Homework #1

CEE 598: Globalization of Water

Due: September 22, 2023

Use data to quantify the water footprint of trade. This means that you will need to transform a trade matrix into its corresponding water footprint fluxes (e.g., virtual water trade, VWT) using data on the water footprint of product (e.g., virtual water content, VWC). Note that you will use the VWT matrix that you construct in this assignment in the next homework.

You can quantify VWT for a variety of systems, e.g., international trade, supply chains within a country, electricity flows on a gride, etc. One option is to replicate the "Water footprint of food aid" paper by Jackson et al (2015). For this, you need to quantify the bilateral virtual water transfers embodied in the food aid system. You don't need to reproduce the regression results in the paper.

To quantify bilateral virtual water food aid flows, you will need to:

1. Obtain food aid data from the World Food Programme: https://www.wfp.org/fais
2. Obtain VWC data from The Water Footprint Network: https://www.waterfootprint.org
3. Quantify commodity-specific bilateral virtual water aid flows. This will require matching names across databases.
4. Aggregate across commodities to obtain the total water footprint of the food aid system and compare with the value presented in Jackson et al (2015).

Please turn in:

1. Write-up detailing your data sources, methods, and total volume of VWT.
2. Your well-commented code as an appendix to your write-up.