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Water for maize for pigs for pork: an analysis of inter-provincial trade in China

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Trade in commodities implies trade in virtual water (VW), which refers to the water that was used to produce the traded goods. Various studies have quantified international or inter-provincial virtual water (VW) flows related to the trade in crops and animal products. Until date, however, no effort has been undertaken to understand how the water embodied in traded feed crops (trade stage TS1) will be transferred further because of trade in animal products (trade stage TS2). This is the first study showing this mechanism, in a case study in China for maize (the major pig feed) and pork (the dominant meat), considering the period 2000-2013. We estimate the annual green and blue water footprints in maize production and then quantify the inter-provincial VW flows related to trade in maize (TS1) and trade in maize embodied in pork (TS2). Results show that in TS1, maize-related VW flowed from the water-scarce North to the water-rich South, with an increase of 40% over the study period (from 43 to 61 billion $m^3 y^{-1}$). In TS2, about 10% of the water embodied in maize exports from North to South China returns in the form of pork, with an increase in the absolute amount of 25% (from 4.8 to 6.1 billion $m^3 y^{-1}$). Considering blue VW flows specifically, we find that North-to-South blue VW flows decreased by 5% in TS1, while South-to-North blue VW flows increased by 23% in TS2.

References:

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