QUIZ 3

How to solve for change in factor prices in SFM?

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Points: \_\_\_\_\_\_\_\_\_\_\_\_/10

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

**Manufacturing:**

Sales revenue =PM \* QM = $150

Payments to labor = W \* LM =$100

Payments to capital = RK \* K = $50

**Agriculture:**

Sales revenue = PA \* QA = $150

Payments to labor = W \* LA = $50

Payments to land = RZ \*Z = $100

Assumption: The relative price of manufactures, PM / PA, decreases because of a rise in PA, holding PM constant.

Suppose the following price changes:

Manufacturing: Percentage increase in price = ΔPM / PM = 0%

Agriculture: Percentage increase in price = ΔPA / PA = 10%

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

**Q1. Calculate the Percentage change in Rental on capital**

Step 1. Rental on capital = RK = (PM \* QM - W \* LM )/ K

Step 2. Change in Rental on capital = Δ RK = (ΔPM \* QM - ΔW \* LM )/ K

Step 3. Percentage change in Rental on capital = (ΔRK / RK)

= ((ΔPM / PM ) PM \* QM - (ΔW/W) W \* LM )/ RK \* K

Step 4. Substituting the information above gives, (ΔRK / RK) =( 0% . 150 – 5% . 100) / 50 = - 10 %

We get that the percentage increase in the rental on capital, -10 %, is less than the percentage change in the relative price of manufacturing, 0%, and less than the percentage increase in the nominal wage, 5%.

* (ΔRK / RK) < (ΔPM / PM )

**Q2. Calculate the Percentage change in Rental on land**

Step 1. Rental on land = RZ = (PA \* QA - W \* LA)/ Z

Step 2. Change in Rental on land = Δ RZ = (ΔPA \* QA - ΔW \* LA )/ Z

Step 3. Percentage change in Rental on land = (ΔRZ/ RZ)

= ((ΔPA / PA ) PA \* QA - (ΔW/W) W \* LA )/ RZ \* Z

Step 4. Substituting the information above gives, (ΔRZ/ RZ) =( 10% . 150 – 5% . 50) / 100 = 12. 5 %

We get that the percentage change in the rental on land, 12.5%, is greater than the percentage increase in PA and greater than the percentage increase in the nominal wage, 5%.

* (ΔRZ/ RZ) > (ΔPA / PA ) > (ΔW/W)

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

* (ΔRK/ RK) < (ΔPM / PM ) = 0% < (ΔW/W) < (ΔPA/ PA ) < (ΔRZ / RZ), for PA ↑