

Econ7115: Structural Models and Numerical Methods in Economics

Assignment W07

January 16, 2026

Due 20 March 2026

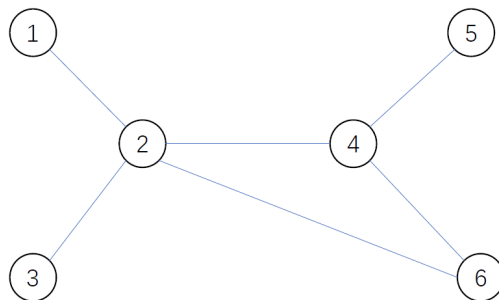
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1. Consider the transportation model in Allen and Arkolakis (2022) under the following parameterization:

- Aggregate labor is 1: freely mobile over space
- There are no agglomeration and congestion forces
- Productivity and amenity: $A_j = u_j = 1$ for all j
- Elasticity of substitution: $\sigma = 4$. Substitution across transportation paths: $\theta = 10$
- The direct trade cost between i and j , t_{ij} is equal to 1.5 if i and j are directly connected and ∞ otherwise. The direct connections are illustrated as follows:



- Please
 1. Compute wages, labor allocation, and welfare under the baseline parameterization
 2. Suppose that we decrease $t_{12} = t_{21}$ from 1.5 to 1.2. Re-compute wages, labor allocation, and welfare.

3. Suppose that we decrease $t_{24} = t_{42}$ from 1.5 to 1.2. Re-compute wages, labor allocation, and welfare. Discuss the results.