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China's Export Restrictions on Rare Earths and Other Critical Minerals May Reduce Japan's Real GDP by 1.3–3.2%

Supply constraints raise concerns over weak production activity centering on the automobile industry

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Summary

- If imports of rare earths from China were cut off, with supply constraints on components continuing for one year, and domestic production were curbed, Japan's real GDP would likely decline by about 1.3% (around 7 tril yen) and the number of employed persons would be reduced by about 1.3% (approximately 0.9 mil people). If, in addition, other critical minerals could no longer be imported from China, the decline could widen to around 3.2% (roughly 18 tril yen) for real GDP and about 3.2% (approximately 2.16 mil people) for employment.
- Manufacturing would be particularly hard hit. Our industry-level estimates of the impact on real GDP from a suspension of imports of rare earths and other critical minerals from China suggest that many manufacturing industries would see declines of more than 5%. Among them, Transportation Machinery, including the automobile industry, would see a contraction of as much as 17.6%.

Further Deterioration in Japan–China Relations Might Lead Beijing to Suspend Supplies of Rare Earths and Other Critical Minerals

Japan–China relations, which deteriorated in early November 2025, show no signs of improvement. In reaction to Prime Minister Sanae Takaichi’s remarks in the Diet regarding a contingency in Taiwan, the Chinese government has called on its citizens to refrain from travel to Japan, effectively halted imports of Japanese marine products, and taken other measures.

Given the severe state of domestic demand in China, it is unclear whether the Chinese government would go so far as to adopt measures that would have an even greater impact on its own economy. That said, if Japan–China relations were to worsen further, such steps could become one of the options on the table.

In September 2010, when a collision with a Japan Coast Guard patrol boat occurred near the Senkaku Islands, China effectively suspended exports of rare earths to Japan. Electrical machinery such as smartphones, and light industrial products such as clothing—items that at the time accounted for a large share of China’s exports to Japan—were not subject to restrictions. By targeting restrictions on raw materials located upstream in the supply chain, China appears to have inflicted damage on Japan’s supply chains while minimizing the impact on its own industries.

For this reason, there is concern that the Chinese government may in the future move to impose export controls on rare earths and other critical minerals destined for Japan. Rare earths and other critical minerals (hereafter collectively “rare earths, etc.”) are widely used in household appliances, smartphones, automobiles, and many other products, and China is the world’s largest supplier¹. We must also be mindful of the risk that supply constraints on components could stall domestic production and exports of a wide range of products.

If Imports of Rare Earths and Other Critical Minerals from China Were Cut Off, Japan’s Real GDP Would Fall by 3.2%

If the supply of essential intermediate goods such as rare earths, etc. decreases, these can become bottlenecks, sharply curtailing overall production or even forcing production to stop. However, if such cases are estimated using a conventional supply-shock analysis based on input–output tables—which assumes that a reduction in one intermediate input does not affect the quantities of other intermediate inputs—the impact will be underestimated.

Accordingly, drawing on Sano and Nagamachi (2022) and Kabuta (2014), we conducted simulations under the assumption that intermediate goods are non-substitutable². The results are shown in Chart 1. If imports of rare earths from China were cut off and the shortage of components continued for one year, Japan’s real GDP would likely decline by about 1.3%

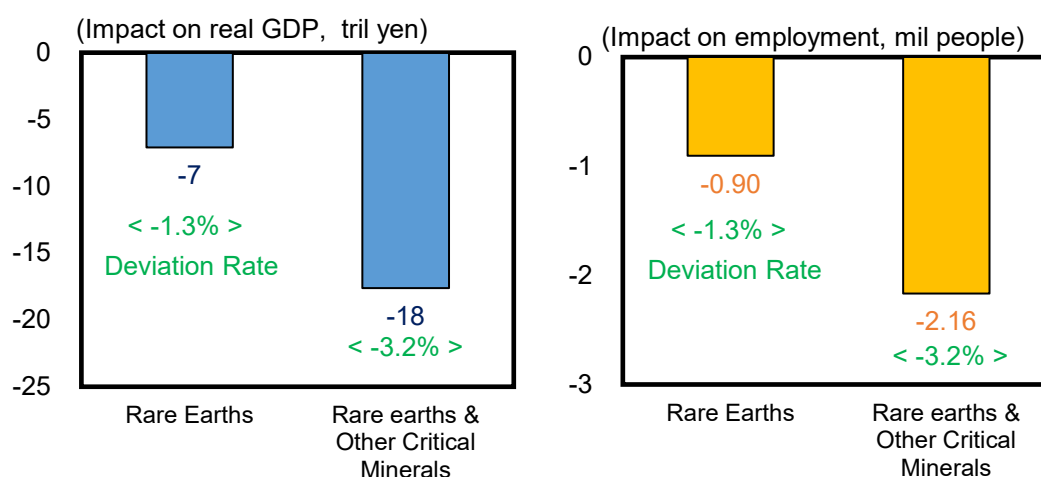
¹ According to Oda (2025), China accounted for 71.9% of Japan’s import value for eight rare earth items in 2024.

² In this paper, we define as essential intermediate goods those items whose share in total production value exceeds a certain threshold. Among rare earths and related products, there are items for which China’s export share to Japan is high, but its share in world exports is not necessarily high. Because such items are considered relatively easy to source from alternative suppliers when trade volumes are small, we set item-specific thresholds that take into account China’s export share in world exports.

(around 7 tril yen), and the number of employed people by about 1.3% (approximately 0.9 mil people). If, in addition, other critical minerals could no longer be imported, the downward impact on Japan's real GDP would expand to around 3.2% (roughly 18 tril yen), and the decline in employment to about 3.2% (approximately 2.16 mil people).

Impact on Real GDP (Left) and Employment (Right) if Imports of Rare Earths and Other Critical Minerals from China Are Cut Off

Chart 1



Source: Cabinet Office, Ministry of Finance, Ministry of Internal Affairs and Communications, and United States Geological Survey; compiled by DIR.

Note: The chart shows the impact on real GDP and employment if China suspends exports of rare earths, etc., estimated using input-output tables. Based on the deviation from the baseline case (no export suspension), we calculated the deviation from 2024 levels of real GDP and employment. The input-output table used is an extended table created by DIR for this analysis. It is based on the integrated medium classification (108 sectors) in the Ministry of Internal Affairs and Communications' 2020 input-output tables, with sectors corresponding to rare earths, etc. disaggregated to the granularity of the basic classification (445 × 391 sectors).

Realistically, if an export suspension by the Chinese government were short-lived as in the September 2010 case, it may be possible for firms to maintain production activity through inventory adjustment, releases from national stockpiles³, and the utilization of urban mines, among other measures. However, if supply constraints were prolonged, more firms would be forced to suspend production, and the negative impact would likely widen, as suggested by the above estimates.

³ The Japan Organization for Metals and Energy Security (JOGMEC), maintains national stockpiles for the purpose of preparing for short-term supply disruptions of critical minerals.

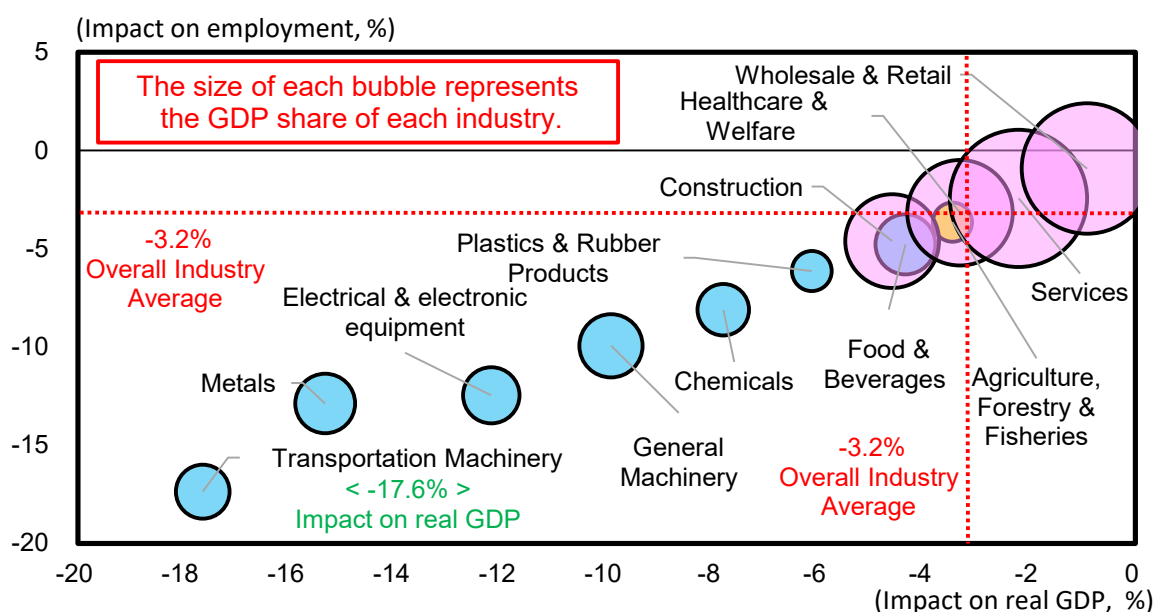
Supply Constraints Would Exert Strong Downward Pressure on a Broad Range of Industries, Centering on Automobiles, Metals, and Electrical and Electronic Equipment

In such a scenario, manufacturing would be particularly severely affected. Looking at the impact on real GDP and employment by industry, both indicators are projected to decline by more than 5% in many manufacturing industries (Chart 2). Among them, Transportation Machinery—including Japan’s core automobile industry—would see a real GDP decline of 17.6%. Because rare earths and other critical minerals are widely used in automotive components such as magnets for various motors and onboard batteries, the automobile industry would be heavily affected by a halt in imports. Metals and Electrical and electronic equipment would also be strongly affected, since rare earths, etc. are indispensable in the production of special steel, integrated circuits, and other products in these sectors.

Among non-manufacturing industries, the impact would be relatively large in Construction and Agriculture, Forestry and Fisheries. These are likely affected indirectly because rare earths, etc. are used in the production processes of intermediate goods such as special steel and chemical fertilizers. By contrast, the impact is relatively small on sectors such as Wholesale and Retail and Services.

Impact on Real GDP and Employment in Major Industries if Imports of Rare Earths and Other Critical Minerals from China are Cut Off

Chart 2



Source: Ministry of Finance, Ministry of Internal Affairs and Communications, and United States Geological Survey; compiled by DIR.

Note: The chart shows the estimated percentage changes in real GDP and employment by industry if China implements export suspension measures for rare earths, etc. For details of the estimation method, see the note to chart 1. Bubble colors: light blue indicates manufacturing; yellow, agriculture, forestry and fisheries; and pink, non-manufacturing. Electrical & electronic equipment includes information and communications equipment, electronic components and devices, and electrical machinery; Metals include steel, nonferrous metals, and metal products; General Machinery includes general-purpose machinery, production machinery, and business-use machinery; and Services include education and research, business services, and personal services.

As this shows, supply shocks to rare earths, etc. would have a serious impact on the Japanese economy. Damage to core segments of manufacturing could spread to other industries that

are only mildly affected directly—such as non-manufacturing—via stagnation in consumption brought about by declines in income and employment.

Preparing for supply risks related to rare earths, etc. is a critical policy issue for the Takaichi administration. The administration positions “Materials (critical minerals and component materials)” as one of the 17 strategic fields for “crisis-management investment” and “growth investment⁴.” In addition, on October 28, 2025, the Japanese and US governments agreed to build a framework for stable procurement of rare earths, etc. among other initiatives⁵. The government is thus actively promoting resource diplomacy. The Takaichi administration needs to further accelerate such efforts to secure a stable supply of critical mineral resources.

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⁴ See Cabinet Secretariat (2025).

⁵ See Nikkei Online Edition (2025).
