

Waste Trade

This intervention allows for changing waste trade by import and export for a region.

1 Introduction

Manipulated by other interventions and the user, this lever allows the simulation to change the waste imports and exports for a region. In this formulation, exports are considered before imports. In other words, exports are the “primary” impact and imports are the “secondary” impact.

1.1 Assumptions

- Changes to exports will cause a change to imports of waste elsewhere proportional to the prior size of those imports.
- Waste imports have the same end of life fate propensities as domestically produced waste.
- Using net imports for waste is sufficient to represent the changes to both imports and exports.

1.2 External knowledge

This intervention does not use external literature to provide constants or other numbers beyond what is in the model itself.

2 Primary impact

This intervention starts with considering changes to exports. These have an effect on other region's imports:

$$T_{region-import} = T_{region-import} + \frac{T_{region-import}}{T_{total-import}} * \Delta_{export}$$

In this step, the exports are simply distributed proportionally across the imports of other regions. Note that trade here refers to waste trade not goods trade.

3 Secondary impact

The change in waste imports in the other regions distributes to waste fates like so:

$$W_{fate} = W_{fate} - \frac{W_{fate}}{W_{total}} * \Delta_{region-import}$$

This simply distributes new waste assuming the same fate propensities as prior waste.

3.1 Reduction in waste

The change in consumption is propagated across all waste fates.

$$W_{fate} = W_{fate} - \frac{W_{fate}}{W_{total}} * \Delta_{consumption}$$

This impact is time delayed based on the distribution of the change to consumption across sectors.

4 Discussion

This technical note now turns to interactions and future work.

4.1 Interactions

This intervention is placed last in the pipeline because other interventions modify this value.

4.2 Future work

Future work may consider if imported waste has the same fate propensities as domestic waste.