Sample Problem: Chapter 3

Suppose the payments to labor and capital in manufacturing and agriculture are given by the following:

Manufacturing:

Sales revenue =PM \* QM = $100

Payments to labor = W \* LM =$60

Payments to capital = RK \* K = $40

* 60% of the sales revenue in M sector goes to the workers, and 40% goes to the capital owners.

Agriculture:

Sales revenue = PA \* QA = $100

Payments to labor = W \* LA = $50

Payments to land = RZ \*Z = $50

* 50% of the sales revenue in A sector goes to the workers, and 50% goes to the land owners.

Now assume that the increase in the relative price of manufactures, PM / PA, is because of a rise in PM, holding PA constant.

Suppose the following price changes:

Manufacturing: Percentage increase in price = ΔPM / PM = 10%

Agriculture: Percentage increase in price = ΔPA / PA = 0%

Percentage increase in the (nominal) wage = ΔW / W = 5%

* Percentage increase in the (nominal) wage is between the percentage change in these two industry prices
* Also note that, the increase in nominal wage applies in both sector since nominal wages are equalized across sectors, that is, (ΔW/W) < (ΔPM / PM )

**Q1. Calculate the percentage change in the Rental on Capital**

Step 1. Rental on capital =

Step 2. Change in Rental on capital =

Step 3. Percentage change in Rental on capital =

Step 4. Substituting the information above gives:

We get that the percentage increase in the rental on capital, \_\_\_\_\_\_\_\_\_\_\_\_, is far \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

than the percentage increase in the relative price of manufacturing, 10%.

* (ΔRK / RK) \_\_\_\_\_\_\_ (ΔPM / PM )

**Q2. Calculate the percentage change in the Rental on Land**

Step 1. Rental on land =

Step 2. Change in Rental on land =

Step 3. Percentage change in Rental on land =

Step 4. Substituting the information above gives,

We get that the percentage change in the rental on land, \_\_\_\_\_\_\_\_\_\_, is \_\_\_\_\_\_\_\_\_than 0 and \_\_\_\_\_\_than the percentage increase in the nominal wage, 10%.

* (ΔRZ/ RZ) \_\_\_\_\_\_ (ΔPA / PA ) = 0% \_\_\_\_\_\_\_\_\_ (ΔW/W)

**Q3. Write down the general equation for the change in factor prices.**

**Q4. If, instead of the situation given in problem 1-3, the price of agriculture was to rise, keeping PM constant,**  **would landowners or capital owners be better off? Explain.**