Measuring the Impact of Intermediate Import Reduction Using an Input-Output Approach

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Since February 2022, trade sanctions imposed on Russia have contributed to a reduction in intermediate imports and led to a restructuring of supply chains in the Russian economy. However, the impact of these measures has been less severe than initially anticipated.
In this paper, we calculate the effects of trade sanctions affecting intermediate imports using an input-output approach combined with econometric tools to simulate the output response of certain industries under various import reduction scenarios. The approach used here allows us to obtain relatively moderate estimates compared to those derived from input-output models and published in previous years.
We use Multiregional Input-Output (MRIO) tables provided by the Asian Development Bank for the years 2007â€“2023 at constant prices. Our analysis focuses on industries most affected by the imposed sanctions, such as electrical and optical equipment, transport equipment, and others. Additionally, we account for the country structure of imports.
We examine how the results depend on whether we distinguish between domestic and imported products as different products or distinguish between products only by their kind. We address this issue in terms of output response similarity. Furthermore, we incorporate output and value-added multiplier calculations to account for interindustry linkage effects. According to our results, under a scenario where intermediate imports used by the machinery sector from sanctioning countries decline by 10%, the total output decreases by 0.2â€“0.3%. The proposed method can be easily adapted to other economies and different cases of intermediate import reductions.