ECONOMICS ANALYSIS FOR BUSINESS ASSIGNMENT

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Subject - Economics analysis for business

1. List out the empirical estimation of production function and cost function.

2. What do you understand by economies of scale and economies of scope.

Answer 1

Empirical Estimation of Production Function:

Empirical estimation of production functions involves determining the relationship between inputs and outputs in a production process based on observed data. Common methods include:

1.Cobb-Douglas Production Function:

Equation: $Q=A \cdot K^{\alpha} \cdot L^{\beta}$,

where Q is output, K is capital, L is labour, A is a constant, and α and β are output elasticities.

2. Translog Production Function:

Equation: $\ln(Q)=\beta_0+\beta_1 \cdot \ln(K)+\beta_2 \cdot \ln(L)+\beta_3 \cdot (\ln(K))^2+\beta_4 \cdot (\ln(L))^2+\beta \cdot \ln(K) \cdot \ln(L)+\epsilon$,

where ϵ is the error term.

3. CES (Constant Elasticity of Substitution) Production Function:

Equation: $Q=A \cdot (\alpha \cdot K^{-\rho}+(1-\alpha) \cdot L^{-\rho})^{-1/\rho}$,

where ρ is the elasticity of substitution between capital and labour.

Empirical Estimation of Cost Function:

Estimating cost functions involves determining the relationship between the cost of production and various input factors. Common methods include:

Total Cost Function:

Equation: TC=f (K, L),

where TC is total cost, K is capital, and L is labour.

Cobb-Douglas Cost Function:

Equation: C=A·K α·L β,

where C is cost, K is capital, L is labour, A is a constant, and α and β are cost elasticities.

Translog Cost Function:

Equation: ln(C)=γ 0+γ 1·ln(K)+γ 2·ln(L)+γ 3·(ln(K)) 2+γ 4·(ln(L)) 2+γ 5·ln(K)·ln(L)+ϵ,

where ϵ is the error term.

Answer 2

Economies of Scale and Economies of Scope:

Economies of Scale:

Definition: Economies of scale occur when an increase in the scale of production leads to a decrease in the average cost of production.

Example: A manufacturing plant that produces more units of a product experiences lower average costs per unit due to factors like specialization, efficient use of resources, and increased bargaining power with suppliers.

Economies of Scope:

Definition: Economies of scope occur when producing multiple products together is more cost-effective than producing each product separately.

Example: A company that produces both smartphones and tablets might benefit from economies of scope if there are shared production facilities, distribution channels, or research and development efforts that reduce overall costs compared to producing each device independently.