

European food security; the role of foreign natural resources and imported intermediate inputs in European agriculture

Topic: Input-output analysis for policy making 4

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Trade in agricultural and food products, like all trade in goods, has increased over the past decades. However, due to food security concerns, countries have been reluctant to fully liberalize agricultural trade policies. Farmers are still subsidized in order to support domestic production of staples. Retaining some level of self-sufficiency is one motivation for these precautionary policies. Conflicts with countries supplying agricultural or food products may result in trade barriers being erected, cutting consumers and the domestic agricultural production system off from foreign suppliers.

To assess European food security, we study the dependence of European countries on imported intermediate inputs and embodied foreign natural resources in order to meet the current final demand for agricultural and food products. Using data from the EXIOPOL database, we calculate land and water footprints of these products and look at their trade balance to assess whether each country is a net importer or exporter of natural resources. We geographically decompose the footprints to assess whether the countries supplying the embodied land and water can be expected to be stable producers of the agricultural inputs, by determining the local scarcity of land and water.

The next step in capturing the vulnerability of European countries towards international dependency in agricultural production is assessing whether full self-sufficiency would be attainable. We therefore proceed to analyse a scenario in which each country would have to meet final demand of agricultural products and the derived food products itself. We calculate the amount of domestic land and water used in this scenario. Comparing the outcome to projected rainfall and land available, we identify which countries would be more strained in agricultural production. In addition, as agricultural sectors also heavily depend on imports of feed, energy and fertilizers as intermediate inputs in production, we also analyse the demand for these imported inputs in the current situation and in the specified scenario.