

An Analysis of Food Supply Chain Disruption Risks Using the Input-Output Model Developed by Combining Ghosh's Model for Measuring the Forward Linkage Effects and the Bottleneck Model

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Summary

This paper presents an economic impact assessment of supply disruption risks of food dependent on importation, using the Input-Output model developed by combining Ghosh's model for measuring the forward linkage effects and the bottleneck model. Among the five sectors assessed, namely "wheat, barley and the like", "pulses", "crops for beverages", "other edible crops" (including maize), and "metallic ores", the greatest impact on the economy as a whole was estimated for importation disruption of "metallic ores", with production reduction amounting to about 40 trillion yen, or about 4.5 percent of total production. Out of the four food related sectors, the impact of "other edible crops" (including maize) disruption was estimated to be much bigger than the other three sectors, since maize especially is the key raw material for producing starch, corn oil, organic fertilizer, animal feed and its disruption impact shall spread not only to the food manufacturing industry, but also to agriculture, livestock industry, fisheries, the food service industry, and the general manufacturing industry. This result suggests that securing a stable supply of "other edible crops" (especially maize) is of particular importance from a point of risk management to minimize the economic damage.