14.03/14.003: Microeconomic Theory and Public Policy 10/27/22

Recitation 7: The Costs of Free Trade and Externalities

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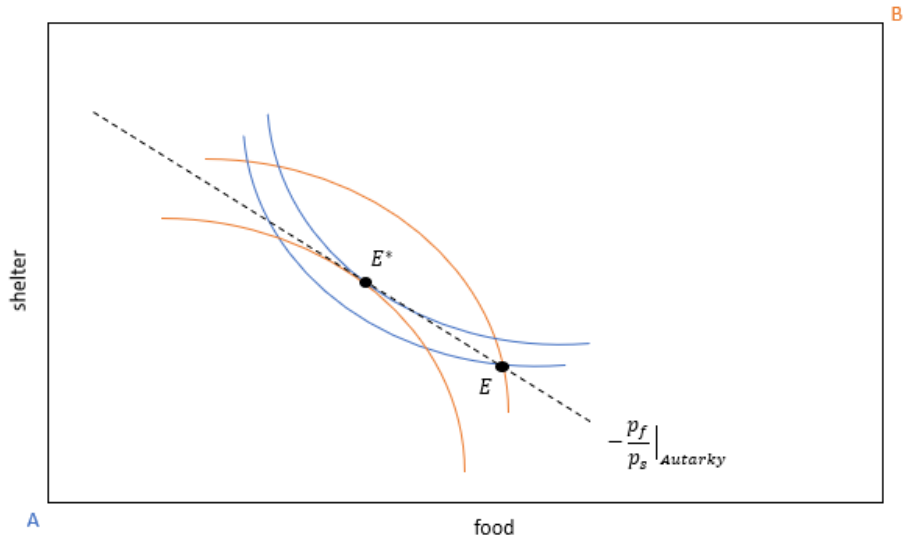
The Costs of Free Trade

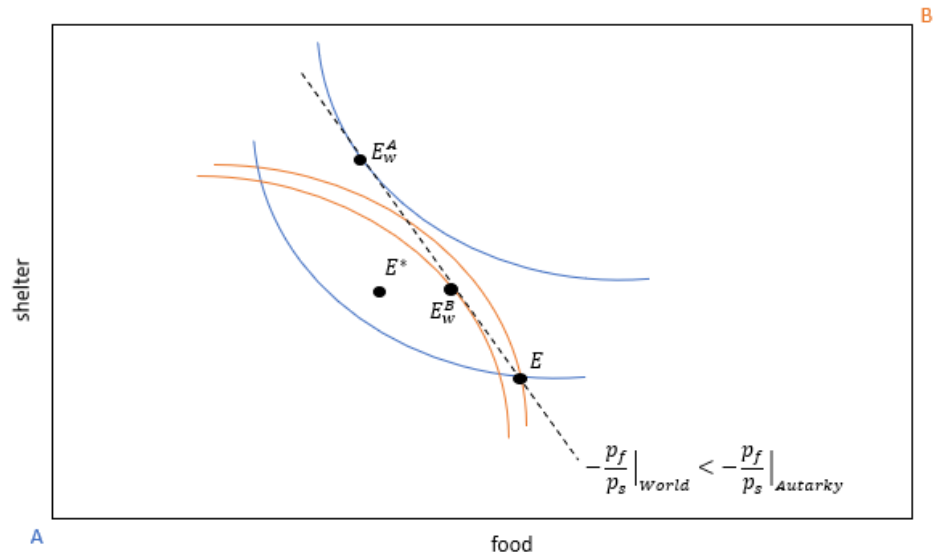
Suppose we have two agents in a single country (A and B). These agents are endowed with some amount of food and shelter (F and S). Denote the endowment point E, and the equilibrium allocation E^*. Figure 1 below shows the standard Edgeworth Box if the two agents trade within their home country ("autarky"). As usual, at the equilibrium there are no more gains from trade, and both agents are better off than they were with their initial endowment.

Figure 1: Trade in Autarky



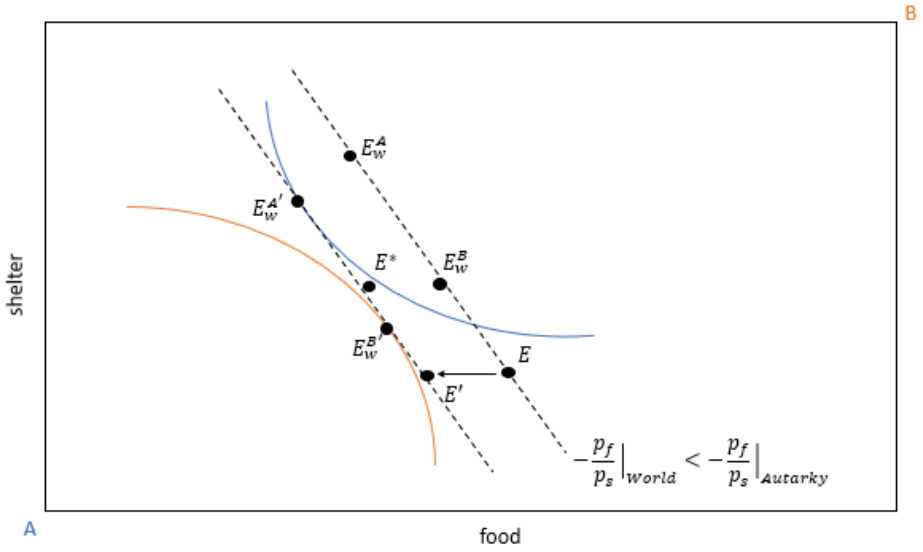
Now suppose we open the country up to free world trade. If home is small relative to the world, opening up to free world trade is like imposing an exogenous price ratio. Figure 2 below shows the equilibrium in a modified Edgeworth Box. A now consumes E_W^A and B now consumes E_W^B. The old equilibrium E^* is left on the graph for reference. Notice two things: first, consumption of food and shelter no longer sum to the initial endowments. This is okay, because free trade relaxes the constraint that agents must consume what they own/produce at home. Second, A is better off than under autarky but B is worse off than under autarky (note that both are still better than they were under their initial endowments). So it's understandable that B would oppose opening home up to world trade! Question: could you have predicted ex-ante that B would be the agent made worse off by world trade based on the slope of the new price ratio? How?

Figure 2: Free World Trade



Could we compensate B so that he is just as well off under world trade as under autarky? Yes - we need to shift the initial endowment E to a new endowment E'. Now, A and B each consume $E_W^{A'}$ and $E_W^{B'}$. Now B is indifferent between world trade and autarky, because he is on the same indifference curve that he was on at E^*. Meanwhile, A is still better off under world trade than autarky.

Figure 3: Compensating B under World Trade (w/ initial endowments)



P.S. There isn't anything special about our compensation using transfers of the pre-domestic trade endowments. Intuitively, the total domestic wealth is fixed and domestic trade is a reallocation of that domestic wealth (that happens to also be Pareto improving in itself). Figure 4 emphasizes this point. It reproduces the reallocation of initial endowments from E to E'. However, suppose we first allowed domestic trade so that endowments change from E to E^* following domestic trade. We can then shift endowments from E^* to E''. Because E'' lies on the same budget line as E' under world prices, this leads to the same final allocation. As a side note, you may notice that the compensation from E^* to E'' is smaller in magnitude than the compensation from E to E'. Why is this so? Intuitively, domestic trade led B to trade away shelter for food. But international trade increased the relative price of food! So allowing domestic trade immediately before opening up to international is essentially a transfer to B!

Figure 4: Compensating B under World Trade (w/ post-domestic trade endowments)