

Problem Set 2: The specific factors model

1. Eurolandia, a small economy, uses a mobile factor (labor) and two specific factors (capital and land) to produce two goods, cars and beans. Holding car prices constant, suppose that the price of beans increases by 20% and wages rise by 10%.

- a) How does the increase in the price of beans impact the rentals on land, capital and the welfare of labor?
- b) Summarize your finding in problem 1 using notational format.

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a) How does the increase in the price of beans impact the rentals on land, capital and the welfare of labor?

The rentals on land increase and the rentals on capital fall.

The impact of the increase in the price of beans on the welfare of labor is ambiguous because labor gains in terms of cars because the price of cars remained constant, while wages increased by 10% but lost in terms of beans because the percentage increase in beans is higher than the percentage change in wage.

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b) Summarize your finding in problem 1 using notational format.

$$\Delta R_K/R_K < 0 < \Delta W/W < \Delta P_B/P_B < \Delta R_T/R_T$$

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2. If, instead of the situation in problem 1, the price of cars would fall:

a) Would landowners or capital owners be better off? Explain why or why not.

b) How would the fall in the price of cars impact labor?

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2. If, instead of the situation in problem 1, the price of cars would fall:

a) Would landowners or capital owners be better off? Explain why or why not.

Similar to the situation given in problem 1, capital owners would be worse off because the rental on capital would fall by more than the decrease in the car price. Landowners would be better off as the rental on land rises even without the increase in the price of beers.

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a) Would landowners or capital owners be better off? Explain why or why not.

Similar to the situation given in problem 1, capital owners would be worse off because the rental on capital would fall by more than the decrease in the car price. Landowners would be better off as the rental on land rises even without the increase in the price of beers.

b) How would the fall in the price of cars impact labor?

The effect on labor because of the decrease in the price of cars is also ambiguous. Wages fall, so labor is worse off in terms of beers, but because the drop in wage is less than the percentage decrease in the manufactured good, labor gains in terms of cars.

$$\Delta R_K/R_K < \Delta P_C/P_C < \Delta W/W < 0 < \Delta R_T/R_T$$

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3. Country Z is considering whether to engage in international trade of potatoes and computers. Suppose that the world price of potatoes is lower than country Z's autarky price but its autarky price of computers is lower than the world price. Assume that land is specific to the production of potatoes and that labor is free to move across sectors. Do you think the landowners will support the move to free trade? Explain.

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Landowners will not support the move because the world price of potatoes is lower than the no-trade price in country Z. By engaging in trade, the landowners would be worse off because the rental on land will fall due to the decrease in the price of potatoes.

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4. When labor shifts from agriculture to manufacturing, how does the marginal product of capital and land change?

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When labor shifts from agriculture to manufacturing, the marginal product of land falls because there are fewer laborers to work on each acre of land.

By contrast, the increase in the quantity of labor used in manufacturing will raise the marginal product of the capital because there are more laborers available to work on the machinery.

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5. In the context of the specific factors model, assume that labor is perfectly mobile across sectors. Can wages differ across sectors? Explain.

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No. Labor will continue to shift from the low-wage sector to the high-wage sector until the wages are equalized.

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6. Fantasyland, a small economy, uses a mobile factor (labor) and two specific factors (capital and land) to produce two goods, motorbikes and corn. Suppose that the world price of motorbikes is higher than the autarky price in Fantasyland, but the world price of corn is lower than the autarky price in Fantasyland. Determine the effect of opening up to trade on the real wage and real returns on capital and land.

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6. Fantasyland, a small economy, uses a mobile factor (labor) and two specific factors (capital and land) to produce two goods, motorbikes and corn. Suppose that the world price of motorbikes is higher than the autarky price in Fantasyland, but the world price of corn is lower than the autarky price in Fantasyland. Determine the effect of opening up to trade on the real wage and real returns on capital and land.

Because the world-relative price of motorbikes is higher than the no-trade price in Fantasyland, the country will export motorbikes, which will lead to an increase in the real rental on capital. Since the world price of corn is lower than the autarky price in Fantasyland, the country will import corn, and will observe a decrease in the real returns on land.

Real wage will increase in terms of corn because of the decrease in the price of corn but will fall in terms of motorbikes because the percentage rise in the price of motorbikes is higher than the percentage increase in wage.

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7. Suppose that a country engages in free international trade, and as a result some worker types are made worse off. In the context of the specific factors model, what policy options would you consider to compensate the losers from trade?

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Use income taxes for redistribution

Facilitate mobility (e.g. training)

Trade adjustment assistance?