rice consumption[1] was 56.7kg, 1.4kg more than in the previous 12 months. This increase in rice consumption preceded the release of

NOTE

1) The Ministry of Agriculture, Forestry and Fisheries (MAFF) conducts monthly inventory surveys of aggregators that handle at least 500t of rice annually and wholesalers that sell at least 4,000t of rice annually. At the end of every June, it also conducts a broader-scope inventory survey of wholesalers and producers that sell between 500t and 4,000t of rice annually. The rice consumption data plotted in Figure 1 are for years ended June 30 (e.g., "23/24" denotes the year from July 1, 2023, through June 30, 2024). These data and the per-capita rice consumption numbers mentioned in the text were calculated as follows using the MAFF's broader measure of rice inventories: earlier year (e.g., 2023) rice production plus rice inventories as of June 30 of the earlier year minus rice inventories as of June 30 of the later year (e.g., 2024), divided by Japan's population.

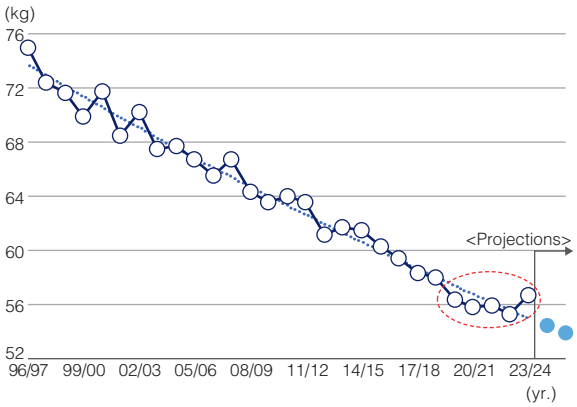
the government's updated earthquake risk assessment[2].

One possible reason for the recent upturn in per-capital rice consumption is that rice prices in Japan, before their recent spike, were quite low relative to other food prices. Figure 2 plots Japan's headline CPI alongside the CPI subindexes for rice, food ex rice, bread and wheat from January 1970 through February 2025 with all of the data series rebased to parity as of January 1970.

Figure 2 shows that rice prices started to roll over into a downtrend from the mid-1990s, when Japan deregulated the domestic rice trade, in part by repealing its Food Control Act. Rice prices then fluctuated in a sideways range from the 2010s until mid-2023. Meanwhile, the other food prices continued to rise against the backdrop of the 2007 commodity price inflation and yen depreciation precipitated

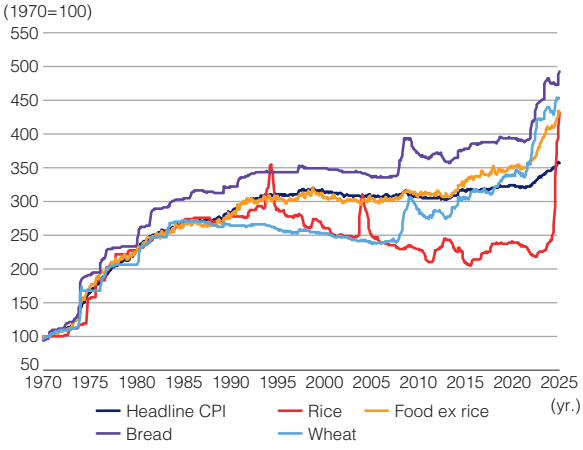
2) The Organization for Ensuring Stable Rice Supplies conducts monthly surveys of rice market participants and publishes diffusion indexes (DI) of the domestic table-rice market's supply-demand balance (the DIs range 0 to 100; a DI reading over 50 means the supply-demand balance is tightening in the collective assessment of a majority of survey respondents). Most recently, its DI of the current table-rice supply-demand balance has been above 50 every month for nearly two years, rising from 55 in June 2023 to 89 in February 2025, the latest month in the data series as of the time of this writing.

Figure 1: Japan's per-capita rice consumption



Note: Projections are MAFF's.
Source: NRI, based on MAFF's March 2025 domestic rice market data

Figure 2: Japan's headline CPI and selected food subindexes since 1970



Source: NRI, based on CPI data published by Ministry of Internal Affairs and Communications' Statistics Bureau

by Abenomics. Of the CPI subindexes rebased to 1970 in Figure 2, the food-ex-rice and bread subindexes' average readings in 2021 were respectively 53% and 69% higher than that of the rice subindex.

These price differentials were exacerbated by the further yen depreciation and international commodity price spike that ensued from Russia's 2022 invasion of Ukraine. Domestic prices of many foods other than rice rose sharply as the yen weakened. By 2023, the CPI's food-ex-rice and bread price subindexes' premia over the rice price subindex had widened to 74% and 103%, respectively, on a yearly average basis. In response, the Japanese public likely came to see rice as a more affordable staple, leading to the resurgence in rice consumption observed in Figure 1.

Supply capacity implications extend to other markets where demand is not growing

The MAFF expects rice demand to revert to its former long-term downtrend (the dotted line in Figure 1). It is forecasting per-capita rice consumption of 54.4kg in the year ending June 2025 and 53.8kg over the subsequent 12 months.

On the supply side, rice production targets have been adjusted downward year after year in anticipation of progressively lower demand. After decreasing to 6,700kt in 2022 from 7,010kt in 2021, domestic rice production dropped to 6,600kt in 2023 amid suboptimal rice-growing weather before bouncing back to 6,790kt in 2024. The MAFF is projecting 2025 rice production at 6,830kt, up only marginally from 2024, but it expects the rice market's recently strained supply-demand balance to gradually normalize as consumption reverts to its previous downtrend and Japan's population continues to shrink.

However, as long as normalization of the supply-demand balance is dependent on attrition in demand without much supply growth, today's hyper-elevated rice prices may not fully return to their status quo ante because, from a cost-benefit standpoint, producers in markets or industries with no prospect of demand growth tend to shy away from expanding or even maintaining supply capacity by replacing or upgrading equipment or otherwise enhancing productivity[3]. Another headwind weighing on Japan's rice supply is fertilizer price inflation sparked by Russia's Ukraine invasion. Such supply-side factors would normally exert upward pressure on rice prices like other food prices. In fact, rice prices' recent steep rise shown in

3) According to MAFF crop statistics, Japanese rice paddies have collectively yielded 520-540kg of rice per 1,000m^2 of land most every year since 2000.

Figure 2 appears to be an abrupt return to parity with other food prices following three decades of relative cheapness due largely to deregulation.

When an industry or market is essential to daily life or economic activity but expected to experience progressively diminishing demand as a result of demographic trends or other factors, how should we ensure it has sufficient supply capacity and prices adequate to maintain sufficient supply capacity going forward? This is the crucial question thrust upon us by the recent rice price volatility.

Numerous industries including public transit, logistics and infrastructure are now facing the challenge of how to navigate not only declining demand but also their existing supply chains and shortages of workers to maintain and run their operations. One lesson of rice prices' recent spike is that more discussion is needed from a big-picture perspective to reach a consensus on whether to rely on market price adjustments alone or allow some–and if so, how much–government intervention to avoid major failures.

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