

ECON 2181 – International Trade Theory

Data Lab Project: Comparative Statics in the Specific Factors Model

The world economy has two countries $i \in \{H, F\}$ and two goods $g \in \{M, A\}$. Notation follows the notebook exactly:

$$Y_{i,M} = Z_{i,M} K_i^{\beta_i} L_{i,M}^{1-\beta_i}, \quad Y_{i,A} = Z_{i,A} T_i^{\beta_i} L_{i,A}^{1-\beta_i}, \\ L_{i,M} + L_{i,A} = \bar{L}_i, \quad p \equiv P_M/P_A.$$

The world-equilibrium relative price p^* solves $RS(p) = RD(p)$.

1. Run the notebook with baseline parameters. Record in specific variables:

$$p^*, \quad w_H, w_F, \quad Y_{i,M}, Y_{i,A}, \quad L_{i,M}, L_{i,A},$$

2. Increase manufacturing productivity by 20% in both countries:

$$Z'_{i,M} = 1.2 Z_{i,M}.$$

- (a) Recompute p^* , the wage rates, labor allocations, and outputs. Record them in new variables that will allow you to compare the baseline and new equilibria.
- (b) Compare $L_{i,M}, L_{i,A}$ before and after the shock. You do not need to plot charts. Is this consistent with what we saw in class?
- (c) Plot relative world production $(Y_{H,M} + Y_{F,M})/(Y_{H,A} + Y_{F,A})$ and p^* before and after the change. What happens with relative output Y_M/Y_A and relative prices P_M/P_A ? Explain intuitively what happens in terms of supply and demand.
- (d) Compute real wages w_i/P_M and w_i/P_A and compare to baseline. Is there a change in real wages? Is the consumer better off or worse off?