

Subject: comparative advantage in the Specific Factors model

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To:

Trade Students,

In your answers to the midterm questions about comparative advantage in the Specific Factors model, many of you wrote that the US has a comparative advantage in manufactures because the US has a higher capital-land ratio than Africa.

So many of you made this mistake that I feel compelled to explain why such an answer is wrong.

Because the Production Possibilities Frontier exhibits increasing opportunity cost, the optimal production levels of Food and Manufactures are always found at the point where the opportunity cost of producing manufactures (MPL in Food/MPL in Manufactures) is equal to the relative price of manufactures.

Because the US has a larger endowment of capital, US labor is more productive in the manufacturing sector. Therefore, the US has a lower AUTARKY opportunity cost of producing manufactures and a lower AUTARKY relative price of manufactures.

Since the US has a lower AUTARKY opportunity cost of producing manufactures, the US has a comparative advantage in manufactures.

So why is it WRONG to say that the US has a comparative advantage in manufactures because the US has a higher capital-land ratio than Africa?

Consider the following counter-example: Suppose that the US has 20 units of capital and 10 units of land and suppose that Africa has 5 units of capital and 3 units of land. Finally, suppose that both the US and Africa have 10 units of labor.

On the basis of the fact that the US has a higher capital-land ratio than Africa, can we conclude that the US has a comparative advantage in the production of manufactures? NO!

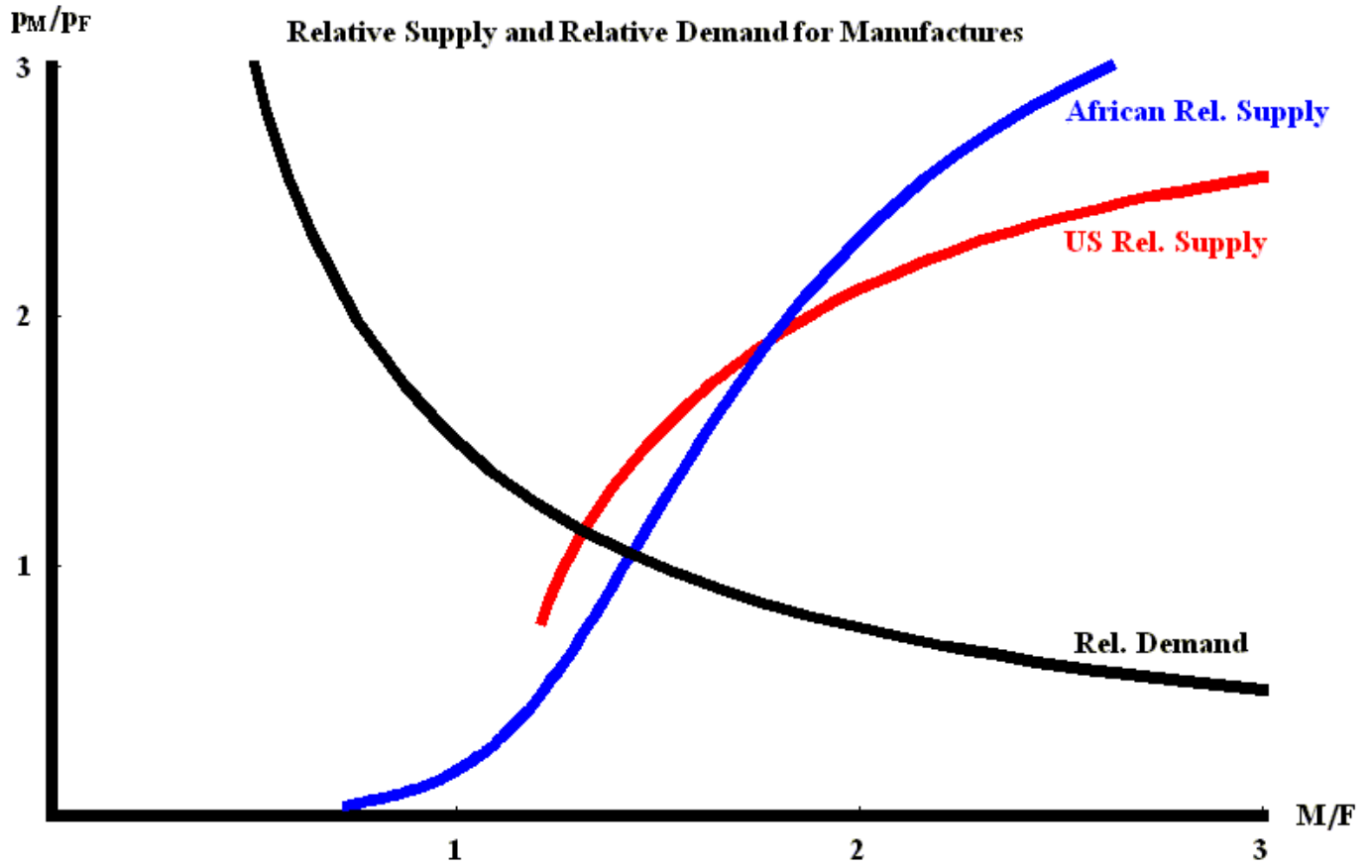
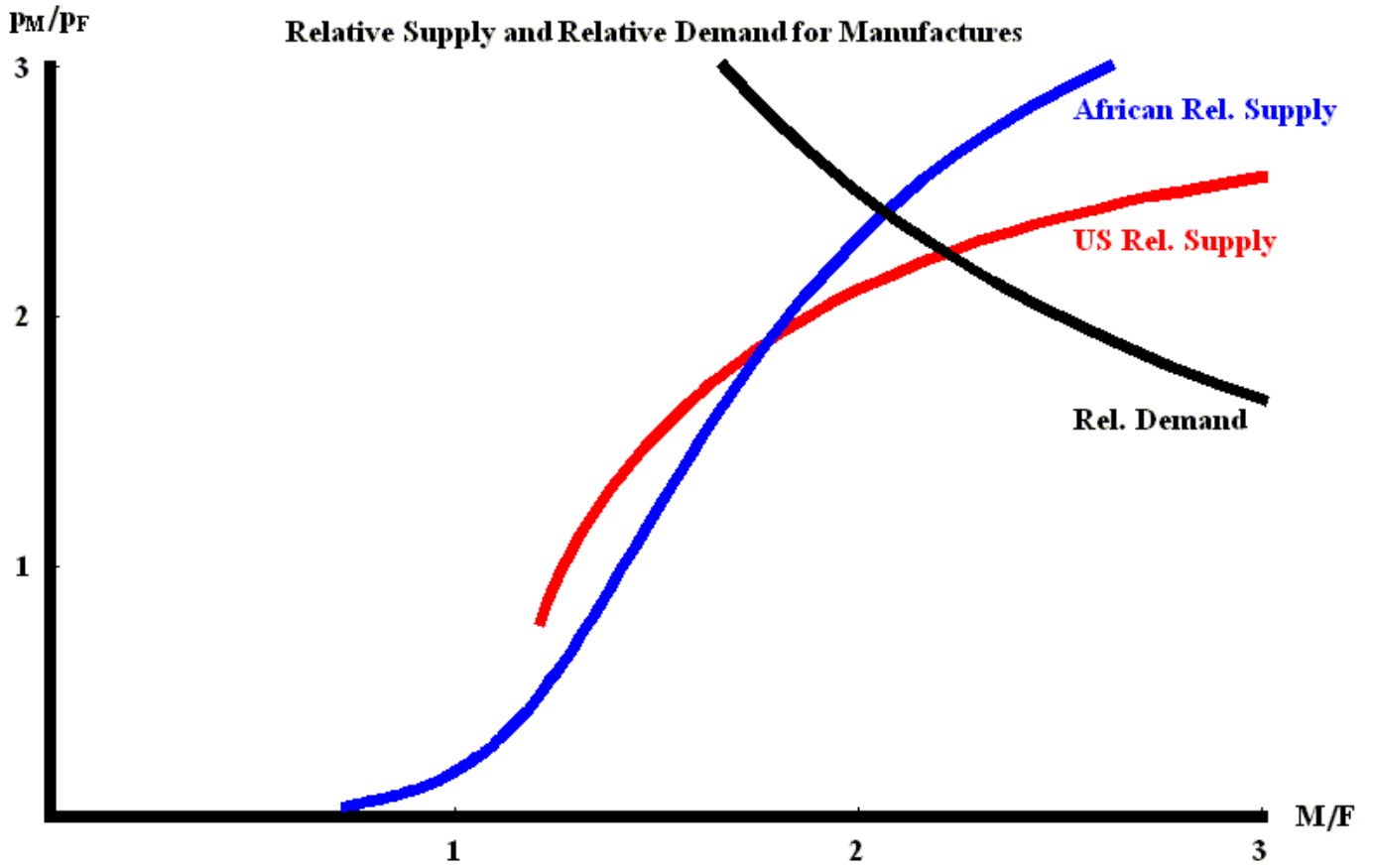
From the graphs below, we can easily see that if the relative demand for manufactures is very high, then the US would have a comparative advantage in the production of manufactures because its AUTARKY relative price of manufactures is lower than Africa's.

But if the relative demand for manufactures is very low, then the Africa would have a comparative advantage in the production of manufactures because its AUTARKY relative price of manufactures is lower than that of the US.

Therefore the fact that the US has a higher capital-land ratio than Africa is not sufficient to give the US a comparative advantage in manufactures. We must instead compare the AUTARKY relative prices of manufactures to determine who has a comparative advantage in manufactures (and who has a comparative advantage in food).

The AUTARKY relative price of manufactures is of course equal to the AUTARKY opportunity cost of producing manufactures.

Hope this helps,
- Eric Doviak



Technical Notes

To graph the relative supply curves, I used CES production functions.

I set elasticity of substitution between capital and labor in the manufacturing sector at 4 (i.e. to make capital and labor highly substitutable) and I set the elasticity of substitution between land and labor in the food sector at 0.25 (i.e. to make land and labor highly complementary).

I set capital's coefficient in the production of manufactures is $2/3$ and I set land's coefficient in the production of food at $1/3$.