Public Affairs 856
Fall 2008
University of Wisconsin-Madison

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Social Sciences 7418

Problem Set 1

Due in Lecture on Wednesday, September 24.

- FT2, Problem 2.
- FT2, Problem 3.
- FT2, Problem 4.
- FT2, Problem 5
- FT2, Problem 9
- FT2, Problem 11

6. Heckscher-Ohlin Model of Trade

On the diagram below, the endowment of Home is marked $(K/T)^H$ (by the way, this is sometimes called a "Johnson Diagram", after Harry Johnson). The PPF for the same country is also shown below.

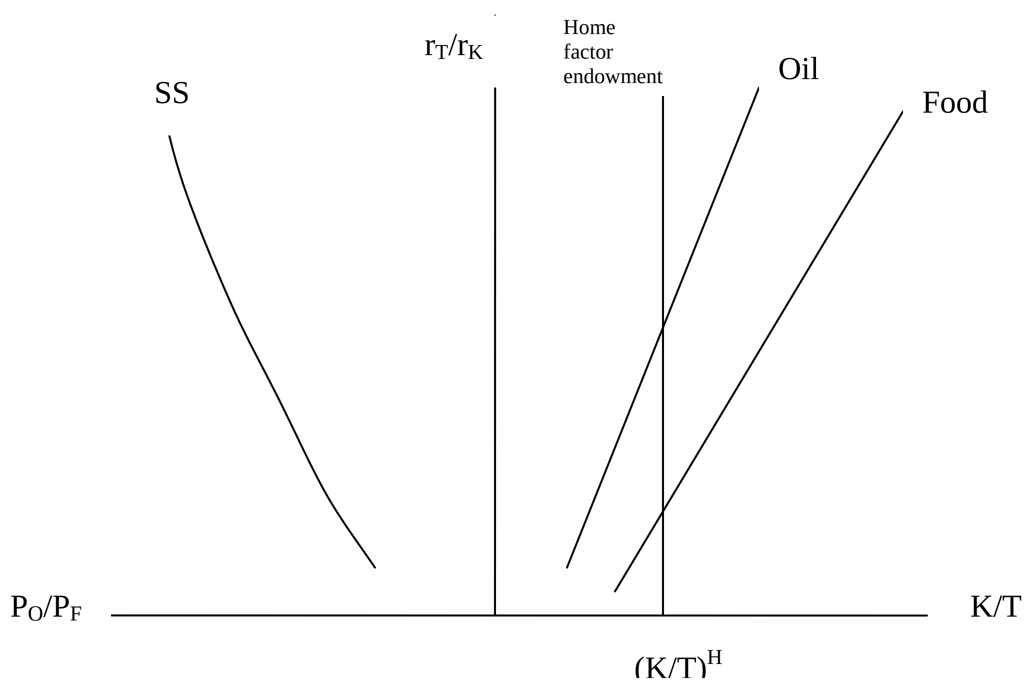

Figure 1: "Johnson Diagram"

Where *K* is capital, *T* is land, r_T is the rental rate for land, and r_T is the rental rate for capital.

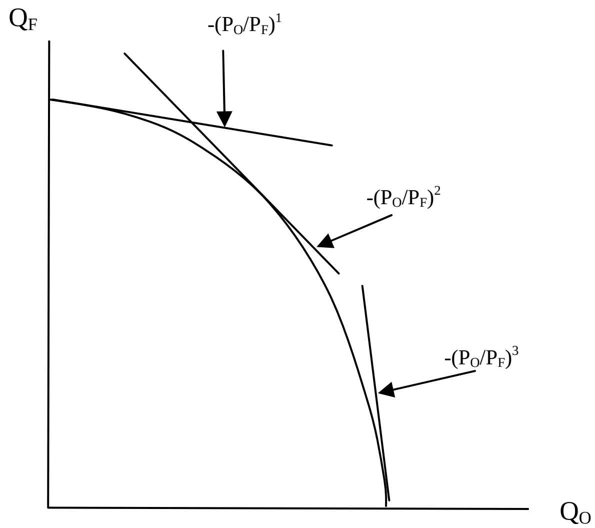

Figure 2: PPF for Home

a. What are the factor ratios in use in the oil and food industry for the price ratio $(P_O/P_F)^3$? What about $(P_O/P_F)^2$?
b. What happens to the relative returns to factors as the price ratio changes from $(P_O/P_F)^2$ to $(P_O/P_F)^1$? Can you explain this result intuitively?

c. At $(P_O/P_F)^1$ what are the factor ratios used in each industry? [Hint: Mark this ratio on the Johnson Diagram] Can you explain why the factors in Home can be fully employed at this relative price of commodities?

Assume Home and Foreign are endowed with factor ratios of $(K/T)^H$ and $(K/T)^*$.

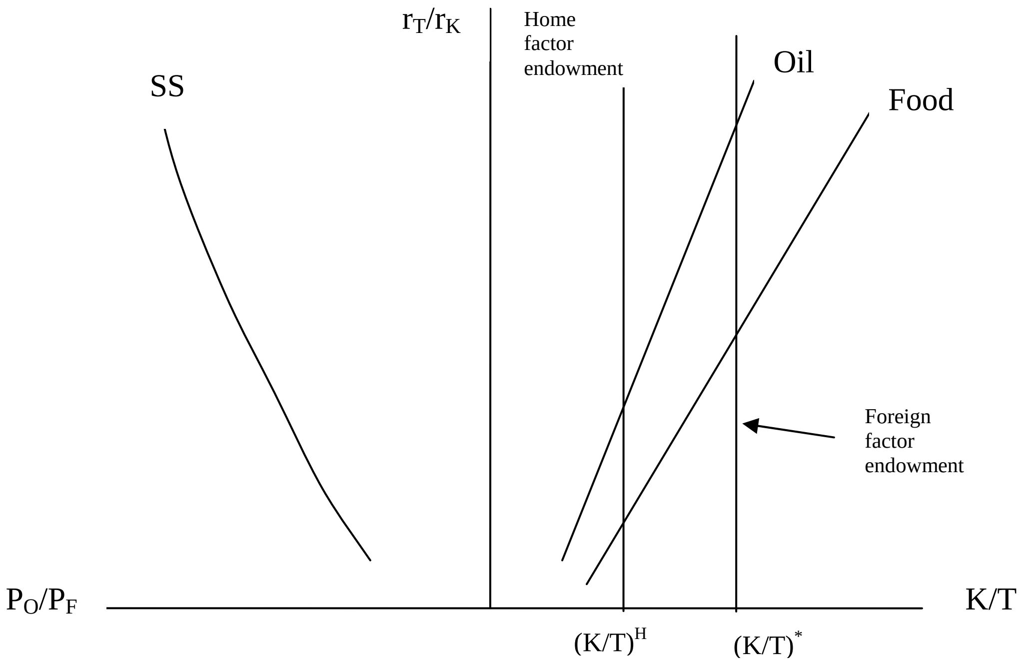

Figure 3: "Johnson Diagram" with Foreign Endowment

d. Which country has more resources per unit of land (T)?

e. Which country has the lower price of Oil in autarky? (Assume both goods are produced.)

f. Draw in some autarky price ratios in figure 3. Where must the world price ratio fall? What world price ratio supports specialization in both countries?

g. Is there a world price ratio where neither country specializes in production of one good? What happens to relative factor returns in both countries when trade occurs? Why?

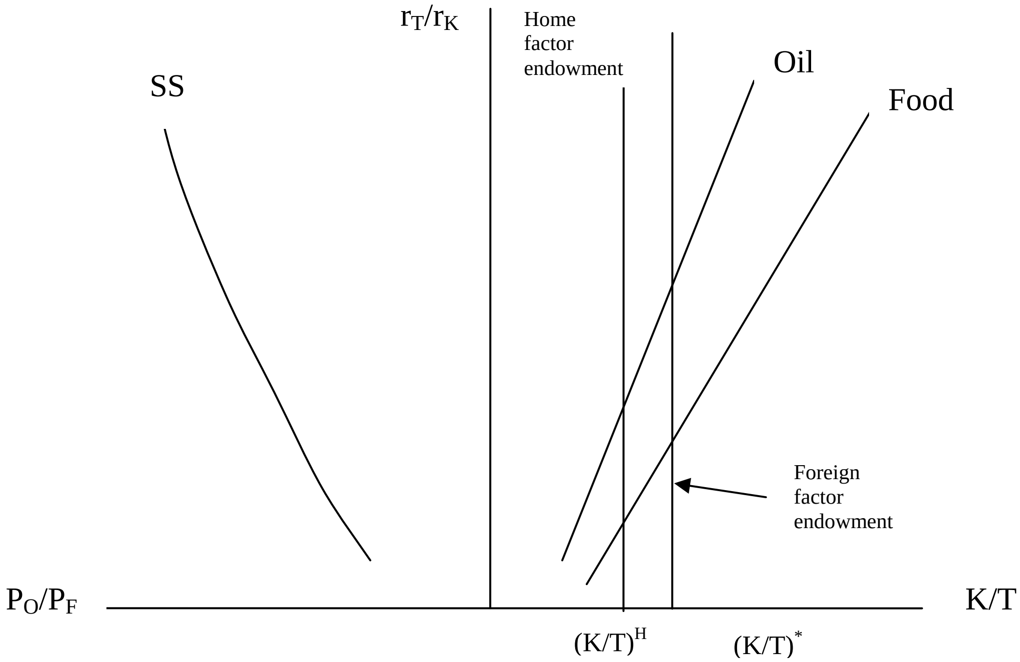

Figure 4: "Johnson Diagram" with Alternate Foreign Endowment

Consider the pair of trading countries Home and Foreign (the endowment line is positioned differently now). Let $(P_O/P_F)^W$ be the equilibrium world price of the commodities.

h. What are the factor ratios in food and clothing industries in Foreign? In Home? What are the relative returns to factors in Foreign and Home?

i. What country produces relatively more Oil, and why?

j. If consumption preferences are identical in both countries, which one will export Oil?

k. If $(P_O/P_F)^*$ is the autarky commodity price ratio in Foreign, which group of factor owners in Foreign will oppose the introduction of trade?

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