

Virtual water trade and water scarcity

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Abstract

This paper evaluates the relationship between virtual water trade and water scarcity quantitatively, but with two modifications to the way the previous studies capture water endowment. First, we use economic water availability, not physical resource base, as a measure of water endowment, and second, we take a view of relative scarcity, not absolute scarcity. We compare the direction and volume of actual virtual water trade estimated by the multi-regional input-output (MRIO) model, and those theoretically predicted from the relative water endowment of each country by the Heckscher-Ohlin-Vanek (HOV) model. We find that the general directions and volume of world virtual water trade are reflecting the relative water scarcity of countries to a considerable extent. In particular, if we introduce technological heterogeneity, it turns out that about 83% of virtual water flows in the right direction. But if we focus on low-income countries, this relationship gets rather vague.

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