How International Trade Causes Factor Price Equalization

Consider a country (like the U.S.) with scarce labor and abundant human capital. If we did not trade, our wage of labor in autarky, w^a, would be higher than in the rest of the world, $\overline{w}$, while the payment to human capital – call it the salary – would be lower than in the world: $s^a < \overline{s}$. Both are shown in the two top figures depicting the markets for labor, L, and human capital, H, below.

As a result of these differences in factor prices, labor-intensive goods such as textiles, T, have relatively high cost in the U.S. in autarky. Similarly, human-capital-intensive goods, such as computers, C, have relatively low cost in the U.S. in autarky. This causes the U.S. supply curves in these two industries to be relatively high and low respectively, leading to equilibrium autarky prices that are above the world price in textiles, $P_T^a > \overline{P}_T$, and below the world price in computers, $P_C^a < \overline{P}_C$. These relationships are shown in the bottom graphs.

These price differences, arising from comparative advantage, will give rise to trade. The U.S. will import textiles and export computers as, for example, demanders at home and abroad seek the lower price. In the extreme, this could lead U.S. prices to become equal to the world prices, but I will assume that demand responds only partially to these trading opportunities. That is, for domestic (inside the U.S.) prices above the world price, demand is reduced, while for domestic prices below the world price demand is increased. This is illustrated in the bottom figures by the new (green, dashed) demand curves that are flatter than the old and that cross the old at the world price.

The effects in the goods markets are not surprising. Both prices move closer to the world price, the price of textiles falling (from P_T^a to P_T^t) due to trade and the price of computers rising (from P_C^a to P_C^t).

These price changes cause output of textiles (and other labor-intensive goods) to fall and output of computers (and other human-capital-intensive goods) to rise, as shown by the changes from Q_T^a to Q_T^t and from Q_C^a to Q_C^t. These changes in output reduce the demands for all factors in the textile sector and in other labor intensive industries, while increasing the demands for factors in human-capital-intensive industries like computers. Since the intensively used factors will be hit the hardest, it follows that in the whole economy the demand for labor falls while the demand for human capital increases. These are shifts of the respective demand curves in the factor markets shown in the top figures. (They are shown as rotating the curves, not shifting them in parallel fashion, since strictly speaking the direction of the shift depends on whether the autarky factor price is above or below the world factor price. What matters however is only the direction of the shift near the intial equilibrium.)

The effects of these changes, due to trade, in factor markets is then to change the equilibrium factor prices. The wage of labor falls from w^a to w^t, bringing it closer to

the world wage, $\overline{w}$. And the salary of human capital rises from s^a to s^t, bringing it also closer to the world salary, $\overline{s}$.

This argument and the figures below, then, illustrate the tendancy toward factor price equalization due to trade.

Labor

Human Capital

Textiles

Computers

Key: Autarky^a ———

Trade^t – – –

$\overline{\text{World}}$ ·········