Assessing global virtual water flows in the long term: a trade gravity approach.

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Abstract: Agricultural and food products have been increasingly exchanged during the last half century. Water has been virtually transferred among countries. This paper studies the evolution and explaining factors of virtual water trade flows from 1965 to 2010 in the world. During the period analysed, an intense internationalization that meant important environmental impacts, particularly in water resources, took place at the global level. By means of panel data techniques, we evaluate and quantify the explaining factors of bilateral virtual water transfers among 77 countries as result of agri-food trade. We use the trade gravity equation to explain exchanges of blue and green water embodied in goods on the basis of economic, geographical, institutional and environmental factors. More concretely, we use the traditional variable and we include additional variables as the level of precipitation, the availability of renewable water resources, the cultivated area or the water withdrawn for agricultural purposes trying to test the role of these environmental aspects in the trends seen for virtual water exchanges. The preliminary results seem to indicate that the economic characteristics of countries were the main factors lying behind changes in virtual water exchanges from 1965 to 2010. Quite the opposite, environmental conditions seem to have a negligible contribution to these trends.