Answer on Question # 74285, Economics / Microeconomics

Question: Unique foods operates three plants in the world. Summary data for each is shown below

Plant

UK USA Canada

Total Fixed Cost(TFC) 100,000 200,000 400,000

Variable Cost Per Unit (AVC) 10 8 5

Output price per unit (P) 20 22 18

Capital / Labor Ratio (K/L) 2:1 3:1 4:1

Output rate (Q) 22,000 16,000 33,000

Determine the profit elasticity for each plant Answer:

profit elasticity = $((Q_2-Q_1)/Q_1)/((Pr_2 – Pr_1)/Pr_1)$

1) For UK:

TC = 100,000 + (10*22,000) = 320,000

TR = 22,000 * 20 = 440,000

Pr_1 = 440,000 – 320,000 = 120,000, when Q_1 = 22,000

But when Q_2 = 24,000 , TC = 100,000 + (10*24,000) = 340,000

TR = 24,000*20 =480,000

Pr_2 = 480,000 -340,000 =140,000

Then profit elasticity = ((24,000-22,000)/22,000) / ((140,000 – 120,000)/120,000) = **0.55**

2) For Usa:

TC = 200,000 + (8*16,000) = 328,000

TR = 16,000 * 22 = 352,000

Pr_1 = 352,000 – 328,000 = 24,000, when Q_1 = 16,000

But when Q_2 = 18,000 , TC = 200,000 + (8*18,000) = 344,000

TR = 18,000*22 =396,000

Pr_2 = 396,000 -344,000 =52,000

Then profit elasticity = ((18,000-16,000)/16,000) / ((52,000 – 24,000)/24,000) = **0.11**

3) For Canada:

TC = 400,000 + (5*33,000) = 565,000

TR = 33,000 * 18 = 594,000

Pr_1 = 594,000 – 565,000 = 29,000, when Q_1 = 33,000

But when Q_2 = 35,000 , TC = 100,000 + (5*35,000) = 575,000

TR = 35,000*18 =630,000

Pr_2 = 630,000-575,000 =45,000

Then profit elasticity = ((35,000-33,000)/33,000) / ((45,000 – 29,000)/29,000) = **0.11**